SAVSNET

Research Surveillance Benchmarking

Winter 2020

When we wished each other happy new year 12 months ago how little did we know what was in store! I hope you have all found some joy and success in amongst the inevitable pains, sacrifices and heartaches. For SAVSNET we are fortunate that data science has been able to continue almost unaffected. Not from our campus base but from living rooms and home offices as far flung as Madrid. Not face to face but on Teams and Zoom…what ever happened to Skype?! But in that time, I sense we have still managed to find a growing role for the science we do. We have welcomed new colleagues in the form of Shona (working on vaccine uptake) and Jodie (on old age pets). I am not sure I have met either in 3D yet, but their 2D selves have already become wonderful colleagues with some interesting science to come. We had over 20 undergraduate student projects this year – it is great to see their enthusiasm for data science. Our work is being used by both Health Protection Scotland and the VMD to better understand antibiotic use and resistance in companion animals. Our science is being used to develop parallel projects both in the USA and in the UK on horses: we must be doing something right if others want to collaborate. As well as a nice study on myxomatosis, we have published on the canine vomiting outbreak and shown dogs and cats test positive for COVID antibodies – all in highly prestigious journals – and we stand ready to monitor both of these over the coming months. All this work is testament to the increasingly vital role SAVSNET now provides in national preparedness….. no one else was there to do it.

The challenge now is to achieve sustainability. There are lots of exciting things in the pipeline already for next year including on antimicrobial resistance and trials to reduce antibiotic use; we look forward to telling you about those and other things later. In the meantime, it only remains for me to thank all of those many people who support our science, particularly those that fund us, as well as those that altruistically provide the data on which we rely.

We wish all our SAVSNET friends and supporters a happy Christmas and, hopefully more successfully than last time, a happy, peaceful and more normal 2021.

Alan and the SAVSNET Team

Supporting undergraduate research

Covid has affected so many parts of student life and one of them has been the completion of undergraduate research projects. Every year, SAVSNET has a number of applications to use data as part of undergraduate research projects, but this year the demand has been understandably considerably higher with experimental work stopped. We have a really interesting range of student projects this year including acromegaly, CBD oil and the veterinary care of lizards. We are pleased to support students progressing through their courses at this difficult time.

PetSavers postgraduate researchers

Introducing our new team members Jodie Jackson and Shona Bloodworth.

This year has seen the start of two new exciting projects, thanks to support from PetSavers.

Through completing a BSc (Hons) in Animal Science, Jodie decided she wanted to focus on work that benefits companion animal welfare and strengthens the human-animal relationship. She is now completing an MPhil investigating the **most common reasons for old age dogs to present to first opinion practice** and the preventative healthcare and treatment options provided for these issues. With the life expectancy of dogs having doubled over the last 40 years, ageing dogs are a common visitor to practices. Jodie's work will feed into a Canine Ageing and Wellbeing Tool that practices can use in consultations.

Shona graduated with a degree in Physiological Science from the University of Bristol in 2018, then completed an MSc in International Public Health at the Liverpool School of Tropical Medicine. Dogs were an important feature of her formative years growing up in rural Leicestershire, and she is now looking forward to embarking upon research into practices relating to companion animal health. Shona's PhD focuses on **understanding the drivers for vaccine hesitancy,** using a mixed methods approach involving SAVSNET data and also discussions with vets and owners. Sub-optimal vaccination rates may allow for the reemergence of vaccine preventable diseases so it is important to understand issues surrounding vaccination to aid discussions with clients.

We are extremely grateful for the support from PetSavers for these projects.

Jodie and Entei

Shona and Maris

PetSavers
Improving the health of pets
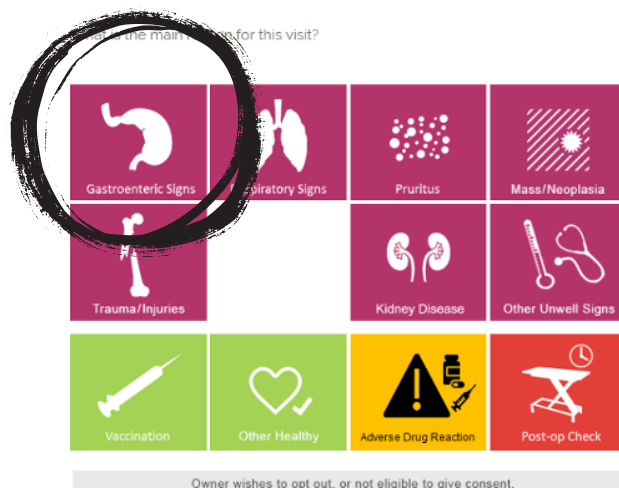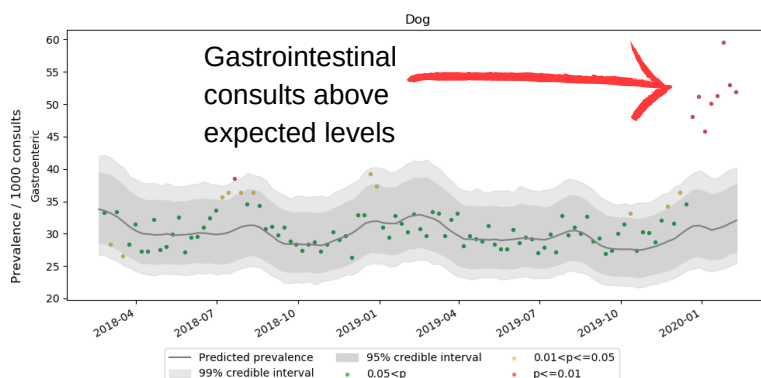
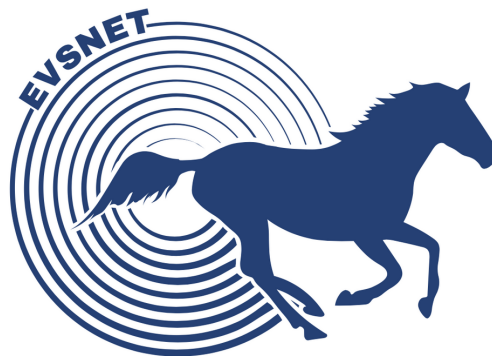Keep up to date with our current research *here*

