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PAPER

Assessment of costs and insurance policies for referral treatment of equine colic

Isobel Barker, Sarah L Freeman

Abstract

Colic is the most common emergency problem in horses. The aims of this study were to survey costs of different referral treatments and to review insurance policies relevant to horses with colic. Data were collected retrospectively from nine equine hospitals for case costs, categorised into four different outcomes: admitted and euthanased; euthanased during or immediately after surgery; medical treatment and survived more than 24 hours; and surgical treatment and survived more than 24 hours. Data from five UK equine insurance companies were extracted and analysed using a standardised case example. Costs were obtained for 108 cases. The mean cost for horses admitted and euthanased was £873.89 (range £459.72–£1471.51), and for surgical treatment and survival more than 24 hours was £6437.80 (range £3178.87–£9100.00). Insurance cover for veterinary fees ranged from £5000 to £7500, and monthly premium rates for a standardised case ranged from £27.06 to £47.06. The terms and conditions for the insurance policies ranged in length from 2098 to 17,701 words; Flesch Kincaid Reading Ease scores ranged from 21.6 to 57.7, indicating a high degree of complexity and low readability. This study highlights the complexity and challenges for decision-making in critical cases of colic.

Introduction

Colic (clinical signs of abdominal pain) is the most common reason for out-of-hours emergency calls in equine veterinary practice.[1] The majority of horses with colic have mild to moderate disease that resolves with simple medical treatment, but a significant proportion of cases are more critical. Two studies have reported that approximately 20 per cent of cases may be critical (defined as cases requiring referral medical or surgical treatment, euthanasia, or that die).[1 2] In these situations, an owner and their veterinary surgeon will have to make a rapid decision on whether referral treatment is an option for their horse or whether the horse should be euthanased. A number of factors can affect this judgement, including the potential costs of treatment and the finances available to the owner.

Colic refers to signs of abdominal pain, and these can be caused by a range of different diseases, including impactions, enterocolitis and strangulating lesions. These may require a combination of different diagnostic tests for investigation and a range of treatment options (including medical treatment, hospitalisation or surgical intervention). For this reason, it is often challenging to predict what the total cost of an episode of colic might be. There is currently a single published study which investigated the cost of colic in a Swedish population of horses using data from a large insurance database.[3] No such study has been performed for the UK population, meaning there is little information available to owners on the costs and financial options for critical cases of colic.

The aims of this study were to assess costs of different referral treatments for colic in the UK, and to review and compare the main insurance policies relevant to horses with colic.

Materials and methods

Cost investigation

A questionnaire was designed to collect cost data retrospectively on cases of colic seen within referral hospitals. Paper and online versions of the questionnaire were sent to 44 UK equine hospitals in October/November 2018, with follow-up reminders in December 2018. Inclusion criteria were practices that were listed on the Royal College of Veterinary Surgeons

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School of Veterinary Medicine and Science, University of Nottingham, Sutton Bonington, UK

E-mail for correspondence: Professor Sarah L Freeman; sarah.freeman@nottingham.ac.uk

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database as a UK equine referral hospital or routinely performed colic surgery.

On the questionnaire, practices were asked to provide the first half of their postcode, the number of full-time equivalent veterinary surgeons and the cost of their initial colic consultation, both in working hours and 'out of hours'. Practices were then requested to provide anonymised cost data for their three most recent cases of colic that matched each of the following four outcome categories (total of 12 cases):

- Cases that were euthanased within the first 24 hours of hospital admission without any surgical intervention.
- Cases that were euthanased during/after first surgical intervention.
- Cases that received medical intervention and survived more than 24 hours after hospital admission.
- Cases that received surgical intervention and survived more than 24 hours after hospital admission.

The information requested was the age of the animal, whether it was insured or not, and the total cost of the treatment at the hospital. The total costs provided included value added tax (VAT), livery and daily professional charges.

Insurance investigation

The second part of the study was an investigation into the insurance policies associated with colic treatment. Five insurance companies were selected for assessment and comparison: National Farmers Union Mutual Insurance Society (NFU Mutual), Equine and Livestock Insurance Company (E&L), Kershaw Bloodstock Insurance Services (KBIS), South Essex Insurance Brokers (SEIB), and Pet Plan (Petplan). Their policies on insurance cover for colic cases were investigated using each company's website.

