Rabies risk in owned and un-owned dogs in Sri Lanka

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Introduction

Rabies is endemic in Sri Lanka, and dogs are the main reservoirs and transmitters of the disease. Therefore, controlling rabies among dogs is an important aspect of controlling the risk of rabies transmission to people.

Controlling rabies can be accomplished by ensuring that at least 70% of the dog population is vaccinated against the disease. However, a lack of accurate dog population data in Sri Lanka has hindered such an approach.

This study aimed to estimate the total number of inside dogs (i.e. owned dogs that are totally restricted) and outside dogs (i.e. un-owned and free-roaming dogs), and to assess the knowledge, attitudes and practices of dog owners in relation to rabies. These data will inform the design of an effective and sustainable rabies elimination strategy for Sri Lanka.

Objectives

- To estimate the numbers of inside and outside dogs in 45 areas across Sri Lanka.
- To evaluate knowledge attitudes and practices of dogs owners in relation to rabies control.
- To review current policies and practices for rabies control.
- To recommend interventions to enhance the effectiveness of rabies control policies.

Methods

This was a national cross-sectional survey of the inside and outside dog populations in Sri Lanka conducted during October 2013. An inside dog was defined as one that was kept in a household via containment inside a fence/wall, or was tied or caged. An outside dog was defined as any dog that was able to walk on the street without owner supervision.

Assuming that dog population density is associated with human population density (HPD), the 324 Divisional Secretariats (DS) in the country were classified into three categories: high HPD (≥1000 persons/km2), intermediate HPD (400–999 persons/km2) or low HPD (<400 persons/km2). Fifteen DS were then randomly selected from each category, giving 45 in total.

Trained data collectors using a systematic sampling technique walked the streets and roads of their allocated DS until they had visited 35 households. The numbers of inside and outside dogs encountered along the transect were recorded, along with the actual distance travelled. Two transects were walked per DS.

At each house, a questionnaire was used to record information gathered from the inhabitants regarding the rabies vaccination status of their dog/s and their knowledge, attitudes and practices regarding rabies control. Red and yellow collars were put around the necks of the inside dogs to identify that they that had been counted.

To estimate the outside dog population, a "count, mark and re-count" technique was used. Outside dogs seen during the initial transects were marked. On the following two mornings the same route was walked again and the same procedure repeated; sub-counts were made of dogs encountered that had been previously marked. The questionnaire data will be administered and analysed in Epi Info 7. Log-linear methods will be used to obtain the population estimates from the count data using the R-capture software provided by Baillargeon and Rivest, 2007.

Preliminary results

Questionnaire data was collected from 1988 households located within 45 Divisional Secretariats (DS) within 16 Districts in Sri Lanka. The mean count of inside dogs per household, based on counts from 35 households within each DS, was 1.3 (median 1.4), with a range of 0.3 – 2.0 across the 45 DS. The analysis of the data collected in this project is ongoing.

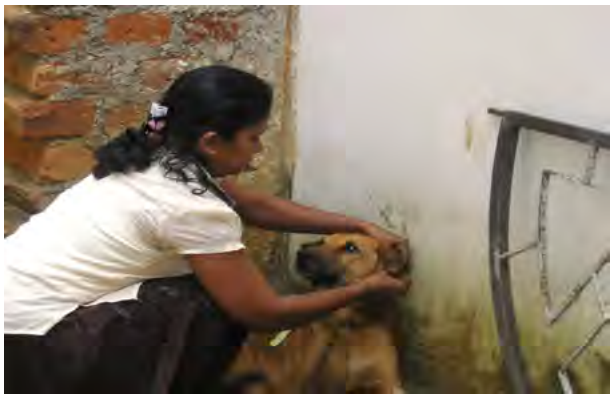

Figure 1. An owner fits a temporary, yellow, plastic collar to her dog after it has been included in the study.

References

Baillargeon, S. and Rivest, L-P. Rcapture: Loglinear Models for Capture-Recapture in R. J Stat Soft 19(5), 2007.