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# IMPACT OF COVID-19 ON COMPANION ANIMAL VETERINARY PRACTICE

## REPORT 1, 20 APRIL 2020



The Small Animal Veterinary Surveillance Network (SAVSNET) collects voluntarily contributed electronic health record (EHR) data from approximately 250 veterinary practices (500 sites) and 10 veterinary diagnostic laboratories in the United Kingdom, representing approximately 15% and 50% of available data, respectively. These data are used for health surveillance and research, with the aim of improving clinical evidence and quality, and hence the welfare of animals under the care of veterinary surgeons in hopefully not just the UK but other countries too.

The COVID-19 pandemic has had wide ranging impacts on every aspect of our lives, including the veterinary sector, whereby we are all attempting to balance our dual responsibility to preserve animal welfare whilst also ensuring the continued health of the public, our colleagues and our families. We are aware that some of the data we collect might be of value for veterinary professionals attempting to use evidence to walk this most difficult of tightropes, and to that aim we have presented some of our initial analyses below. This is the first of what we anticipate to be regular surveillance reports.

We are particularly keen to hear from you about how such analyses can be improved to support your decision making, and have plans to further develop reports over the coming weeks. However if you have any particular suggestions, please feel free to contact us: [savsnet@liverpool.ac.uk](mailto:savsnet@liverpool.ac.uk).

In the meantime, we hope you continue to stay safe and well at this difficult time, and as always, thank you for your participation in SAVSNET.

The SAVSNET team



## CONSULTATION DATA

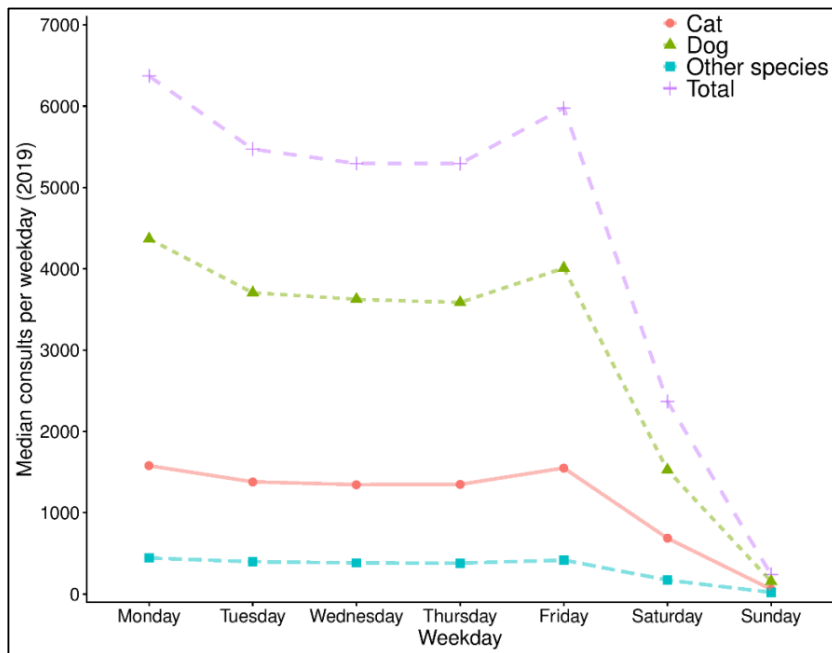
*A view of 2019 consultation data – representing pre-COVID-19 veterinary practice*

In these times of rapid change, it is important to place findings in the context of normal EHR data collection volumes. To serve this purpose, we have utilised all data collected by SAVSNET in 2019. In total, this corresponds to 1,076,631 canine and 403,074 feline veterinary consultations, and 112,979 consultations involving other or unclassified species. These data originated from 242 veterinary practices (520 sites) located throughout England, Wales, Scotland and Northern Ireland.

As will be familiar to many veterinary professionals, certain days of the week appear to be busier, and indeed this is something we have observed in SAVSNET. Figure 1 displays median consultation collection volumes by weekday, indicating that Monday tends to be the busiest day of the week, with the weekend being generally associated with reduced consultation volumes indicative of increased focus on providing emergency-only veterinary care. It is these values which we have used for COVID-19 comparisons.

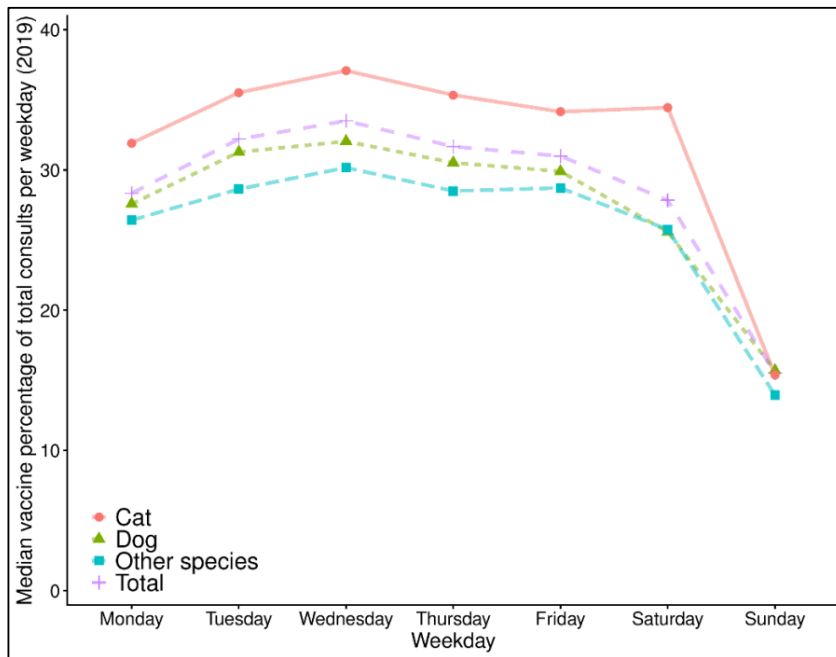
A significant area of guidance change in response to the threat posed by COVID-19 has been the way companion animal-treating veterinary surgeons approach vaccination. In 2019, consultations focused primarily on vaccination comprised a median of 29.8% total canine, 34.9% total feline, and 28.0% other or unclassified species consultations per day. Unlike overall consultation volumes, vaccinations tend to be relatively most prominent in mid-week, though again reflective of emergency-only veterinary care, tend to decrease on Sundays (Figure 2).

Of 2019 consultations, 76.2% of total consultations involved a dog with some form of vaccine history (regardless of composition) recorded at that practice, comparing with 69.1% of feline and 55.3% of other or unclassified species consultations. Of animals with a vaccine history, 93.2% of dogs had last been vaccinated within 12 months of the relevant consultation, compared with 93.2% of cats and 92.8% other or unclassified species. This value increased to approximately 97% and 98% for those last vaccinated within the preceding two and three years, respectively. Due to variation in how vaccines are recorded, rapidly summarising these values by antigen remains a significant challenge – this is something we are working on.



