Defaming Rover: Error-Based Latent Rhetoric in the Medical Literature on Dog Bites

Arnold Arluke1, Donald Cleary2, Gary Patronek3, and Janis Bradley2

1Department of Sociology, Northeastern University, Boston, Massachusetts; 2National Canine Research Council, Animal Farm Foundation, Inc., Bangall, New York; 3Center for Animals and Public Policy, Cummings School of Veterinary Medicine, Tufts University, North Grafton, Massachusetts

ABSTRACT
This article examines the accuracy and rhetoric of reports by human health care professionals concerning dog bite injuries published in the peer-reviewed medical literature, with respect to nonclinical issues, such as dog behavior. A qualitative content analysis examined 156 publications between 1966 and 2015 identified by terms such as “dog bite” or “dangerous dogs.” The analysis revealed misinformation about human–canine interactions, the significance of breed and breed characteristics, and the frequency of dog bite–related injuries. Misinformation included clear-cut factual errors, misinterpretations, omissions, emotionally loaded language, and exaggerations based on misunderstood or inaccurate statistics or reliance on the interpretation by third parties of other authors’ meaning. These errors clustered within one or more rhetorical devices including generalization, catastrophization, demonization, and negative differentiation. By constructing the issue as a social problem, these distortions and errors, and the rhetorical devices supporting them, mischaracterize dogs and overstate the actual risk of dog bites.

KEYWORDS
Dog bites; health care professionals; rhetoric; errors

Reports of dog bites in the popular press have been shown to be unstructured, subjective, and narrow—failing to discuss the complex factors that might have contributed to the bites and exaggerating the risk of bites (Kikuchi, Oxley, Hogue, & Mills, 2014; Podberscek, 1994). Equally, if not more, important to examine are how human health care professionals (HHCPs) characterize dog bite injuries when writing in the peer-reviewed human medical literature, as these papers are relied upon and cited by other HHCPs working in this area. If HHCPs generalize their expertise into areas that are not strictly clinical in nature—for example, by delving into the nature and behavior of dogs and what might cause dogs to bite, when they discuss topics such as clinical management of wounds—it is important to know whether those assertions can be relied upon.

Skepticism about the accuracy of information concerning dog behavior in these reports is warranted because even many veterinarians feel inadequately trained in animal behavior (Patronek & Dodman, 1999; Roshier & McBride, 2013), which is itself a boarded specialty in veterinary medicine. HHCPs may tend to rely on the familiar human medical literature, rather than the veterinary behavior literature, when seeking information about dog bites. HHCPs are likely not immune to being influenced by popular cultural images and assumptions about dog behavior and thus may rely on sources that reinforce their preexisting impressions and/or emotional response to clinical situations when writing about dog bites.

Articles by HHCPs emanate from presumed experts (Mandrola, 2015), an elite whose discourse (Van Dijk, 1995) can significantly influence how other professionals and the laity alike think and act toward dogs as well as decide on public policy regarding these nonhuman animals. Here we report results of a
Materials and methods

In order to identify articles in which HHCPs wrote about dog bites, we searched for English-language articles, letters, and literature reviews published between 1966 and 2015 in PubMed or CAB Abstracts, identified by the terms “dog bite,” “dog mauling,” “dog injuries,” “dog mortality,” “dangerous dogs,” and “dog attack.” We also concentrated our search geographically on reports concerning dog bites and/or dog bite–related injuries in the United States, Canada, Europe, South Africa, Australia, and New Zealand because in other locations, such as elsewhere in Africa, China, Pakistan, or India, the focus is predominantly rabies control and free-roaming dogs. The references in each recovered article were also examined to identify additional papers.

Papers were included in the final data set if they met two or more of the following criteria: (a) the main topic was dog bite–related injuries or fatalities; (b) most or all of the authors were from the human health care field, such as medical doctors, nurses, public health experts, and mental health professionals, with at least the first author being a human medical professional; (c) articles dealt with more than just the medical or surgical management of dog bite wounds, microbiology of dog bites, or rabies prophylaxis by characterizing dog behavior or discussing dog bite epidemiology; and (d) the authors recommended practices and/or policies based upon their assumptions regarding dog behavior, breed, and/or human–canine interaction, intended to contribute to safety around dogs.

