

## Equine influenza vaccination uptake by horse owners and factors influencing their decision to vaccinate

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Reasons for performing the study: equine influenza vaccination can limit disease and improve welfare in horses, so monitoring the current vaccination rate in the United Kingdom and understanding why horse owners fail to vaccinate is important. Objectives: to assess the influenza vaccination rate and explore factors that influence whether horses in the United Kingdom (UK) are vaccinated against equine influenza. Study design: a cross-sectional, observational study by survey. Methods: A mixed method directional survey was designed. Each participant was asked a total of 29 questions with anonymised data collected for up to 5 horses per participant. The survey was released online on the 5th July 2016, distributed via a number of media outlets and closed on the 19th October 2016. Statistical analysis included logistic regression, and Yates' Chi-squared and Mann-Whitney U tests.  $p < 0.05$  was considered significant. Thematic analysis was used to interpret the qualitative data. Results: Responses from 4,837 horse owners who were responsible for 10,501 horses were analysed. An overall EIV vaccination rate of 80% (8385/10501) was found. Several factors were associated significantly with lower equine influenza vaccination rates including: owning more than five horses; living in Wales; annual household income  $< \pounds 15,000$ ; and horses never leaving home premises. Horse welfare and competition requirements were the main reasons for vaccinating against equine influenza. Several reasons for non-vaccination were identified including: not competing in affiliated competition; lack of exposure to new horses; adverse reactions to vaccines; and financial constraints. Conclusions: These data provide, for the first time, novel insights into the reasons which influence horse owners' decisions around influenza vaccination of their horses. Such information highlights subpopulations of horse owners whose horses are at greater risk of influenza infection. This in turn may help veterinary surgeons communicate more personalised advice to their horse-owning clients.

Declarations: this study was approved by the School of Veterinary Medicine and Science's Ethical Approval Committee. The authors declare no competing interests.

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