**FIGURE 1:** Median 2019 SAVSNET consultation collection volumes, in total and by species group.



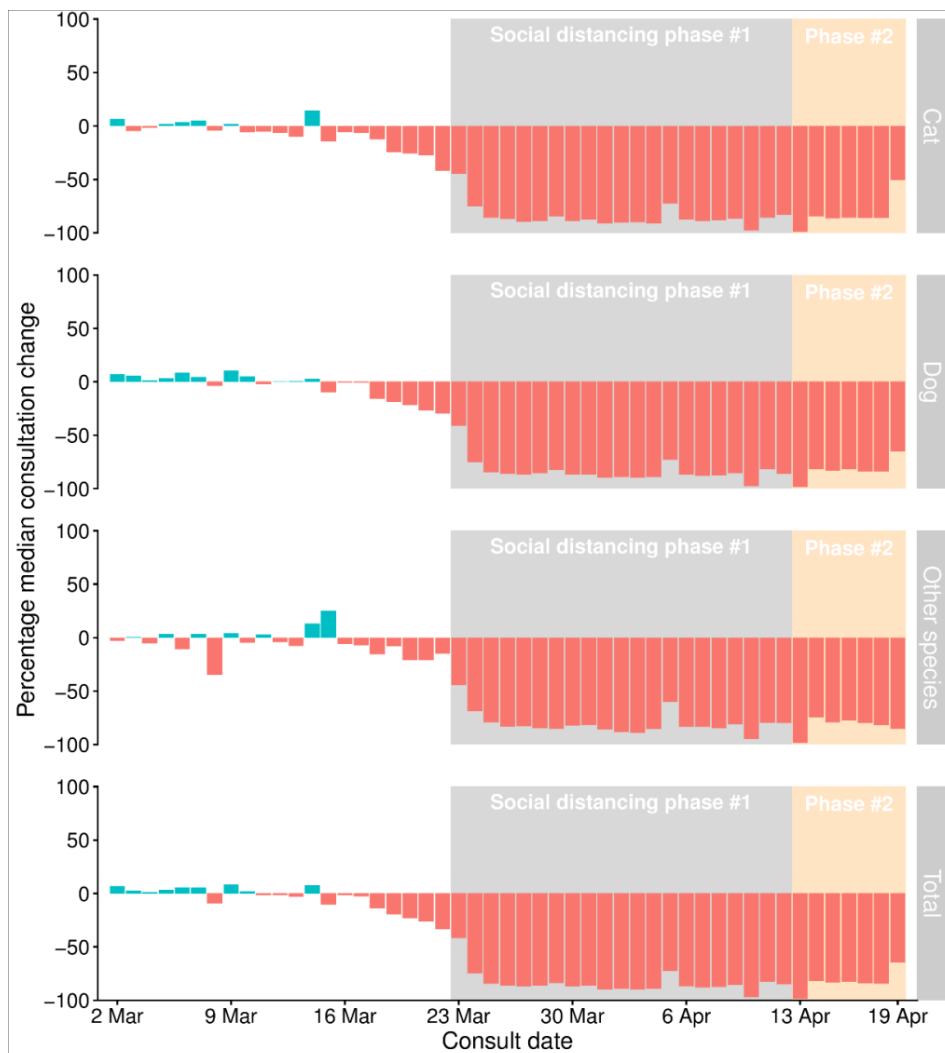


**FIGURE 2:** Median 2019 SAVSNET percentage of total consultations recorded as primarily being for vaccination, in total and by species group.

### Impact of COVID-19

To assess the impact of COVID-19 on companion animal veterinary practice, we have summarised data collected by SAVSNET from consultations between Monday 2<sup>nd</sup> March 2020 and Sunday 19<sup>th</sup> April 2020. Whilst clearly other activities will be continuing in practice which we may not capture, we believe data submitted to SAVSNET from booked consultations can be a valid surrogate of overall practice activity. In total, this corresponds to 75,174 canine, 26,854 feline and 7,960 other or unclassified species consultations located in 218 veterinary practices (464 sites) throughout the UK.

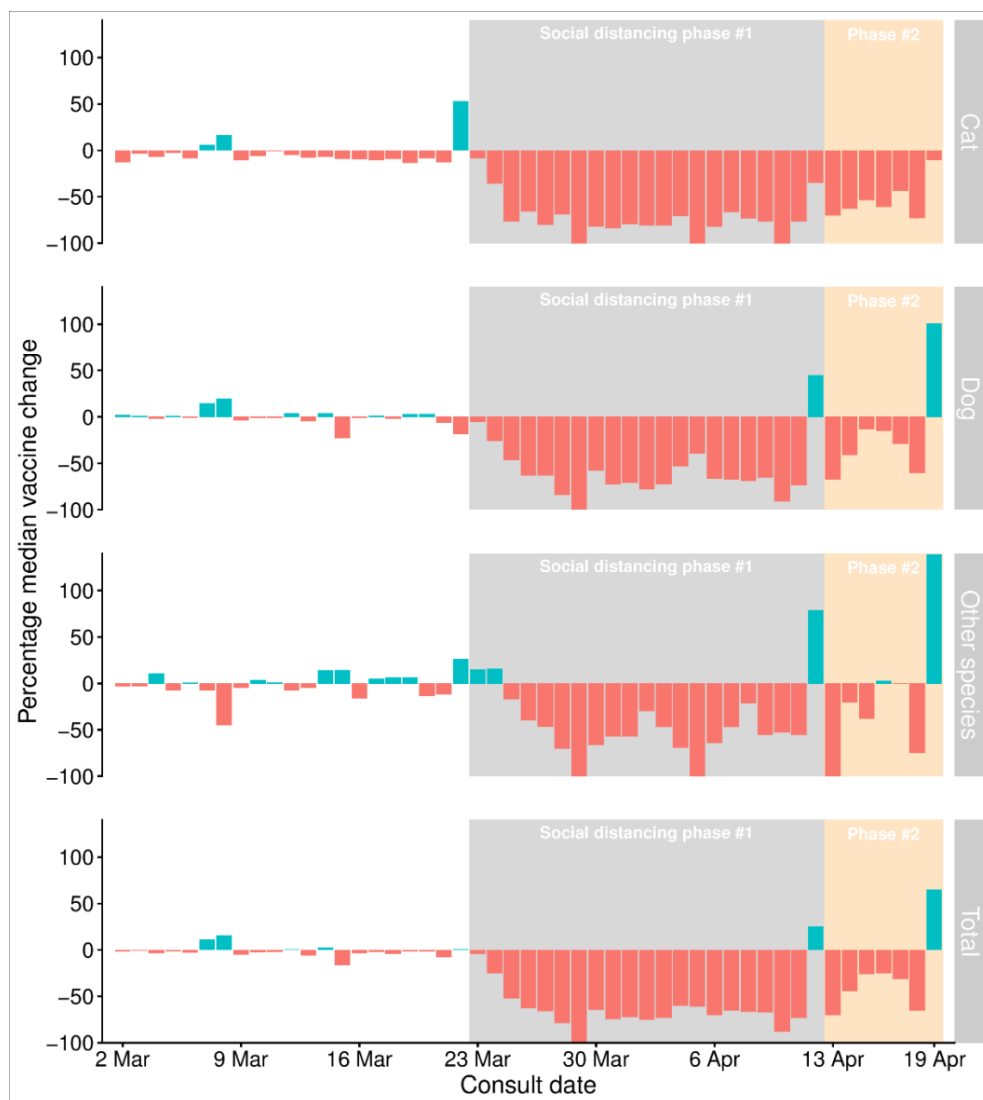
As explained above, to assess impact we have utilised median 2019 data as a proxy for a 'normal' week of SAVSNET data collection. As such, for all analyses below, data pertaining to a Monday, for example, is being compared against a 'normal' 2019 Monday. As can be seen in figure 3, a trend towards decreasing consultation volumes was observed for approximately one week before the government announced enhanced social distancing measures on 23<sup>rd</sup> March 2020, with a rapid and relatively sustained reduction of 80-90% being recorded within two days of the announcement.



