

Letters to the Editor

Preventable factors associated with dog bite-related fatalities

In epidemiological studies, the use of unnecessarily strict definitions may artificially limit the information being considered. As an example, in the study by Patronek et al¹ on potentially preventable factors associated with dog bite-related fatalities (DBRFs) occurring in the United States between 2000 and 2009, the authors used a definition of breed concordance whereby media reports that listed a breed and a mix of that breed, such as Labrador Retriever in one report and Labrador Retriever mix in another, would be considered discordant. For dogs with known breed history, breed reporting was determined to be discordant for 14 of 47 (30%) cases. However, when an expanded definition of concordance was used (ie, media accounts were considered concordant with known breed if the account accurately reported the breed of dog or reported the same dog as a mixed breed that included the dog's breed), breed reporting was classified as concordant for 46 of 46 (100%) cases. Additionally, for dogs with known breed history, the breed distribution was not reported.

In the same study,¹ status of dogs in the household was classified as resident dog or family dog (or unknown) without an adequate explanation of what these terms mean or how each dog's status was determined. Specifically, the authors did not state how much time a dog had to be kept isolated from regular, positive human interactions to be classified as a resident dog versus a family dog or how was it possible for researchers to accurately assign a status by reading reports or conducting brief interviews.

Finally, the abstract concludes, "Most DBRFs were characterized by coincident, preventable factors; breed was not one of these." But, the report provides no data to support the conclusion that breed was not a coincident preventable factor.

In fact, the only statistics presented were descriptive statistics and cross-tabulations, with no tests of the significance of associations.

On the basis of their findings, the authors assert that media characterizations of the breeds of dogs involved in DBRFs had poor reliability and poor accuracy, and use this assertion to infer that breed-specific legislation isn't effective. However, studies^{2,3} have shown that there is a relationship between breed and DBRFs, and research has demonstrated a reduction in dog-bite injuries following passage of breed-specific legislation.^{4,5}

Importantly, public policy is not always based solely on the frequency of an event. For example, the recent GM recall of 1.37 million vehicles because of faulty ignition switches was based on 13 deaths over a 10-year period.⁶ There are twice as many DBRFs in the United States every year. Poor reporting in media accounts of DBRFs of the breeds of dogs involved does not mean that breed is unimportant in these incidents. Rather, it means we need better data collection methods so that scientific studies can be conducted to inform public health policies that protect both people and dogs.

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1. Patronek GJ, Sacks JJ, Delise KM, et al. Co-occurrence of potentially preventable factors in 256 dog bite-related fatalities in the United States (2000–2009). *J Am Vet Med Assoc* 2013;243:1726–1736.
2. Shuler CM, DeBess EE, Lapidus JA, et al. Canine and human factors related to dog bite injuries. *J Am Vet Med Assoc* 2008;232:542–546.
3. Sacks JJ, Sinclair L, Gilchrist J, et al. Breeds of dogs involved in fatal human attacks in the United States between 1979 and 1998. *J Am Vet Med Assoc* 2000;217:836–840.
4. Raghavan M, Martens PJ, Chateau D, et al. Effectiveness of breed-specific legislation in decreasing the incidence of dog-bite injury hospitalisations in people in the Canadian province of Manitoba. *Inj Prev* 2013;19:177–183.
5. Villalbi JR, Cleries M, Bouis S, et al. Decline in hospitalisations due to dog bite injuries in Catalonia, 1997–2008. An effect of government regulation? *Inj Prev* 2010;16:408–410.
6. GM expands recall, cites 13 deaths. CNN Money. Available at: money.cnn.com/2014/02/25/autos/gm-ignition-recall-expanded/. Accessed May 19, 2014.

The authors respond:

We thank Drs. Trembath and Beck for their comments. It was not surprising that use of a less strict definition of concordance resulted in a higher rate of agreement among media reports of breeds associated with dog bite-related fatalities (DBRFs). The epidemiological principle is that as a case definition is broadened, sensitivity improves (ie, more positive cases are detected) but specificity worsens

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Letters containing defamatory, libelous, or malicious statements will not be published, nor will letters representing attacks on or attempts to demean veterinary societies or their committees or agencies. Viewpoints expressed in published letters are those of the letter writers and do not necessarily represent the opinions or policies of the AVMA.

