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Guest Editorial

Breed specific legislation: How data can spare breeds and reduce dog bites

The paper on dog bites in the Netherlands by Jessica Cornelissen and Hans Hopster of the Wageningen Livestock Research unit in Lelystad, and published in this issue of *The Veterinary Journal*, is a welcome and important addition to the literature. The paper is important because the Netherlands had breed specific legislation (BSL) and the work was commissioned by the Government as part of an evaluation of that legislation. BSL has now been abolished in the Netherlands.

This research was made possible because databases of registered dog owners existed. The single biggest problem faced by any study of dog bites is the lack of accurate data on the relative population numbers of different breeds (Collier, 2006; Overall and Love, 2001; Patronek and Slavinski, 2009), without which calculation of the breed-by-breed bite-related index (BRI) that is at the core of the Cornellissen and Hopster paper would not be possible. Only the fact that the information about people's responses and data pertaining to bites were collected from two different samples of humans prevented the authors from calculating the population attributable fraction percentage (PAF%) for each breed, which would provide a more accurate bite frequency assessment.

The authors had a superior database from which to work, but they also used some very clever ideas to ensure that their information was accurate, informative and – most importantly – comparable to the data of other groups as well as replicable (Cornelissen and Hopster, 2010). Other groups may wish to emulate these strategies. Firstly, the authors clearly identified relevant breeds by providing a poster with representative photos of the breeds, in alphabetical order. This essential step minimized (and may have prevented) misidentification, whilst providing an educational tool. Secondly, by presenting the breeds in alphabetical order, no breed carried more weight than any other, so minimizing the bias effect of displaying breeds that are more commonly discussed in the media from those less commonly discussed breeds. When engaging in surveys either this step or true randomization (which can be difficult in long-distance surveys) is essential.

Finally, the authors (who are not veterinary behaviorists) realized that they could and would not have the necessary history for each dog bite that would allow the event to be understood in a way that is essential for therapeutic intervention. Without collaborative input from specialists in veterinary behavioral medicine, too many studies rely only on routinely collected demographic data (Drobatz and Smith, 2003; Patronek and Slavinski, 2009; Shuler et al., 2008). Cornelissen and Hopster (2010) created very smart middle ground by collecting information that permitted some understanding of the behavioral circumstances of the bite. In addition to data traditionally collected, such as age group of the person bitten, ownership status (did or did not own the dog that bit), the environment in which the bite occurred (public vs. non-public areas), injury site on body, presence or absence of medical treatment, and some assessment of injury severity, the authors collected data that acknowledged that there are two parties involved in any bite.

If there was active engagement and interaction between the dog and human prior to the bite, this was considered an *aggressor–victim interaction*, but if there was no active interaction and engagement between the dog and human the bite was considered *no aggressor–victim interaction*. This definition will not adequately identify pathological or problematic behavior on the part of the dog (or human), but it acknowledges that human behaviors can affect dog behaviors. Furthermore, this definition focuses the discussion on *how* we live with dogs, rather than on the breeds with which we choose to live.

The importance of the human role in the eventual outcome is further dissected and emphasized by the way the authors classify the behavior of the dog. Thus, an *intentional bite* was defined as one delivered with or without warning signs but in response to some behavior on the part of the human that acted as a trigger. An *unintentional bite* was one that occurred in the course of other interactions (such as play) as an accident and not as a direct result of a provocative incident in those interactions. Such a classification allows for sane and humane treatment of all of the parties involved in the bite, something too often missing from public discussion. By defining bite parameters in this manner Cornelissen and Hopster (2010) acknowledged some important truisms about living with carnivores, namely that they are not verbal, they have sharp teeth and, in the absence of opposable thumbs, they use their mouths in many interactions.