**Figure 3:** Percentage change in consultation data volume submitted to SAVSNET between 2<sup>nd</sup> March 2020 and 19<sup>th</sup> April 2020, compared against median 2019 data, in total and by species group.

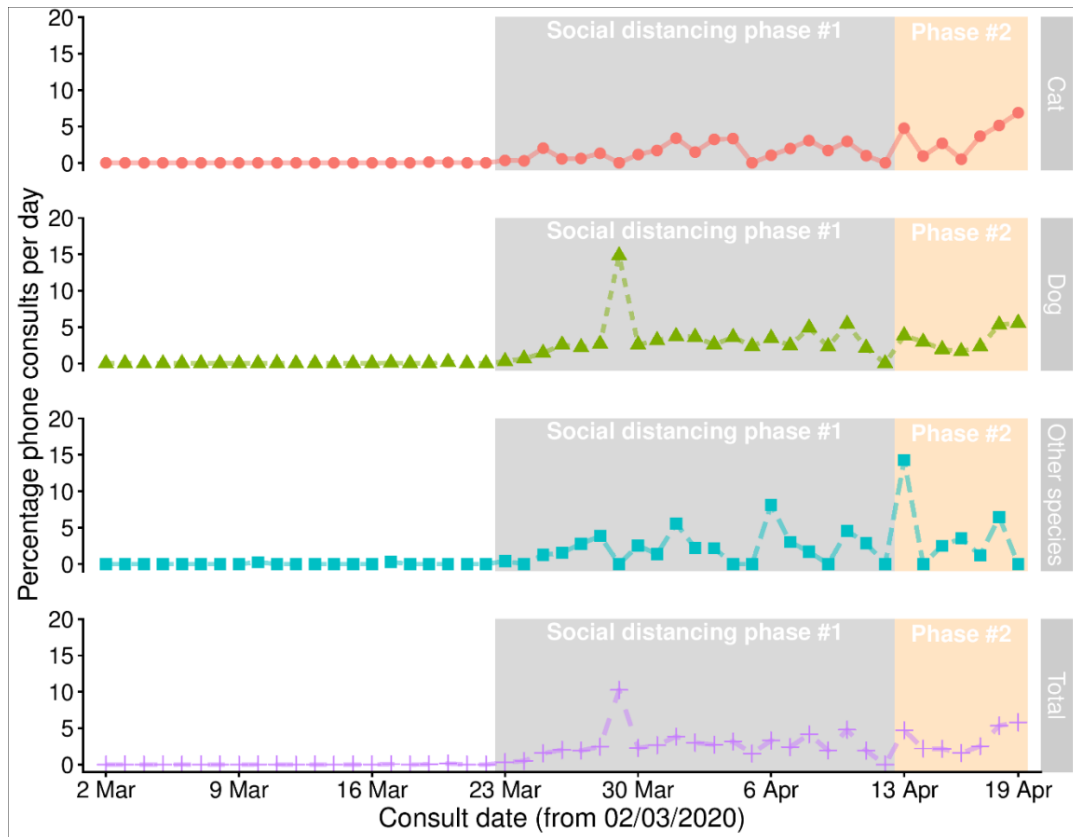
Considering consultations primarily focused on vaccination, approximately 75% reductions were also observed, though such reductions appeared to primarily take place following the government’s announcement on 23<sup>rd</sup> March 2020 (Figure 4). These reductions were consistent but more variable in scale. Following updated RCVS/BVA guidance being implemented on Tuesday 14<sup>th</sup> April there does appear to be a relatively increased percentage of total consultations being primarily for vaccination compared to the prior three weeks, though still reduced compared to ‘normal’ levels. On Sunday 12<sup>th</sup> and 19<sup>th</sup> April we also noted a smaller reduction in cats and an increase in vaccine consultation volumes compared to 2019. As Sundays are generally associated with reduced consultation volumes, we would caution against over-interpreting this finding.

Of animals visiting practices during this period, 60.7%, 51.6% and 34.8% of dogs, cats and other or unclassified species had recorded evidence of prior vaccination; of those with a vaccination history, time since last vaccination was comparative with 2019 data. Although in the past week there is some evidence of relatively less reduced vaccination, as overall consultation volumes appear little changed veterinary practices may be maintaining or perhaps increasing social distance measures in other areas.



**Figure 4:** Percentage change in vaccine consultation data collection volume between 2<sup>nd</sup> March 2020 and 19<sup>th</sup> April 2020, compared against median 2019 data, in total and by species group.

We are also aware that veterinary practices have begun to rely more on phone consultations and telemedicine to minimise COVID-19 risk to both staff and clients. To provide a view of our ability to detect such changes we also summarised charged-for phone/telemedicine consultations between 2<sup>nd</sup> March and 19<sup>th</sup> April 2020. Please note, frequency of this type of consultation was less than two recorded consultations per week in 2019. As can be seen in figure 5, the percentage of total consultations recorded as being a phone/tele consultation has steadily increased in all species from 23<sup>rd</sup> March. However, due to significant changes in practice workflow, it is likely that we are under-estimating the frequency of phone consultation/telemedicine adoption over this time period – this is something we are working to correct.



