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Preventive health care and owner-reported disease prevalence of horses and ponies in Great Britain

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ABSTRACT

This study aimed to describe the provision of preventive health care and owner-reported disease prevalence in horses and ponies within Great Britain (GB), and to assess geographical variations in health care provision. A cross-sectional survey was conducted, using a postal questionnaire administered to a random sample of veterinary-registered owners of horses and ponies in GB (n = 797). The majority of animals received regular preventive health care: 95.6% had regular hoof care; 71.3% were vaccinated for both influenza and tetanus and median time since last anthelmintic administration was 8.7 weeks. Thirty-one percent of owners indicated their animal was overweight/obese. A new health problem within the previous 7 days was reported for 7.4% of animals, 59.3% of which were veterinary-diagnosed. Thirty-two percent of animals were reported to have a long-term/recurrent condition, of which osteoarthritis (13.9%) was the most prevalent. Obesity, musculoskeletal disorders, and dermatological conditions were the most prevalent conditions affecting veterinary-registered horses/ponies.

1. Introduction

The provision of preventive health care in the equine population is intended to reduce disease occurrence and improve welfare. Detailed description of routine preventive health care and disease prevalence is necessary for assessing the effectiveness of existing health care programmes and in the evaluation of any future interventions.

While peer-reviewed information regarding equine preventive health care is limited, there is some evidence to suggest that provision of health care measures may be sub-optimal when compared to scientific recommendations (Kaneene et al., 1996). Regional differences in the provision of certain health care measures have been described within the United Kingdom (Dixon et al., 2004) and overseas (McGowan et al., 2010a). Preventive health care measures can have a direct influence on the risk of disease in horses and ponies, for example variations in parasite control programmes may be associated with increased risk of colic (Reeves et al., 1996; Hillyer et al., 2002). A study in northern Britain found considerable variation in health care regimes, with many owners implementing inadequate vaccination and worming programmes (Mellor et al., 2001). Subsequent studies have evaluated specific areas of health care (Hotchkiss et al., 2007a) and parasite control practices (Allison et al., 2011; Relf et al., 2012). However, baseline information on other aspects of health management within the general equine population is lacking.

Published measures of equine disease frequency often pertain to specific conditions (Archer and Proudman, 2006; Wylie et al., 2011), or are based on referral hospital populations, while owner-reported disease prevalence estimates in Great Britain (GB) have been limited either by geographical location (Mellor et al., 2001) or by focus on specific sub-populations such as geriatric animals (Ireland et al., 2011a). Hence there is little available information regarding the prevalence of acute health problems and chronic disorders in the general equine population of GB. Knowledge of common clinical conditions in the general population is important to prioritise research and to inform investigations of risk factors for these diseases.

This cross-sectional study aimed to describe routine preventive health care and disease prevalence in a random sample of veterinary-registered horses and ponies in GB, and to investigate geographical differences in the provision of preventive health care measures.

2. Materials and methods

2.1. Questionnaire survey design

Details of study design and data collection are described elsewhere (Wylie, 2012; Wylie et al., 2013). In brief, a postal questionnaire survey collected data from a random sample of horse owners

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registered with 30 geographically representative British veterinary practices. Twenty-four practices (80.0%) were located in England, four (13.3%) in Scotland and two (6.7%) in Wales. Each practice administered questionnaires directly to a random sample of registered horse/pony owners on a monthly basis over a two-year study period (June 2009–June 2011). The questionnaire (available by request from the corresponding author) gathered information on preventive health care, stereotypical behaviours, recent disease episodes and chronic/recurrent conditions. Owners were requested to indicate their animal's body condition score (BCS) from supplied reference images (0–5 scale) (Anon, 2005a) and to provide their animal's exact (where known) or estimated height and weight. From a comprehensive list of conditions, grouped by affected body system, owners were asked to select any disease episodes or new health problems that had occurred in the previous week, and to state whether these were veterinary-diagnosed. For each body system, an 'other' option requesting further details was also provided. Additionally, owners were requested to select, from a list, any known long-term/recurrent conditions.

Sample size calculations suggested that information was required from at least 682 animals to estimate the prevalence of health care practices and diseases between 5% and 20%, with a precision of 3%, assuming a 95% confidence interval and 80% power.

2.2. Statistical analyses

Statistical analyses were performed using commercial software.[1] Data are described as medians with interquartile ranges (IQ) for continuous data and as proportions with 95% confidence intervals (CI) for categorical data. Kruskal–Wallis and Mann–Whitney *U* tests were used to test the statistical significance of differences in median values of continuous variables between categories of categorical variables. Pearson Chi-squared or Fisher's exact tests were used to assess associations between categorical variables. Statistical significance was set at a value of $P \leqslant 0.05$.

3. Results

In total, 4670 questionnaires were sent to participating practices over the study period, with 797 (17.1%) completed questionnaires returned. The denominator for all results is 797 unless otherwise stated (there were missing data for a small number of questions). Fifty percent of questionnaires were returned during winter or spring (25.0%, during December–February and 24.8%, during March–May). Eighteen percent were returned during summer (June–August) and 32.0% were returned during autumn (September–November). Detailed description of the demographic characteristics and management of the study population is provided elsewhere (Wylie et al., 2013). In brief, median age was 13 years, 33% ($n = 263$) were ponies ($\leqslant$147.3 cm in height) and 67% ($n = 534$) were horses (>147.3 cm), 61% were used for pleasure riding and 18% were used primarily for competition.

