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How many vets would be needed if every household in the UK owned a dog?

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Abstract

Using data for the number of households in the UK between 2012 and 2017, it is estimated that if every household in 2019 was to own a dog then 4922^{+52}_{-2} vets would be needed if they each had the recommended 20 minute check-up each year. The range on the estimation is based on the nonlinearity of data over the period and is limited by the small data set and external factors that would affect the number of households and the number of dogs. It is projected that, on average, there is an increase in 0.59 % every year on the number of households and thus the number of vets needed.

Introduction

The most common pet in the UK is man's best friend with 26% of households owning a dog in 2017 and 2018 [1]. To care for them, they require quality healthcare by vets for both general check-ups and treatment for health problems. The number of documented vets between 2010 and 2018 in the UK has fluctuated between 18 and 24 thousand with 20 thousand in the most recent 2018 documentations [2]. This paper discusses the number of vets needed if every household in the UK owned a dog.

Results

Assuming that a single vet works a standard shift of 8 hours and that an average visit to the vets with a dog takes between 5 and 45 minutes [3], then one vet would be able to see between 11 and 96 patients a day. Also, assuming that a vet has statutory annual leave of 28 days [4, 5] (including bank holidays [6]) then with weekends accounted for too, a vet will work for 233 days in a single year. This means, if taking an average appointment time of 20 minutes, in one year a single vet would be able to see 5592 patients.

It is recommended that for a general check-up, a dog should go to the vets at least once a year [7]. The number of households in the UK has been documented by Office for National Statistics since 2012 which are shown in red in figure 1. Corresponding in blue in figure 1 shows the number of vets needed if each household had a dog that they took to the vets once a year (number of households per 5592 vets).
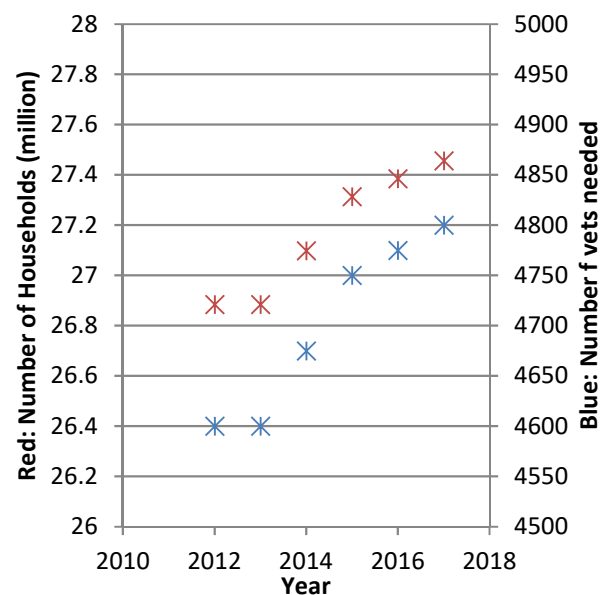

Figure 1 – The number of households in the UK [8-13] (red, left axis) and the number of vets needed if each household owned a dog (blue, right axis) from 2012 to 2017.

Discussion

The percentage change from 2012 to 2017 was a 3.03 % or 143 additional vets from an increase in vets from 4721 in 2012 and 4864 in 2017. This is equivalent to an additional 29 vets needed per year during this period. Therefore if this trend was to

continue, it is expected that currently, in 2019, 4922 vets would be needed if each household were to have a dog. This value is limited by the trend. The trend, as shown in figure 1, from 2012 to 2018 is not linear and shows a more s-curve shape. The percentage increases per year, in respective order, from 2012 to 2017 are 0.00, 1.12, 1.11, 0.37 and 0.37 %. This means that whilst the average increase is 0.59 %, future trends will most likely show a lower increase. Using the upper boundary of 1.12 % and the lower boundary of 0.37 % increases then this would create an error on the 2019 value of (-22, +52).

The estimated UK dog population in 2017 was 8.65 million [14]. This is 31.8 %, or close to a third, of the number of households in the UK in 2017. For households that do own a dog, it is estimated that on average in 2017 each household will own between 1.1 and 1.5 dogs [15]. This suggests that the number of households that owns a dog is, in reality, less than 31.8 % which is supported, as stated earlier, by statistics estimating that 26 % of households own a dog [1]. This model only considers households with one dog and not multiple. Therefore, the true value

of the number of vets needed would be higher if households owned more than one dog.

Whilst the calculated value may suggest that there are surplus vets, this model assumes the vets are working for the entire 8 hours without any breaks. Furthermore, they would be tending to other animals' needs and to dogs that need more care than the standard once a year visit. Therefore in reality, the number of vets needed would significantly exceed this.

Conclusion

If every household in the UK owned a dog in 2019 it is estimated that 4922^{+52}_{-22} vets would be needed to provide one 20 minute routine check-up (or other health service) per year to each dog. This model shows that the projected increase in the required number of vets each year is 0.59 %. However, the accuracy of the projection is limited by the fact that the trend over the period that data is available is not linear.

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