(ie, more negative cases are falsely identified as positive). The letter writers confine their remarks about concordance only to the 47 dogs in our study for which breed was definitively known on the basis of pedigree or results of DNA analysis; however, it does not logically follow that results for this selective subset are representative of all 455 dogs involved in DBRFs. Indeed, when all DBRFs were considered, the degree of concordance was far less, and it was clear to us that media accounts frequently contradicted each other and animal control reports, whichever definition was applied. Our findings indicate that for public policy and scientific research, using newspaper reports as a source of data on dog breed is ill advised.

The letter writers assert that our report provides no data to support the conclusion that breed was not a coincident preventable factor in DBRFs. However, as we indicate in our results, the 45 DBRFs for which breed could be definitely determined involved dogs of 20 recognized breeds, including 2 dogs of mixed breeding. These data suggest that involvement in human fatalities is not limited to a few breeds, at least in instances for which breed could be reliably ascertained. Inferential statistics would provide no additional information. Family versus resident dog status was determined on the basis of extensive interviews with multiple primary sources, including law enforcement and homicide investigators and animal control officers. During these in-depth investigations, witnesses were interviewed and crime scene photographs were examined, which helped establish the conditions in which dogs were routinely kept.

The reliability of news accounts has nothing to do with the effectiveness or ineffectiveness of breed-specific legislation (BSL), and we made no such assertion in our report. The authors of the Canadian study¹ reported for their primary analysis that “[w]hen jurisdictions were used as their own controls in a pre-BSL versus post-BSL comparison of incidence of hospitalizations, no significant reduction in the period after BSL implementation was observed.” Another study in Spain found no effect over a 10-year pe-

riod.² Our recommendation against BSL, now prohibited by law in 18 states, is consistent with results of an in-depth analysis by the AVMA³ as well as the positions of other national organizations (eg, American Animal Hospital Association, American Kennel Club, American Bar Association, and Humane Society of the United States) that have studied this problem and the scientific literature.⁴

Were dog breeds as easy to identify as the cars involved in the recent GM recall or were dogs mass produced (like faulty mechanical devices) so as to be identical in performance and behavior, then single-factor policies such as BSL (or recall) might make more sense. They are not. Each is an individual whose behavior is a complex product of environment, experience, genetics, and epigenetic influences. Our findings reinforce the importance of understanding the complexity of dog bites and of jointly addressing the full range of coincident factors when considering bite prevention, as opposed to any single factor in isolation.^{5,6}

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avma.org/Advocacy/StateAndLocal/ Documents/Welfare-Implications-of-the-role-of-breed.pdf. Accessed May 29, 2014.

1. National Canine Research Council. What positions do leading animal organizations take on breed-specific legislation? Available at: nationalcanineresearchcouncil.com/dog-legislation/breed-specific-legislation-bsl-faq/. Accessed May 29, 2014.
2. AVMA Task Force on Canine Aggression and Human-Canine Interactions. A community approach to dog bite prevention. *J Am Vet Med Assoc* 2001;218:1732–1749.
3. Overall KL, Love M. Dog bites to humans—demography, epidemiology, injury, and risk. *J Am Vet Med Assoc* 2001;218:1923–1934.

Exposure of dogs to single-use detergent packs

We read with interest the recent letter¹ on exposure of dogs to liquid laundry detergent capsules (also known as liquid tablets, liquid sachets, and liquid laundry pods). In the United Kingdom, surveillance of poisoning in animals is undertaken by the Veterinary Poisons Information Service. Information on cases that are discussed with the service is collected, and a proportion of these cases are followed up with outcome data requested through a mailed questionnaire. Although these laundry cleaning products became available in the United States in 2012, they were launched in the United Kingdom in 2001,² and we have cases of animal exposure to these products in our case database from that date.

Of the 533 cases in our database involving exposure of dogs to laundry detergent products, 75 (14%) involved powders, 123 (23%) involved liquids, 81 (15%) involved tablets, and 254 (48%) involved liquid capsules. Our data support the observation by Forrester¹ that dogs are more commonly exposed to single-use detergent capsules than to other laundry detergent products.

Follow-up information was obtained for 63 of the 254 cases involving exposure of dogs to liquid laundry detergent capsules. Ingestion was the most common route of exposure (56 [89%] dogs), followed by dermal (4), ocular (3), and buccal (2). Four dogs were exposed by multiple routes. The quantity

1. Raghavan M, Martens PJ, Chateau D, et al. Effectiveness of breed-specific legislation in decreasing the incidence of dog-bite injury hospitalisations in people in the Canadian province of Manitoba. *Inj Prev* 2013;19:177–183.
2. Rosado B, Garcia-Belenguer S, León M, et al. A comprehensive study of dog bites in Spain, 1995–2004. *Vet J* 2009;179:383–391.
3. AVMA. The role of breed in dog bite prevention. Available at: <https://www.avma.org/Advocacy/StateAndLocal/ Documents/Welfare-Implications-of-the-role-of-breed.pdf>.

reportedly ingested varied from < 1 to up to 8 capsules.