**Figure 5:** Percentage of total consultations recorded as being a phone consultation or telemedicine between 2<sup>nd</sup> March 2020 and 19<sup>th</sup> April 2020, in total and by species group.



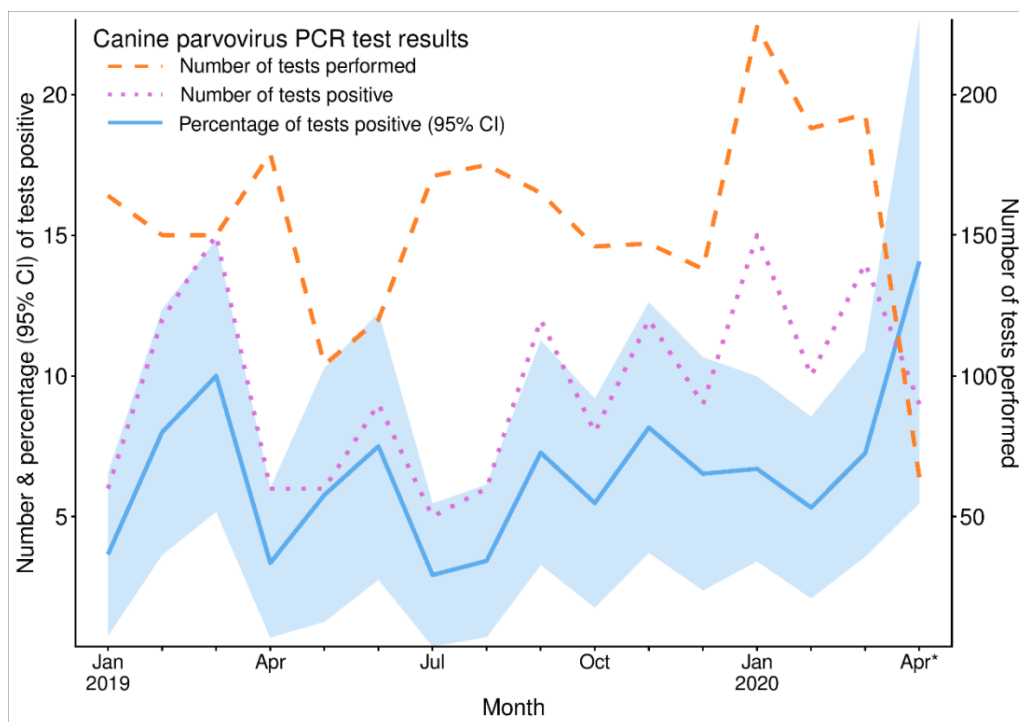
## VACCINE PREVENTABLE DISEASE

In addition to collection of veterinary practice data, SAVSNET has also collected veterinary diagnostic laboratory (VDL) test results for a number of years. These data for some pathogens are already summarised on our website: <https://www.liverpool.ac.uk/savsnet/real-time-data>. However, in light of the various difficult decisions the practitioners are currently required to make in order to respond appropriately to the current crisis, we felt that provision of a greater depth of detail encompassing some additional pathogens might be of use. Please note these findings focus on laboratory confirmed pathogen reports by PCR or qPCR alone. We are aware that for some of these pathogens in-practice 'snap' tests are available – these have not been summarised here. Additionally, this does not currently encompass suspected cases that have not undergone diagnostic testing. As such, these figures should be viewed as a guide and not definitive, complete evidence. We are working to provide enhanced views of suspected vaccine preventable disease (VPD) cases based on record within consultation notes over the coming weeks.

## DOGS

### Parvo

Between 1<sup>st</sup> January 2019 and 19<sup>th</sup> April 2020, 2,478 PCR tests for parvovirus were performed by 6 VDLs; such samples originating from 561 veterinary practice sites in the UK. Of these, 6.2% ( $n=154$ ) tested positive, with percentage testing positive generally varying between 5 and 10% per month over this time (figure 6). Though these findings only cover up to 19<sup>th</sup> April 2020, a large reduction in testing volume can be observed for this month.

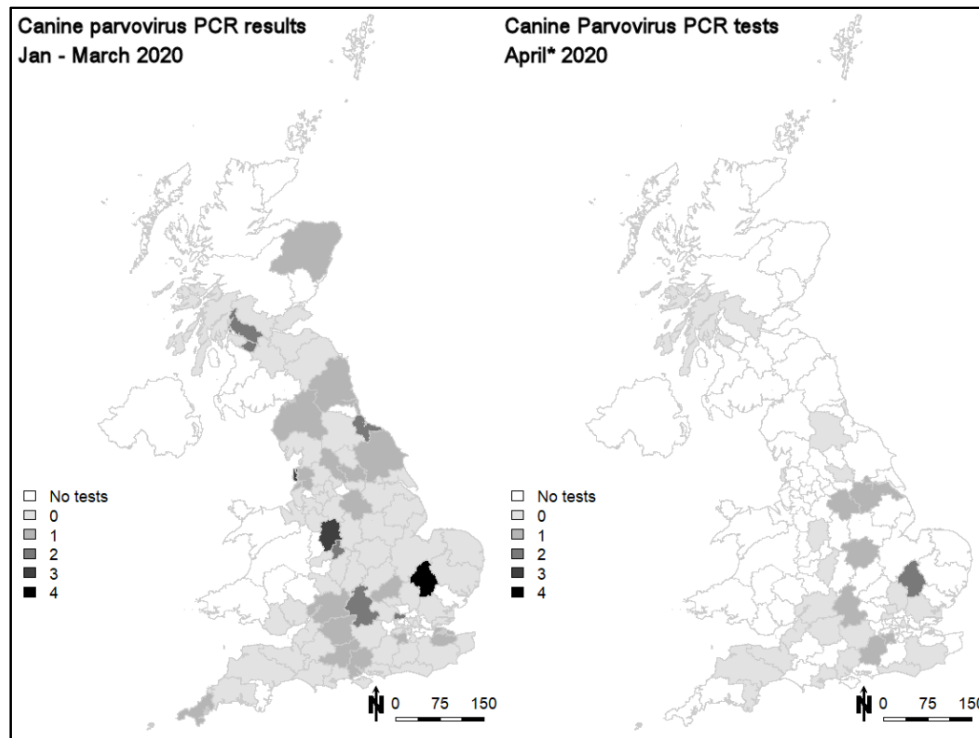


**Figure 6:** Number and percentage of PCR parvovirus positives tests (left axis) and number of total tests by month (right axis), January 2019 – April 2020. 95% CI = 95% confidence interval.

