

Non-Accidental Injury in Dogs and Cats in Colorado Final Report to the Animal Assistance Foundation

Executive Summary

All veterinarians who responded to this survey believe non-accidental injury (NAI) occurs in animals. Two-thirds of the veterinarians in this Colorado-based study have personally experienced an NAI case. Intact male dogs were the most likely to incur NAI among canines. On the other hand, all cats were equally likely to incur NAI. Seven months to 2 years were the most likely ages for both dogs and cats involved in NAI cases.

Background

Both empirical studies and anecdotal reports have shown that animal abuse is often predictive of future violent acts against both animals and people. Children raised in an environment of domestic violence (including animal abuse) can become desensitized to violent acts¹ and are at a higher risk for committing acts of violence against animals. As adults, their victims may include children, elders, and adult companions (i.e., those viewed as younger or weaker than themselves). Victims of both animal and human abuse share some common characteristics: both are living creatures who can experience pain and distress, display physical signs of pain and distress and may die as a result of the injuries inflicted upon them².

In 1962 the Journal of the American Medical Association published a landmark article by Henry Kempe and others³ on abused children entitled “The Battered Child Syndrome”. That article is recognized as a milestone in the prevention of child abuse because it gave medical practitioners guidelines for the diagnostic features and pathology of physical abuse in children.

In 1999 Drs. Munro and Thrusfield conducted a groundbreaking study on non-accidental injury (NAI) in small companion animals in Great Britain. Their study revealed that NAI in animals follows the same patterns of diagnostic features found in child abuse. The same types of abuse found in victims of child abuse are also found in animals.

There are currently no definitive guidelines for animal health care providers on how to recognize NAI in animals, however the Munro/Thrusfield study provided a solid foundation for the establishment of those guidelines. It also strengthened the link in characteristics between child and animal abuse. We have only just begun to understand the prevalence of NAI in our society, its detection and interpretation by animal health care providers and how these providers react to possible NAI. To further complicate the issues, not all state laws protect individuals and professionals from reporting potential animal abuse and neglect in good faith, thereby opening up these responders to potential legal action.

Terminology

The terminology used in child abuse can also be applied in animal abuse. In general, there are four broad categories that encompass the term “maltreatment” in the realm of child welfare: (1) physical abuse, (2) sexual abuse, (3) emotional abuse and (4) neglect (i.e., passive maltreatment). This study address nonaccidental “injuries” to dogs and cats. An injury is considered a wound or decrease in health due to maltreatment. Physical abuse, sexual abuse and neglect have face validity and legal definitions with regard to animals. Emotional abuse seldom results in physical injuries in children or animals so it is not a topic of this examination.

There may be some disagreement on whether animals can suffer ‘emotional abuse’. However, some believe that there are behavioral changes in animals based on what would be defined as emotional abuse. It is mentioned here because it is a category of child abuse, and while this may or may not translate directly to animal abuse terminology, it remains a useful model for examining this phenomenon in animals.

Definitions of “animal abuse” and “cruelty to animals” are often difficult to construct in part because animals are used in a variety of roles in our society.⁴ The highly variable state laws on abuse and cruelty to animals reflect this, in part. Ascione’s definition of cruelty and abuse captures the common features found in most state laws: “socially unacceptable behavior that intentionally causes unnecessary pain, suffering, or distress to and/or death of an animal.”⁵ In general terms, in cases of cruelty to animals the perpetrator gains satisfaction from the animal’s suffering. In abuse cases, the perpetrator gains satisfaction from his/her domination over the animal⁶. What generally constitutes abuse to a companion animal (pet) does not necessarily apply to common practices used with farm animals (i.e., livestock used for food), wildlife, or laboratory animals used in research, or to animals kept in zoos.

Current Study

This pilot study is a replication of a descriptive study completed by Drs. Munro and Thrusfield (1999), which surveyed veterinarians in small animal practice in the United Kingdom about their experiences with NAI.

The Colorado study stated similar goals as those of Munro/Thrusfield: (1) to determine whether or not veterinarians in Colorado believe that NAI in animals exists, (2) to gauge the extent of NAI cases seen at veterinary practices within Colorado, and (3) to catalog the characteristics of NAI cases in an attempt to build on the efforts of Drs. Munro and Thrusfield.

Our study group was veterinarians within the State of Colorado who were current members of the Colorado Veterinary Medical Association (CVMA). The same survey instrument created by Drs. Munro and Thrusfield was utilized for this project with only a few minor linguistic modifications for its American audience. The methodology and survey design are included in Appendix I.

