# SAVSNET

The Small Animal Veterinary Surveillance Network

# SAVSNET: near real-time wide scale companion animal antimicrobial prescription surveillance, benchmarking and stewardship


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BSAVA British Small Animal Veterinary Association

BBSRC bioscience for the future

University of Liverpool

Veterinary Medicines Directorate

The Kennel Club Charitable Trust

www.liverpool.ac.uk/savsnet

AACTING

Herd level antimicrobial consumption in animals

Collect | Analyze | Benchmark | Communicate

# Companion animal surveillance: UK

Companion animal veterinary industry largely composed of independent practices and diagnostic laboratories

Many Practice and Laboratory Information Management Systems

Previously limited surveillance to small groups of veterinary practices

Recent advances are changing this

SAVSNET
The Small Animal Veterinary Surveillance Network

VetCompass
Your Knowledge Hub

BSAVA British Small Animal Veterinary Association
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University of Liverpool
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The Kennel Club Charitable Trust

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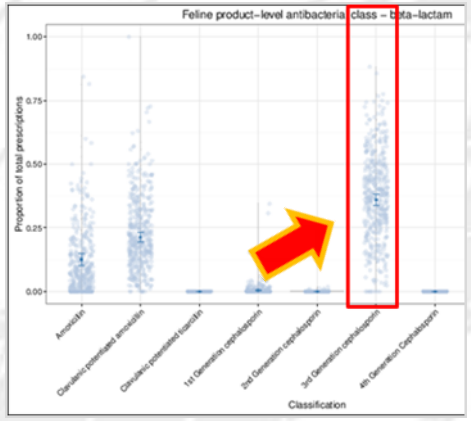
# SAVSNET

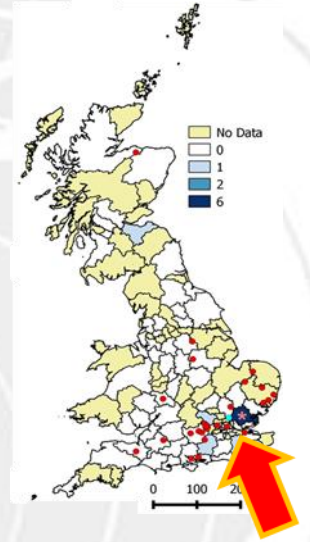
237886 / canine / westie/ CH / faeces / parvovirus PCR / positive

## Diagnostic laboratories

# Big Data

*mapped & made "research ready" in real time*



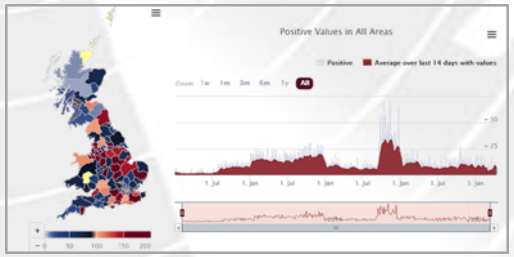

Outbreak monitoring
Autocthonous Babesia in Essex

## Veterinary practices

Owner postcode, Canine, Labrodor, Male, Neutered, DOB 01/10/2002, Diarrhoea last night and V o/n Temp 38.90 degC. exam bright colour good hydration fine abd palp nad relaxed non-rense rectal exam soft cowpat like stool no blood tmt as g/e adv strict bland diet 38h. Treatment Inject 1.50 mls Cerenia Injectable. Pro-Kolin 30ml Syringe VH 4 units twice daily for 1-3 days while stools are loose


