

Prioritisation of canine infectious diseases for inclusion in a nation-wide outbreak response framework: A stakeholder-led approach

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Background

Small companion animal populations largely lack coordinated national and international disease surveillance and control strategies¹. The Small Animal Veterinary Surveillance Network (SAVSNET) recently initiated a new project, named **SAVSNET Agile**², which originates as a starting point to establish a nation-wide system to detect and respond to outbreaks of canine disease in the UK in a timely manner. The first step to develop such system is to determine which infectious diseases to include in it³. A wide variety of infectious agents are known to cause disease in dogs. Since time and financial resources are limited, it is necessary to prioritise those diseases that are of highest importance⁴. In this study, we propose a semi-quantitative stakeholder-led approach for disease prioritisation suited to canine populations in the UK. We followed this methodology to identify canine infectious diseases that are of highest relevance to a wide range of key stakeholders who play a role in the protection of canine health and welfare in the UK.

Methodology

Participants were selected from a previously established network of collaborators and recruited through email invitation. This network is comprised of veterinary practitioners, policy makers, industry representatives and academics from UK leading universities. Due to the COVID-19 pandemic, our planned approach had to be modified from direct face to face meeting to online. The prioritisation exercise was conducted through a semi-quantitative Delphi panel technique. Each participant responded to four sequential rounds of questionnaires; 1) to elaborate initial lists of endemic, exotic diseases and syndromes to work with; 2) to identify up to five relevant epidemiological criteria to evaluate canine diseases; 3) to weight the criteria to reflected participant's opinion on their relative importance; 4) to score diseases from the initial lists against the selected criteria, using a 0-25 scale (0- not important to 25- maximum importance). This simple scores were then multiplied by each criterion's weight and summed up. Individual results were collated to obtain a final, ranked list of the top-priority canine diseases in the UK.

Results

19 stakeholders participated in the study. Whilst moving from a face to face to an online approach reduced the number of participants engaging, overall the engagement was robust and the findings are not considered to have been affected. Initial disease lists included a total of 10 endemic and 9 exotic diseases, as well as 6 syndromes. Nine and ten sets of criteria were identified and weighted for the evaluation of endemic and exotic canine diseases, respectively (*Table 1*). In the first questionnaire round, participants showed a clear preference for 3 of the prioritised syndromes (*Table 2*), with no further need to continue the process. The top five prioritised endemic and exotic diseases are summarised on *Table 2*.

Table 1. Epidemiological criteria identified by participants to evaluate canine diseases, weighted to reflect their preferences and ranked in descending order of importance.

Criteria to evaluate exotic diseases	
Criteria	Weight
Public Health Impact	10
Dog Welfare implications	9
Transmission and risk of spread	8
Amount of disease in population	7
Mortality	6
Ability to prevent and control	5
Risk of entry	4
Ease of diagnosis	3
Changing trends in morbidity and mortality	2
Economic impact	1

Criteria to evaluate endemic diseases	
Criteria	Weight
Amount of disease in population	9
Public Health Impact	8
Dog Welfare implications	7
Mortality	6
Ability to prevent and control	5
Transmission and risk of spread	4
Changing trends in morbidity and mortality	3
Ease of diagnosis	2
Economic impact	1

Table 2. Top five exotic, endemic canine diseases and top three syndromes identified during the prioritisation exercise. Results include final weighted and unweighted scores (standardised to a 0-100 scale).

Exotic canine diseases		
Diseases	Unweighted (standardised 0-100)	Weighted
Leishmania	56	8815
Babesia	53	8039
Ehrlichia	48	7494
Dirofilaria	48	7156
Influenza	40	6457
Endemic canine diseases		
Diseases	Unweighted (standardised 0-100)	Weighted
Leptospira	63	9275
Parvovirus	60	8198
Distemper	54	7138
Lungworm	52	7086
CRGV	50	6727

Canine syndromes
Respiratory disease
Gastrointestinal disease
Neurologic disease

Conclusions

- We have identified the most important canine endemic, exotic diseases and syndromes, according to UK stakeholders. These diseases will be included in future nation-wide outbreak response protocols developed by SAVSNET Agile.
- Final disease rankings reflect a high level of consensus among participants.
- These priorities may change over time as the demographic, socioeconomic and climatic factors evolve. It will therefore be necessary for such disease priorities to be regularly revisited and updated to reflect the prevailing epidemiological situation.

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References

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