Results

Out of the 1109 surveys distributed there were 217 total returned of which 214 were valid and unique and therefore included in the results. Those 214 surveys represented 258 veterinarians. Two of the 217 surveys were from “equine only” practices that did not provide any responses or cases. Three were duplicates of faxed surveys already received. Of the 214 surveys included in this study, 132 documented a total of 213 NAI cases and 466 individual or specific injuries to 136 dogs, 72 cats and 5 rabbits. The number of cases submitted per respondent varied from 1 to 7. Although check boxes were included in Section 2 for only dogs and cats, 5 cases were submitted for rabbits. The rabbit case details are included in the tables in Appendix II. The remaining 82 surveys did not have case information attached, but most completed Section 1 that asked questions about belief and experience with NAI.

The response rate for this Colorado-only survey was 23.3% (258 individual veterinarians out of the 1109 surveys distributed), which was slightly more than half the 40.4% return rate in the Munro/Thrusfield study. The return rate was identical on both the mailed surveys (42 returned) and the faxed surveys (172 returned) thus suggesting that the survey format did not affect the return rate.

Section 1

As shown in Table 1a, close to half (47.7%) of the 214 surveys returned were in suburban veterinary practices, 28.5% were in urban practices, and 22.9% were in rural areas.

Setting	Number of Respondents	
Urban	61	28.5%
Suburban	102	47.7%
Rural	49	22.9%
No response	2	0.9%
Total	214	100.0%

Table 1b shows that the vast majority of the respondents (84.1%) were in private practice, followed by corporate organizations (7.9%) along with a few in academic settings, shelters and emergency clinics plus one each from a veterinary hospital and a teaching hospital. We also received 2 completed surveys from veterinarians who filled in on a temporary basis for staff veterinarians (Locum Tenums).

Organization type	Number of Respondents	
Private	180	84.1%
Corporate	17	7.9%
Academic	5	2.3%

Shelter	3	1.4%
Emergency clinic	2	0.9%
Locum Tenum	2	0.9%
Vet hospital	1	0.5%
Teaching hospital	1	0.5%
No response	3	1.4%
Total	214	100.0%

All of the 214 respondents (100%) indicated that they believe NAI exists, although not all of them believed they had experienced an NAI case in their practices. Of the 214 respondents, 140 (65.4%) indicated they had seen or experienced NAI, 72 (33.6%) indicated they had not, and 2 did not respond to the question.

Section 2

Section 2 requested in depth information in suspected NAI cases. Detailed results are in Appendix II. Eighty (nearly 58.9%) of the 136 dogs were males; 63.8% were intact males. The cats’ genders were evenly disbursed (41.7% male; 38.9% female). The most frequently reported age group was between 7 months and 2 years of age.

Age	Number of cases	
	Dogs	Cats
	Under 12 weeks	10 (7.4%)
3 to 6 months	31 (22.8%)	16 (22.2%)
7 months to 2 years	45 (33.1%)	24 (33.3%)
Over 2 years	41 (30.1%)	15 (20.8%)
Unknown	9 (6.6%)	6 (8.3%)
TOTAL	136	72

Pit Bull terriers (purebred or mixed) and Labrador Retrievers (purebred or mixed) were the most frequently listed dogs at 15 cases each. Next on the list were 9 dogs of mixed breeds, seven each of Golden Retrievers and Australian Shepherds, and 6 each of German Shepherds and Cocker Spaniels. Together those 6 breeds plus the crossbred dogs totaled nearly half (47.8%) of all the dogs in the study.

We asked, “What made you suspect or allowed you to recognize NAI?” The categories of responses were as follows:

- A particular person was implicated: A family member was implicated in 60.0% of canine cases and 61.4% of feline cases. As reported on the surveys, it was often an “angry” husband or boyfriend of the pet’s owner that caused the injury. In canine cases 41.5% were husbands or boyfriends and 18.5% were children. In feline cases 36.4% were husbands or boyfriends and 25.0% were children.

- Features in the history: In 39.7% of the dog cases and 38.7% of the cat cases, the history provided did not match the injuries observed. The next most frequently noted features for either species were either witnesses, knowledge of violence in the home or previous injury or death involving another animal in the same home. In a few cases, the story changed over time or from person to person or the people said they had no idea how the injury occurred.
- Reporting agency involvement: Nine canine cases and 3 feline cases involved animal control, police or neighbors/strangers who rescued the animal from an abusive situation.
- Behavior of owner or animal: In 6 of the dog cases, the behavior of the owners tipped the veterinarians that the injury was not accidental. In 2 additional cases the dog's behavior provided clues. In one canine case and one feline case it was the behavior of the owner's friend who tipped off the staff.
- Injuries: In NAI cases involving dogs, 90 respondents indicated that it was the injuries that made them suspicious: 58 of the 90 indicated it was the type of injury, 26 indicated repetitive injury, 4 reported sexual abuse and 2 involved old injuries. In feline cases 34 respondents indicated it was the type of injury, 7 involved repetitive injuries and 5 involved sexual abuses.

