

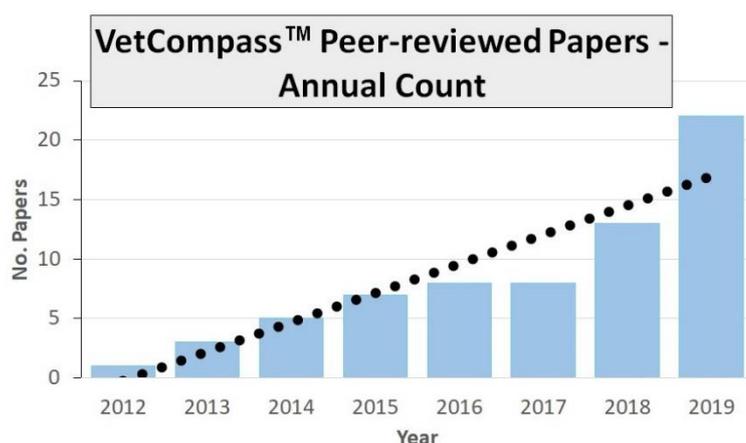
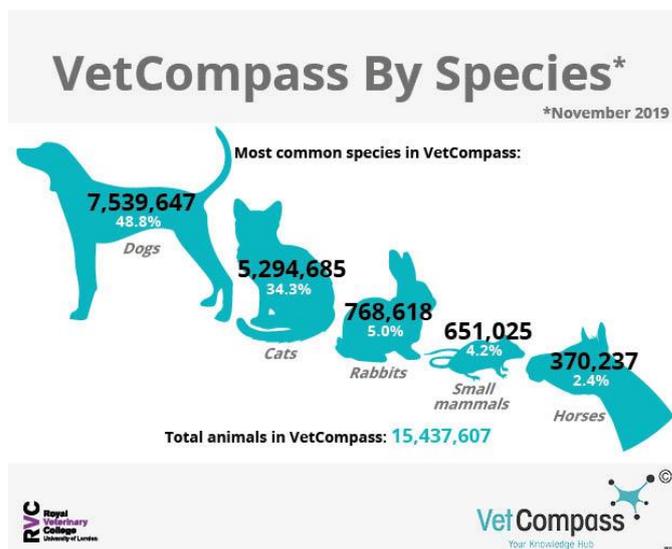


## VetCompass™ Newsletter December 2019

2019 has been a remarkable year in many ways for VetCompass (VetCompass, 2019) which has now grown to become arguably the world's largest university-based research programme using anonymised clinical records from veterinary practices. The concept is simple. Veterinary practices record clinical information on the animals under their care. VetCompass uploads a daily extract of anonymised information from these records across many practices. These records are merged and explored to answer a diversity of research questions about animal health. All research projects undertaken by VetCompass must have a clearly stated animal welfare benefit.

### Current status:

To date, VetCompass shares data with 1800 UK vet practices (over 30% of all UK practices) and includes anonymised health information on 15 million animals including 7.5 million dogs, 5.2 million cats, 760,00 rabbits, 650,00 small mammals and 370,000 horses. During 2019, these data continued to support numerous of studies by undergraduate, Masters, PhD and Post-Doctoral researchers. The outcomes of VetCompass research has now led to 67 peer-reviewed publications and have influenced the policy and decision-making of welfare groups, universities, major charities, research bodies and even government. Amazingly, there have been 22 VetCompass peer-reviewed publications during 2019.



Collaboration is a core VetCompass value that we have extended even further during 2019. This year has seen collaborations with a range of funding partners including Kennel Club Charitable Trust, Petsavers, Dogs Trust, RCVS Knowledge, MRC, Antibiotic Research UK, Bloomsbury, Dechra, Zoetis and MSD.. We have also had the privilege of working with partners in a wide range of universities both in the UK (Edinburgh, London, Nottingham Trent, Surrey, Cambridge, Glasgow and Sunderland) and internationally (Washington, Copenhagen, Munich, Utrecht and Sydney).

The family of collaborating practice groups that share data with VetCompass has also grown larger in 2019. This list now includes Medivet, Vets4Pets, Companion Care, Goddard Vet Group, IVC, CVS, Linnaeus Group, Vets NOW, PDSA



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and Blue Cross as well as many other independent practices. We are very grateful to all our collaborating practices for their unfailing support.

VetCompass has continued to grow across species. A new PhD study commenced in 2019 that will create a cattle and sheep version of the concept. This development will add to the current species covered that include dogs, cats, rabbits, exotics and horses.

All in all, 2019 has been a memorable year. We thank everybody who has contributed to the welfare-based work that VetCompass is leading and we look forward to an even bigger and better 2020.

