Abstract

Dog fighting became unlawful in the UK in 1835, yet it continues today (as reported by the Royal Society for the Prevention of Cruelty to Animals [RSPCA] and Crown Prosecution Service [CPS]), albeit with an unknown prevalence. We used an online questionnaire to (i) determine the occurrence of dogs suspected of use in fighting in UK veterinary practices; (ii) explore relative reporting of incidents to police, RSPCA or equivalent charity by Registered Veterinary Nurses (RVNs) and veterinarians; and (iii) determine factors influencing reporting. Emails (n=2,493) containing the questionnaire were sent to UK veterinary practices: 423 questionnaires (159 by RVNs, 264 by veterinarians) were completed. One or more cases of dog fighting were suspected by 14.42% of respondents in 2015; 182 cases suspected in total. Proportionately more RVNs suspected dog fighting than veterinarians (p=0.0009). Thirty two respondents (7.58%, n=422) claimed to have reported suspicions to the police, the RSPCA or equivalent charity previously; 59 respondents (14.15%) had previously chosen not to. Reasons not to report included: uncertainty of illegal activity (81.36%), fear of the client not returning to the practice (35.59%) and concerns regarding client confidentiality (22.03%). Further work is required to address under-reporting of dog fighting by veterinary professionals.
Introduction

Dog fighting is the intentional placement of two or more dogs together for the purpose of fighting (Animal Welfare Act 2006, S8) and can be further defined as the non-accidental attack of one or more dogs on one or more other dogs, often accompanied by the exchange of money by owners and spectators, incorporating a range of offences in law (adapted from Harding 2012 and RSPCA 2017). Dog fighting is associated with multiple welfare concerns. Injuries experienced by fighting dogs typically include deep punctures, lacerations, fractures and de-gloving wounds of the legs, with the presence of wounds and scars at various stages of healing being a key identifying factor (Merck 2012). The training process for high level fights can include the chasing, attacking and killing of bait animals (Tiplady 2013); these are predominantly dogs and cats that may have been stolen, stray, advertised on the internet as “free to good home” or wild animals that are taken by dog fighters for use as practice material (Harding 2012). Surviving bait animals have later been found abandoned and injured and constitute a further welfare concern with the practice (Dinnage et al., 2004, Glendinning 2014, Anthony 2016). The electrocution, hanging and drowning of dogs has also been documented as a means of culling dogs that are unsuccessful in fights or suffer irreparable injury (Harding and Nurse 2015, Animal Legal Defense Fund 2017).

The prevalence of dog fighting in the UK is unpublished, however, in 2015 the UK Royal Society for the Prevention of Cruelty to Animals (RSPCA) received 506 complaint calls about suspected dog fighting activity involving 1,389 dogs and made 28 related prosecutions (Lawson 2017). Despite its clear ongoing presence in the UK, the availability of peer-reviewed literature on dog fighting is limited and primarily represented by international research.

It has been reported that canine recipients of non-accidental injury (NAI; the intentional harm of an animal [McGuinness et al., 2005]) in the UK present to veterinary practice (Munro and Thrusfield 2001). Thus, as a type of NAI, injuries acquired in relation to dog fighting may present to UK veterinary clinics. Where veterinary professionals suspect dog fighting, they are chiefly encouraged to report suspicions to the police (Animal Welfare Act 2006), but may
also contact welfare charities (RSPCA or equivalents) or the Local Authority Animal Welfare Officer (Northern Ireland) (RCVS 2018). Upon receiving a report of serious animal abuse such as dog fighting, the police will launch an investigation and should sufficient evidence be obtained to support the suspicion, the case will be handed to the CPS for prosecution of offenders. The police may also liaise with the RSPCA for assistance during the investigation (Wooler 2014); the RSPCA has a Special Operations Unit (SOU) that focuses on complex organised animal crime such as dog fighting and may also prosecute offenders (Wooler 2014). Prosecution may lead to conviction which can result in financial penalties, imprisonment and bans from keeping animals (Wooler 2014). Therefore, by appropriately reporting suspected cases of dog fighting, veterinary professionals could assist in identifying and prosecuting the human perpetrators and benefit the individual animals by their removal from the situation. However, it has been suggested that NAI cases are greatly under-reported by veterinarians to appropriate authorities (the police in the UK), or to welfare charities such as the RSPCA (Tong 2016). Although evidence is lacking, reasons for this have been postulated by various authors (Table 1) and can be categorised into uncertainty in identifying cases and barriers to reporting suspected cases. Tong (2016) suggested difficulty in identifying NAI as a major reason for under-reporting, which could be underpinned by inexperience. Conversely, more experienced veterinary staff may be less likely to report suspicions, as reprisals, such as loss of practice income or legal action (Morgan et al., 2007) could have greater significance to those with more professional responsibility. To date, a significant omission in the literature is reporting of NAI of any type by veterinary nurses or equivalents.