As to the outcomes of these cases, approximately the same percentage of dogs (67.6%) and cats (66.7%) survived. A higher percentage of cats (19.4%) than dogs (10.3%) died due to their injuries, but a higher percentage of dogs (13.2%) than cats (2.8%) were euthanized.

Section 3

As with child abuse and the medical professional, there are 5 distinguishing features of NAI in animals that raise “red flags” to veterinarians who know what to look for in these cases. Those 5 features and the survey results are found in Table 1d.

Have you seen or experienced any of the following?	Yes	No	No Response
Unexplained injuries	115 (53.7%)	74 (34.6%)	25 (11.7%)
More than one fracture, of differing ages, in the animal	33 (15.4%)	159 (74.3%)	22 (10.3%)
Unexplained old rib fractures	47 (22.0%)	146 (68.2%)	21 (9.8%)
History not consistent with injury	75 (35.0%)	113 (52.8%)	26 (12.1%)
Previous history of unexplained injury/ death of another animal with same owner/family	29 (13.6%)	162 (75.7%)	23 (10.7%)

Section 4

Section 4 contained a wide variety of free-form comments. A frequent comment was that NAI was probably more prevalent in society than seen by veterinary professionals.

Ten respondents wrote that people who abused animals were not likely to seek medical treatment for the injuries they caused.

One expressed the opinion that it is sometimes difficult to determine accidental versus NAI when there are children or other pets involved or if the pets run loose. Six noted they see more neglect than abuse cases and 2 wrote that by far the most common form of abuse they see is abandonment. Six respondents observed that it is difficult to isolate or define NAI cases.

Discussion

Patterns of NAI in dogs included intact males between the ages of 7 months and 2 years. Labs and Pit Bulls were the most common canines listed in the NAI cases. Labs are currently one of the most popular breeds of dogs, so it is no surprise that they would be frequent targets of abuse. Pit Bulls are disproportionately seen in NAI cases perhaps because of the culture of their owners. Most of the Pit Bull cases involved dogfights.

Patterns of abuse in cats are not as clear-cut. Males and females had nearly an equal number of abuse cases, as did spayed and neutered kittens and cats. As with canines, the most frequently abused age group was between the ages of 7 months to 2 years. Table 1e provides the results of the Munro/Thrusfield study for gender in dogs and cats. The results are very similar to those found in this study in Colorado.

It is significant that 2 out of 5 of the alleged perpetrators were either the husband or boyfriend of the animal's owner. It is also disturbing that children were involved in 18.5% of the canine cases and 25.0% of the feline cases. Unfortunately, it is not uncommon in a dysfunctional family involved in domestic violence. It is a cycle of abuse and neglect that perpetuates through generations of such families until intervention breaks the cycle. That is a primary reason why the signs and symptoms of child and animal abuse are so closely aligned.

Appendix II provides a great deal of detailed case-level information that could be developed into a protocol for the training and education of veterinarians and their staff in the recognition of potential NAI cases. The 5 distinguishing features of NAI found in Table 1d could also be used as key indicators when educating professionals about abuse. Within the past few years the American Society for the Prevention of Cruelty to Animals (ASPCA) created a formal protocol for abuse cases.⁷ Perhaps their protocol could be combined with one developed using the results from this study. At least one respondent indicated that education sessions on this topic would be greatly beneficial.

Table 1f is a comparison of the Section 3 results from the Munro/Thrusfield study. The results are very similar to Table 1d from our Colorado study.