Veterinary Profession


Quarterly reports in Vet Record



National Surveillance

Public Level

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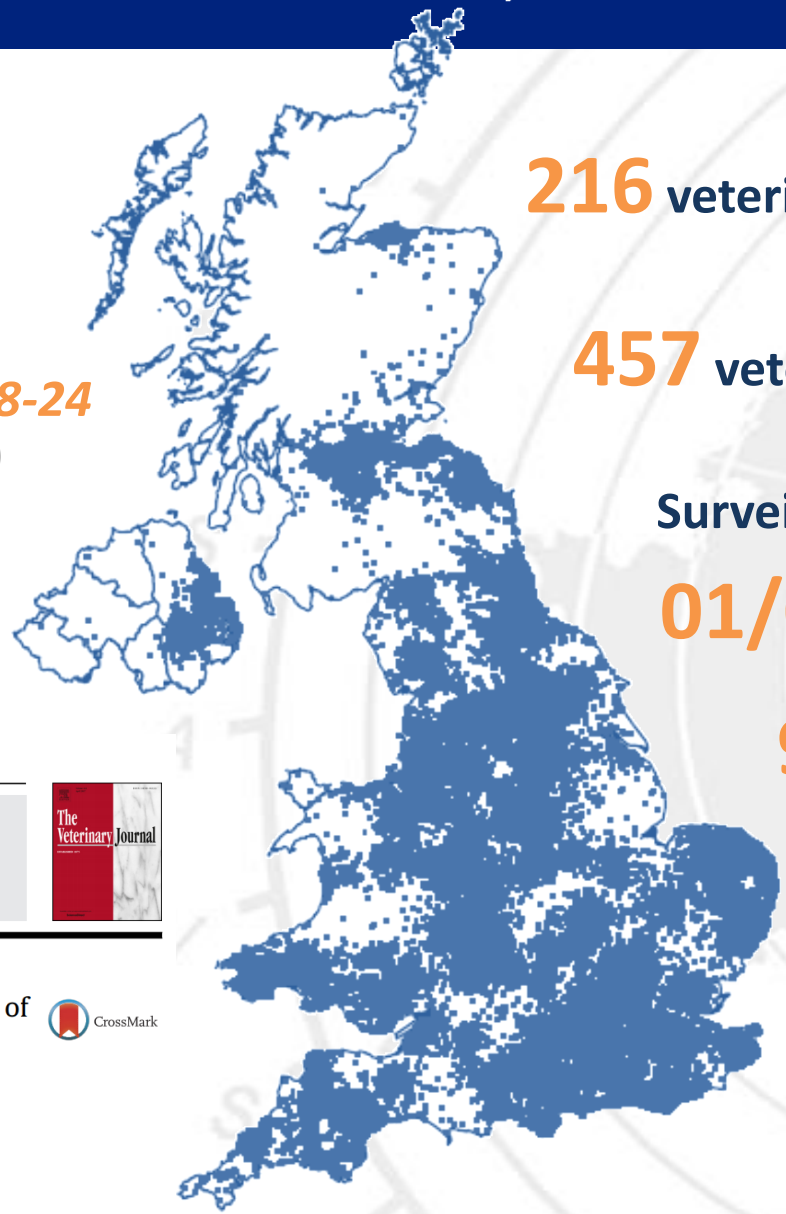
# Antibiotic monitoring



**216** veterinary practices

**457** veterinary sites

**Surveillance period:**

**01/04/2014 – 31/03/2016**

**918,333** canine EHRs: (413,870 dogs)

**352,730** feline EHRs: (200,541 cats)

**>1.7M** prescription events

*The Veterinary Journal, 224 (2017): 18-24*

https://doi.org/10.1016/j.tvjl.2017.03.010

The Veterinary Journal 224 (2017) 18–24

Contents lists available at ScienceDirect

The Veterinary Journal

journal homepage: www.elsevier.com/locate/tvjl

Original article

## Patterns of antimicrobial agent prescription in a sentinel population of canine and feline veterinary practices in the United Kingdom