### Table 1: Reasons theorised for the under-reporting of animal abuse

<table>
<thead>
<tr>
<th>Reason</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problems in identifying non-accidental injury</td>
<td>Tong 2016</td>
</tr>
<tr>
<td>A lack of formal guidelines on reporting</td>
<td>Tong 2016</td>
</tr>
<tr>
<td>A lack of legal protection from reprisals</td>
<td>Tong 2016</td>
</tr>
<tr>
<td>Belief that abuse is not seen in practice</td>
<td>Yoffe-Sharp and Loar 2009</td>
</tr>
<tr>
<td>A lack of understanding of the process of reporting</td>
<td>Patronek 1997; Yoffe-Sharp and Loar 2009</td>
</tr>
</tbody>
</table>

1 The RSPCA operate in England and Wales; the Scottish equivalent is the Scottish Society for Prevention of Cruelty to Animals (SSPCA) and the Northern Irish equivalent is the Ulster Society for the Prevention of Cruelty to Animals (USPCA)
Concerns about client-vet relationship breakdown  Arkow 1994, Yoffe-Sharp and Loar 2009
Concerns that removal of one victim will result in simple replacement with a new victim Morgan et al., 2007
Fear of legal action  Arkow 1994, Patronek 1997, Morgan et al., 2007
Fear of loss of income  Patronek 1997, Morgan et al., 2007
Fear of reprisals  Arkow 1994, Morgan et al., 2007
Concerns regarding the difficulty of prosecution Morgan et al., 2007
A belief that it is not possible or appropriate to get involved McGuinness et al., 2005
Fear for the safety of the victim  Arkow 1994
Belief that no action will be taken  Arkow 1994

Table 1: Reasons suggested in literature as explanations for under-reporting of any type of NAI by veterinarians.

Further information on whether cases of dog fighting are suspected and if/how suspected cases are reported within veterinary practice could aid in understanding of the occurrence of dog fighting in the UK and support improvements in the identification and reporting of cases. The aims of this study were therefore to investigate suspicions and reporting of dog fighting by UK veterinary professionals (both veterinarians and Registered Veterinary Nurses [RVNs]) to the police or to welfare charities (RSPCA, SSPCA, USPCA), and to provide evidence to support factors previously suggested to influence whether or not veterinary professionals report. We hypothesised that; (1) Veterinary professionals are more likely to suspect dog fighting has occurred with greater experience; (2) Veterinary professionals with greater experience are less likely to report suspicions of dog fighting to authorities; (3) Veterinarians and RVNs are equally likely to suspect and report dog fighting.

Materials and Methods

Questionnaire design
An anonymous online questionnaire, approved by Royal Veterinary College Ethics Committee (URN 2016 1559), was created in SurveyMonkey™ (Appendix I). An introductory paragraph explained the study and indicated that submission would be taken as consent to use the data supplied in this context. Exclusion questions allowed removal of participants other than veterinarians and RVNs who worked with dogs in their professional capacity during 2015 in the UK. A number of additional questions established respondent demographics, experience (years working) and their practice type and location (city, village etc.).

Questions regarding dog fighting focussed on the calendar year preceding the year of survey distribution to minimise errors associated with long-term memory and were presented in three sections:

1) Suspicions of involvement in dog fighting by dogs and clients seen in 2015;
2) Reporting of suspected cases of dog fighting seen in 2015 to the relevant authorities and views on this;
3) Choice not to report suspicions and views on deterrents to reporting.