\*Test results up to and including 19<sup>th</sup> April 2020



To further assist decision making, we have provided the broad geographical location (by postcode area) of tests performed and the number of positive tests in between January and March, and April 2020 in figure 7. A total of 39 and 9 positive tests were recorded in January-March and April respectively; positive tests with known practice locations were recorded throughout the country. Please note, white corresponds to no tests having been performed in that postcode area in the relevant month; as such we would advise caution with using these data for estimating local disease risk in such postcode areas.



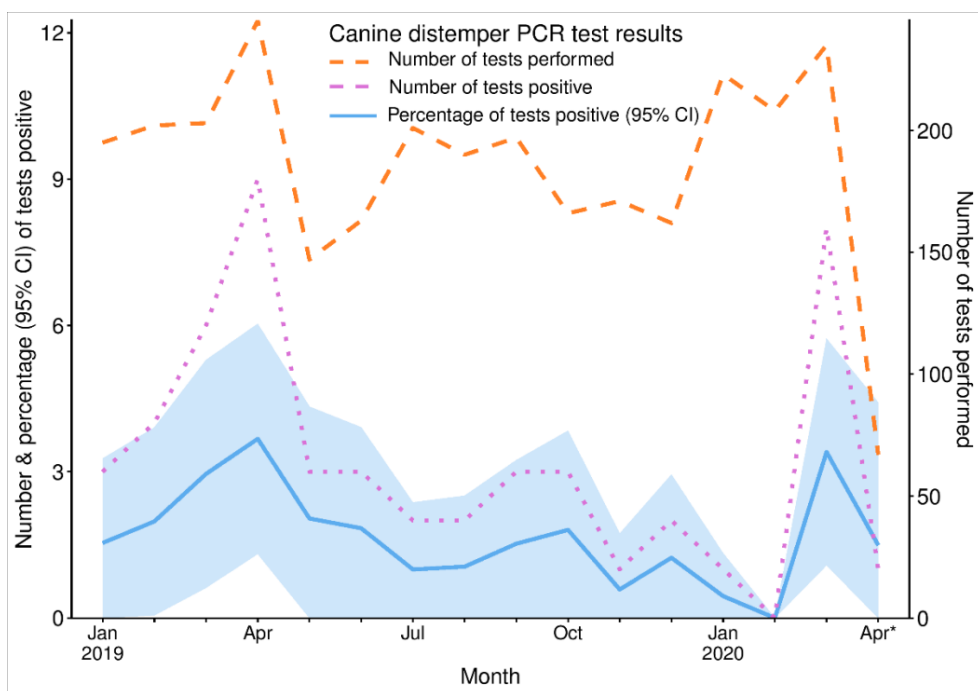
**Figure 7:** Number of PCR parvovirus positives recorded by postcode area in January-March (left) and April (right) 2020. \*Test results up to and including 19<sup>th</sup> April 2020

### *Distemper*

Between 1<sup>st</sup> January 2019 and 19<sup>th</sup> April 2020, 2,975 PCR tests for distemper were performed by 7 VDLs; such samples originating from 631 veterinary practice sites in the UK. Of these, 1.7% ( $n=51$ ) tested positive, with percentage testing positive generally varying between 1 and 3% per month over this time (figure 8). Though these findings only cover up to 19<sup>th</sup> April 2020, a large reduction in testing volume can again be observed for this month.

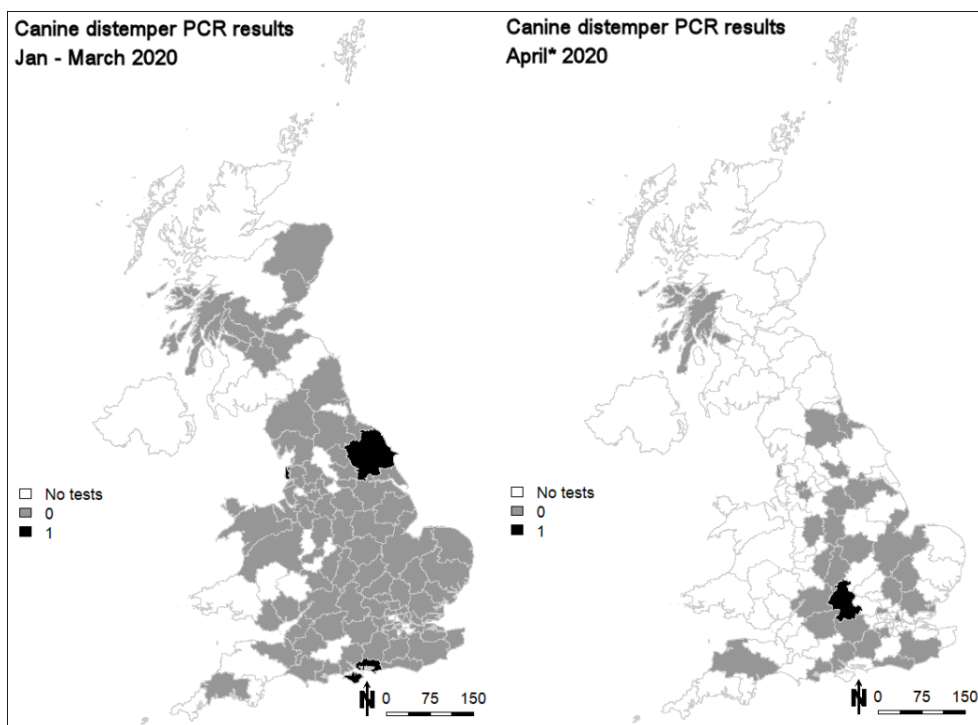
To further assist decision making, we have provided the broad geographical location (by postcode area) of tests performed and the number of positive tests in January-March and April 2020 in figure 9. A total of 9 and 1 positive tests were recorded in March and April respectively; positive tests with known practice locations were not closely associated geographically. Please note, white corresponds to no tests having been performed in that postcode area in the relevant month; as such we would advise caution with using these data for estimating local disease risk in such postcode areas.





**Figure 8:** Number and percentage of PCR distemper positives tests (left axis) and number of total tests by month (right axis), January 2019 – April 2020. 95% CI = 95% confidence interval.