As the result of such careful attention to detail, the conclusions reached by Cornelissen and Hopster (2010) paint a more complex canvas of the dog bite scenario than is typically desired by legislators, but one that can keep us and the dogs who love us safe. Firstly, and in keeping with other studies, male humans are more frequently bitten by dogs than females, and children are bitten more frequently than adults. However, in more recent studies (Shuler et al., 2008), male children were *not* bitten more often than female children, an odd victory for gender equality that may hint at how children's play styles have changed over the years. Secondly, children were bitten in non-public places more often than adults and were bitten intentionally more often than adults. These findings strongly suggest that the risk to children from dog bites is a correlate of oversight. Thirdly, while showing the global pattern of experiencing more bites to the head and face, children in this study had no or more minor injuries than adults, an uncommon finding in the literature. This pattern may suggest that some population level

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(probably cultural) differences exist between these populations and those in the literature, which is heavily biased to studies on dogs in the USA.

A fourth conclusion was that 60% of those bitten could identify a trigger that resulted in the bite. This means that we *can* educate people about triggers, what they mean to the dog and how to respect the dog's perception of the situation and prevent accidents. Fifthly, most people could readily identify the biting dog's breed using the provided chart, but no single breed was over-represented in the pool of dogs that did the biting. In fact, the breeds that were most common were the ones most likely to have bitten. These findings support the data of a number of comparative (Overall and Love, 2001) and original (Drobatz and Smith, 2003; Shuler et al., 2008) studies. Simply put, controlling breeds is not sufficient to control dog bites.

Finally, the overwhelming majority of dog bites that occurred in public places involved non-owners (89%) and were believed by the person bitten to be intentional (76%), with 61% involving no active interaction. As Cornelissen and Hopster (2010) correctly note, this is a fascinating and important finding. Without knowing how the dogs were maintained (on- or off-lead), whether they were supervised, how far from home they were, why people had them and their individual histories, we can draw few conclusions. Certainly, more specific behavioral data are needed to understand this finding. Yet it is interesting that Shuler et al. (2008) reported that terrier, working, herding, and non-sporting breeds were more likely to bite than sporting breeds, and that hounds, non-American Kennel Club registered breeds and toy dogs were not significantly associated with biting, mirroring the pattern found for intentional bites in the Cornelissen and Hopster study. One wonders to what extent protective behaviors derived from breed-typical behaviors that have been selected over time may be involved in the development, misunderstanding or tolerance of potentially aggressive behaviors in public.

So, where can we go from here? Well, we need to start following animals in populations across their lifespan. In the USA this suggestion is met with claims of extreme and potentially bankrupting costs by producers, and with equally extreme concerns about privacy, achievable outcomes, States' rights issues, and concern about the overwhelming bureaucracy and cost that would be needed to track animals for any pet system. There is sufficient variation between States with respect to vaccination and dog licensing requirements (and enforcement) that even having an informed debate over the value of registering and tracking all pets is unlikely to occur at present (Hannah, 2002). But, unless municipalities in the USA enact and enforce specific legislation, then microchipping, registration with breed clubs *and* registration of chip number will remain voluntary. In one study of dog bites in one US county only 312/636 (49%) of biting dogs were licensed (Shuler et al., 2008). Unlicensed dogs have historically been over-represented in the dog bite statistics (Gershman et al., 1994), again suggesting that owners' attitudes pertaining to responsible dog ownership and behavior are key to preventing dog bites. Basically, unenforced or voluntary registration and identification programs will not provide the necessary data to track trends in dog bites or to implement any data-based bite prevention program.

We must also enlist the cooperation of specialists in veterinary behavioral medicine in working with communities charged with treating and preventing dog bites (AVMA, 2001). Using an opinion-based questionnaire about hypothetical scenarios, Reisner and Shofer (2008) found that parents routinely misunderstood risks to safety in dog–child interactions. In an important set of papers, Kahn et al. (2003) and De Keuster et al. (2006) demonstrated that we can learn about the behaviors of the dog and the human before, during and after a bite, and decide whether the dog exhibited truly pathological behaviors, or whether some misunderstanding of normal canine behavior or ability was involved. Getting this information into the community where it matters most (including the veterinary profession) is difficult for a number of reasons.

Anticipatory guidance based on specific age- and situation-associated behaviors in both children and dogs relies on the fact that patterns are predictive, and that recognizing and anticipating these patterns can prevent dog bites and reduce risk (Love and Overall, 2001). To ensure this happens, veterinary behaviorists have to ensure that veterinarians themselves understand what 'normal' behavior is, how manifestations of 'normal' behavior can be shaped by breed, how one can recognize when behaviors segue from 'normal' to 'abnormal' and how to best intervene.