A hypothetical horse was created and was used to obtain a quote from the insurance companies using either their website or via telephone call. The description of the horse used was consistent for every insurance company (details in online supplementary item 1). For companies with multiple policy options, the policy with the highest level of veterinary fees cover, loss of use (if this was included as standard) and disposal cover was chosen.

The data obtained from each insurance company included the maximum cover available for veterinary fees, the number of questions that had to be answered when obtaining a quotation for the hypothetical horse, the policy on loss of use and disposal, and the quotation given for premiums and excesses. The data from all five companies were compared using descriptive analysis.

The terms and conditions and product information documents were also analysed for each company. Any terms and conditions, including exclusion criteria, that may affect a claim for a case of colic were noted. The available information documents were assessed using the WebFX online readability test tool.[4] This tool assesses the text within documents and performs the following measures/scores: Flesch Kincaid Reading Ease, Flesch Kincaid Grade Level 1, Gunning Fog Score, simple measure of gobbledygook (SMOG) Index, Coleman Liau Index, Automated Readability Index, number of sentences, number of words, number of complex words, percentage of complex words, average words per sentence and average syllables per sentence within the document, and the predicted reader age that the document would be easily understood by. The data are presented on the Flesch Kincaid Reading Ease, Gunning Fog Score, total number of words, percentage of complex words and the 'age easily understood by'. The data from the additional assessments are presented in online supplementary item 1. The Flesch Kincaid Reading Ease is the most commonly used readability tool and uses a scale of 0–100 (low–high readability); a score of 65 is commonly used as a target for business writing.[4] The Gunning Fog Score estimates how many years of formal education a person needs to be able to understand the text, by assessing the number of words and syllables and the sentence lengths. A Gunning Fog Score of 7–8 is ideal, and a score of 12 is considered too difficult for most people to read (Anon 2018f). Both measures have been used previously to assess the readability of medical literature.[5 6]

Results

Cost investigation

Data were received from nine UK equine referral hospitals (20.5 per cent of practices that were invited to participate). Each practice submitted three cases for each of the four outcome categories (12 cases per veterinary practice, 108 cases in total). Three practices were based in South of England, two in the North of England and four in the Midlands.

Data on the demographics of 59 horses were provided; these had a mean age of 12.6 years (range 2–30 years), and one horse's age was unknown. Of these horses, 22 (37.3 per cent) were insured and 37 (62.7 per cent) were not insured.

The mean cost of treatment for each category is shown in table 1.

Table 1 Mean cost of colic treatment and range of costs at UK equine hospitals for four different outcomes of an episode of colic

	Mean cost	Range of costs
Outcome 1: euthanasia*	£873.89	£459.72–£1471.51
Outcome 2: surgery and euthanasia†	£3485.13	£1579.71–£10,301.31
Outcome 3: medical treatment‡	£1501.08	£554.04–£3821.01
Outcome 4: surgical treatment§	£6436.80	£3178.87–£9100.00

*Outcome 1: cases that were euthanased within the first 24 hours of hospital admission without any surgical intervention.
†Outcome 2: cases that were euthanased during/after first surgical intervention.
‡Outcome 3: cases that received medical intervention and survived more than 24 hours after hospital admission.
§Outcome 4: cases that received surgical intervention and survived more than 24 hours after hospital admission.

Table 2 Comparison between UK equine insurance companies for the highest level of veterinary fees cover, cover for loss of use and disposal

Insurance company	Veterinary fees cover	Loss of use* (%)	Disposal
National Farmers Union Mutual Insurance Society	£5000.00	80	£250.00
Equine and Livestock Insurance Company	£5750.00†	100‡	£200.00
Kershaw Bloodstock Insurance Services	£7500.00	–	£200.00
South Essex Insurance Brokers	£5000.00	60 or 75	£300.00
Pet Plan	£5000.00	60 or 100	£200.00

The prices were correct for November 2018.
*Loss of use percentages refer to the amount insured or the market value (whichever is less). If no value is shown, loss of use is only available on a specialist policy, for example Kershaw Bloodstock Insurance Services Competition Horse policy.[7]
†Veterinary fees are insured up to a maximum of £4600.00. Additional £1150.00 contributes towards the cost of vet-recommended physiotherapy, hydrotherapy, acupuncture, ultrasound and remedial shoeing.[9]
‡Benefit limited to 50% for horses aged 13 or over.[9]

Insurance investigation

The policies of five UK equine insurance companies were investigated. A comparison was made between the amount of veterinary fees cover offered, cover for loss of use and contribution towards disposal (table 2).