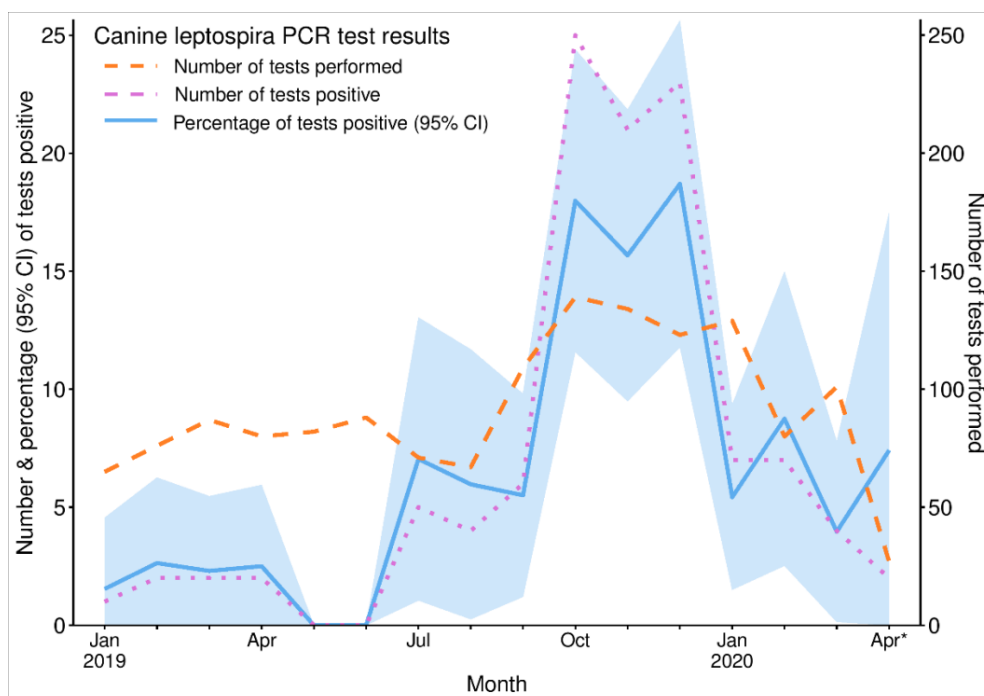
\*Test results up to and including 19<sup>th</sup> April 2020



**Figure 9:** Number of PCR distemper positives recorded by postcode area in January-March (left) and April (right) 2020. \*Test results up to and including 19<sup>th</sup> April 2020

## Leptospirosis

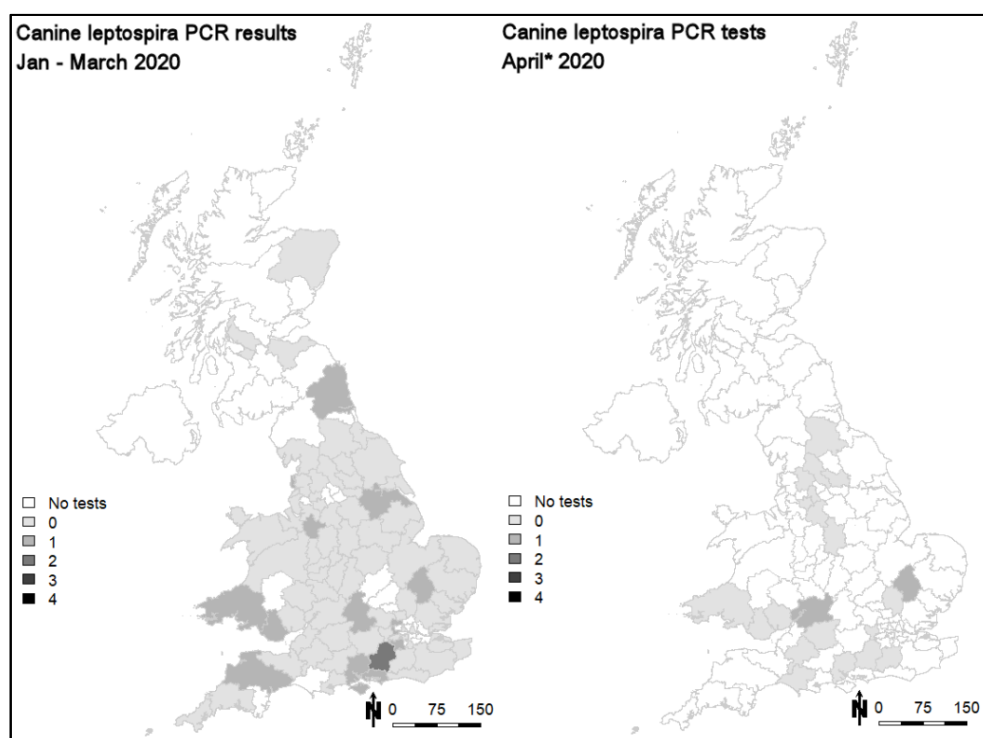
Between 1<sup>st</sup> January 2019 and 19<sup>th</sup> April 2020, 1,458 PCR test submissions for leptospirosis were performed by 6 VDLs; such samples originating from 635 veterinary practice sites in the UK. Of these, 7.6% ( $n=111$ ) tested positive (either via urine, blood or both). Although percentage testing positive generally varied between 0 and 6% per month over this time, percentage testing positive was increased between October and December 2019, potentially indicating increased cases in this period (figure 10). However, over the past two months percentage testing positive appears to have normalised to prior rates. Though these findings only cover up to 19<sup>th</sup> April 2020, a large reduction in testing volume can be observed for this month.



**Figure 10:** Number and percentage of PCR leptospira positives tests (left axis) and number of total tests by month (right axis), January 2019 – April 2020. 95% CI = 95% confidence interval.

\*Test results up to and including 19<sup>th</sup> April 2020

To further assist decision making, we have provided the broad geographical location (by postcode area) of tests performed and the number of positive tests in January-March and April 2020 in figure 11. A total of 18 and 2 positive tests were recorded in January-March and April respectively; positive tests with known practice locations were not closely associated geographically. Please note, white corresponds to no tests having been performed in that postcode area in the relevant month; as such we would advise caution with using these data for estimating local disease risk in such postcode areas.



**Figure 11:** Number of PCR leptospira positives recorded by postcode area in January-March (left) and April (right) 2020 \*Test results up to and including 19<sup>th</sup> April 2020