Question formats were primarily multiple-choice, allowing for “other” to be specified using open text comments and open text for those requiring numerical answers. Questions were worded to make explicit whether only situations that applied to the respondents’ direct experience should be selected or (for section 3) when respondents should select situations they felt would influence them in a hypothetical situation. A free text comment box at the end allowed further comments to be made. Pilot testing for readability was performed prior to distribution.

Questionnaire distribution

Questionnaire responses were collected between August and November 2016. Respondents were recruited via social media (online forums including Facebook™ and Twitter™), a letter in the Veterinary Record (Ryder 2016) and by directly emailing all veterinary practices that specified that they treated dogs (2,490) or appeared to be a small or mixed animal practice (89) in the RCVS “find a vet” database (RCVS 2016). An introductory letter explained the need for responses from veterinarians and RVNs, irrespective of whether they had ever suspected dog fighting, and provided the web link to the questionnaire. Two reminder emails, sent approximately one and three months after the initial email, to encourage completion followed up the initial 2,493 successful deliveries.
Data analysis

A total of 514 questionnaires were returned. Prior to analysis, data were cleaned in Microsoft Excel 2010, to remove questionnaires that were grossly incomplete, those not from veterinarians or RVNs, and those who had not worked with dogs in their professional capacity during 2015. This left 423 useable questionnaires; some partially completed such that total numbers of contributing respondents varied between questions.

GraphPad Prism 7 was used for statistical analysis. Data were not normally distributed, consequently medians and ranges are reported descriptively and non-parametric analyses were used. The modified Wald method was used to calculate confidence intervals (CI). Chi-squared and Fishers Exact tests were used to test for respective relationships between categorical outcome variables: whether or not cases of dog fighting had been suspected (hereafter suspicions of [yes/no]), whether or not a report of dog fighting had been made (yes/no) and whether or not a choice not to report a suspicion of dog fighting had been made (hereafter choice not to report [yes/no]); and the categorical explanatory variables: age (collapsed into the categories: ≤ 30, 31-40, 41-50, ≥ 51 years old), location (town, city, village/rural area), type of practice (independent small animal, small animal chain, mixed animal, small animal referral, charity, other) and profession (veterinarian, RVN). Mann-Whitney and Kruskal-Wallis tests were used to determine whether with duration of experience (years) altered respectively suspicions of (yes/no), number of cases suspected (none/one or more) and choice not to report (yes/no). A Spearman’s rank correlation was used to assess whether the number of cases suspected was correlated with number of years working.

Thematic analysis of open text responses associated with multiple choice “other” selections and the final free text comment box was conducted; where appropriate, responses were re-allocated into the existing question categories, otherwise new categories were established. Clear misinterpretations of questions and open text responses that were provided by only one respondent and did not fit themes were excluded.

