

# Letters to the Editor

## Breed-specific legislation

In their report on potentially preventable factors in dog bite-related fatalities in the United States, Patronek et al<sup>1</sup> argue that breed-specific legislation (BSL) is unlikely to be an effective dog-bite prevention strategy, citing our finding in a study<sup>2</sup> of Canadian cities to state that “there was no significant reduction in hospitalization rates for dog bite injury in communities before and after BSL was introduced.” Further, in their response to a subsequent letter to the editor,<sup>3</sup> the authors quote from our report to state 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.”

Both of these statements are true; however, taken out of context, they obscure some of the complexities inherent in our collective understanding of the issues surrounding dog-bite injuries and the differences between dog-bite injuries and dog-bite fatalities. For instance, we also reported that the rate of dog-bite injury hospitalization in Winnipeg, MB, Canada (a city with BSL), relative to the rate in Brandon, MB, Canada (a city that has not adopted BSL), was significantly ( $P < 0.001$ ) lower after the adoption of BSL in Winnipeg (rate ratio, 1.10 for people of all ages and 0.92 for people  $< 20$  years old) than it was before (rate ratio, 1.29 and 1.28, respectively). Thus, we concluded that when temporal and geographic variations were accounted for, BSL was effective in reducing the hospitalization rate in Winnipeg, relative to the rate in Brandon, with a more pronounced effect in younger people than in people of all ages.

We agree with Patronek et al<sup>1</sup> that BSL by itself is unlikely to be an effective solution to the problem of dog bites. However, we believe it can play an important role. We invite readers to read our original

study<sup>2</sup> and related letter to the editor<sup>4</sup> to make their own conclusions about the unique strengths, contributions, and limitations of our study.

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2. 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* 2012;19:177–183.
3. Patronek GJ, Sacks JJ, Delise KM, et al. Preventable factors associated with dog bite-related fatalities: the authors respond (lett). *J Am Vet Med Assoc* 2014;245:39–40.
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legislation in decreasing dog-bite injury hospitalisations in Manitoba—what it means to researchers, policy-makers and the public (lett). *Inj Prev* 2012. Available at: [injuryprevention.bmj.com/content/early/2012/07/31/injury-prev-2012-040389/reply#injuryprev\\_el\\_9322?sid=dcda6514-0675-4fdc-94c3-1c34f1c39bf7](http://injuryprevention.bmj.com/content/early/2012/07/31/injury-prev-2012-040389/reply#injuryprev_el_9322?sid=dcda6514-0675-4fdc-94c3-1c34f1c39bf7). Accessed Aug 1, 2014.

## If an animal looks obese, precise estimation of body composition is of limited clinical value

The recent studies by Witzel et al<sup>1,2</sup> on use of morphometric measurements to estimate body composition variables in overweight and obese dogs and cats are interesting, but several issues limit the applicability of the authors' findings.

Specifically, the reported regression equations for estimating lean body mass and fat mass on the basis of morphometric measurements have limited clinical relevance. Many of the morphometric measurements retained in these equations, such as limb length and head circumference, are indicative of larger-framed animals and only minimally influenced by adiposity. Given that all of the animals were overweight or obese, absolute lean body mass and fat mass would be expected to have strong linear relationships with body size (eg, an obese Mastiff would be expected to have higher lean body mass and fat mass than an obese Chihuahua). Essentially, the regression equations

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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.

predict that larger obese animals will have more lean body mass and fat mass than smaller obese animals.

Similarly, although the body fat index developed by the authors was reportedly more accurate than a 5-point body condition score (BCS) system for estimating body fat percentage, methodological limitations likely affected these results. For example, 66 of the 83 (80%) dogs enrolled in the first study<sup>1</sup> had the maximum BCS of 5. Because nearly all the dogs had an identical BCS, the BCS cannot differentiate dogs from each other and, therefore, cannot be a strong predictor for any dependent variable. Because a BCS of 5 was assumed to represent 40% body fat, it is not surprising that accuracy of the BCS system was limited, given that 54 of the 83 (65%) dogs had a body fat percentage  $\geq$  40%.

Although regression equations may have some value in assessing body composition, issues with applying regression equations to heterogeneous populations are exemplified by the large number of group-specific equations reported in the human literature, which have varying degrees of accuracy, limiting their generalization to the greater population.<sup>3</sup> Diversity in body composition prediction equations is rooted in subpopulation-specific differences, including factors such as subcutaneous adipose tissue distribution, bone mineral density, and other genetically determined morphological characteristics that vary by race and ethnicity.<sup>4</sup> Although

the human population is anatomically diverse, one could certainly argue that the canine population is even more so. Indeed, differences in body composition between breeds have led to the recommendation that breed-specific equations be developed.<sup>5,6</sup> Many other factors, such as sex and reproductive status (ie, sexually intact vs neutered), may also influence body composition.<sup>5</sup> These factors may explain why estimated body fat percentages were reportedly not within 10% of the value measured by means of dual-energy x-ray absorptiometry (a liberal standard relative to standards used in the human literature<sup>3</sup>) for 27 of the 83 (33%) dogs<sup>1</sup> studied. Such a high error rate suggests the equation is of limited value for individual patients.

Methodological limitations influence the accuracy of all clinical body composition measurements and estimates. Given the current state of body composition assessment in dogs and cats, recognition of overweight or obesity status leading to general weight management recommendations likely has greater clinical impact than attempts to precisely estimate body composition parameters.

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1. Witzel AL, Kirk CA, Henry GA, et al. Use of a novel morphometric method and body fat index system for estimation of body composition in overweight and obese dogs. *J Am Vet Med Assoc* 2014;244:1279–1284.

2. Witzel AL, Kirk CA, Henry GA, et al. Use of a morphometric method and body fat index system for estimation of body composition in overweight and obese cats. *J Am Vet Med Assoc* 2014;244:1285–1290.
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4. Deurenberg P, Deurenberg-Yap M. Validity of body composition methods across ethnic population groups. *Acta Diabetol* 2003;40(suppl 1):S246–S249.
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## Recognizing good work

I have in the past been sharply critical of many of the AVMA's practices and policies and likely will be so in the future. However, I have personal, professional, and social commitments to note good and positive achievements when they occur. I can see that considerable effort is being directed to improving the programs at the AVMA Annual Convention, and having attended many high-quality scientific presentations at both the 2013 and 2014 conventions, I recognize the AVMA for a job well done.

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