When applied, these criteria generated a data set of 156 published papers with introduction or discussion sections that contained material as described above. Editorials written by HHCPs were also included, but we excluded papers that dealt solely with medical management and treatment of dog bite–related injuries. The full appendix or bibliography is available from the authors on request.

Qualitative content analysis was used to examine the manifest or visible components of the text in these articles as well as their latent or underlying meaning (Graneheim & Lundman, 2004). More specifically, our approach identified the kinds of manifest errors that occurred in discussions of dog bites and the kinds of rhetorical devices latently expressed through these errors. Patterns of manifest errors and latent rhetorical devices were derived inductively through immersion in the data by reading and rereading the text (Pope, Ziebland, & Mays, 2000) until saturation occurred or the point at which no new types of errors or rhetorical devices could be discovered. Because our goal was to identify the kinds rather than the frequencies of messages these articles communicated to readers about the causes and frequency of dog bites and/or dog bite–related injuries, as is typical for a qualitative analysis, statistics on the rate of occurrence of specific rhetorical devices were not calculated. When describing the relative frequencies of more specific characterizations, we used adjectives, a commonly accepted practice in qualitative social science reports.

Results

We assumed that HHCPs provided accurate information about clinical topics related to treatment and management of dog bites but found that we could not make this assumption when it came to discussion of nonclinical topics. More commonly, the articles had misinformation about canine behavior—including biting behavior and social interactions with humans, the definition of breed and significance of breed characteristics, and the nature and frequency of dog bite–related injuries—that was expressed through one or more discursive devices discussed below.

Generalizing

A rhetorical device such as generalizing can create stereotypes or negative images of subordinated groups by claiming that certain undesirable characteristics are typical among targeted group
members (Van Dijk, 1993), without reliable evidence to support these claims. Although some medical articles generalize about all dogs, most generalize about certain allegedly “bad” breeds, which are then negatively stereotyped, singled out, and stigmatized as dangerous to humans. However, the American Veterinary Medical Association’s Task Force on Canine Aggression and Human–Canine Interactions (2001) claims that targeting any breed of dogs as a basis of dog bite prevention is unfounded.

Dog-breed blaming occurs when authors generalize without providing suitable supporting evidence that members of certain breeds are responsible for a disproportionate number of “severe” dog bites or “attacks” (e.g., Ching, Adelgais, & Daane, 2004; Rohrich & Reagan, 1999). Authors describe certain breeds as “bite prone” (Gurunluoglu, Glasgow, Arton, & Bronsert, 2014), “offending” (Horswell & Chahine, 2011), or “high risk” (Schalamon et al., 2006), but do so with flawed support.

“Pit bulls,” “pit bull terriers,” or “pit bull mixes” were frequently blamed “breeds” for dog bites in the United States (e.g., Prendes, Jian-Amandi, Chang, & Shaftel, 2016) and United Kingdom (e.g., Kasbekar et al., 2013). Elsewhere, other breeds were blamed for biting more often and more severely, such as German Shepherd dogs (called Alsatians in some British papers) in Australia and Scotland (Greenhalgh, Cockington, & Raftos, 1991; Klaassen, Buckley, & Esmail, 1996; Thompson, 1997). Other articles on bites in the United States point to breeds such as German Shepherd dogs, Rottweilers, Chow Chows, Poodles, or simply mixed breeds as the major offenders (e.g., Lauer, White, & Lauer, 1982; Morton, 1973; Pinckney & Kennedy, 1982; Steele et al., 2007).