Cover for death of horse was 100 per cent of the sum insured or market value (whichever is less) for each company. If loss of use was not included as standard, it was available either as part of a specialist policy[7] or as an optional extra that could be added on to the policy.[8]

Certain limitations and exclusions applied to some policies. The minimum and maximum age was stated for all policies. The minimum age that KBIS insured was 90 days.[7] The other four policies insured a minimum age of 30/31 days.[8–11] The maximum age that a policy could be taken out for a horse varied. Both NFU Mutual and Petplan allowed policy inception up to 19 years old, and this would cover a horse for illness up to the age of 25 years.[10 11] E&L allowed policy inception up to 15 years.[9] The policy for KBIS chosen for the comparison in tables 2 and 3 covered the horse up to 20 years old.[7] SEIB specified age restrictions only on a certificate of insurance.[8]

KBIS offered a unique 'Catastrophe cover' which could be purchased for £300.00 with an excess of £140.00 as a stand-alone policy or as an additional extra to a main policy. This covered the cost of colic surgery up to £7500.00.[7]

The number of questions that had to be answered when obtaining a quotation for the hypothetical horse varied between 10 and 45. The premium quoted for the hypothetical horse ranged from £27.06 to £47.06, and the insurance excess payable ranged from £140.00 to £165.00 (table 3).

When obtaining a quote for the hypothetical horse, some companies required more details than others, with NFU Mutual and SEIB asking for the most information with over 30 questions.[8] Four out of five (80 per cent) of the insurance companies had the option to get a quote online.[7–9 11] Only NFU Mutual required a telephone conversation to provide a quote.

Exclusions applied to any horse that was euthanased outside of the British Equine Veterinary Association (BEVA) guidelines[12] for all companies. It was stated in all policies that the insurance would not pay out for death of the horse when euthanasia was not needed on immediate humane grounds or without written permission from the insurance company.

The terms and conditions for each policy were assessed using the WebFX readability assessment tool (table 4). The assessments for all measures are presented in online supplementary item 2. The data presented in table 4 include the Flesch Kincaid Reading Ease, Gunning Fog Score, total number of words, percentage of complex words and the 'age easily understood by'. The Flesch Kincaid Reading Ease scores varied from 21.6 (E&L 'demands and needs') to 57.7 (Petplan) (the minimum possible score is 0 and the maximum possible score is 100; a higher score indicates a higher readability). The Gunning Fox Index score varied from 12.4 (Petplan) to 20.8 (SEIB) (a higher score indicates a lower readability). The total number of words for all the relevant documents from each company ranged from 10,033 (E&L 'demands and needs' and 'policy wording' documents combined) to 17,071 (Petplan). The percentage of complex words within the documents ranged from 14.6 per cent (Petplan) to 20.4 per

Table 3 Comparison between UK equine insurance companies, the method of obtaining a quotation for a hypothetical horse, the number of questions asked, the premium that was quoted and the excess payable

Insurance company	Method of obtaining quote	Number of questions answered to obtain quote	Quote for hypothetical horse* (premium per month)	Insurance excess
National Farmers Union Mutual Insurance Society	Telephone	45	£47.06	£145.00
Equine and Livestock Insurance Company	Online	10	£27.06	£159.00†
Kershaw Bloodstock Insurance Services	Online	27	£30.02	£140.00
South Essex Insurance Brokers	Online	37	£33.19	£165.00‡
Pet Plan	Online	20	£35.44	£145.00

The amounts shown are correct when the premiums are paid monthly. The prices were correct for November 2018.
*14-year-old Welsh Section D, purchased six years previously, purchase price £1250 and veterinary prepurchase examination performed at purchase (full details in online supplementary item 1).
†Excess is 17.5% of the cost of the claim. £159 is the minimum excess.
‡Range of choices available for the excess (£135/£165, £200, £250, £300, £500). £165 was chosen as it is similar to the other companies in order to make the premium comparable. There is an option to pay 17.5% of cost of veterinary fee claims in order to have cheaper premiums.[8]

Table 4 Readability of the terms and conditions documents provided by five UK insurance companies

Name of company	Flesch Kincaid Reading Ease score*	Gunning Fog Score†	Number of words	Percentage of complex words	Age easily understood by (years)
National Farmers Union Mutual Insurance Society	40.8	17	15,802	16.26	19–20
Equine and Livestock Insurance Company ('demands and needs')	21.6	17.6	2098	20.40	22–23
Equine and Livestock Insurance Company ('policy wording')	51.9	13	7935	17.23	16–17
Kershaw Bloodstock Insurance Services	35.1	18.2	14,528	18.78	20–21
South Essex Insurance Brokers ('Equine elite policy wording')	25.4	20.8	14,698	19.21	23–24
Pet Plan	57.7	12.4	17,071	14.60	15–16