Results
Of the 423 respondents, 264 (62.4%) were veterinarians and 159 (37.6%) were RVNs, all of whom had been working in UK veterinary practice in 2015. The majority of respondents were under 40 years old (71%), living in a town or city and working in independent or chain small animal practice, with a median of 9 years’ experience (Table 2).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Veterinarians n=264</th>
<th>RVNs n=159</th>
<th>Total n=423</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (years)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤ 30</td>
<td>81 (30.6%)</td>
<td>92 (57.9%)</td>
<td>173 (40.9%)</td>
</tr>
<tr>
<td>31-40</td>
<td>79 (29.9%)</td>
<td>48 (30.2%)</td>
<td>127 (30.0%)</td>
</tr>
<tr>
<td>41-50</td>
<td>45 (17.0%)</td>
<td>17 (10.7%)</td>
<td>62 (14.6%)</td>
</tr>
<tr>
<td>≥ 51</td>
<td>57 (21.6%)</td>
<td>2 (0.1%)</td>
<td>59 (13.9%)</td>
</tr>
<tr>
<td>No answer</td>
<td>2 (0.8%)</td>
<td>0 (0.0%)</td>
<td>2 (0.5%)</td>
</tr>
<tr>
<td><strong>Practice location</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Town</td>
<td>129 (48.9%)</td>
<td>80 (50.3%)</td>
<td>209 (49.4%)</td>
</tr>
<tr>
<td>City</td>
<td>61 (23.1%)</td>
<td>50 (31.4%)</td>
<td>111 (26.2%)</td>
</tr>
<tr>
<td>Village/Rural Area</td>
<td>73 (27.7%)</td>
<td>25 (15.7%)</td>
<td>98 (23.2%)</td>
</tr>
<tr>
<td>No answer</td>
<td>1 (0.4%)</td>
<td>4 (2.5%)</td>
<td>5 (1.2%)</td>
</tr>
<tr>
<td><strong>Type of practice</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Independent Small Animal</td>
<td>141 (53.4%)</td>
<td>68 (42.8%)</td>
<td>209 (49.4%)</td>
</tr>
<tr>
<td>Small Animal Chain</td>
<td>52 (19.7%)</td>
<td>46 (28.9%)</td>
<td>98 (23.2%)</td>
</tr>
<tr>
<td>Mixed Animal</td>
<td>44 (16.7%)</td>
<td>12 (7.5%)</td>
<td>56 (13.2%)</td>
</tr>
<tr>
<td>Small Animal Referral</td>
<td>16 (6.1%)</td>
<td>22 (13.8%)</td>
<td>38 (9.0%)</td>
</tr>
<tr>
<td>Charity</td>
<td>7 (2.7%)</td>
<td>9 (5.7%)</td>
<td>16 (3.8%)</td>
</tr>
<tr>
<td>Other</td>
<td>4 (1.5%)</td>
<td>2 (1.3%)</td>
<td>6 (1.4%)</td>
</tr>
<tr>
<td><strong>Experience (years)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Maximum</td>
<td>46</td>
<td>38</td>
<td>46</td>
</tr>
<tr>
<td>Median (inter-quartile range)</td>
<td>12 (17)</td>
<td>6 (8)</td>
<td>9 (13)</td>
</tr>
</tbody>
</table>

Table 2: Respondent demographics; Numbers (percentages) of respondents in each explanatory variable category, except experience, are presented in rows for each profession and total respondent sample in columns.
Suspecting cases of dog fighting

14.4% of all respondents suspected at least one case of dog fighting in 2015; a total of 182 dogs at a ratio of one suspected case of dog fighting per every 2.3 respondents (approximately 0.43 cases per respondent; n = 423). Figure 1 shows percentage of respondents who suspected at least one dog fighting case in 2015, by profession: veterinarians were approximately 60% less likely to suspect a case of dog fighting than RVNs (N_{total} = 61, \chi^2 = 11.9, df = 1, p = 0.0009, OR = 0.387, 95% CI = 0.2261-0.6694). Of the 264 respondent veterinarians, 26 suspected one or more cases of dog fighting in 2015, totalling 78 dogs (median [range] = 2[1-10] per respondent) of dog fighting in 2015, averaging one case for every 3.33 veterinarian respondents. Of the 159 RVNs, 35 suspected one or more cases of dog fighting in 2015, totalling 104 dogs (median [range] = 2[1-10] per respondent) and averaging one case per every 1.53 RVN respondents.

No associations between whether or not respondents suspected dog fighting in 2015 and age, practice location or number of years working in the profession were found for either veterinarians (n = 258-263, \chi^2s < 3.89, ps > 0.1432) or RVNs (n = 157-159, \chi^2s < 1.00, ps > 0.215). Neither was there any correlation between the number of dogs veterinarians or RVNs suspected and their years’ experience, although this was close to significant for the former (veterinarians: n = 25, R = 0.3874, p = 0.0557; RVNs: n = 33, R = 0.2216, p = 0.2153).

Of 66 respondents who provided free text further comments at the end of the questionnaire, 18.2% did not believe that dogs involved in fighting were taken to veterinary practices, 13.6% did not believe that fighting occurred in their area/practice/clientele and 7.6% believed they had never encountered any dogs involved in fighting.