Such generalizations about “pit bulls” are particularly problematic (e.g., Viegas, Calhoun, & Mader, 1988) since this is not a breed or even a term with a single definition. This unofficial descriptor refers to a group that may include dogs of multiple recognized breeds, dogs believed to have those breeds to some degree in their ancestry based on someone’s idea of a physical resemblance, and mixed-breed dogs whose ancestry cannot be reliably identified (Patronek, Sacks, Delise, Cleary, & Marder, 2013). Nevertheless, articles use the expression “pit bull” or “pit bull type” in the same context in which they discuss recognized breeds of dogs (e.g., Daniels, Ritzi, Neil, & Scherer, 2009).

The claim that certain breeds are more likely to bite also assumes the reliability of calculating “relative risk,” a statistic that conveys the likelihood of an incident (e.g., a dog bite) being caused by a member of one group (e.g., a breed of dog) versus a member of another group (e.g., Gurunluoglu et al., 2014). The American Veterinary Medical Association Task Force on Canine Aggression and Human–Canine Interactions (2001) reported that relative risk calculations with respect to dog bite–related injury are impossible due to the lack of accurate information about the breed of the biting dog in question (numerator) or that of the comparator group (denominator). The pedigreed portion of the U.S. dog population has been estimated at only 54% (American Veterinary Medical Association, 2012) and dogs of mixed heritage are not members of breeds, nor can they be expected to significantly resemble their ancestral breeds in appearance (Parker et al., 2004; Scott & Fuller, 1965).

We have also found examples where HHCPs made generalizations about breed from data they collected, but the data precluded generalizing. For example, Dwyer, Douglas, and van As (2007) claim that “pit bull terriers” and German Shepherd dogs—presumed to be correctly identified—were the most common breeds in their study to “attack” children, but they note that only 1% of their sample reported the presumed breed of the dog, a percentage far too low to permit generalizations about the other 99% of the sample. Similarly, Kasbekar et al.’s (2013) study of dog bites to children blamed Staffordshire Bull Terriers as being the most frequent breed to bite, but analysis of the study’s data shows that only 30% of their sample included a report of breed: again, a percentage too low from which to reliably generalize. Bini et al. (2011) acknowledged that a low proportion of cases with any information about breed was a limitation of their study but nevertheless made unwarranted claims about the role of breed.

Another source of inaccuracy about breed is the breed identification itself, such as when presumed breed is self-reported by bite victims or their family, friends, or others. For example, Kasbekar et al. (2013) identified breeds by relying on the child’s guardian or reports from the child’s doctor, and Lang and Klassen (2005) could not report the source of breed identifications but thought
they “probably” came from victims’ families except in cases where the dog was unknown to the victim. One study compiled breed data not based on the dog that inflicted the bite but by showing a series of pictures of dogs to bite victims and asking which picture resembled the dog they believed had bitten them (Jarrett, 1991).

Data relating to presumed breed may also be unreliable when obtained either from news accounts or hospital records, where the authors assume that whatever is written is reliable evidence (e.g., Chiam, Solanki, Lodge, Higgins, & Sparnon, 2014; Sacks, Sinclair, Gilchrist, Golab, & Lockwood, 2000) and fail to integrate into their data analysis the difficulty of accurate breed identification, a problem long recognized and demonstrated even now among dog professionals (Olson et al., 2015; Voith, Ingram, Mitsouras, & Irizarry, 2009; Voith et al., 2013). Nor did these studies attempt to address the problem through pedigree documentation.

**Catastrophizing**

The term catastrophizing is usually used to describe an individual’s cognitive distortion of a negative event, perceiving it as far worse than it is in reality (Vasey & Borkovec, 1992). Social catastrophizing happens when a perceived trauma (Kirmayer, Kienzler, Afana, & Pedersen, 2010) is collectively defined, often through mass media (Blackman & Walkderdine, 2001), as a common plight (Demertzis, 2009), far in excess of any real danger. Whether at the individual or collective level, catastrophizing can create substantial and unwarranted anxiety.