Vomiting outbreak monitoring

We were really grateful for your response to our investigations into the outbreak of prolific vomiting in dogs which was identified in January this year.

Thanks to the participation of veterinary practitioners and owners, we were able to collect questionnaire data and samples of vomit and faeces to enable us to identify the likely cause as a canine enteric coronavirus (CECoV) and understand in detail how dogs were being affected.

Through our technology, we are continuing to monitor incoming data for any evidence of a repeat outbreak this year. This will in part be done by monitoring responses to the SAVSNET window for the identification of gastrointestinal cases, and through other signals such as analysis of the clinical narratives and which products are being dispensed.

As interesting as another outbreak would be, we think 2020 had everyone pretty much 'outbreak-ed' out!

Dog — Gastrointestinal consults above expected levels

| Predicted prevalence | 95% credible interval | 0.01<p<=0.05 |
| 99% credible interval | 0.05<p | p<=0.01 |

An update from EVSNET

As the Equine Veterinary Surveillance Network (EVSNET) develops, we'll have a newsletter for all things horsey, but for now we'll hijack the SAVSNET newsletter to deliver updates... and we know that some practices are mixed too.

April Lawson joined us in September to start EVSNET as her PhD research and has been very busy putting the foundations in place. We are already able to receive data from diagnostic laboratories and we were thrilled when **BattLab** and **BioTe** laboratories signed up to submit data. We look forward to more laboratories supporting equine disease surveillance too.

Plans are well underway to start collecting data from veterinary practices adopting a similar method as that used by SAVSNET and we will be recruiting practices to take part in EVSNET next year. If you are in a practice with an equine caseload and are interested in being part of an EVSNET pilot, please let us know. The pilot will involve a short trial of the EVSNET window and letting us know how you found it.

You can contact the EVSNET team at evsnet@liverpool.ac.uk and visit their website **here**

Progress from the first year of SAVSNet AGILE
Responsive data intelligence for canine health

December 31st marks the end of our first year with the SAVSNet_Agile team in place; we are already beginning to see the interdisciplinary links forming that can transform canine surveillance.

Carmen

Carmen at **University of Bristol** has worked with some of the great and good of canine health to identify future canine surveillance priorities. With **University of Manchester** we are now developing the text mining tools to identify these diseases in the data SAVSNET receives from laboratories and veterinary practices across the UK. Through sharing their data, these organisations are providing new ways to improve the health of UK dogs. Statistical methods to understand the temporal and spatial fluctuations in these disease priorities are already emerging from Charlotte's PhD at **University of Lancaster**. At the **University of Liverpool,** Shirley has been working closely with participating laboratories to put together important collections of a range of pathogens including canine distemper and pseudomonas; sequence of these will provide new insight into their transmission and evolution. And Ivo is beginning to develop the methods needed to identify animals with important chronic disease. The team got a first view of how data science, statistics, microbiology and communication come together in real time as we responded to the outbreak of acute vomiting that was seen in UK dogs this year.

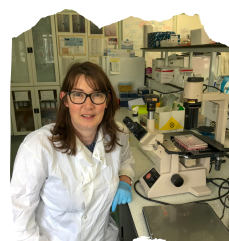The team can't wait to see where next year will get us.

Ivo

Charlotte

This research is kindly funded by Dogs Trust.
Find out more **here**

Shirley

Publications from SAVSNET in 2020

Thank you to all veterinary practices, independent and CVS, and laboratories for making this work possible

Evidence of exposure to SARS-CoV-2 in cats and dogs from households in Italy
Published: **BioRxiv (preliminary findings) and [Nature Communications (full paper)](#)**

Factors Associated with Prescription of Antimicrobial Drugs for Dogs and Cats, United Kingdom, 2014–2016.
Published: [Emerging and Infectious Diseases](#)

Impact of Covid-19 on veterinary care (letter)
Published: [Veterinary Record](#)

Social distancing impact on companion animal practice (letter)
Published: [Veterinary Record](#)

Possible cause of outbreak of prolific vomiting in dogs (letter)
Published: [Veterinary Record](#)

Prolific vomiting in dogs (letter)
Published: [Veterinary Record](#)

Seasonality and risk factors for myxomatosis in pet rabbits in Great Britain
Published: [Preventive Veterinary Medicine](#)

The Global Initiative for Veterinary Cancer Surveillance (GIVCS): Report of the first meeting and future perspectives
Published: [Veterinary and Comparative Oncology](#)

Full publication list is available [here](#)

On behalf of all the team, we would like to express our sincere thanks for continuing to support and participate in SAVSNET through what has been an immensley challenging year.
We wish you all a restful and relaxing Christmas.