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

The VetCompass Team



## Ongoing projects:

### Canine Leptospirosis

**Collette Taylor** started her LiDo (London Interdisciplinary Doctoral Programme) iCASE PhD in October 2018 working on leptospirosis in UK dogs and has made significant headway. She is utilising VetCompass to examine different aspects of leptospirosis epidemiology in the UK alongside creating a novel diagnostic test. So far Collette has:



- **Identified confirmed cases of leptospirosis in the VetCompass database:**
  - Leptospirosis appears to be a rarely diagnosed disease, with 0.8 cases identified per 100,000 dogs per year.
- **Combined the VetCompass population alongside IDEXX and APHA laboratory submission data between 2013-19 to identify risk factors for leptospirosis**
  - Older dogs, particularly those >8 years, and neutered dogs were at increased risk of diagnosis.
  - Some Kennel Club breed groups also exhibited increased risk of infection, such as Toy, Utility and Terrier.
  - The findings of increased risk of infection in older dogs and smaller dog breeds provides veterinarians with an evidence base to encourage continued vaccine uptake in older and small breed dog populations.
  - Paper writing in progress.
  - Future work will go on to examine spatiotemporal and climatic patterns of leptospirosis.
- **Future work will explore the usage of leptospirosis vaccination within the VetCompass population**
  - Vaccine uptake overall, differences between bi and tetravalent vaccine usage.
  - Exploration of potential risk factors such as breed, age, location, socioeconomic status.



### Re-Inventing Diagnosis and Management of Canine Hyperadrenocorticism

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



The diagnosis of Cushing's syndrome can be difficult with no highly accurate diagnostic test currently available. Currently Imogen is applying machine learning (artificial intelligence [AI]) methods to VetCompass data in order to predict the diagnosis of dogs with Cushing's. It is hoped that Imogen's work using machine learning will help to identify patients with undiagnosed disease and aid clinical decision making in practice.



### **Output from this PhD to date:**

'The Big Canine Cushing's Project' questionnaire was carried out by 827 dog owners. The answers from this questionnaire were used to develop and validate a quality of life tool for use in primary-care practice. This study has been published in the Journal of Veterinary Internal Medicine and the main findings were that:

- Dogs treated with trilostane had a better quality-of-life compared to dogs not receiving trilostane.
- Dog owner quality-of-life is impacted by dogs diagnosed with Cushing's syndrome.
- Questions related to the dog's demeanour are important when assessing the quality-of-life of dogs with Cushing's. This finding highlights an interesting parallel with human patients with Cushing's syndrome, where depression is thought to have a substantial impact on quality-of-life.
- Cushing's benchmarking study: The diagnosis, management and survival of dogs with Cushing's syndrome attending primary-care practice have been investigated, with the findings of this study published within the Veterinary Record.



### **Publications:**

Development and evaluation of a health-related quality-of-life tool for dogs with Cushing's syndrome  
<https://onlinelibrary.wiley.com/doi/full/10.1111/jvim.15639>

Survival analysis of 219 dogs with hyperadrenocorticism attending primary care practice in England  
<https://veterinaryrecord.bmj.com/content/vetrec/early/2019/09/20/vr.105159.full.pdf?ijkey=CfKD5RL0zwmBdWU&keytype=ref>

## **The Kennel Club Charitable Trust – VetCompass Collaboration**

This is the amazing story of how a Kennel Club Charitable Trust (KCCT) project within VetCompass is improving dog welfare in a real and tangible way. The KCCT awarded 12-month funding during 2018 (which has now been confirmed for further funding) 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' (researchers are not well known for succinct or engaging writing styles!!). 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 deficiency of relevant health and demographic data. The project set a hugely challenging target to deliver four peer-reviewed papers from the one-year funding.





### *The results*

VetCompass is ideally positioned to report on health issues of individual dog breeds using its database on millions of dogs and with world-leading epidemiological expertise available at the Royal Veterinary College (RVC), the Number One Vet School in the World (Royal Veterinary College, 2019). With such a resource, how could this project fail to deliver the targeted 4 peer-reviewed papers in one year? It didn't, and ended up surpassing all expectations to deliver not just the targeted 4 peer-reviewed papers but instead delivered 9 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** is a PhD student based at London School of Hygiene & Tropical Medicine and RVC. Her project investigates antimicrobial use in companion animals using both epidemiology and anthropology.

This year, Alice has spent nine months undertaking fieldwork at three small animal practices that participate in VetCompass. She's very grateful to the host clinics for being so welcoming and allowing her to observe all aspects of day-to-day veterinary work there. The aim of this research is to understand how antimicrobial use makes sense 'on-the-ground' rather than seeking to categorise it as 'right' or 'wrong'.

By producing an in-depth understanding of antimicrobial use and its context, Alice's work will inform the design of evidence-based stewardship interventions for this setting.

## Heatstroke in Dogs

**Emily Hall** (PhD student) and **Anne Carter** at Nottingham Trent University are working with the RVC's Dan O'Neill on the project "**Hot Dogs – investigating the epidemiology of canine heatstroke presenting to UK primary care veterinary practices**".



This VetCompass™ project is funded by Dogs Trust. Over 1000 dogs with heat related illness have been identified and early results suggest the Chow Chow, Bulldog and French Bulldog have the highest risk of heat related illness among common UK breeds.

