

# Identifying non-accidental injury cases in veterinary practice

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**Cases of non-accidental injury in veterinary patients remain underreported, with correct identification of such injuries presenting a significant diagnostic challenge. However, the veterinary profession has the potential to improve on the identification of animal abuse injury, and to contribute to the holistic management of the public health issue of violence within families. This article discusses the extent of the problem and reviews how veterinarians can identify and respond to such cases, and the possible links to family violence.**

SURVEYS of veterinarians and calculations estimating the incidence of animal abuse in violent homes have shown that cases of non-accidental injury (NAI) in veterinary patients remain greatly underreported. The issue of underreporting is multifaceted. Identifying NAI with certainty is often a significant diagnostic challenge – many forms of intentional trauma are difficult to differentiate from accidental injury. This is a function of both the underdevelopment of the clinicopathological science of animal abuse and because historically the subject matter has rarely been taught in veterinary schools. Even when a diagnosis can be made, there are still several hurdles to overcome. It is a difficult and emotive subject to address with owners and poses one of the greatest communication challenges vets may face in practice. Veterinarians across the world report a lack of access to formal guidelines, and professional or legal protection, all of which are critical to support a practitioner who may wish to report intentional physical abuse. However, the veterinary profession has great potential to improve on the identification of animal abuse injury, and to contribute to the holistic management of the serious public health issue of violence within families.

## Definition of abuse

Animal abuse is defined as a socially unacceptable non-accidental behaviour that causes unnecessary distress, suffering, pain and/or death of an animal (Ascione 1993, Arkow 2012). This umbrella term encompasses physical, sexual, and emotional abuse and neglect. The term NAI specifically refers to a behaviour that causes physical trauma to an animal by a person (ie, physical abuse). Most commonly used definitions of animal abuse include the word 'intentional'. However, in the UK, under the Animal Welfare Act 2006, this distinction is not made and animal abuse may be either intentional or unintentional: 'A person commits an offence if an act of his, or a failure of his to act, causes an animal to suffer' (Anon 2006). This has practical ramifications for UK-based practitioners because a demonstration of intent is not necessary for animal abuse to have occurred in legal terms. In any other country of practice, it is important to note that the presence of 'intention' is not a decision that is made by a veterinarian but by a court of law. Therefore, a non-UK based veterinarian should still consider escalating a suspected case of animal abuse regardless of whether intention is clear at the time of presentation. A study by Stolt and others (1997) revealed the sobering statistic that a majority of veterinarians under ethical obligation only to report suspected animal abuse are not sufficiently motivated to do so.

## Are abused animals presented in practice?

It is sometimes assumed that clients are unlikely to present abused animals to a veterinarian, particularly in private practice. Yet it has been demonstrated that households affected by physical child and animal abuse demonstrate equivalent use of veterinary services compared with non-abusive families (DeViney and others 1983). This is corroborated by multiple surveys of veterinarians internationally, revealing that between 44 and 90 per cent of vets report seeing abuse in practice (Fig 1); in a US study this equated to five cases per 1000 consultations (Sharpe 1999).

## Animal species and abuse

Many studies identify dogs as being the species that most commonly suffers abuse injuries (Munro and

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**Fig 1:** Percentage of veterinarians who have reported seeing cases of non-accidental injury in practice: 65 per cent – Indiana, USA (Sharpe 1999); 90 per cent – Canada (Kovacs and others 2004); 87 per cent – Colorado, USA (Humane 2003); 44 per cent – Ireland (McGuinness and others 2005); 48 per cent – UK (Munro and Thrusfield 2001a); 91 per cent – Australia (Green and Gullone 2005); and 63 per cent – New Zealand (Williams and others 2008)

Thrusfield 2001b, Humane 2003, Green and Gullone 2005, McGuinness and others 2005, Williams and others 2008). An exception is in Brazil where cats are the most frequent victims of animal abuse (De Siqueira and others 2012). A study based in London that examined dog breeds found that Staffordshire bull terriers were overrepresented in abuse presentations (Tong 2014).

Abuse is seen less frequently in farm animals than in companion animals, but there are still significant numbers of cases (Green and Gullone 2005, Williams and others 2008) (Fig 2). In a study in New Zealand, large animal practitioners were less likely to say that they had seen abuse than small animal practitioners (Williams and others 2008), whereas in an Irish study, one vet reported seeing abuse of farm animals 'on a weekly basis' (McGuinness and others 2005).

