

Diarrhoea is a common condition in dogs, causing discomfort for affected dogs and stress for owners.

Historically, antibiotics were commonly prescribed for diarrhoea in dogs, even in the absence of a known bacterial cause. Despite this, evidence on the value of antibiotics for uncomplicated diarrhoea has been very sparse. Overuse of antibiotics can exacerbate antibiotic resistance, which is considered one of the most serious and imminent health-related problems worldwide.

This study included dogs under first opinion veterinary care in the UK during 2019 within the VetCompass database. The aim was to assess whether antibiotic treatment for diarrhoea in dogs causes improved clinical resolution compared to no antibiotic treatment.



Total number of dogs in the study

2,250,741

Number of dogs with diarrhoea randomly sampled for inclusion in the study

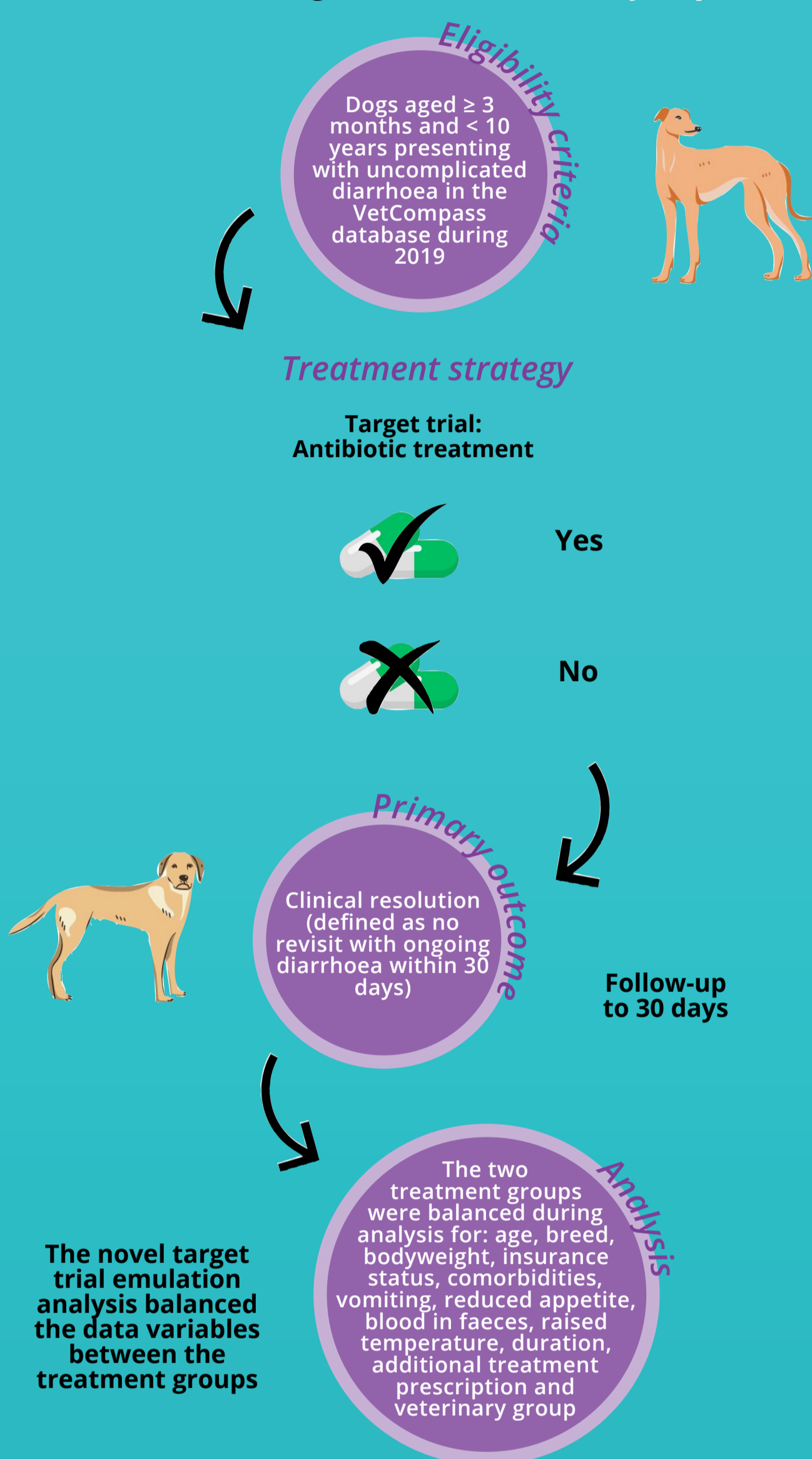
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Target trial emulation

Clinical trials (namely randomised controlled trials) are considered “gold standard” for estimating causal treatment effects, but are not always feasible or ethical. Therefore, this study used causal inference “target trial emulation” to estimate real-world causal effects from veterinary electronic clinical records.

Causal inference from large databases (“Big Data”) can be viewed as an attempt to emulate (i.e. replicate) a randomised controlled trial - the target trial - to answer the question of interest.

Diarrhoea Target Trial Emulation - key steps:



Results

Target trial: Antibiotic treatment



355 dogs prescribed antibiotics*



539 dogs not prescribed antibiotics*

* +/- other supportive treatment as deemed appropriate by the veterinary surgeon

Clinical Resolution (no revisit for ongoing diarrhoea within 30 days)



88.3%



87.9%

Risk Difference = +0.4% (95% Confidence Interval -4.5% to +5.3%)

Veterinary care for uncomplicated diarrhoea without antibiotics was equally as effective as care with antibiotics, with the majority of dogs requiring only one veterinary visit either way.

Conclusions

Antibiotic prescription at first presentation of diarrhoea in dogs causes no significant difference in clinical resolution.

The findings support a strong recommendation to avoid the use of antibiotics for uncomplicated diarrhoea in dogs.

The study used an exciting new approach, causal inference “target trial emulation”, that allowed inference about “cause” rather than being limited to “association”.

[CLICK TO READ THE FULL STUDY](#)

Pegram et al. (2023) “Target Trial Emulation: Do antimicrobials or gastrointestinal nutraceuticals prescribed at first presentation for acute diarrhoea cause a better clinical outcome in dogs under primary veterinary care in the UK?”

RVC VetCompass <https://www.rvc.ac.uk/vetcompass> carries out welfare research based on anonymised clinical information shared from over 30% of UK veterinary practices. We are very grateful to the owners and veterinary professionals who contribute to VetCompass research.