A form of social catastrophizing happens when medical articles about dog bites overstate the scope of the problem. One way authors do this is by exaggerating their prevalence through use of hyperbolic language, asserting that dog bite injuries or “attacks” are, for example, “extremely frequent” (Cottom, Tuopar, & Ameerally, 2011). However, reports of the prevalence of dog bites vary considerably in the literature (Patronek & Slavinski, 2009), with the highest (and frequently quoted) estimate being 4.5 million bites annually in the United States (Gilchrist, Sacks, White, & Kresnow, 2008). This estimate was derived from self-reported responses to the Centers for Disease Control and Prevention’s (CDC) Injury Control and Risk Survey (ICARIS) that asked participants “In the past 12 months, has anyone in your household been bitten by a dog?” Based on a population of about 72 million dogs in the United States and conservatively assuming that each bite represented a different dog, this would mean that more than 93% of dogs did not bite anyone. Further, the same ICARIS data estimated that only 19% of those responding positively to the question reported seeking medical treatment of any kind (Gilchrist et al., 2008), implying that the percentage of dogs not inflicting an injury for which a person sought medical treatment is greater than 98%.

Prevalence is also exaggerated by misstating statistics. For example, Abrahamian (2000) writes that dog bites are “among the most frequent causes of nonfatal injuries in the [United States],” when in fact dog bites constitute only 1.1% of emergency department visits for nonfatal injuries. And a query of the CDC’s Web-Based Injury Statistics Query and Reporting System database for any year reveals that dog bites do not account for the majority of even the animal-related injuries for any age group in the United States. One paper (Morrongiello et al., 2013) catastrophized the scope of this issue by misreading ICARIS. To the ICARIS estimate of 4.5 million dog bites annually, the authors added an unspecified number of unreported bites by incorrectly inferring that those who responded positively to the survey’s dog bite question sought medical treatment and/or reported the bite. As mentioned above, fewer than 20% of ICARIS survey respondents reported seeking (although not necessarily requiring) medical treatment, a finding consistent with the earliest reports discussing injury severity (e.g., Parrish, Clack, Brobst, & Mock, 1959).

When authors overstate the prevalence of dog bites among members of certain vulnerable groups, it excites our protective impulse, evokes outrage (Podberscek, 1994), and has the added effect of making what is reported appear more significant. Kneafsey and Condon (1995) claim that epidemiological studies show that the majority of victims are children. However, two of three studies they cite (Pinckney & Kennedy, 1982; Sacks, Sattin, & Bonzo, 1989) pertain only to the rare fatal bites,
and the third (Berzon, Farber, Gordon, & Kelley, 1972) study provides data from a period 25 years earlier only for the city of Baltimore from 1953 to 1969. According to the second ICARIS survey (Gilchrist et al., 2008), 644,900 adults had medically attended dog bites, while 191,100 children (younger than 14 years) did so. The rate per 1,000 people was approximately the same for both groups: 3.1/1,000 for adults and 3.2/1,000 for children, although children were more likely to require medical attention than adults.

Catastrophizing also occurs when HHCPs claim that dog bites have increased at an alarming rate. In their analysis of data from New York City, Harris, Imperato, and Oken (1974) may have been the first to describe dog bites as an “unrecognized epidemic.” Although data at the time indicated an increasing incidence of dog bites in New York City, certainly current data do not support such a conclusion—either in New York City or nationally—yet a comparable sense of alarm continues to be repeated in other more recent articles by HHCPs. For example, Smith, Meadowcroft, and May (2000), citing no evidence in support, maintain that the incidences of animal, including dog, bites are “an increasing problem that is approaching epidemic proportions.”

Similarly, Callaham (1980) cites no sources to support his claim that “annual incidence appears to be rising.” Use of such terminology has proceeded even though the annual number of dog bites reported to public health officials has substantially decreased in cities across the United States since the 1970s (National Canine Research Council, 2016). A somewhat softer iteration of the “epidemic” label of dog bites occurs in articles that claim bites are a “substantial” (Juang, Sippey, Zuckerbraun, Rutkoski, & Gaines, 2011), “major” (Ndun, Jach, & Wehrenberg, 1996), “significant” (O’Brien, Andre, Robinson, Squires, & Tollefson, 2015), “unrecognized” (Voelker, 1997), or “underestimated” (Schalamon et al., 2006) problem.