Have you seen or experienced any of the following?	Yes	No	No Response
Unexplained injuries	206 (51.0%)	162 (40.1%)	36 (8.9%)
More than one fracture, of differing ages, in the animal	74 (18.3%)	295 (73.0%)	35 (8.7%)
Unexplained old rib fractures	97 (24.0%)	269 (66.6%)	38 (9.4%)
History not consistent with injury	107 (26.5%)	244 (60.4%)	53 (13.1%)

Previous history of unexplained injury/death in another animal with same owner/family	49 (12.1%)	315 (78.0%)	40 (9.9%)
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One of the veterinarian respondents indicated that he/she would like to see a prospective study so that the case forms could be completed at the time of the treatment rather than depending on recall of case details at a later time. This would be an excellent strategy for a next step toward a more thorough epidemiological surveillance study of NAI reporting and reporting systems. American Humane plans to develop case sheets used for reporting suspected NAI. A national-level prospective study is needed to further document NAI cases in animals, to raise awareness of its existence, to educate professionals both on how to recognize and handle NAI incidents, and to strengthen legislation that protects both children and animals from abuse and neglect. These future surveys could also include cases investigated by animal control and humane investigators.

It is hoped that in the future an annual report with data from each state, much like the National Child Abuse and Neglect Data System, would be created that would establish a baseline in prevalence and incident rates as well as track trends in NAI and provide the quantitative data required to put teeth into legislative efforts. It would also provide an important piece of the overall efforts related to both the prevention and treatment of animal abuse.

Most of the respondents (47.7%) were from suburban veterinary practices followed by urban areas (28.5%). The fewest number of respondents (22.9%) were from rural areas. NAI may be harder to detect in rural areas because pets are often outdoors and subject to a higher rate of road traffic accidents, wild animal encounters and encounters with livestock or other farm animals.

As noted in the Munro/Thrusfield article⁸, care needs to be taken whenever the response rate is less than 70.0% because there may be a response bias (i.e., a systematic difference between those who responded and those who did not respond to the questionnaire). Our survey targeted a select subgroup of all veterinarians practicing within the State of Colorado. The surveyed veterinarians were all members of the CVMA and therefore were probably more likely to be joiners and participants in such projects and studies than non-members. Nonetheless, NAI in animals is seen by most of these respondents as a problem that is linked with child and spousal abuse and therefore requires attention from society as a whole.

Future surveys will be distributed either by mail or conducted via the Internet to reduce (and hopefully eliminate) possible illegibility that occurs with faxed documents. American Humane could establish a website for online reporting and data collection. Modifications to the survey will include a category for rabbits, which was left off the printed version of this survey, but was written in for five of the NAI cases. Consideration could also be made for equine practices. Responders to this particular survey submitted no other category of companion animals, such as ferrets or lizards.

Conclusion

One hundred percent of the veterinarians who responded to this survey acknowledged the existence of NAI, although not all of them had seen or experienced such cases during their years in veterinary practice. More than half (61.7%) of the 214 valid respondents submitted a total of 213 cases they suspected to be NAI, which allowed us to validate the work conducted by Drs. Munro and Thrusfield in 1999. NAI case characteristics documented in Colorado are virtually identical to those seen in Great Britain and, furthermore, are remarkably similar to the diagnostic features in child abuse cases. Data received from this study can be used in the development of definitive guidelines on the recognition of NAI in animals. A national and more thorough epidemiological surveillance study is needed on NAI reporting and on a reporting system.

Acknowledgement

American Humane thanks the Animal Assistance Foundation for their partial funding of this study and the CVMA for their contribution of the survey distribution and data collection efforts.

Special thanks to Dr. Helen Munro for her enthusiastic support of this project and for sharing her study materials and knowledge with us.

¹ Arkow, P. (1997). The relationships between animal abuse and other forms of family violence. *Protecting Children*. 13(2):4-9.

² Ascione, F.R., (2001). Animal abuse and youth violence. *OJJDP*. U.S. Department of Justice, Office of Justice Programs. September 2001. pp 1-15.

³ Kempe, C.H., Silverman, F.N., Steele, B.F., Droegemuller, W., and Silver H.K. (1962). The battered child syndrome. *Journal of the American Medical Association*. 181: 17-24.

⁴ Munro, H.M.C and Thrusfield, M.V. (2001). 'Battered Pets': features that raise suspicion of non-accidental injury. *Journal of Small Animal Practice*. 42: 218-226.

⁵ Ascione, F.R. (1993). Children who are cruel to animals: A review of research and implications for developmental psychopathology. *Anthrozoos* 6: 226-247.

⁶ Rowan, A.N. (1993). Cruelty to animals. *Anthrozoos* 6:218-220.

⁷ Adams, C.A. (2000). Breaking the Links of Abuse: Vetetectives. *ASPCA Animal Watch*. Winter: 30-34.

⁸ Munro, H.M.C and Thrusfield, M.V. (2001). 'Battered Pets': features that raise suspicion of non-accidental injury. *Journal of Small Animal Practice*. 42: 218-226.