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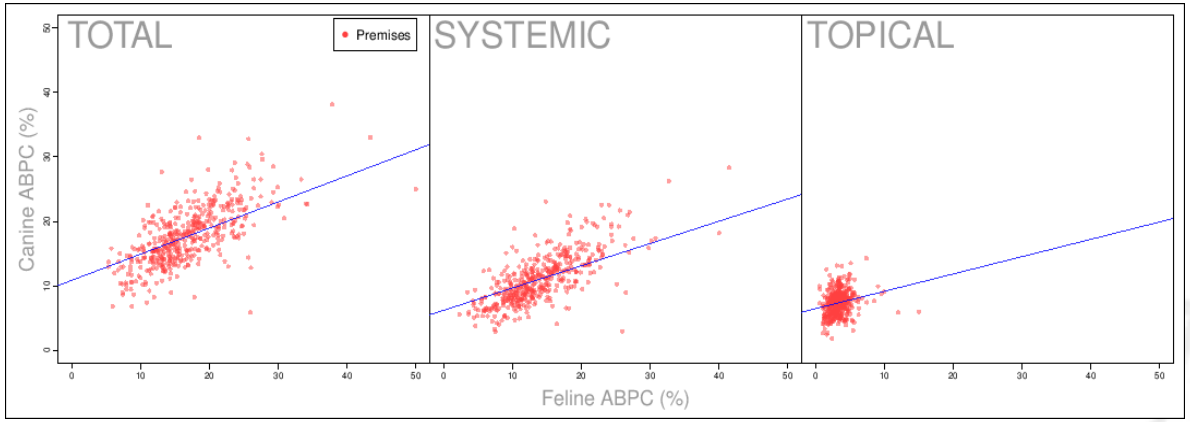
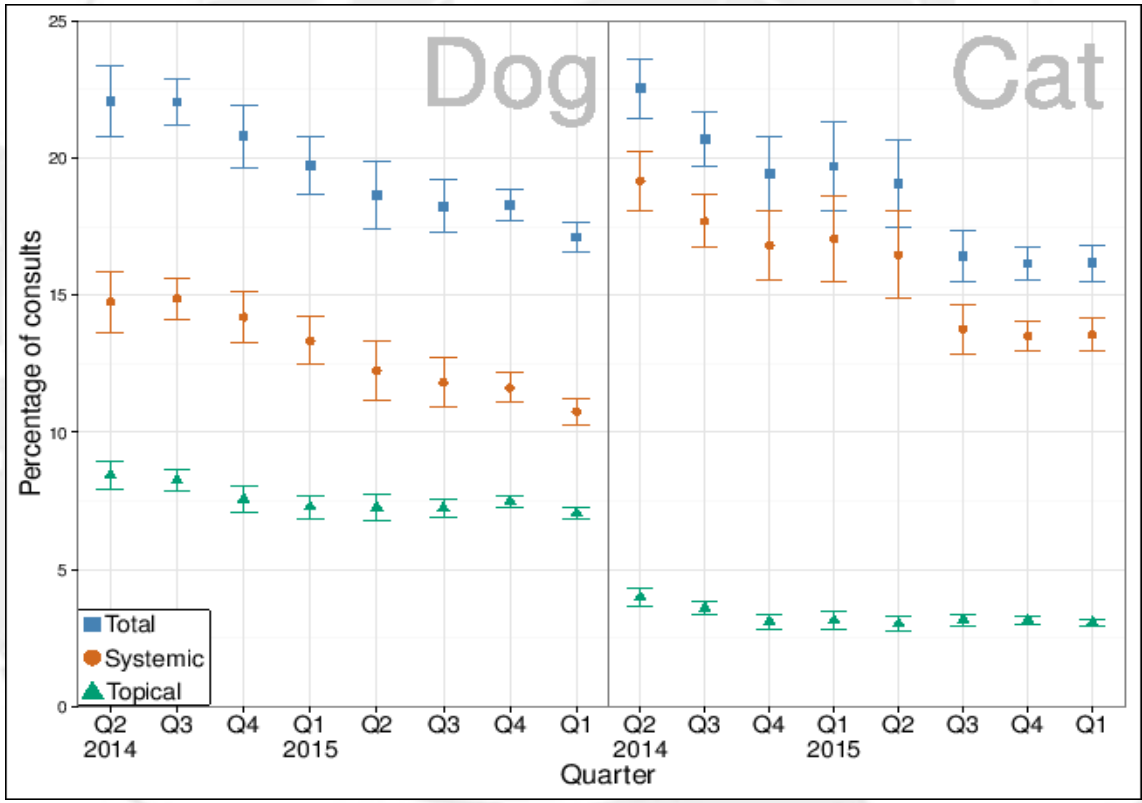
# Findings in a nutshell