Reporting of suspected cases

Of 422 respondents, 32 (7.58%, 95% CI = 5.39% to 10.54%) had previously reported one or more suspicions of dog fighting to the police, RSPCA or equivalent charities. There was no significant difference in the proportion of RVNs that had previously reported one or more suspicions (n = 17/159) compared to veterinarians (n = 15/264, p = 0.0861). Of the 66 respondents providing free text comments at the end of the questionnaire, 12.1% said they would report any suspicion.
Of 417 respondents, 14.15% (n=59, 95% CI = 11.11% to 17.84%) stated they had previously chosen not to report one or more suspicions of dog fighting in the past (Figure 2); the most frequently cited reason was uncertainty in identifying deliberate dog fighting (81.4% n=48/59).

There was no significant difference in the choice not to report suspicions by RVNs (n=26/157, 16.56%, 95% CI = 11.51% to 23.21%) compared to veterinarians (33/260, 12.69%, 95% CI = 9.15% to 17.32%, p=0.3107). There was no effect of experience on choice not to report a suspicion for either profession (veterinarians: n=254, p=0.4472; RVNs: n=157, p=0.1440).

When specifically asked about deterrents to reporting suspicions, uncertainty about the presence of activity (40.43% n=171/423), concerns about client confidentiality (23.40%, n=99/423) and lack of knowledge of how to report (19.15% n=81/423) were the most frequently cited across all respondents, irrespective of profession (Table 3). Although not formally tested due to small numbers, noticeably larger percentages of RVNs cited advice from their boss or colleagues not to report than did veterinarians. When asked what would encourage reporting of suspected dog fighting, provision of clear guidance or protocols was the most popular suggestion made by respondents (12.8%, Table 4).

| Deterrents to reporting suspicions of dog fighting stated by respondents | Number respondents (percentage of respondent category) |
|---|---|---|
| | Veterinarians n=254 | RVNs n=154 | Total n=398 |
| I wasn’t certain that illegal activity was occurring (/worried about accusing an innocent client*) | 120 (47.3%) | 55 (38.2%) | 175 (44.0%) |
| I don't think anything would at all deter me | 91 (35.8%) | 44 (30.6%) | 135 (33.9%) |
I didn't want to break client confidentiality  65 (25.6%)  34 (23.6%)  99 (24.9%)
I did not know how to report  51 (20.1%)  30 (20.8%)  81 (20.4%)
My boss advised me not to  26 (10.2%)  48 (33.3%)  74 (18.6%)
I didn't want the client to stop bringing dogs into the clinic  49 (19.3%)  19 (13.2%)  68 (17.1%)
I didn't want the client to notify others that my clinic reports  19 (7.5%)  16 (11.1%)  35 (8.8%)
I did not want to risk having to go to court  20 (7.9%)  8 (5.6%)  28 (7.0%)
I previously had negative experiences when reporting  14 (5.5%)  10 (6.9%)  24 (6.0%)
I thought reporting would be difficult  18 (7.1%)  6 (4.2%)  24 (6.0%)
My colleague/s advised me not to  8 (3.1%)  15 (10.4%)  23 (5.8%)
I did not believe in the worth of the reporting and/or prosecuting system *  10 (3.9%)  0 (0.0%)  10 (2.5%)
I was concerned about dangerous repercussions from client *  7 (2.8%)  2 (1.4%)  9 (2.3%)
I thought reporting would take too long  5 (2.0%)  0 (0.0%)  5 (1.3%)
I feared the dog would be euthanised*  0 (0.0%)  2 (1.4%)  2 (0.5%)
I did not feel reporting was my responsibility*  0 (0.0%)  2 (1.4%)  2 (0.5%)

Table 3: Respondent views on deterrents to reporting dog fighting. Respondents could select multiple answers. * denotes themes derived from analysis of the “other” open text option. Six respondents were removed from the veterinarians column “I don't think anything would at all deter me” and eight from the RVN column as these respondents also selected deterrents. Two respondents indicated preference not to answer the question.
Specific clear guidance/protocols for the whole process of reporting  
Confidence that illegal activity was occurring  
Assured anonymity when reporting  
Assurance/support from RCVS/VDS that report would not be a confidentiality breach  
Confidence the issue would be properly addressed  
Easier methods of reporting suspicions