HHCPs assert not only that there is an epidemic of dog bites but that these bites are very serious. Although only a small percentage of bites result in serious physical and/or psychological injury, articles cite alarmist rates of injury severity for dog bites, often by misinterpreting, incorrectly citing, or exaggerating statistics. For example, in their discussion, Speirs, Showery, Abdou, Pireal-Cruz, and Abdelgawad (2015) cite Benson, Edwards, Schiff, Williams, and Visotsky (2006) to assert that 2% of all dog bites in the United States require hospitalization, when the number of persons visiting an emergency room complaining of a dog bite injury who are subsequently hospitalized amounts to only 0.1% of the total number of bites established in ICARIS (CDC, 2013). Although medical assessment may be sought for a variety of reasons, most dog bites do not require medical treatment and are trivial in nature (Gilchrist et al., 2008; Hon et al., 2007; Parrish et al., 1959).

Authors also inflate the reader’s perception of seriousness of dog bites by exaggerating the extent of suffering. Some do this by implying that infection and disfigurement are frequent outcomes of dog bites (e.g., Smith et al., 2000), while others compare the incidence of bite injuries to that of highly dreaded or stigmatized diseases, such as gonorrhea (e.g., Lauer et al., 1982; Matthias, Templin, Jordan, & Stanek, 2015).

In addition to catastrophizing the medical impact of dog bites, HHCPs catastrophize their economic impact, characterized as “immense” by one author (Kaye, Belz, & Kirschner, 2009) and “staggering” by another (Foster & Hudson, 2015). Bini et al. (2011) claim that dog bites are the second costliest public health problem in the United States, while Juang et al. (2011)—citing Hoff, Cai, Kendrick, and Archer (2005) as the source—say that bites are among the costliest public health problems. At face value, and without dismissing the actual costs incurred, these are unreasonable statements given the prevalence and costs of major illnesses such as heart disease, diabetes, cancer, or mental illness.

Demonizing

Demonization is accomplished by repeating commonly held myths and stereotypes about a certain group (Sidel, 1996) such that the group becomes predominantly associated with negative traits, as particularly nasty and intentionally malevolent (Schaller & Abeysinghe, 2006) or, in the case of a group of nonhuman animals, as dirty and dangerous (Arluke & Sanders, 1996). These groups then become objects of fear and ridicule, are blamed for problems that are those of the larger society,
are perceived as fundamentally different from other groups (Alon & Omer, 2006), as has happened to the contemporary British working class (Jones, 2012) or to Christians accused of witchcraft during the medieval period (Cohn, 1993).

Medical articles demonize some breeds of dogs by depicting them as “genetically mean” (Borud & Friedman, 2000) or having a “genetic predisposition” toward growling, snarling, snapping, and biting (Abrahamian, 2000). For example, breeds such as German Shepherd dogs or Rottweilers allegedly have a “killer instinct” (Collins, 1976), are “ferocious in disposition” (Miller, Copass, Johansen, & Winn, 1993), or are “notoriously vicious” (e.g., Calkins, Bensard, Patrick, & Karrer, 2001), even though the studies cited in support (Gandhi, Liebman, Stafford, & Stafford, 1999; Lauer et al., 1982) do not discuss breed in this kind of inflammatory language. Contrary to these depictions, research on snarling, snapping, and biting behavior in dogs suggests that genetics (as opposed to presumed breed) and environment are inextricably intertwined (Miklosi, 2015).