*The Flesch Kincaid Reading Ease is the most commonly used readability tool based on a ranking scale of 0–100 (low readability–high readability), with a score of 65 commonly used as a target for business writing.
†The Gunning Fog Score is used to assess readability through a formula that assessed the number of words, syllables and sentences, with a higher score indicating low readability. A Gunning Fog Score of 7–8 is ideal, and a score of 12 is considered too difficult for most people to read.

cent (E&L demands and needs). The reader age the documents would be easily understood by ranged from 15–16 years old (Petplan) to 23–24 years old (SEIB equine elite policy wording).

The results of the readability assessment of the product information documents are shown in table 5, with the full assessment across a range of scoring systems presented in online supplementary item 3.

Discussion

There is a lack of published studies on the cost of referral treatment of colic in the UK or on the insurance policies available. The range of different possible causes, treatments and outcomes for colic can make it challenging for vets to predict the costs and for owners to make an informed choice on whether they can afford different treatment outcomes. This study provides a 'snap shot' of the current costs for the main categories of case type/outcome and an overview of the current insurance policies. It illustrates the wide range of costs that may occur, and that the cost of surgical treatment (mean £6437) exceeded the maximum cover for four out of five insurance policies. This study also highlights that most insurance policy documents are long and complex to read, with five of five of the terms and conditions and four out of five of the companies information documents exceeding the Gunning Fog Score for being too difficult for most people to read.

Table 5 Readability of the product information documents provided by five UK insurance companies

Name of company	Flesch Kincaid Reading Ease score†	Gunning Fog Score‡	Number of words	Percentage of complex words	Age easily understood by (years)
National Farmers Union Mutual Insurance Society	64.9	6.6	842	17.81	12–13
Equine and Livestock Insurance Company	54.2	12.5	857	16.80	15–16
Kershaw Bloodstock Insurance Services	46.7	15	1383	19.38	17–18
South Essex Insurance Brokers*	44.5	14.9	440	17.27	18–19
Pet Plan*	28.7	20.7	272	20.22	22–23 years

*Information is taken directly from the company website as no specific document about product information was available.
† The Flesch Kincaid Reading Ease is the most commonly used readability tool based on a ranking scale of 0–100 (low readability–high readability), with a score of 65 commonly used as a target for business writing.
‡ The Gunning Fog Score is used to assess readability through a formula that assessed the number of words, syllables and sentences, with a higher score indicating low readability. A Gunning Fog Score of 7–8 is ideal, and a score of 12 is considered too difficult for most people to read.

There are only a small number of cost studies reported in veterinary medicine, but most relate to other surgical procedures in horses[13] or other species.[14] One recent article discusses equine colic referral and cost,[15] but it is not clear where the costing figures were obtained from. Cost analysis studies are commonly reported for human medicine, where the cost-effectiveness of treatments can influence major healthcare decisions.[16 17] Obtaining costing data for equine cases is more difficult, as there is no centralised healthcare system, and currently only a limited number of multicentre equine studies have been published. In this study, each practice was only asked for cost information for a small number of cases, to try and maximise participation. Data were returned from 20 per cent of the practices that were contacted. The small numbers of cases and the potential for response bias mean that these data only provide an example of the range and type of costs for different cases, and data from all practices on all cases seen within a specified time period (eg, a 12-month period) would be required to provide an accurate analysis of the range of costs.

Information on the age and insurance status of the horses was not completed by all participating practices, but data from 59 horses showed that a significant number were not insured (62.7 per cent). There are a number of possible reasons, including the age of the horse, any history of colic or owner preference; further investigation would be helpful to understand how these factors affect owners' decision-making.