**Premises which prescribe antibiotics commonly to dogs also prescribe commonly to cats**

**Evidence of significant decreasing trend in antibiotic prescription**

**Highest priority critically important antibiotics**



# Wider context

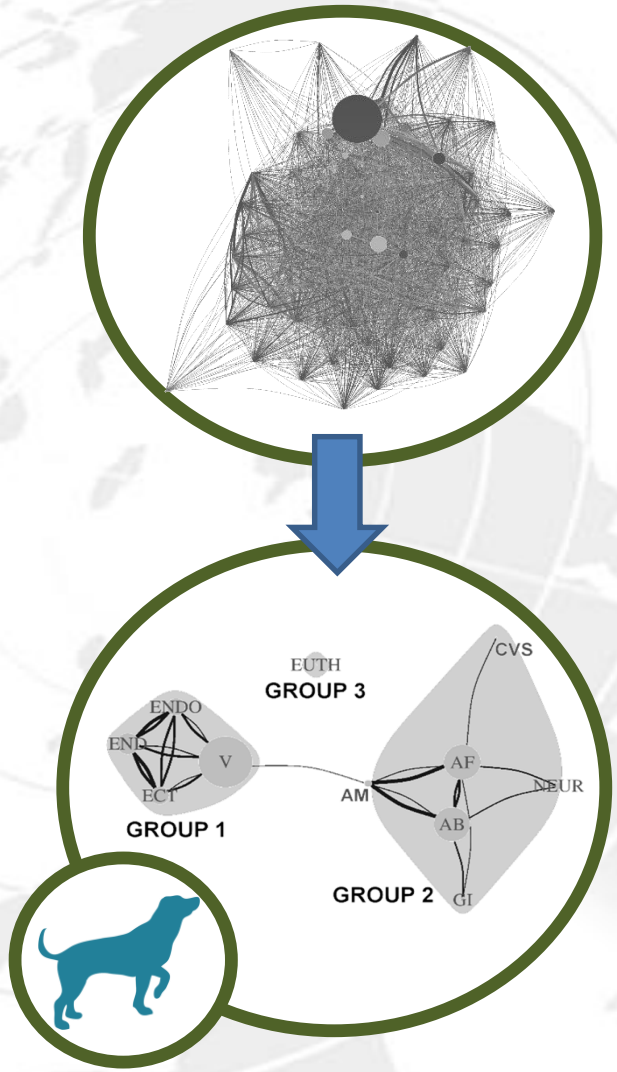
**Antibiotics** are the **third most commonly prescribed** pharmaceutical family