Articles further demonize dogs by suggesting malevolent intent because dogs purportedly “target” (Van As, Dwyer, & Naidoo, 2010), “favor” (Monroy et al., 2009), or have a “predilection … for attacking the head and upper body” (Miller et al., 1993), especially when “attacking children.” In one case (Tsokos, Byard, & Puschel, 2007), this claim is made and cites a report by a German pathologist concerning an incident that involved a small dog scavenging an unconscious and intoxicated person, not a child (Grellner, Meyer, & Fechner, 1998). Bites to the faces and necks of children are more likely due to the victims’ facial proximity to the dog’s compared to that of adult victims (Overall & Love, 2001); these are the parts of a child’s body that confront the dog.

Some claim that most (e.g., Loewe, Diaz, & Bechinski, 2007) or almost all bites (e.g., Tsokos et al., 2007) are unprovoked. However, as Daniels (1986) points out, an unprovoked bite is an anomaly, and even the few he categorized this way might be attributable to incomplete information about the incident. Limiting “provoked” bites to those that result from very visible, direct, and intentional contact with the dog (e.g., Bernardo, Gardner, Rosenfield, Cohen, & Pitetti, 2002; Kaye et al., 2009; Sokol & Houser, 1971) is an insupportably narrow definition. Victims may perceive a bite incident to be unprovoked because they do not understand how dogs may interpret their actions. Such mischaracterizations spring from a lack of understanding of how much occurs in the human–dog space that can frighten or challenge a dog, even if the human does not directly touch the dog or his or her food. Dogs are keenly aware of the presence of humans in their environment and monitor human actions for anything that might be important to them, including anything that might appear dangerous, regardless of that person’s intent (Soproni, Miklósi, Topál, & Csányi, 2001; Virányi, Topál, Gácsi, Miklósi, & Csányi, 2004).

Demonization also occurs when dog bite incidents, both serious and minor, are labeled as “attacks” (e.g., Nygaard & Dahlin, 2011), an extremely subjective and pejorative term used synonymously with the term “bites” but having a more sensational tone and usually reserved for extreme and sustained violence. For example, Clarke and Vandenberg (2010) could have simply referred to dog bites rather than making the claim that there are more than 100,000 dog “attacks” annually in Australia. By endlessly repeating this word throughout articles, or having the term featured prominently in article titles (e.g., Benfield et al., 2010), authors create a fearful impression of intention and severity, when only a few of the small minority of dog bites presented for medical treatment are more serious than a scratch (CDC, 2013; Hon et al., 2007; Parrish et al., 1959).

The emotional resonance of an “unprovoked attack” is compounded by allegations of monstrous strength, with widely varying estimates of the maximum pounds per square inch (psi) exerted by a dog’s jaw. Claims of dogs’ bite pressure range from 450 psi (e.g., Eppley & Schleich, 2013) to as high as 4,610 psi (Saleh, Shaw, & Biyani, 2009), none of which can be substantiated (Patronek, Bradley, & Cleary, 2016).

**Negative differentiating**

A final rhetorical device, negative differentiation, operates alongside and complements demonization (Tileaga, 2015) by separating and lowering designated group members as inferior to and more
dangerous than members of other, positively regarded groups. When used against humans, such negative differentiation can dehumanize and marginalize minority group members (e.g., Every & Augoustinos, 2007) by devaluing the characteristics of the target group or portraying them as not having valued characteristics (Cihangir, Scheepers, Barreto, & Ellemers, 2013).

Using negative differentiation, HHCPs challenge the cultural status of dogs as trusted pets (companion animals) and faithful companions when they convey an image of dogs as “part wild” (e.g., Klein, 1966) or “a former wild animal” (Pfortmueller, Efeoglou, Furrer, & Exadakytlos, 2013) and when they associate or conflate the behavior of domestic dogs with that of “wild canines” or “wild animals,” as though they are one and the same (e.g., Presutti, 1997). Such claims ignore what is currently understood regarding domestication as a transformative evolutionary process that separated domestic dogs from their wild canid ancestors and irrevocably altered the behavioral interaction between dogs and humans (e.g., Miklosi, 2015).