The team are now reviewing the histories of affected dogs to identify the predominant causes and risk factors of heat related illness and to define useful benchmark outcomes from veterinary clinical management in UK dogs. Given the increasing concerns about global warming, this study is very timely and should contribute substantially to our understanding of this condition in dogs.





## Diabetes mellitus in Dogs

**Angela Heeley** is working on a project exploring **the potential association between early-life usage of antimicrobials and the subsequent diagnosis of diabetes mellitus in dogs**. It has been suggested that the increased use of antibiotics in human medicine, and their impact on the developing gut-microbiota when used in early life, may be a factor in the development of Type 1 diabetes mellitus in children. Spontaneous diabetes mellitus in dogs is a good potential model for Type 1 diabetes in humans, and as our dogs share our environment there are likely to be many similarities between our microbiomes. This project will help to improve our understanding in order to rationalise and guide our antimicrobial choices.



## New projects underway:

- **VetCompass farm animal health surveillance**

**Doaa Elkholly** started her PhD project in October 2019, **funded by a Bloomsbury College studentship**. She is based at **RVC** and **London School of Hygiene & Tropical Medicine**.

VetCompass has recruited a number of farm animal practices and aims to recruit further practices to share their clinical records and participate in VetCompass studies.

Antimicrobials are frequently used in farm animal practices. This project will estimate the antimicrobial usage using farm animal clinical records. The objectives of this study include:

- To describe the clinical indications and demographic characteristics of farm animals receiving antimicrobials, in particular cows and sheep.
- To evaluate risk factors associated with antimicrobial usage.

Doaa will visit farm practices to observe their daily routine and to interview vets and support staff. She will also interview farmers and other stakeholders.

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.





### VetCompass Publications 2019

1. [Morbidity and mortality of domestic rabbits \(\*Oryctolagus cuniculus\*\) under primary veterinary care in England](#)
2. [Persian cats under first opinion veterinary care in the UK: demography, mortality and disorders](#)
3. [West Highland White Terriers under primary veterinary care in the UK in 2016: demography, mortality and disorders](#)
4. [Disorders of Bulldogs under primary veterinary care in the UK in 2013](#)
5. [Greyhounds under general veterinary care in the UK during 2016: demography and common disorders](#)
6. [Miniature Schnauzers under primary veterinary care in the UK in 2013: Demography, mortality and disorders](#)
7. [Health-related welfare prioritisation of canine disorders using electronic health records in primary care practice in the UK](#)
8. [Prognostic factors in dogs with presumed degenerative mitral valve disease attending primary-care veterinary practices in the United Kingdom](#)
9. [Juvenile-onset and adult-onset demodicosis in dogs in the UK: prevalence and breed associations](#)
10. [Survival analysis of 219 dogs with hyperadrenocorticism attending primary care practice in England](#)
11. [Development and evaluation of a health-related quality-of-life tool for dogs with Cushing's syndrome](#)
12. [Associations between neutering and idiopathic epilepsy in Labrador retrievers and Border collies under primary veterinary care in the UK](#)
13. [Incidence and risk factors for the diagnosis of lymphoma in dogs in UK primary-care practice](#)
14. [Geographic distribution and environmental risk factors of lymphoma in dogs under primary-care in the UK](#)
15. [Urinary incontinence in male dogs under primary veterinary care in England: prevalence and risk factors](#)
16. [Associations between neutering and early-onset urinary incontinence in UK bitches under primary veterinary care](#)
17. [Spaying and urinary incontinence in bitches under UK primary veterinary care: a case-control study](#)
18. [Chronic kidney disease in cats attending primary care practice in the UK: a VetCompass™ study](#)
19. [Canine dystocia in 50 UK first-opinion emergency-care veterinary practices: Clinical management and outcomes](#)
20. [Systemic glucocorticoid usage in dogs under primary veterinary care in the UK: prevalence and risk factors](#)
21. [Detecting false-positive disease references in veterinary clinical notes without manual annotations](#)
22. [Epidemiology of road traffic accidents in cats attending emergency-care practices in the UK](#)

Full acknowledgements to all published articles are provided on our website  
<https://www.rvc.ac.uk/vetcompass/learn-zone#tab-publications-library>

Journals access may require log-in



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## 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

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## References:

ROYAL VETERINARY COLLEGE. 2019. *Royal Veterinary College voted world's leading vet school* [Online]. Royal Veterinary College,. Available: <https://www.rvc.ac.uk/news-and-events/rvc-news/royal-veterinary-college-voted-world-s-leading-vet-school> [Accessed December 2nd 2019].

THE KENNEL CLUB. 2019. *The Kennel Club's Breed Health and Conservation Plans project* [Online]. The Kennel Club Limited. Available: <https://www.thekennelclub.org.uk/health/breed-health-and-conservation-plans/> [Accessed February 19 2019].

VETCOMPASS. 2019. *VetCompass™ Programme* [Online]. London: RVC Electronic Media Unit. Available: <http://www.rvc.ac.uk/VetCOMPASS/> [Accessed March 5th 2019].