Reasons why companion animals may be more likely to be abused than farm animals include their physical vulnerability (size) and their presence in the home environment (ease of access). It may also reflect their increasing incorporation into the family unit, thus ensnaring them within the family violence sphere. On the other hand, it should not be presumed that farm animal abuse occurs at a much lower rate than in companion animals. Figures reported may be affected by a lower relative proportion of individual veterinary examinations on farm animals, or reduced access to diagnostics such as radiography (which is commonly used to support a diagnosis of abuse) in farm environments. Additionally, there may be cultural variation in the interpretation of physical abuse in companion versus production animals.

Interpreting the true incidence and relative proportion of companion versus farm animal abuse is complex, and while the above studies highlight that companion animals are at increased risk, the dangers to production animals and other non-companion species should not be ignored. The considerable gulf between the sociocultural and ecological positions of companion and production animals in modern society means that the pathology and pathogenesis of NAI are likely to be different. We also have more to learn about how urban versus rural location affects the incidence of animal abuse at veterinary clinics (Box 1).

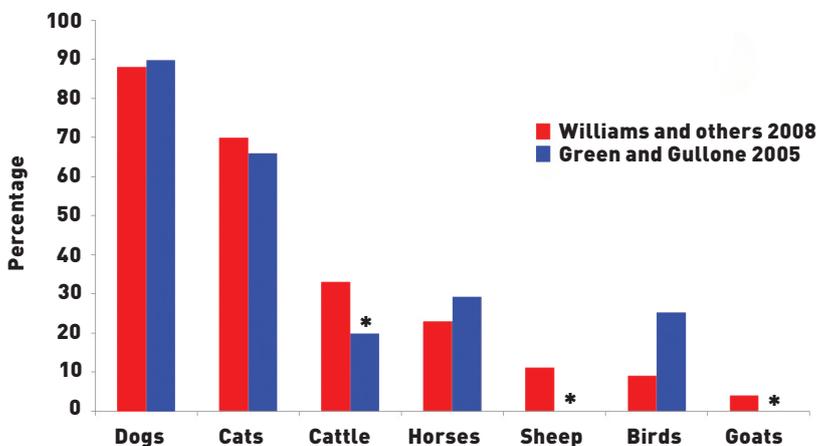


Fig 2: Percentage of veterinarians who reported seeing abuse in each species in studies by Williams and others (2008) and Green and Gullone (2005). \* A group described as 'other' was said to consist primarily of cattle but may have included sheep and goats (percentiles not specified)

**Box 1: Non-accidental injury: urban/suburban practice versus rural practice**

- It is not yet clear whether rural vets see less abuse than urban or suburban vets.
- In an Australian study, rural practitioners were less likely to respond to questionnaires detailing whether they had seen non-accidental injury (Green and Gullone 2005).
- Rural veterinarians in the USA were less likely than urban veterinarians to agree that they had adequate access to resources to assist them when dealing with cases of animal of human abuse (Sharpe 1999).
- Further work could be undertaken in this area to establish whether there are divergent rates of abuse between rural and suburban or urban locations, and what factors may influence such a variation.

### How do veterinarians respond to cases of abuse?

Studies show that most veterinarians do not feel it is appropriate or possible to become involved when faced with cases of NAI (McGuinness and others 2005), and it has been suggested that they may shy away from taking the situation further for many reasons. These include concerns of a breakdown in client/practitioner relations, a lack of access to resources, a fear of compromising the safety of a victim, a fear of litigation or physical retaliation, and a perception that no action will be taken (Arkow 1994).

### Veterinary education

Veterinarians around the world do not feel adequately trained to detect and manage abuse. In both Australia and the USA, only 7 to 8 per cent of vets agreed that they were adequately trained in animal abuse detection and prevention (Landau 1999, Sharpe 1999, Green and Gullone 2005). Canadian vets felt slightly better prepared, yet 73 per cent of them still felt that their undergraduate programme did not provide sufficient training in how to respond to animal maltreatment (Kovacs and others 2004). In addition, in the Australian study a worrying trend showed that younger vets were more likely to disagree that they received adequate training (Green and Gullone 2005).

### Legal responsibilities

The legal requirements of veterinarians vary internationally and within state or provincial jurisdictions. In some cases, most veterinarians are unfamiliar with the animal cruelty laws in their country or state, even when those clinicians are subject to mandatory reporting laws (Sharpe 1999, Kovacs and others 2004). Mandatory reporting of suspected animal abuse is currently active in 12 of 50 US states and four of 10 Canadian provinces (Table 1). Elsewhere, veterinarians are not required by law to report suspected abuse; however, it is generally understood that there is an ethical responsibility to report such suspicions. Where mandatory reporting is not in place, such as in the UK, Australia, New Zealand and most of the USA, veterinarians are no more duty bound than a member of the public to report suspected animal abuse (Robertson 2010).