Domestic dogs, unlike wolves, have evolved to live in a human context, making their living from both the leftovers and the intentionally provided sustenance of their human neighbors and companions (Coppinger & Coppinger, 2001). Dogs not only use inherited conspecific social skills they inherited from the ancestor they share with wolves in their interactions with humans but also readily apprehend human expressions and body language, when given the opportunity to live with people (Dilks et al., 2015; Gacsi et al., 2005; Hare & Tomasello, 2005; Soproni, Miklósi, Topál, & Csányi, 2001). By failing to recognize this, HHCP authors create an image of dogs as wolf-like, potentially dangerous, and not to be trusted as family pets.

HHCPs depict domestic dogs as wild or wolf-like by characterizing them as allegedly having an “innate” (van As, Dwyer, & Naidoo, 2010) or “inherent” pack instinct (e.g., Salem, Belhadj, Aissaoui, Mesrati, & Chadly, 2013). The idea of pack mentality particularly exaggerates the danger and threat of domestic dogs when HHCPs infer that packs of dogs will “hunt” humans as prey (Tsokos et al., 2007). For example, Kneafsey and Condon (1995) claim, “A pack frenzy is thus of major significance in many serious cases of dog attacks. … We believe that the same canine frenzy operates when a number of dogs attack a human … excited to a frenzy by the smell and taste of blood … dogs look on humans as prey.”

Such ideas proceed from a serious misunderstanding of the nature of domestic dogs or even of the term domestication, which has resulted in different patterns of gene expression between dogs and the ancestor they share with wolves (Miklosi, 2015; Saetre et al., 2004). Dogs, unlike wild animals, are predisposed to form interspecies social bonds and present affiliative behavior to our entire species, leading to complex forms of human–canine communication (Hare & Tomasello, 2005). While dogs certainly express predatory behaviors toward various animals, and sometimes toward humans in play, the human–dog interspecies connection makes the expression of real predation toward humans on the part of dogs, either singly or in groups, extremely unlikely.

We are aware of only one study of dog bite–related incidents involving predation on humans (Borchelt, Lockwood, Beck, & Voith, 1983). The authors conducted case studies of two fatalities and one severe injury in which multiple dogs were involved and where there was evidence of consumption of flesh. Such events are among the rarest of the rare. Approximately one dog in more than 2 million in the United States is involved in any category of fatal bite annually (Patronek et al., 2013), and fewer than 10% of those events involve four or more dogs. Further, it is unknown how many of that subset of multiple dog incidents meet the authors’ criterion of consumption. What is clear is that such events are extraordinarily rare.

Articles by HHCPs also question the conventional status of domestic dogs by mislabeling dogs that are not pets as “members of the family.” When failing to appreciate the differences between dogs who are cared-for companions and family members versus dogs who are lacking proper human socialization and conditioned (often through abuse and neglect) to be fearful and defensive toward humans, authors may argue that dogs in general have betrayed their special status as trusted companion, an argument that adds emotional resonance. By conflating dogs kept as pets with dogs kept in other ways, authors like Morgan and Palmer (2007) conclude that “All dogs should be considered dangerous.” However, a dog does not acquire the characteristics of a family pet simply by being confined to a
shared dwelling or property; “family dog” should be defined in terms of the quality of the human–canine relationship, not in terms of the dog’s ownership or confinement on a property.

Articles by other HHCPs question whether any pet dog can be a trusted family member. For example, Klein (1966) conveys in his opening paragraph a moral sense of no longer being able to trust the family dog by writing that “there are no friendly dogs,” while Pinckney and Kennedy (1982) claim, in their study of dog bite–related fatalities, that with most fatalities “the dogs were described as pets or ‘family’ dogs,” a term they did not define.

Discussion
Our research revealed a pattern of misinformation about dog behavior, breed, and human–canine interaction that could adversely affect how readers regard dogs and their behavior. This pattern framed the discussion of dog bites by relying on rhetorical tools to convey, interpret, and evaluate information in largely sensational ways. Such framing (Neuman, Just, & Crigler, 1992) has been shown to affect the public’s understanding of other issues (e.g., Marinescu & Balasescu, 2013). These discursive devices, unconscious and emotional in nature, included generalizing, catastrophizing, demonizing, and negative differentiating.