**Antibiotics** often prescribed at the same time (**'co-prescribed'**) as **anti-inflammatories**

- Implications for **efficacy** assessment

Antibiotic prescription **less diverse in rabbits** than cats or dogs

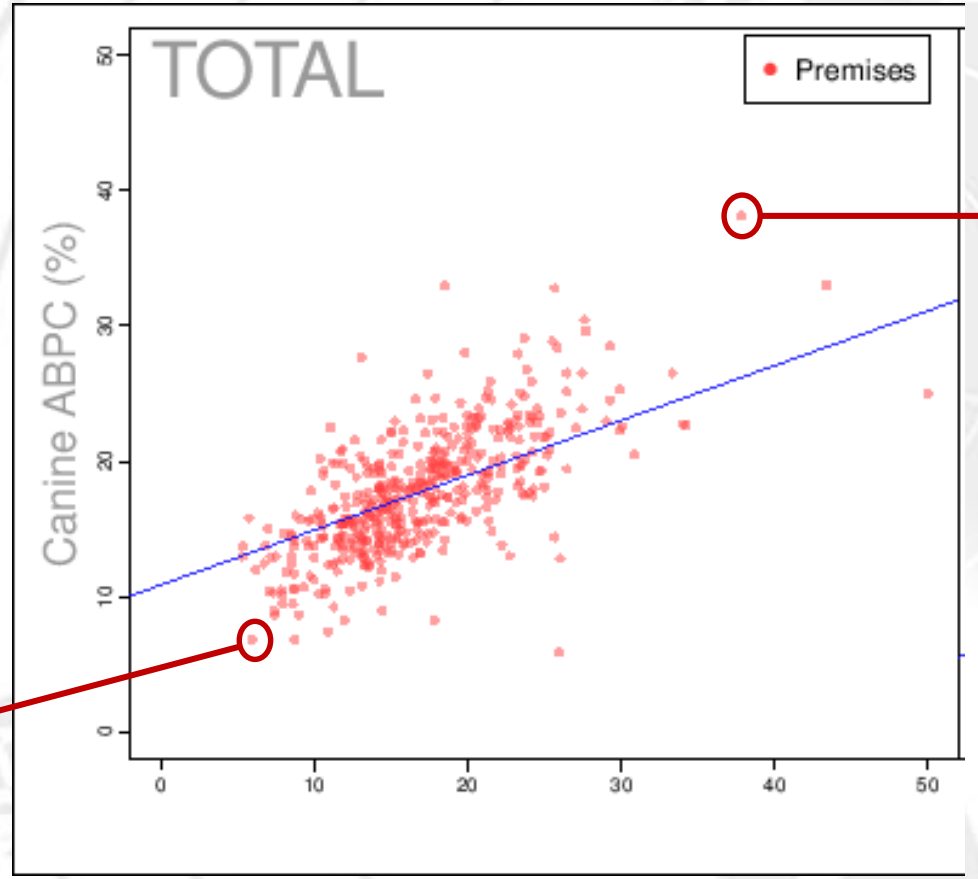
**Paper under review**



# From big data to bigger data

Decision to prescribe antibiotics NOT based on probability of antibiotic-responsive disease alone