<table>
<thead>
<tr>
<th>Factor</th>
<th>Yes 1 (n=30) (12.8%)</th>
<th>Yes 2 (n=20) (11.2%)</th>
<th>Yes 3 (n=10) (7.6%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific clear guidance/protocols for the whole process of reporting</td>
<td>20 (7.6%)</td>
<td>10 (11.2%)</td>
<td>30 (12.8%)</td>
</tr>
<tr>
<td>Confidence that illegal activity was occurring</td>
<td>14 (5.3%)</td>
<td>9 (10.1%)</td>
<td>23 (9.8%)</td>
</tr>
<tr>
<td>Assured anonymity when reporting</td>
<td>14 (5.3%)</td>
<td>6 (6.7%)</td>
<td>20 (8.5%)</td>
</tr>
<tr>
<td>Assurance/support from RCVS/VDS that report would not be a confidentiality breach</td>
<td>14 (5.3%)</td>
<td>5 (5.6%)</td>
<td>19 (8.1%)</td>
</tr>
<tr>
<td>Confidence the issue would be properly addressed</td>
<td>9 (3.4%)</td>
<td>10 (11.2%)</td>
<td>19 (8.1%)</td>
</tr>
<tr>
<td>Easier methods of reporting suspicions</td>
<td>14 (5.3%)</td>
<td>3 (3.4%)</td>
<td>17 (7.3%)</td>
</tr>
</tbody>
</table>

Table 4: Most frequently cited respondent views on factors likely to encourage reporting of suspected illegal dog fighting. Respondents could contribute multiple answers.

Discussion

The aims of this study were to investigate suspicions and reporting of dog fighting by UK veterinary professionals, and to provide evidence to support factors previously suggested to influence whether or not veterinary professionals report. Of the 423 respondents, 61 (14.4%) suspected an estimated total of 182 dogs in fighting in 2015. This is consistent with a report that 48% of UK veterinarians claimed to have seen or suspected any type of NAI in practice; the majority seeing one to three cases per year (Munro and Thrusfield 2001). Since we cannot know how many actual cases of dog fighting were presented to our respondents it is not possible to determine any error rate in suspicion. Multiple members of staff at one practice could complete the questionnaire (anonymity prevented quantification of this) so several respondents could have referred to a single case leading to duplication and artificial inflation of our estimate. However, consistent with previous studies (Yoffe-Sharp and Loar 2009), a number of respondents did not believe fighting dogs would present to a veterinary practice. Together with the limited respondent sample and the reported lack of confidence in identifying illegal activity, the number of suspected dogs is more likely to be an underestimate. If accurate, our findings suggest a ratio of one suspected case of dog fighting per every 2.3 respondents. The prevalence of dog fighting itself is likely to be greater than this ratio of case per veterinary professional, since few victims are likely to be taken to veterinary practice (Patronek 1997). Fear of seizure of a dog if it is an illegal breed
(Dangerous Dogs Act 1991) may be a deterrent (Hughes et al., 2011), whilst “professional” dog fighters may operate on their own animals (Ortiz 2010). Our study did not consider the identification of the bait animals used in training (Tiplady 2013); which may be been found alive but injured (Dinnage et al., 2004, Glendinning 2014, Anthony 2016); their quantification in practice may assist in assessing the prevalence of dog fighting.

This is the first study in the veterinary literature to explore suspicions and reporting of a type of NAI by RVNs. Contrary to our predictions; RVNs were significantly more likely to suspect dog fighting than veterinarians. This difference in suspicion could be related to RVNs’ greater role in inpatient care (BVNA 2015), however, literature comparing the accuracy of veterinary professionals in identifying NAI is not currently available, so false negatives and/or false positives could be associated with either profession. The role of RVNs in identification of NAI warrants further exploration.

