

POTENTIALLY PREVENTABLE HUSBANDRY FACTORS CO-OCCUR IN MOST DOG BITE-RELATED FATALITIES

A COMPREHENSIVE STUDY USING A NEW APPROACH

In December, 2013, *The Journal of the American Veterinary Medical Association (JAVMA)* published the most comprehensive multifactorial study of dog bite-related fatalities (DBRFs) to be completed since the subject was first studied in the 1970's.¹ It is based on investigative techniques not previously employed in dog bite or DBRF studies and identified a significant co-occurrence of multiple potentially preventable factors.

“This new study and its methodology offer an excellent opportunity for ... anyone concerned with the prevention of dog bite-related injuries, to develop an understanding of the multifactorial nature of both serious and fatal incidents.”

Experts have for decades recommended a range of ownership and husbandry practices to reduce the number of dog bite injuries.² This new *JAVMA* paper confirms the multifaceted approach to dog bite prevention recommended by previous studies, as well as by organizations such as the Centers for Disease Control and Prevention³ and the American Veterinary Medical Association⁴.

The five authors, two of whom are on the staff of the National Canine Research Council (NCRC),⁵ and one of whom (Dr. Jeffrey Sacks) was lead author on earlier studies of DBRFs, analyzed all the DBRFs known to have occurred during the ten-year period 2000 - 2009. Rather than rely predominantly on information contained in news accounts, as had previous studies of DBRFs, detailed case histories were compiled using reports by homicide detectives and animal control agencies, and interviews with investigators.

The case histories were compiled over a sufficiently long period of time - months or years, depending on the individual case -- for the entire range of available facts

surrounding an incident to come to light. The researchers found that their more extensive sources usually provided first-hand information not reported in the media, and often identified errors of fact that had been reported in the media.

POTENTIALLY PREVENTABLE FACTORS

The researchers identified a striking co-occurrence of multiple, controllable factors: no able-bodied person being present to intervene (87.1%); the victim having no familiar relationship with the dog(s) (85.2%); the dog(s) owner failing to neuter/spay the dog(s)(84.4%); a victim's compromised ability, whether based on age or physical condition, to manage their interactions with the dog(s) (77.4%); the owner keeping dog(s) as resident dog(s), rather than as family pet(s) (76.2%); the owner's prior mismanagement of the dog(s) (37.5%); and the owner's abuse or neglect of dog(s) (21.1%). Four or more of these factors were present in 80.5% of cases; breed was not one of those factors.

The distinction between a resident dog and a family dog was first proposed years ago by NCRC Founder Karen Delise.⁶ 76.2% of the DBRFs in this study involved dogs that were not kept as family pets; rather they were only resident on the property. Dogs are predisposed to form attachments with people, to become dependent on people, and to rely upon their guidance in unfamiliar situations. While it is extremely rare that dogs living as either resident dogs or as family pets ever inflict serious injuries on humans, dogs not afforded the opportunity for regular, positive interaction with people may be more likely, in situations they perceive as stressful or threatening, to behave in ways primarily to protect themselves.

THE STUDY'S FINDINGS ON BREED

The authors of the new JAVMA paper reported that the breed(s) of the dog or dogs could not be reliably identified in more than 80% of cases. News accounts disagreed with each other and/or with animal control reports in a significant number of incidents, casting doubt on the reliability of breed attributions and more generally for using media reports as a primary source of data for scientific studies. In only 45 (18%) of the cases in this study could these researchers make a valid determination that the animal was a member of a distinct, recognized breed. Twenty different breeds, along with two known mixes, were identified in connection with those 45 incidents.

The most widely publicized previous DBRF study⁷ which was based primarily on media reports, qualified the breed identifications obtained in their dataset, pointing out that the identification of a dog's breed may be subjective, and that even experts can disagree as to the breed(s) of a dog whose parentage they do not know. It has been known for decades that the cross-bred offspring of purebred dogs of different breeds often bear little or no resemblance to either their sires or dams.⁸ The previous DBRF study also did not conclude that one kind of dog was more likely to injure a human being than another kind of dog.