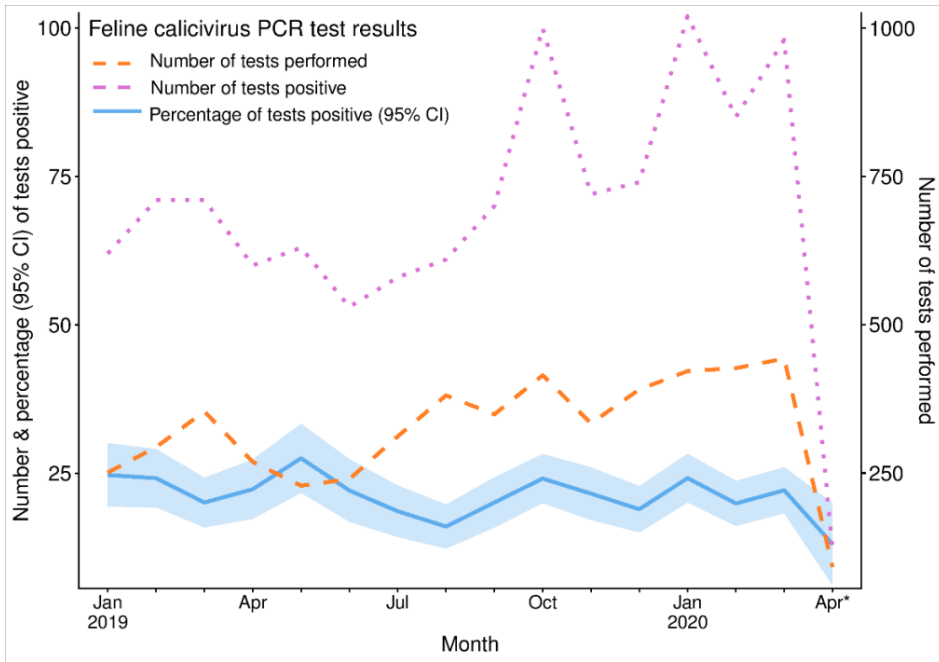
## CATS

### *Calicivirus*

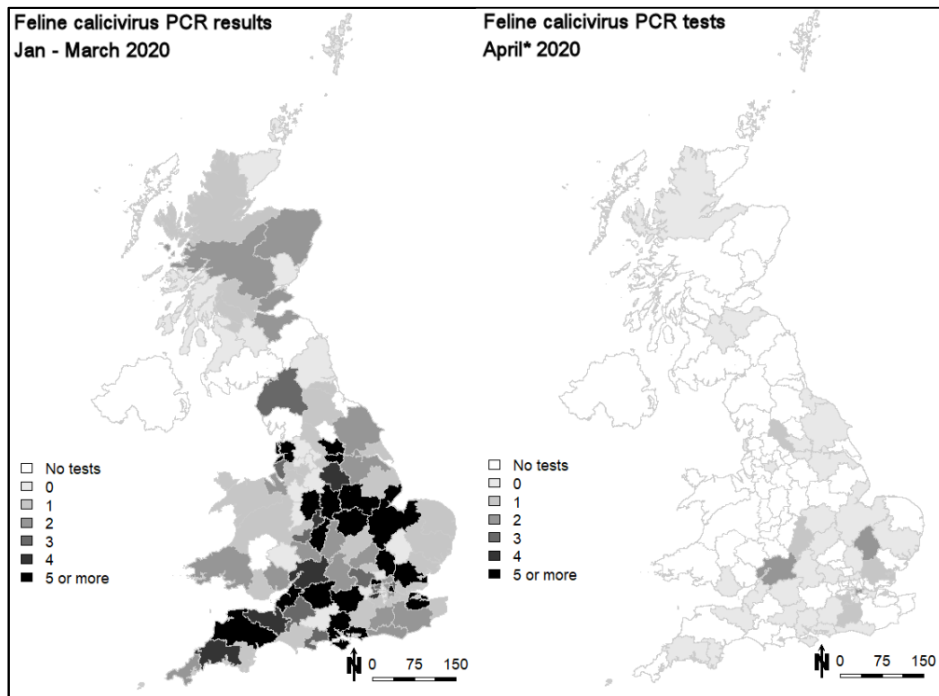
Between 1<sup>st</sup> January 2019 and 19<sup>th</sup> April 2020, 5,203 PCR tests for calicivirus were performed by 6 VDLs; such samples originating from 1,423 veterinary practice sites in the UK. Of these, 21.4% ( $n=1,112$ ) tested positive. Percentage testing positive was relatively stable throughout this time, generally varying between 15% and 25% per month (figure 12). Though these findings only cover up to 19<sup>th</sup> April 2020, a large reduction in testing volume can be observed for this month.

To further assist decision making, we have provided the broad geographical location (by postcode area) of tests performed and the number of positive tests in January-March and April 2020 in figure 13. A total of 285 and 12 positive tests were recorded in January-March and April respectively. Positive tests with known practice locations were located throughout the UK. Please note, white corresponds to no tests having been performed in that postcode area in the relevant month; as such we would advise caution with using these data for estimating local disease risk in such postcode areas.





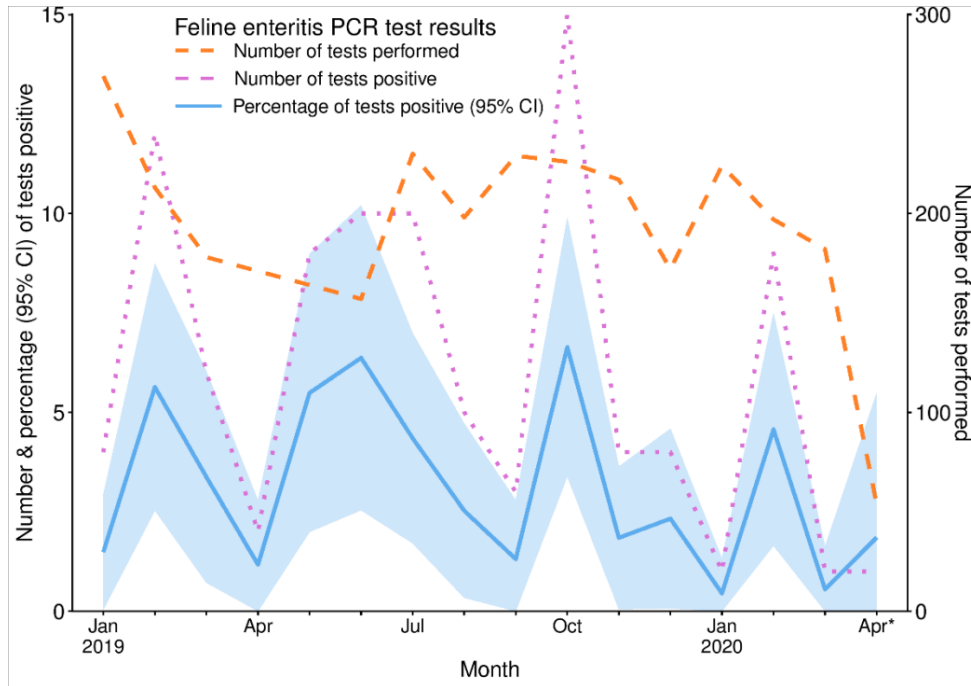
**Figure 12:** Number and percentage of PCR calicivirus positives tests (left axis) and number of total tests by month (right axis), January 2019 – April 2020. 95% CI = 95% confidence interval. \*Test results up to and including 19<sup>th</sup> April 2020



**Figure 13:** Number of PCR calicivirus positives recorded by postcode area in January-March (left) and April (right) 2020 \*Test results up to and including 19<sup>th</sup> April 2020