A single article that exaggerates, distorts, or otherwise misstates the nature and danger of dog bites and human–dog relationships can be dismissed as an anomaly. However, when considered collectively, the articles in our data set suggest a pattern of misinformation about dogs that can—among the laity and professionals alike—unduly heighten mistrust of dogs known or believed to be members of certain breeds and create misunderstanding about dogs in general. This unnecessarily complicates an already contentious debate over public policy toward, or even the definition of, dangerous dogs.

This pattern elevates the status of dog bites to that of a socially constructed social problem (Best, 1989; Spector & Kitsuse, 1987), in which the real danger is overestimated but the overestimation is widely accepted as true. As with other socially constructed problems, concern over dog bites need not be proportional to the actual risk. However, whether grounded in reality or not, once regarded as a social problem, people focus on possible harm or danger, request authorities to intervene, and try to persuade others of this view (Armstrong & Abel, 2000).

When the alleged social problem resonates with cultural anxieties and has experts who legitimize it (Blumer, 1971) and serve as instigators (Mandel, 2002), this cascading of social thinking can fan intense emotion and moral panic over the alleged problem, despite evidence suggesting little or no threat (Goode & Ben-Yehuda, 1994). During such periods of fear, anxiety, and heated concern, agents assumed to be responsible for the threat are stereotyped and classified as deviants, and complex issues are often reduced to simple battles between good and evil with calls to exterminate those with the latter label (Knoll, 2008).

Media panics usually arise from the popular news (Leach, 2006) and the general media (Davis & Bourhill, 1997), but the culpability of articles in scholarly journals in exacerbating unwarranted panic about dog bites should not be ignored merely because the latter’s readership and exposure is narrower. The characterizations of dogs in the reports we have examined is legitimated precisely because HHCPs publish them in scholarly medical and public health journals. Of course, we cannot determine the degree to which these reports contribute to or merely reflect moral panic about the dangers of dogs to humans. But they are part of a feedback loop, providing “scientific” legitimacy to support this panic while at the same time being by-products of such general fear and concern.

Because reports such as those in our case file carry special authority, concerned citizens and lawmakers may cite them to justify “panic policy making” (Hunter & Brisbin, 2007) or the passage of legislation to ban certain “dangerous breeds” (Podberscek, 1994), just as reports by physicians and other health care providers served as ammunition to fuel moral panics, such as those involving fetal alcohol syndrome in the 1970s and 1980s (Armstrong & Abel, 2000) and day care ritual abuse in the 1980s (De Young, 2004).

Our findings call for HHCPs to exercise greater diligence when writing about dog bites. It seems prudent for these authors to curtail discussion of nonclinical issues related to dogs or, when discussing
them, to consult experts in animal behavior, ethology, and anthrozoology if they themselves do not have sufficient expertise in these areas. Indeed, part of the problem is that HHCPs probably do not appreciate the extent to which their beliefs about dogs have been shaped by news reports and the writings of other HHCPs, rather than by experts in the study of dogs. They may also not appreciate the consequences of the inadequacy of available information about the circumstances surrounding dog bite incidents when making judgments about dog behavior or recommendations for prevention.

Taking an evidence-based view of dogs and the human–canine relationship does not require being cavalier about dog bites or avoiding discussion of how to reduce the number of injuries, physical or psychological, that do occur, some of which are serious. Neither humans nor dogs benefit if we harbor unreasonable expectations of dogs (Perin, 1990), catastrophize about the nature and extent of the injuries that do occur, or demonize dogs as the wild animals they are not. When writing about the nonclinical aspects of dog bites, HHCPs should resist unfounded characterizations of dogs, either from the media or from the literature of their colleagues, and take into account instead the ever-expanding compendium of expert knowledge available on the nature of companion dogs and the human–canine relationship.

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