Lack of reliable breed identifications is consistent with the findings of Dr. Victoria Voith of Western University^{9,10} and of the Maddie's Shelter Medicine Program at the University of Florida's College of Veterinary Medicine.^{11,12} Both Dr. Voith and the Maddie's Shelter Medicine Program conducted surveys¹³ showing that opinions ventured by those working in animal-related fields regarding the breed or breeds in a dog of unknown parentage agreed with breed as detected by DNA analysis less than one-third of the time.¹⁴ Participants in the surveys conducted at both universities frequently disagreed with each other when attempting to identify the breed(s) in the same dog.

90% of the dogs described in the new DBRF study's case files were characterized in at least one media report with a single breed descriptor, potentially implying that the dog was a purebred dog. A distribution heavily weighted toward pure breed is in stark contrast to the findings of population-based studies indicating that ~46% of the dogs in the U.S. are mixed breed.¹⁵ Thus, either the designation of breed in the media reports for the cases under examination was done very loosely, and without regard to possible mixed breed status, or purebred dogs were heavily over-represented. The latter conclusion did not seem likely to these authors, particularly in light of the photographic evidence they were able to obtain. Finally, the news accounts erroneously reported the number of dogs involved in at least 6% of deaths.

The earlier, widely publicized study of DBRFs has been misunderstood, and misused to justify single-factor policy proposals such as breed-specific legislation (BSL), though the authors of that study did not endorse such policies. Failure to produce a reduction in dog bite-related injuries in jurisdictions where it has been imposed^{16,17} has caused the support for BSL to fade in recent years. From January 2012 to May 2013, more than three times as many jurisdictions either repealed BSL or considered and rejected it as enacted it. The House of Delegates of the American Bar Association has passed a resolution urging all state, territorial and local legislative bodies and governmental agencies to repeal any breed discriminatory or breed specific provisions.¹⁸ In August 2013, the White House, citing the views of the Centers for Disease Control and Prevention, published a statement with the headline, "Breed-specific legislation is a bad idea."¹⁹ BSL is also opposed by major national organizations, including the American Veterinary Medical Association, the National Animal Control Association, the Humane Society of the United States, the American Society for the Prevention of Cruelty to Animals, and Best Friends Animal Society.

UNDERSTANDING AND ADDRESSING HUSBANDRY FACTORS WILL LEAD TO BETTER PREVENTION

The trend in prevention of dog bites continues to shift in favor of multifactorial approaches focusing on improved ownership and husbandry practices, better understanding of dog behavior, education of parents and children regarding safety around dogs, and consistent

enforcement of dangerous dog/reckless owner ordinances in communities. The findings reported in this study support this trend. The authors conclude that the potentially preventable factors co-occurring in more than 80% of the DBRFs in their ten-year case file are best addressed by multifactorial public and private strategies.

Further, they recommend their coding method to improve the quantity and quality of information compiled in future investigations of any dog bite-related injuries, not just DBRFs. This new study and its methodology offer an excellent opportunity for policy makers, physicians, journalists, indeed, anyone concerned with the prevention of dog bite-related injuries, to develop an understanding of the multifactorial nature of both serious and fatal incidents.

December 2013

SOURCES and NOTES:

- ¹ Patronek, G.J., Sacks, J.J., Delise, K.M., Cleary, D.V., & Marder, A.R. (2013). Co-occurrence of potentially preventable factors in 256 dog bite-related fatalities in the United States (2000-2009). *Journal of the American Veterinary Medical Association*, 243(12), 1726-1736. Retrieved from: <http://avmajournals.avma.org/doi/abs/10.2460/javma.243.12.1726>
- ² American Veterinary Medical Association: Task Force on Canine Aggression and Human-Canine Interactions. (2001). *Journal of the American Veterinary Medical Association*, 218(11), 1732-1749. Retrieved from: <https://www.avma.org/public/Health/Documents/dogbite.pdf>
- ³ Centers for Disease Control and Prevention. (2013). *Dog Bites*. Retrieved from: <http://www.cdc.gov/HomeandRecreationalSafety/Dog-Bites/>
- ⁴ American Veterinary Medical Association. (2013). *Dog Bite Prevention*. Retrieved from: <https://www.avma.org/public/pages/Dog-Bite-Prevention.aspx>
- ⁵ Karen Delise is the Founder and Director of Research. Donald Cleary is Director of Communications and Publications, as well as Treasurer of Animal Farm Foundation, parent organization of NCRC.
- ⁶ Resident dogs are dogs, whether confined within a dwelling or otherwise, whose owners maintain them in ways that isolate them from regular, positive human interactions. Family dogs are dogs whose owners keep them in or near the home and also integrate them into the family unit, so that the dogs learn appropriate behavior through interaction with humans on a regular basis in positive and humane ways. See [Resident Dog vs Family Dog: What is the difference?](#)
- ⁷ Sacks, J.J., Sinclair, L., Gilchrist, J., Golab, G.C., & Lockwood, R. (2000). Breeds of dogs involved in fatal human attacks in the United States between 1979 and 1998. *Journal of the American Veterinary Medical Association*, 217(6), 836-840.
- ⁸ Scott, J.P. & Fuller, J.L. (1965). *Genetics and the Social Behavior of the Dog*. Chicago, IL: The University of Chicago Press.
- ⁹ Voith, V.L., Ingram, E., Mitsouras, K., & Irizarry, K. (2009). Comparison of adoption agency breed identification and DNA breed identification of dogs. *Journal of Applied Animal Welfare Science*, 12(3), 253-262.
- ¹⁰ Voith, V.L., Trevejo, R., Dowling-Guyer, S., Chadik, C., Marder, A., Johnson, V., & Irizarry, K. (2013). Comparison of Visual and DNA Breed Identification of Dogs and Inter-Observer Reliability. *American Journal of Sociological Research*, 3(2), 17-29. Retrieved from: <http://article.sapub.org/10.5923.j.sociology.20130302.02.html>
- ¹¹ Olson, K.R., Levy, J.K., & Norby, B. (2012). *Pit Bull Identification in Animal Shelters*. Retrieved from: <http://www.maddiesfund.org/Documents/Resource%20Library/Incorrect%20Breed%20Identification%20Study%20Poster.pdf>

-
- ¹² Levy, J. & Croy, K. (2013). *Dog Breed Identification: What kind of a dog is that?* Retrieved from: <http://sheltermedicine.vetmed.ufl.edu/library/research-studies/current-studies/dog-breeds/>
- ¹³ NCRC contributed funding to one of the surveys conducted by Western University and one conducted by the University of Florida's College of Veterinary Medicine.
- ¹⁴ DNA analysis of mixed breed dogs is not 100% accurate, nor do the companies offering such tests claim that it is. The accuracy of identification of breed of F1 crosses (offspring of 2 different registered purebreds) is currently reported to be 90%. See: Wisdom Panel™ FAQ's. How accurate is Wisdom Panel™ Professional? Retrieved from: <http://www.wisdompanelpro.com/faq.html>
- ¹⁵ American Veterinary Medical Association. (2012) *U.S. Pet Ownership & Demographics Sourcebook: 2012 Edition*. Schaumburg, IL: American Veterinary Medical Association.
- ¹⁶ Raghavan, M., Martens, P.J., Chateau, D. & Burchill, C. (2012). Effectiveness of breed-specific legislation in decreasing the incidence of dog-bite injury hospitalizations in people in the Canadian province of Manitoba. *Injury Prevention, 19*(3) Retrieved from: <http://injuryprevention.bmj.com/content/early/2012/06/29/injuryprev-2012-040389.full>
- ¹⁷ American Veterinary Medical Association: Animal Welfare Division. (2012). "Welfare Implications of The Role of Breed in Dog Bite Risk and Prevention." Retrieved from: https://www.avma.org/KB/Resources/Backgrounders/Documents/dog_bite_risk_and_prevention_bgn_d.pdf
- ¹⁸ American Bar Association. (2012). Resolution 100: Adopted by the House of Delegates. Retrieved from: http://www.americanbar.org/content/dam/aba/administrative/mental_physical_disability/Resolution_100.authcheckdam.pdf
- ¹⁹ The White House. (2013). *Breed-Specific Legislation Is a Bad Idea*. Retrieved from: <https://petitions.whitehouse.gov/response/breed-specific-legislation-bad-idea>