The small number of positions dedicated to veterinary behavioral medicine at veterinary colleges worldwide suggests that such instruction is relatively rare, and that errors in understanding dogs may be painfully common. In addition, the specialist community must actively participate in data collection and dissemination of findings in a way that makes information accessible to care givers and in a manner that encourages ongoing, comparative studies. This last requirement is currently unmet, in part because there is no consensus on terminology in veterinary behavioral medicine, despite numerous attempts to encourage this (Overall and Burghardt, 2006; Overall, 2005). As a result, we have tacitly encouraged an approach of categorizing aggression by the victim such that we understand even less about underlying mechanisms (Duffy et al., 2008; Segurson et al., 2005; Takeuchi et al., 2001; van den Berg et al., 2010). Only when we can share accurate diagnostic information can specialists develop a cohesive approach to understanding and treating the mechanisms underlying pathology.

Cornelissen and Hopster (2010) note that there are a number of bite mitigation programs available. For hands-on, gut-level learning for children (the group of people most likely to be victimized by inter-specific misunderstanding) it would be difficult to outperform the lessons taught in the *Blue Dog*[1] (de Keuster et al., 2005). In this clear and lovely interactive video, children (and their caregivers) are able to try out their behavioral responses on a virtual dog, and so learn about what could happen with a real one. Scientific validation of the beneficial effects of this program continues, with early studies showing that the *Blue Dog* reduces errors made by children 3–6 years of age with respect to their responses to dogs' behaviors (Meints and de Keuster, 2009).

There are now a growing number of resources available that should help even the most clueless among us to understand canine signaling – if we read them. The best references address the point of view most often neglected, namely, the dog's. Two short popular books should heighten the interest of most veterinarians and dog lovers. *Tail Talk* (Collins, 2007), for which I wrote a Foreword, is a beautifully photographed, informative book that could have a home in the waiting rooms of all veterinary surgeries. *The Canine Commandments* (Shepherd, 2007) offers parents a translation of canine behavior and needs that will allow them to learn to humanely meet their dog's needs, and to understand that by doing so they will keep their children safe.

When considering canine aggression, we must begin to ask what kind of people we wish to be. The authors hint at this in one laudatory statement: '*We found that all dogs can bite and therefore one should always be careful when interacting with a dog, even a family dog and during play*.' When we choose to share our lives with another species, particularly one with large canine teeth, no verbal speech and no opposable thumbs, we assume some risk. We assume risk in all social interactions even when we share our lives with those whose teeth, speech and thumbs are like ours, as evidenced by accident and divorce rates. Yet the bigger risk is as-

[1] See: www.thebluedog.org.

sumed by the *dogs*, which are expected to translate human language to 'dog' and who can be relinquished and euthanased at will, even if it wasn't their 'fault'. I am consistently stunned by the human propensity to desire a 'guarantee' of 'safety' over an acceptance of responsibility that includes assessing and acting upon risk. In fact, it is this propensity to need a guarantee of 'safety' that has so misguidedly driven BSL and most of the inhumane training techniques based on outdated, inappropriately applied concepts of 'dominance', now so popular on television.

We can and we should do better, and progress is being made. For those wishing to use data to trump assertion, I'd recommend a visit to the website entitled *Welfare in dog training*[2]: Some enlightening video material is also available on a *Chicago Now* blog.[3] Scientific studies too numerous to list here have shown that the benefits to humans of interacting with pets range from the physical to the emotional. The defining relationship in a child's life that turns that child into a humane adult can be their relationship with a dog. Data like those in the Cornelissen and Hopster study can allow us to understand, minimize and wisely assume risk. What we gain from our relationships with dogs certainly outweighs the costs of such education.

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[2] See: www.dogwelfarecampaign.org.

[3] See: http://www.chicagonow.com/blogs/steve-dale-pet-world/2010/02/you-dont-need-to-be-an-alpha-dog.html.