Need to explore multiple data sources



# Animal and owner-level associations

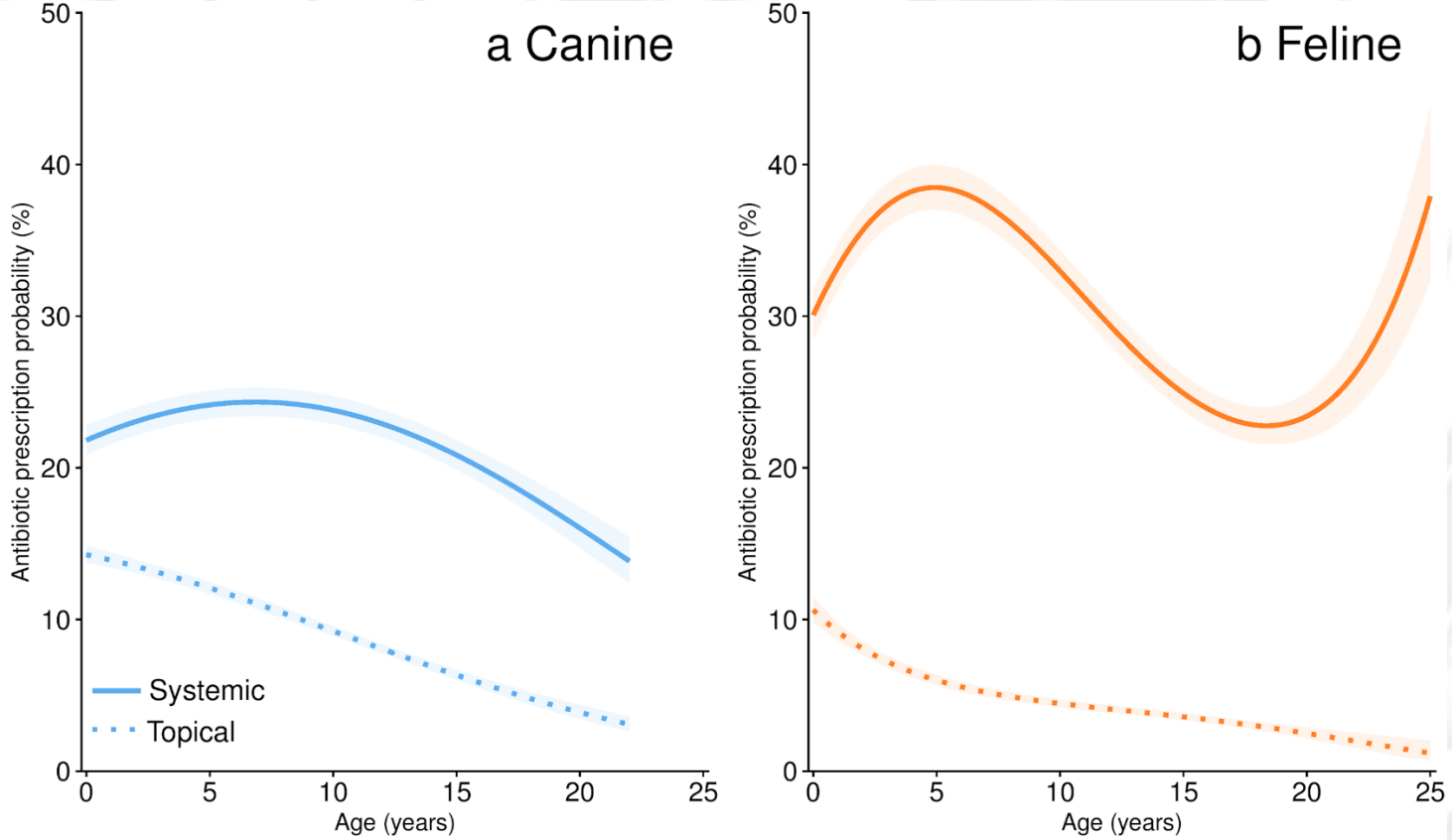
Presented for investigation of unwell clinical signs (~280,000 canine, ~110,000 feline EHRs)

Respiratory clinical signs = greatest systemic antibiotic prescription odds

Vaccinated and insured animals at reduced systemic antibiotic prescription odds

Breed-based odds variation in dogs

Sex-based odds variation in cats



# Practice-level associations

173 practices in England, Scotland and Wales: All animals regardless of reason for presentation