Less than one-third of owners (28.7%; $n = 229$) knew their animal's bodyweight, while 61.6% ($n = 491$) provided an estimate. The majority of animals (61.6%; $n = 488/792$) were considered to be in good condition (BCS 3/5), while 31.2% ($n = 247/792$) were reported to be overweight/obese (BCS > 3/5) (Table 1). A greater proportion of ponies ($\leqslant$147.3 cm) were reported to be overweight/obese (41.1%; CI 35.5–47.4%; $n = 109/263$) compared to 26.1% of horses (CI 22.3–29.8%; $n = 138/529$) ($P < 0.001$).

Within the previous three months, 68.1% of animals (CI 64.8–71.4%; $n = 536/787$) were reported to have maintained a stable weight, while 17.2% (CI 14.5–19.8%; $n = 135$) had gained weight and 14.7% (CI 12.3–17.2%; $n = 116$) had lost weight. This varied significantly with season: 34.5% (CI 26.7–42.3%) of animals for which a questionnaire was returned during the summer months ($n = 50/145$) were reported to have recently gained weight, compared to 13.3% (CI 10.7–16.0%) in other seasons ($n = 87/652$) ($P < 0.001$).

Eleven percent of animals (CI 8.7–13.1%; $n = 87$) were reported to exhibit at least one stereotypic behaviour (such as crib-biting, weaving or box walking), and 1.6% (CI 0.8–2.5%; $n = 13$) exhibited more than one stereotypy. Weaving (3.5%; CI 2.2–4.8%; $n = 28$) and crib biting and/or wind sucking (3.5%; CI 2.2–4.8%; $n = 28$) were the most frequently reported stereotypies. A smaller proportion of ponies (3.8%; CI 1.5–6.2%; $n = 10/261$) were reported to exhibit stereotypic behaviour compared to horses (14.6%; CI 11.6–17.6%; $n = 77/529$) ($P < 0.001$).

3.1. Preventive health care

Only 0.4% of animals (CI 0.0–0.8%; $n = 3$) were reported not to receive hoof care, and the majority (95.6%; CI 94.2–97.0%; $n = 762$) were attended by a farrier, with hoof care provided by veterinary surgeons for 0.8% (CI 0.2–1.4%; $n = 6$), barefoot trimmers/equine podiatrists for 2.3% (CI 1.2–3.3%; $n = 18$), and for 1.0% (CI 0.3–1.7%; $n = 8$), the owner was the sole provider of hoof care. There was geographical variation in providers of hoof care, with a smaller proportion of animals in Wales (89.7%; CI 81.8–97.5%) attended by a farrier compared to those in England (98.0%; CI 96.9–99.1%) and Scotland (96.2%; CI 93.0–99.5%) ($P = 0.003$), while a greater proportion of animals in Wales (6.9%; CI 0.3–13.4%) were attended by a barefoot trimmer/equine podiatrist compared to those in England (1.3%; CI 0.4–2.2%) and Scotland (3.8%; CI 0.5–7.0%) ($P = 0.009$).

Almost one-third of animals (31.7%; CI 28.5–35.0%; $n = 253$) were unshod, and a greater proportion of animals in Wales were unshod (50%; CI 37.1–62.9%) compared to England (29.7%; CI 26.0–33.3%) and Scotland (33.3%; CI 25.3–41.4%) ($P = 0.002$). A greater proportion of retired/companion animals were unshod (65.6%; CI 56.1–75.1%) compared to animals participating in some form of activity (27.0%; CI 23.7–30.3%) ($P < 0.001$). Greater proportions of horses and ponies aged <5 years (72.6%; CI 61.5–83.7%) and >25 years (50.0%; CI 35.9–64.1%) were unshod compared to animals aged 5–25 years (26.9%; CI 23.5–30.2%) ($P < 0.001$).

Overall, the median frequency for provision of hoof care was every 6 weeks (IQ 6–8 weeks), although frequency was lower for animals in Wales (median every 7 weeks, IQ 6–10 weeks) compared to England and Scotland (both median every 6 weeks, IQ 6–8 weeks) ($P < 0.001$). Animals aged <5 years or >25 years received less frequent hoof care (median intervals 7.5 and 8 weeks, respectively; IQ both 6–8 weeks) compared to animals aged 5–25 years (median interval 6 weeks; IQ 6–8 weeks) ($P < 0.001$).

Vaccination status was reported for 753 animals (Table 2) with 7.6% of owners (CI 5.7–9.5%; $n = 57$) indicating their animal was not vaccinated. The proportion of vaccinated animals was not significantly different between countries. A greater proportion of ponies were unvaccinated (11.1%; CI 7.2–15.0%; $n = 28/252$) compared to horses (5.8%; CI 3.8–7.8%; $n = 29/500$) ($P = 0.009$), and a greater proportion of retired/companion animals were unvaccinated (17.8%; CI 9.9–25.7%; $n = 16/90$) compared to those involved in active disciplines (6.2%; CI 4.4–8.0%; $n = 41/661$) ($P < 0.001$). Overall, 71.3% (CI 68.1–74.5%; $n = 537/753$) were reported to be vaccinated for both influenza and tetanus, while 10.2% (CI 8.1–12.4%; $n = 77/753$) were vaccinated against tetanus only. Four percent of animals (CI 2.5–5.6%; $n = 25/615$) reported to be vaccinated against influenza were last vaccinated more than 365 days previously and 2.1% (CI 1.0–3.2%; $n = 13/617$) of those reported to be vaccinated against tetanus had not received a

[1] PASW Version 18, SPSS Inc., Chicago, Illinois, USA.