We hypothesised that greater experience of practice would be associated with more suspected cases of dog fighting, as difficulty identifying NAI (Tong 2016) and belief it is not seen in practice (Yoffe-Sharp and Loar 2009), would be likely to reduce. Here, this was unsupported by whether or not respondents suspected cases, but a nearly significant moderate correlation with the number of suspected cases suggests a larger sample could provide some support for a relationship.

With respect to reporting of suspicions, we found that 14.15% of respondents had chosen not to report one or more suspicions of dog fighting in the past and our findings further suggest that approximately half of the cases suspected in this study sample were not reported by veterinary professionals; this is consistent with McGuinness et al., (2005) who indicated that the majority of Irish veterinarians surveyed did not feel it appropriate to report suspicions. In contrast to the difference between professions’ suspicions, our prediction of no difference between professions in reporting was supported. The subsample of reporting individuals was extremely small and a lack of statistical power may explain this inconsistency for RVNs. Alternatively it could suggest that barriers to reporting suspicions impacted more on RVNs than veterinarians. RVNs may not feel responsible for reporting, or may be constrained by the RCVS requirement to first report suspicions of NAI to a senior veterinarian (RCVS 2017a s14.9). The latter interpretation is consistent with proportionately more RVN than veterinarian respondents indicating influences of colleagues and their boss as reasons not to report in our study. If senior veterinarians are reluctant to accept the value of RVNs’ reports or RVNs lack confidence in reporting suspicions to veterinarians (Kinnison et al., 2014) then under-
reporting of suspicions of animal abuse by RVNs could occur. Further research is warranted to explore the apparent suspicion-reporting disparity shown by RVNs such that barriers to reporting can be addressed.

Our prediction that more experienced professionals, to whom fears of loss of income, legal action and reprisals (Morgan et al., 2007) and a belief that no action would be taken by the authorities (Arkow 1994) were likely to be more applicable, would be less likely to report suspicions, was not supported. Nor were any effects of age, practice location or profession on reporting. Rather, deterrents to reporting may have been more influential, and those cited by our respondents directly supported nearly all the reasons previously postulated in the international literature (Table 1; except replacement with a new victim [Morgan et al 2007]).

The factors that our respondents suggested would encourage reporting of suspicions could be incorporated into potential resolutions for commonly cited deterrents in the following areas:

1) Problems identifying cases with confidence

Consistent with other studies (Ascione and Barnard 1998, Green and Gullone 2005) that identified insufficient training in recognising and identifying animal abuse as major obstructions for introducing mandated reporting as a solution for control in their respective countries (Acutt et al., 2015), 40% of our respondents reported uncertainty that illegal activity was occurring. Enhanced education of veterinary professionals to increase awareness of presentation of dogs used in fighting to practice and ability to detect clinical signs of recent and historical fighting with other dogs could improve confidence to report, particularly if empowerment and acknowledgement of responsibility are also engendered (e.g. Jamieson et al., 2015). This could be included in the Day One Skills list for veterinarians and RVNs by the RCVS (Robertson 2009, RCVS 2017 b, c).

2) Not knowing if it is appropriate to break client confidentiality and/or how to report a case

Fear of breaking client confidentiality and not knowing how to report were deterrents to reporting for 20% of the respondents. Consistent with Tong (2016), our respondents felt the provision of clear, accessible guidelines (including how to deal with issues of client confidentiality) would help to address under-reporting of dog fighting by veterinary professionals. However, formal guidelines are in place: the importance of maintaining client confidentiality is detailed in the Codes of Professional Conduct for both RVNs and veterinary surgeons (RCVS 2017 a,d) and exceptions to this are listed along with guidance on when and
how to break client confidentiality and to report suspicions of abuse (RCVS 2017 a,d). It is unclear whether UK veterinary professionals lack confidence in identifying exceptions, or in breaking confidentiality under these circumstances. Consistent with a lack of understanding of the process of reporting (Patronek 1997, Yoffe-Sharpe and Loar 2009) our findings suggest some UK veterinary professionals may be unaware of this information, despite its inclusion within a document to which they must adhere, or that it is insufficient for their needs. These deficits may be addressed within veterinary training and by providing more easily digestible and accessible information for exceptions to maintaining client confidentiality, since clear protocols for the whole process of reporting were suggested.