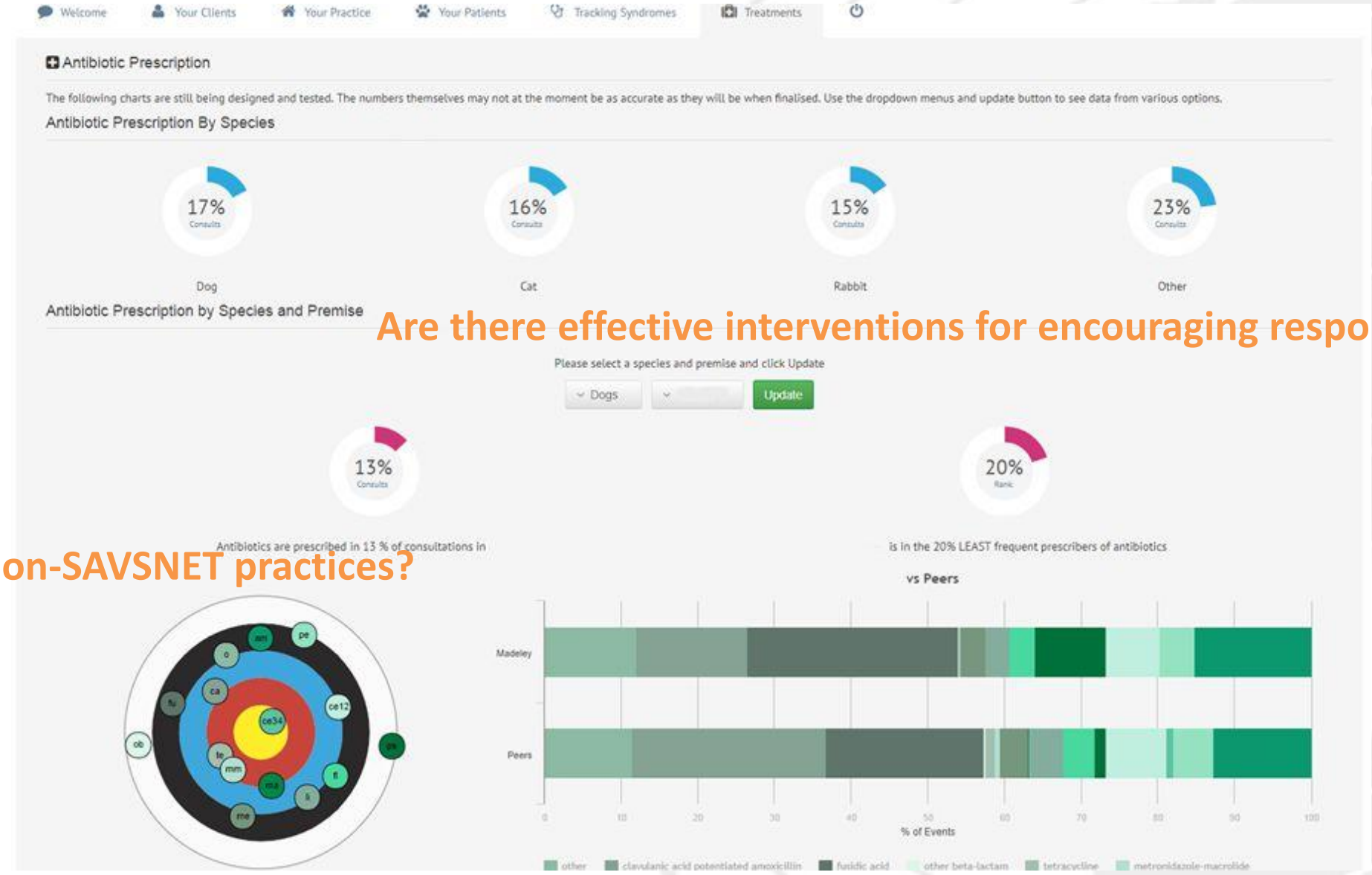
Royal College of Veterinary Surgeons (RCVS) accredited practices

RCVS 'Advanced Veterinary Practitioner' (AVP) employing practices

Practices with a greater proportion of vaccinated; insured, or microchipped animals

Practices with a greater proportion of unhealthy consultations

# Benchmark antibiotics




Are there effective interventions for encouraging responsible use?

What about non-SAVSNET practices?

BSAVA
BRITISH SMALL ANIMAL VETERINARY ASSOCIATION

# mySavsnet AMR

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mySavsnet AMR

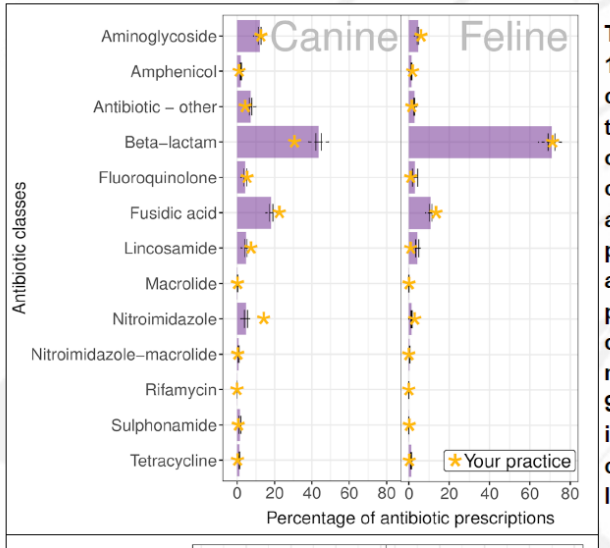
## Take a fresh look at your antibiotic prescription with mySavsnet AMR!