**Table 1: States and provinces of the USA and Canada where mandatory reporting of animal abuse by veterinarians is required by law**

USA	Canada
Arizona	Manitoba
California	Nova Scotia
Colorado	Ontario
Illinois	Quebec
Maine <sup>1</sup>	
Minnesota	
Nebraska	
Oklahoma	
Oregon <sup>1</sup>	
Pennsylvania <sup>2</sup>	
West Virginia	
Wisconsin <sup>3</sup>	

<sup>1</sup> Required to report 'aggravated cruelty' only

<sup>2</sup> Required to report repeated acts of negligence or animal abuse by a professional colleague only

<sup>3</sup> Required to report if there is reason to believe an animal has been in a fight only

Debate continues across various international veterinary regulatory authorities, and by authors on the subject, regarding the implementation of mandatory reporting (Reisman and Adams 1999, Green and Gullone 2005, Williams and others 2008, Robertson 2010). Surveys of vets in Canada and New Zealand indicated that 80 per cent and 73 per cent of veterinarians, respectively, supported the mandatory reporting of intentional abuse (Kovacs and others 2004, Williams and others 2008). In the New Zealand study, female and small animal veterinarians were more likely to advocate mandatory reporting (Williams and others 2008).

## Links to family violence

Companion animal violence is not just a serious welfare issue for veterinary patients. There are many recognised and demonstrated links between violence towards animals and violence towards people. Veterinarians report seeing these links in the consultation room and they add relevance to the need for the veterinary profession to address NAI in animals adequately, as first advocated by Arkow (1994), and since echoed by numerous other authors.

If reporting does not occur, then an abused animal is likely to be released back into a violent environment and, as with interpersonal violence, the risk of repeated and escalating abuse is high. Adding gravity to the situation is that we now recognise that there is co-abuse of animals, children and women in violent homes. Alongside other professional groups, such as doctors, social services, police and teachers, veterinarians may therefore bear witness to and play a part in identifying family violence (Arkow and Munro 2008).

In studies in Australia, New Zealand and Ireland, veterinary surgeons knew of or suspected that there was concurrent family violence in one of five to one of eight cases of animal abuse seen (Green and Gullone 2005, McGuinness and others 2005, Williams and others

2008). In the Australian study, 41 per cent of those cases involved children (Green and Gullone 2005), yet only 13 per cent of vets said they had the resources available to help if they suspected human abuse (Green and Gullone 2005, Williams and others 2008).

In 90 per cent of cases, vets reported that an adult male was responsible for the animal's injury (Green and Gullone 2005), and in one study, two of five alleged perpetrators were the husband or boyfriend of the animal's owner (Humane 2003).

Abuse of pets is a very effective and commonly used form of power and control by perpetrators of domestic violence. Nearly three-quarters (71 per cent) of women in shelters escaping violent intimate partners reported that their abuser injured, killed or threatened pets for revenge or psychological control (Ascione 2008). This kind of perpetrator is more dangerous than those who do not abuse the pets. A study of 1283 pet-owning women in Texas, USA, showed that those who reported pet abuse were more likely to have experienced sexual violence, marital rape, emotional violence and stalking (Simmons and Lehmann 2007). Of families investigated for physical child abuse, 88 per cent had also abused or neglected pets (DeViney and others 1983). In families where animal abuse is occurring, children are 11 times more likely to have been bitten by the household dog (DeViney and others 1983).

There are many other ways in which animal abuse and serious violent behaviour have been shown to be linked (Box 2). These links are strong, irrefutable and numerous, and it is clear that the veterinary profession has a natural role to play in addressing the endemic public and one-health issue of family and domestic violence.

## Identifying NAI in companion animals

A diagnosis of NAI can almost never rely on a single finding and depends on the accumulation of multiple indices of suspicion, many of which relate to the history and behaviour of the person who has presented the animal, together with physical and pathological findings.

The lack of accurate information or witness corroboration of the events at the time of injury is a common challenge when diagnosing and studying NAI and, in many cases, the diagnosis is based on the discrepancy between the history provided and the pattern of injuries observed.