The present study showed that the cost of treatment for each outcome varied significantly. Cases that were euthanased within 24 hours with no surgical intervention were the least expensive, but still involved

a significant cost (mean £874, range £460–£1472). Cases that were treated medically and survived for more than 24 hours were the least expensive treatment category (mean £1501, range £554–£3821) and were likely to fall within insurance cover limits for veterinary fees. The article by McGovern[15] gave a guide to costs for simple medical treatment as £500–£1000 and intensive medical treatment as £1000–£3000, which are similar to the ranges in this study. Cases that had surgery but were later euthanased had a mean cost of £3485, but there were a wide range of costs (up to £10,301), which could significantly exceed current insurance levels. The most expensive cases were those that received surgical intervention and survived for more than 24 hours (mean £6436, range £3179–£9100), but were again similar to the guide figures of £3000–£8000 given by McGovern.[15] However, the major consideration is that the mean costs for surgical treatment would exceed cover provided by most insurance policies. Three policies were up to £5000, one was up to £5750 (but only £4600 of this was appropriate for colic costs), and the highest cover was up to £7500. The cost of referral treatment exceeded £5000 for 21 of the 27 cases (77.8 per cent) that had surgery and survived for more than 24 hours. The costing data obtained from this study also do not include the cost of the primary assessment by the referring veterinary surgeon or the cost of any care by the referring veterinary surgeon after the horse has been discharged, and therefore the total cost of each specific episode will be higher than the figures described in this study.

In terms of policy details, three companies included cover for loss of use as standard,[9–11] while for one it was only included in a specific policy.[7] One company offered loss of use as an optional extra to the main policy.[8] All companies contributed towards disposal of the horse, but the amount covered varied, with the highest amount being £300.[8] Variation between policies is important to offer owners choice and ensure market competition, but may be confusing for owners unless they have read or had explained the details for each policy.

Exclusions relating to the age of the horse applied to all insurance policies. This may be particularly relevant to colic, as older horses are at increased risk of certain types of colic, such as pedunculated lipoma strangulations.[18 19] In the event of death of the horse, all companies would pay 100 per cent of the insured value or market value of the horse, depending on which is less. All of the insurance companies stated in the policy wording, or in the terms and condition, that they would only pay if euthanasia was required on immediate humane grounds, and this was confirmed by a veterinary surgeon, or if prior written consent to euthanase the animal was obtained from the insurance company. This is in accordance with the BEVA Guidelines for the Destruction Of Horses.[12] Many owners may not be aware of this or understand how this applies to their situations, and will be reliant on the veterinary surgeon to guide them through this process.

This study focused specifically on the highest level of veterinary fees cover for each company, as well as the highest level of loss of use and disposal cover if this was an option, and used a 'standardised' horse scenario to enable comparison of policies and costs. The actual cost to an owner will vary significantly, as there are many levels of cover available. A wide range of factors that may be considered by the insurance company include where the horse is kept, whether premiums are paid monthly or annually, the type of work the horse is used for, the age of the horse, and any additional cover (such as public liability cover, tack cover) that the owner may wish to include. The use of only policies of £5000 to compare premiums may have been more appropriate, but the authors wished to identify and compare the maximum cover policies available.

This study has shown that all of the insurance companies vary in the types of cover offered, and that there may be a wide range of exclusions, which means that owners will need to read the documents carefully to understand how and when to make a claim. The WebFX readability tool was used in this study to assess the terms and conditions and product information documents. The key findings were that the relevant documents were long and complex; all of the readability tests showed that the documents were difficult to read. This is a common issue for policy terms and conditions documents. A study of buildings and content insurance policies reported that most were comprehensible only by graduates, with some only being meaningfully understood by 13.4 per cent of the UK adult population.[20] The findings of the current study identify similar issues with the equine insurance policies. There are significant issues with literacy skills in the UK: one in seven adults in England are described as 'functionally illiterate', with literacy levels at or below those expected of an 11-year-old.[21] A significant proportion of the general public who purchase equine insurance may therefore not be able to interpret the complex language used in many of these documents. Johnson and Mullany[20] investigated the impact of redrafting insurance policies using techniques to improve readability, including changing the paragraph and sentence structure, and reducing sentence length. These changes significantly improved the readability score and accessibility of the documents. Similar approaches are recommended to improve the readability of equine insurance documents and ensure that these are accessible to as wide a range of horse owners as possible.

This study reports on the financial costs of colic treatment in horses. The costs of referral treatment vary widely, but this study provides data on the range of costs that might be expected for different types of colic. There is frequently a significant gap between insurance cover and the cost for surgical treatment that owners of

insured horses should be aware of and consider in their decision-making. This study also highlights a need to review the documentation that is currently available to owners from the insurance companies, to ensure that it is easily readable and understood. The role of the veterinary surgeon in guiding the owner through the complexity of decision-making and insurance policies should not be underestimated. The costing and insurance data from this study should assist veterinary surgeons and horse owners with critical decision-making in horses with colic.

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