The most common signs reported were vomiting (68% of all dogs) and coughing (25%). This clinical picture is similar to that seen in humans, particularly children, after ingestion of laundry detergent capsules.² Other signs reported for exposed dogs were frothing at the mouth (14%) and retching (8%). A dog that lay on and burst a capsule developed dermal burns, but there was a delay in diagnosis and treatment in this case. All 3 dogs with ocular exposure had corneal ulceration. Three dogs were reported to have aspirated capsules, and 2 had aspiration pneumonia. Of the 56 dogs with clinical signs, 47 (84%) had gastrointestinal tract signs, 20 (36%) had respiratory signs, 19 (34%) had both gastrointestinal tract and respiratory signs, 4 (7%) had ocular signs, and 3 (5%) had dermal signs.

Seven of the 63 (11%) dogs did not develop clinical signs following exposure. Of the remaining 56 dogs, 53 (94%) recovered fully, 1 died, 1 was euthanized, and 1 had ongoing signs at the time of follow-up (it still had a cough on discharge). The dog that died developed vomiting, dehydration, aspiration pneumonia, renal failure, convulsions, and pulmonary edema and died 24 hours after ingestion. The dog that was euthanized developed collapse, hemorrhagic diarrhea, labored respiration, and tachycardia and was euthanized when it failed to improve after 24 hours of treatment.

We can confirm that there is a risk of severe effects from exposure to liquid laundry detergent capsules, even though most dogs that do develop clinical signs fully recover. Few exposed dogs did not develop clinical signs, and the mortality rate was 3% (2/63).

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1. Forrester M. Exposure of dogs to single-dose detergent packs (lett). *J Am Vet Med Assoc* 2014;244:1015.
2. Williams H, Jones S, Wood K, et al. Reported toxicity in 1486 liquid detergent capsule exposures to the UK National Poisons Information Service 2009-2012, including their ophthalmic and CNS effects. *Clin Toxicol* 2014;52: 136-140.

Professional values

The recent commentary by Hollier et al¹ entitled "The veterinary profession and precarious values" is particularly timely, especially given the AVMA's current internal deliberations on its future structure and functions. The core message of the authors is that in an age of globalization and rapid advancement of developing economies, the essential value of our profession is in the public services we are positioned to provide through traditional veterinary medical roles that support agriculture, public health, research, and food safety.

The authors argue that as a profession, we need to reemphasize important roles that are currently less commonly played by veterinarians in the United States and suggest that it is these roles that hold the key to our value as a profession worldwide. I contend that this means the AVMA cannot be just a membership organization if it is to represent the full breadth and depth of our profession. We are so much more, but will we listen?

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1. Hollier PJ, Fathke RL, Brown CC. The veterinary profession and precarious values. *J Am Vet Med Assoc* 2013;244:1130-1132.

In their recent commentary, Hollier et al¹ argue that "[t]he failure to preserve professional values that have broader societal benefits may leave the profession vulnerable to defaulting on its obligations and drifting from its foundational principles." I echo their sentiments and would suggest that, to some extent, this is already happening. As an example, veterinarians working for the USDA are essential in safe-

guarding public and animal health. In January 2013, however, the USDA Office of the Inspector General released its report² on whether internal controls at APHIS and the Food Safety and Inspection Service were sufficient to ensure applicants or employees had the necessary credentials to be employed or accredited as USDA veterinarians. The report concluded that both agencies need to strengthen their hiring processes to ensure that candidates are qualified for the federal veterinarian positions to which they applied, suggesting that important food safety skills are not being taught to veterinary students.

I believe that as a profession, we need to recognize the unique obligations veterinarians have beyond clinical practice and identify the important skills and knowledge needed to fulfill those obligations. This would provide clear direction for curriculum development in our colleges of veterinary medicine and help ensure that as a profession, we do not drift away from our values.

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1. Hollier PJ, Fathke RL, Brown CC. The veterinary profession and precarious values. *J Am Vet Med Assoc* 2014;244:1130-1132.
2. Verifying credentials of veterinarians employed or accredited by USDA. Audit report 50601-0001-31. Available at: www.usda.gov/oig/webdocs/50601-0001-31.pdf. Accessed May 22, 2014.