### Box 2: Links between violence towards animals and other forms of violence

- Sixty-three per cent of aggressive prison inmates had deliberately hurt animals as a child (Schiff and others 1999).
- Forty-six per cent of perpetrators of sexual homicide reported abusing animals as adolescents (Quinn 2000).
- Seventy per cent of animal abusers have other criminal records (Arluke and Luke 1997).
- In a study of animal abuse offenders, a history of animal abuse was a better predictor of sexual assault than previous convictions for homicide, arson or firearms offences (Gullone and Clarke 2008).

### Clinical and pathological features

Features that should raise a veterinarian's index of suspicion of NAI are outlined in Box 3. Although veterinary medicine has long relied on human forensic resources, some animal-specific studies have begun to emerge that survey and detail the features of animal abuse. It has been demonstrated that features considered specific for child abuse are not necessarily so for animals, thus reinforcing the need for veterinary-specific research in this area (Tong 2014).

There are a number of reference texts detailing injuries and features of veterinary forensic and abuse cases, which are important reading for members of the veterinary profession, as well as veterinary students and those in aligned professions (Cooper and Cooper 2007, Munro and Munro 2008, Merck 2012). Human forensic medicine and pathology references describing features of child abuse

and interpersonal violence injuries may also be a source of information for veterinarians, particularly when the injury observed is not well documented in animal abuse studies.

### Suspecting abuse in a consultation

When suspicion is raised in the consulting room, there are some important steps that should be taken to help you and the animal, should the case be taken further (see Boxes 4 and 5).

If you believe an act of animal abuse is likely to have occurred, but still feel unsure or unsafe when it comes to taking the situation further, seek help from your colleagues and professional bodies (Box 6).

For the benefit of all staff, animals and clients, a practice should have access to good resources and an established policy for abuse cases. Arkow and others (2011) is a useful and succinct resource that is essential reading for all practitioners and should be used to inform practice policy. Although it originates from the USA, most of the content is relevant and important to practitioners, nurses, practice managers and others, wherever they work.

#### Box 3: Features that raise the suspicion of non-accidental injury of companion animals\*

##### History

- A particular person was implicated
- History is inconsistent with the injury
- Violence in the home
- Lack of explanation for the injury
- History is inconsistent (eg, changes with telling or from person to person)
- Previous injury/death of another animal involving the same owner/household
- Welfare agency involved (eg, the Royal Society for the Prevention of Cruelty to Animals)
- High pet turnover

##### Behaviour

- Behaviour of owner (aggression/discomfort/embarassment/lack of concern/anger/indifference)
- Behaviour of animal (fear/anxiety/aggression)
- Use of various or new veterinarians

##### Clinical features/miscellaneous

- Repetitive injuries
- Inappropriate delay in presentation
- Evidence of sexual abuse
- Suspected Munchausen syndrome by proxy
- Evidence of neglect

##### Certain patterns of injury (examples)

- Superficial lesions: bruising/burns/incised wounds and lacerations/ligatures
- Deeper lesions: epistaxis/retinal haemorrhage/abnormal muscle rupture
- Visceral lesions: collapsed lung/diaphragm, liver, intestinal rupture
- Intracranial/spinal lesions: brain trauma, paraplegia
- Injuries to the genitalia
- Specific injury aetiologies: gunshot wounds/stab wounds
- Evidence of poisoning

##### Skeletal injuries

- Multiple fractures
- Fractures occurring in >1 region of the body (forelimb, hindlimb, or axial)
- Fractures presenting at a later stage of healing (delayed presentation)
- Multiple fractures at different stages of healing
- Transverse fractures
- Depressed rib fractures

\*Adapted from Munro and Thrusfield (2001a, b) and supported with material from McGuinness and others (2005), De Siqueira and others (2012) and Tong (2014)

#### Box 4: Dealing with a case of suspected abuse in the consulting room

- Perform a full clinical examination and take meticulous clinical notes – if the case goes to court you will need impeccable records.
- Ask the question: 'Do you think someone may have harmed the animal?' In 25 per cent of non-accidental injury (NAI) cases that present in practice, the owner admitted or described that abuse had occurred only after NAI had been mentioned by the veterinarian (Munro 2001a).
- Provide the owner or person presenting the animal with a preprepared questionnaire. It will give them the opportunity to communicate concerns about their pet(s) and/or their own safety in a non-threatening way (Arkow 2011).