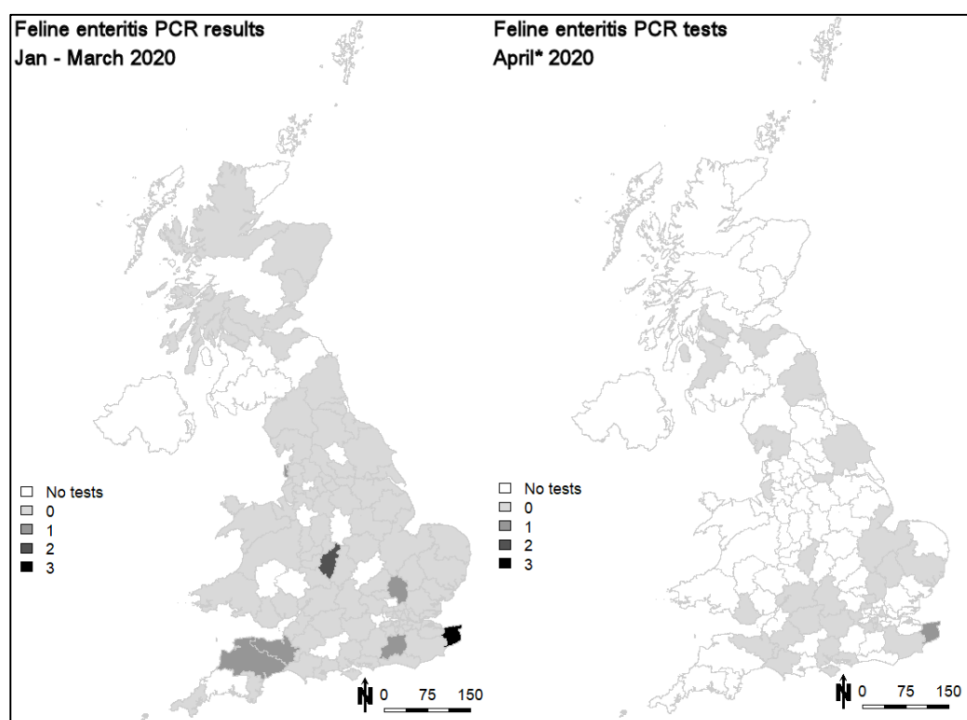
### Enteritis / panleukopenia

Between 1<sup>st</sup> January 2019 and 19<sup>th</sup> April 2020, 3,081 PCR tests for calicivirus were performed by 7 VDLs; such samples originating from 890 veterinary practice sites in the UK. Of these, 3.1% ( $n=96$ ) tested positive. Percentage testing positive was relatively stable throughout this time, generally varying between 1% and 6% per month (figure 14). Though these findings only cover up to 19<sup>th</sup> April 2020, a large reduction in testing volume can be observed for this month.



**Figure 14:** Number and percentage of PCR enteritis positives tests (left axis) and number of total tests by month (right axis), January 2019 – April 2020. 95% CI = 95% confidence interval. \*Test results up to and including 19<sup>th</sup> April 2020

To further assist decision making, we have provided the broad geographical location (by postcode area) of tests performed and the number of positive tests in January-March and April 2020 in figure 15. In total 11 and 1 positives tests were recorded in January-March and April respectively; cases with known practice locations were not closely associated geographically. Please note, white corresponds to no tests having been performed in that postcode area in the relevant month; as such we would advise caution with using these data for estimating local disease risk in such postcode areas.



**Figure 15:** Number of PCR enteritis positives recorded by postcode area in January-March (left) and April (right) 2020. \*Test results up to and including 19<sup>th</sup> April 2020

## ACKNOWLEDGEMENTS

SAVSNET is based at the University of Liverpool and is currently funded by the Biotechnology and Biological Sciences Research Council. The team is indebted to the British Small Animal Veterinary Association for its support.

The SAVSNET team is also grateful to the veterinary practices and diagnostic laboratories that provide health data and without whose support these reports would not be possible. It wishes to thank Abbey Veterinary Services, Axiom Veterinary Laboratories, Batt Laboratories, BioBest, CAPL, CVS, Idexx, Lab Services, Langford Veterinary Services, NationWide Laboratory Services, SRUC, Teleos, Test A Pet, Microbiology Diagnostics Laboratory at the University of Liverpool, VPG Exeter, VPG Ringwood, VPG Leeds, VPG Hitchin and VetSolutions (the suppliers of RoboVet and PremVet)



## REPORT SUMMARY

In the fast moving and rapidly changing landscape of COVID-19 we are becoming increasingly aware of various studies being made available to the public that have not yet undergone the rigorous process of peer review. Though early access to latest science has many advantages, within the veterinary sector such studies, particularly those hypothesising infection and transmission potential of COVID-19 to and between companion animals, have caused some alarm potentially not clearly justified by the underlying science. By publishing this report we do not want to similarly fall foul to any such bias - we are only human and anyone can get carried away in their interpretation of data, particularly data as important as this. To help you place our findings in context, a number of practice, virology and epidemiology experts have very kindly agreed to provide a short impartial summary of this report, highlighting how they might use it if making decisions in first opinion practice, and outlining any particular limitations they feel you, the reader, should be especially aware of. We thank them for being so generous with their time, and we hope it will help you too.

This first surveillance report from a wide cross-section of veterinary practices across the country provides a valuable overview of how the veterinary profession has responded to the current global health crisis. It is reassuring to see that there has been a sustained significant decrease in face-to-face consultations since 23<sup>rd</sup> March. This will have substantially reduced the risk of COVID-19 spread to veterinary staff and owners alike. This report also gives important insight into the incidence of diseases that are prevented by vaccination; as vaccination rates have fallen over the past month we need to ensure that there isn't a corresponding increase in infections that are normally prevented by vaccines. Overall it is clear that as expected, fewer tests for infectious diseases are being performed. This makes interpretation of the relative incidence of disease challenging, but it is useful to view positive cases on a map - practitioners may choose to prioritise vaccination of vulnerable pets in areas where more positive cases are reported.

**Dr Sarah Caddy, MA VetMB PhD DACVM MRCVS, Virologist at the University of Cambridge**

This is a valuable resource for practitioners having to conduct risk assessments and make decisions on which animals to vaccinate.

The evidence on the incidence of diseases in geographic areas will be invaluable to general practitioners on the front line in the current scenario.

It should help them with drawing up practice guidelines and making informed decisions.

The information on consultation volumes is extremely interesting and how it changes throughout the epidemic will also be a useful tool.

**Pam Mosedale BVetMed MRCVS, Chair of RCVS Knowledge QI advisory board & Lead Assessor RCVS PSS**

**We hope this report provides useful information in helping with decision making in practice and we welcome your feedback and questions.**

Please contact us at [savsnet@liverpool.ac.uk](mailto:savsnet@liverpool.ac.uk).