This site is aimed at those working in veterinary practice in the UK. It describ how practices can send data to researchers at the University of Liverpool to receive a free benchmark, comparing their antibiotic prescription to other anonymised practices across the country. Data can be from an individual practitioner, a practice site or the whole practice. Multiple data sets can also sent to see how prescription changes over time. All that matters is you have permission to access and send the data. These anonymised data will also be used by us as part of ongoing research to understand antibiotic prescription

liverpool.ac.uk/savsnet/my-savsnet-amr

mySavsnet AMR

## Which antibiotics do you prescribe?

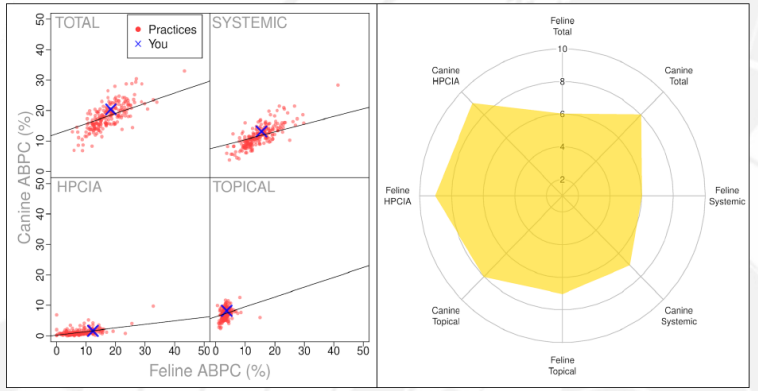



**The g… 1) di… quen… ticular broad classes of antibiotic (yellow asterisk) as a percentage of the total number of antibiotic prescriptions you provided to us, compared against the whole population of practices that have submitted data to SAVSNET or mySavsnet AMR (purple bars). 95% confidence intervals are included, as is the interquartile range (1st-3rd, dotted line).**

mySavsnet AMR

## The Small Animal Veterinary Surveillance Network Antibiotic Prescription Tracker

### How frequently do you prescribe antibiotics?




**The graph above left displays the percentage of canine and feline consultations where at least one antibiotic was prescribed (ABPC) by your practice (blue cross), compared with every other practice that has submitted data (red points). We have summarised antibiotics prescribed based on route of administration (systemic, topical) and 'HPCIA', otherwise known as 'highest priority critically important antibiotics'. If you would like to know more about HPCIAs please refer to the box below.**

# Implications for stewardship

Assumption: Providing ability to self-reflect on prescribing practices can stimulate a drive towards effective antibiotic stewardship

Benchmarking beyond antibiotic prescription is necessary – intelligent stewardship

The future: AMR surveillance and benchmarking

# Acknowledgements

## Supervisors

Alan Radford, Fernando Sanchez Vizcaino Buendia, Phil Jones, PJ Noble, Nicola Williams, Gina Pinchbeck & Susan Dawson

## SAVSNET Team

Bethaney Brant, Susan Bolan, Elena Arsevska, Steven Smyth, Maya Wardeh, Jenny Newman

## Funders

BBSRC bioscience for the future

BSAVA British Small Animal Veterinary Association

Institute of Infection and Global Health

Veterinary Medicines Directorate

The Kennel Club Charitable Trust — Making a difference for dogs

## SAVSNET Collaborators

Animal Welfare Foundation; biobest diagnostics; University of Bristol; CAPL; TDS; CVS; defra; IDEXX Laboratories; Lab Services Ltd; Lancaster University; Langford Veterinary Services; NationWide Laboratories; NHS National Institute for Health Research; MRC Medical Research Council; Manchester 1824 The University of Manchester; SRUC; teleos systems limited; TEST-A-PET; TDS; University of Liverpool Veterinary Laboratory Services; NIBHI; PTDS Powell Torrance Diagnostic Services; Petplan Charitable Trust; Vetsolutions A Henry Schein Company; Veterinary Medicines Directorate; wellcome trust

**All practices and laboratories taking part in the SAVSNET project!**