#### Box 5: Dealing with an ongoing case of suspected abuse

- Seek permission to perform a postmortem examination if an animal dies or is euthanased. A postmortem should be carried out by a veterinary pathologist, ideally one with experience of forensics. If this is not possible, use resources such as Merck (2012) or Munro and Munro (2008) as guidance.
- Consider the importance and usefulness of performing full body imaging in suspected cases of non-accidental injury. Certain skeletal injuries, including old skeletal injuries, are strong indicators of NAI and may otherwise be missed.
- Involve welfare organisations if the owner is implicated or otherwise unable to fund additional diagnostics.
- Use a chain of custody form if there are animal remains or other pieces of evidence in your possession. This will track the possession of evidence and is important if cases go to court. See Merck (2012) for more information and a template.

### Box 6: Dealing with a case where abuse is strongly suspected

- Discuss your concerns with a colleague to obtain a second opinion and get support.
- If you have reason to believe an animal or human is in immediate danger, contact local animal welfare authorities and/or the police.
- In parallel, consult your professional regulatory body (eg, the RCVS, the American Veterinary Medical Association, the Australian Veterinary Association) for advice.
- If you have any concerns regarding your legal position, seek advice from professional indemnity experts, such as the Veterinary Defence Society.

### What can be learned from the medical profession?

Although NAI of children has been documented for centuries, it wasn't until the publication of 'Battered children' by Kempe and others (1962) that physical abuse of children was widely acknowledged as an aetiological diagnosis in medicine. Fifty years ago, the medical profession introduced mandatory reporting of NAI, and there were many fears that this would lead to a serious drop in presentations of abused children in great need of medical care (Reinhart and Elmer 1964). However, it was subsequently demonstrated that this did not happen following the introduction of mandatory reporting and when doctors had implemented structured protocols for dealing with suspected cases (Anon 1982, Faller 1985). The medical profession has benefited from considerable clinical, pathological, epidemiological and sociological research into the features of child and interpersonal violence, which has given doctors and pathologists the ability to tackle these cases (Lynch 1985). The veterinary profession would do well to seek to align its progression in this field with that of the medical profession.

### Conclusion

The diagnosis and reporting of suspected animal abuse is, and will remain, a challenge for the veterinary profession. It is, however, an incredibly important aspect of our professional and ethical duty as vets, and there is much more we could do to help make this task easier and safer. The development of policies and protocols within practices is necessary for practitioners to respond effectively to suspected abuse. Positive inroads are being made, including the introduction of postgraduate education in veterinary forensics (for example the masters in Veterinary Forensic Sciences at the University of Florida, USA), the publication of reference texts and peer-reviewed literature, and increased publicity and advice offered by veterinary authorities. There remains, however, great potential for improvement in how we, as a profession, address violence against animals. We can start by improving the education and access to resources for veterinarians and veterinary students, and begin to reach out to form connections with other professional bodies. Any steps that the profession can take to address animal abuse will allow us to fulfil our duty to protect these animals that are too often the voiceless and undefended collateral of the perpetrators of violence.

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### Quiz: Identifying non-accidental injury cases in veterinary practice

- Complete the sentence: Households affected by physical child and animal abuse demonstrate \_\_\_\_\_ use of veterinary services in comparison to non-abusive families.
  - Equivalent
  - Less
  - More
- Which species of animal is most commonly presented with abusive injuries in veterinary practice?
- Complete the sentence: In families where animal abuse is occurring, children are \_\_\_\_\_ times more likely to be bitten by the household dog.
  - One and a half
  - Three
  - Seven
  - 11
- An animal presents to you with skeletal injuries. List four features that would raise your index of suspicion that the injury was non-accidental.
- You wish to improve the way you and your practice respond to possible cases of NAI, which of the following steps can you take straight away?
  - Develop and disseminate a practice-policy to all staff which outlines what to do in the event of a possible case of NAI
  - Develop a preprepared written questionnaire that you can give any client to help aid communication
  - Purchase a reference text(s) on veterinary forensics for the practice
  - Reach out to your local animal welfare inspector and/or police representatives to build a relationship that will be in place in the event of future cases of NAI
  - Support and discuss the topic with junior staff, particularly veterinarians, so that they feel more comfortable identifying signs of NAI, and speaking to senior colleagues when they have concerns
  - All of the above

Answers: (1) a, (2) dog, (3) d, (4) any four of the following: multiple fractures, fractures occurring in more than one region of the body (eg, bilateral, or forelimb or hindlimb v axial), fractures presenting at a later stage of healing (delayed presentation), multiple fractures at different stages of healing, transverse fractures, depressed fractures, (5) f