3) Concern about the ongoing welfare of the patient

Consistent with Arkow (1997) and Yoffe-Sharp and Loar (2009), many of our respondents felt that reporting suspicions of dog fighting would stop the client coming to the clinic, and thus patient care could be affected (Arkow 1994), echoing Australian veterinarians’ views in previous research on animal abuse (Acutt et al., 2015; 58%, n=117). It has been proposed that this ethical dilemma could be avoided by making reporting of suspected NAI mandatory (Robertson 2009), but if the veterinarians concerns are founded, this could result in decreased practice attendance and thus negatively impact patient welfare. Research focussed on the feasibility of introducing mandatory reporting in the UK is not available.

4) Negative experience with reporting

A small portion of respondents reported previous negative experience with reporting to the police and/or RSPCA or equivalent. The exact nature of negative experience is unclear, but it is plausible these were associated with understaffing of relevant authorities, no action being taken, unsuccessful outcomes or repercussions from the client (Arkow 1997, Patronek 1997, Morgan et al., 2007). A number of respondents felt that they would be more likely to report suspicious cases if they were assured anonymity and had confidence in the procedure that followed reporting. Given the sensitivity and potential costs to reporting (e.g. client loss, damaging public image), confidence in appropriate action by authority and legal protection from recourse is imperative. For RVNs an additional barrier to confidence in reporting to superiors may be the lack of support from within the team. Further exploration of these difficulties is required to understand how best to support veterinary professionals in these circumstances.

Although this study collected data from a comparable sample of respondents to previous studies (e.g. Munro and Thrusfield 2001), the questionnaire distribution method (i.e. shared
online, emailed to practices rather than individuals, the ability of recipients to forward on emails etc.), disallowed accurate assessment of the response rate and is vulnerable to self-selection bias. It is therefore difficult to be sure how exactly representative of the whole UK veterinary professional population our findings are. Nevertheless, our results are consistent with published findings for other countries (Patronek 1997; Stolt et al., 1997; McGuinness et al., 2005; Acutt et al., 2015), despite differences in legal frameworks, supporting their validity. Furthermore, these findings represent an important source of information on perceived issues with detecting and reporting of dog fighting by relatively early-career veterinary professionals that helps us to better understand barriers to these processes.

Conclusion

This study has revealed that a small, but significant, population of dogs presented to veterinary practice in 2015 were suspected by veterinary professionals of involvement in dog fighting, but as many as half went unreported. No effect of age or experience on suspicion or reporting of dog fighting was found. In the first published comparison of veterinary professions we found RVNs suspected proportionately more cases of dog fighting than veterinarians, but their reporting did not reflect this. This disparity for RVNs requires further exploration, but may be associated with the requirement to report to a superior. Overall the main barriers to reporting cited by all respondents suggest that veterinary professionals’ roles in controlling the complex issue of dog fighting require further support via: improved education on identifying non accidental injury; improved understanding of when and how to break client confidentiality to report dog fighting whilst maintaining legal protection; personal and professional ability to deal with conflict associated with impacts on patient welfare; and increased confidence in the authorities responsible for control and prosecution of dog fighting.

[3,923 Words]
Figure 1: Percentage of each respondent category who suspected at least one case of illegal dog fighting in 2015, where 95% confidence intervals are shown as error bars. Veterinarians n=26/264, 95% CI 6.76% to 14.08%. Registered Veterinary Nurses (RVNs) n=35/159, 95% CI 16.24% to 29.10%. Sum total n=61/423, 95% CI 11.38% to 18.10%.

Figure 2: Percentage of each respondent category who had previously suspected illegal dog fighting and decided not to report it to the police, RSPCA or equivalent once (veterinarians: n=18, 6.9%; RVNs: n=16, 10.2%), more than once (veterinarians: n=15, 5.8%; RVNs: n=10, 6.4%) or never chosen not to report their suspicion (Veterinarians: n=227, 87.3%; RVNs: n=131, 83.4%).
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