

Animals and Society Institute



Dog Bites: Problems and Solutions

POLICY PAPER

Janis Bradley

The Animals and Society Institute is an independent research and educational organization that advances the status of animals in public policy and promotes the study of human-animal relationships. We are a think tank as well as a producer of educational resources, publications and events. Our objectives are to promote new and stricter animal protection laws, stop the cycle of violence between animal cruelty and human abuse, and learn more about our complex relationship with animals.

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Printed in the United States of America

ISBN 0-9788572-1-6
ISBN 978-0-9788572-1-9

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Acknowledgements

The Animals and Society Institute wishes to thank the following for their assistance and expertise in the preparation of this policy paper: the Animal Farm Foundation, Inc., Jane Berkey, Donald Cleary and Jill Howard Church.

We also wish to thank those individuals and like-minded organizations and foundations whose financial support help to make our programs possible.

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1. Dog Bites: Problems and Solutions

Executive Summary

Public concern regarding dog bites has grown in recent years. Alarm often intensifies in response to a fatality or serious injury. Many actions, both legislative and educational, have been proposed and some implemented in attempts to address this concern. However, in considering any public policy change in response to a perceived threat to the general welfare, it is important to consider not only the scope of the problem relative to other risks, but also whether or not an effective remedy is available. If a remedy is known, we must still consider what detrimental side effects it might carry, what resources would be required to effect it, and whether such resources might have greater beneficial impact on public safety if directed toward other hazards. This paper is a brief attempt to address these questions insofar as current research allows.

Dog bite fatalities are extremely rare, accounting for about one in 167,000 deaths per year in the U.S. Dog bites represent 0.2 percent of emergency room visits. They are comparable in incidence to (but less severe than) accidents involving many common household objects, such as chairs. Attempts have been made to reduce this injury rate by banning breeds of dogs considered dangerous. However, follow-up studies show no impact on bite rates following breed-ban legislation. Moreover, no credible evidence has been presented to demonstrate that any particular breeds, including Rottweilers, American Staffordshire Terriers, and American Pit Bull Terriers are overrepresented among biting dogs.

Other attempts to identify and regulate high-risk animals focus on prior aggressive behavior. This has been shown to be effective with regard to previous injurious biting behavior. Threatening behavior, however, is too widespread among dogs to be sufficiently predictive of actual biting. Removing or regulating all threatening dogs would require enormous increases in enforcement personnel, and draw resources from other public safety issues affecting more people. It could also significantly decrease the number of people keeping dogs. Since living with companion dogs has been shown to prevent and ameliorate the effects

of widespread chronic diseases, any measures that discourage companion animal guardianship should be approached with caution.

Two types of solutions are proposed. First, legal penalties should focus on people who knowingly keep dogs in clear disregard for public safety, either through a lack of appropriate supervision and confinement, mistreatment or neglect likely to foster aggression, or through a lack of precautions taken after an injurious bite has occurred. Second, information should be widely disseminated, especially to children, regarding safe ways to interact with dogs, and education for responsible dog guardians should include instruction on puppy socialization and breeder selection. In addition, a broad public information campaign should convince people that it is unrealistic to expect selective aggression from dogs. If society wants “people-safe” dogs, it must reject using them for protection and guarding.

2. Scope of the Problem: Incidence of Dog Bite Fatalities and Injuries. Comparison with Other Injury Modalities in Rate and Severity

2.1 Fatality incidence

Calls for legislation to prevent dog bites often arise in response to a single local fatality. This may not be a realistic response, however, because dog bite fatalities are extremely rare. For each dog bite fatality in the United States, more than 1,000 people die as a result of a fall, and almost 3,000 die in auto accidents.¹

Approximately one person in 18 million dies as a result of a dog bite in this country in an average year.^{2,3,4} One in 167,000 deaths overall is attributable to this cause.⁵ Most mortality modalities this rare are not regularly counted; however, a few other rare fatalities are studied occasionally. Statistics show that dog-bite deaths occur at approximately one-fifth the rate of lightning fatalities, one-third the rate of forklift fatalities, and one-third the rate of cattle-related fatalities. (The cattle figure is probably low, since the only counts available are for work-related injuries).^{6,7,8,9} Children under 10 are twice as likely to drown in a five-gallon bucket and 1.5 times more likely to die on playground equipment than from a dog bite.^{10,11,12} This is not to say that these deaths are unimportant, but in considering allocating public resources to prevent such deaths, one must first establish that the same resources could not be used to save more lives at risk from other causes. For example, an intervention that reduced automobile-accident mortality by 0.009 percent would save twice as many lives as one that eliminated dog-bite fatalities.

Thus, a reasonable decision to allocate resources to prevent a very rare cause of death requires that the risk factors be clearly identifiable and necessitate only modest expenditure to implement. Some rare mortality modalities can meet this standard. Grain-bin fatalities, for example, have been substantially decreased by regulating safety standards for working conditions.^{13,14} This is possible because exposure to the hazard is limited to a relatively small number of sites that can be easily inspected, and because dangerous conditions are readily identified. Such an approach

is clearly impractical when dealing with an estimated U.S. dog population of around 74 million,¹⁵ approximately one in 5 million of whom is involved in a fatal attack each year. This problem of scale is exacerbated by the fact that even if it was possible to inspect them all, there is no reliable way to predict which dogs are dangerous.

2.2 Dog bite injury rates compared with common medically treated injuries

There is considerable confusion about how many injuries result from dog bites every year and whether or not these numbers are increasing. Yearly estimates for 1992 through 1994 (the date of the last major study) range from 334,000 to 800,000.^{1,16,17,18} A number in the lower range is more statistically defensible; this lower estimate comes from an actual count of injuries treated in sampled hospital emergency departments, so the occurrences were documented by medical professionals. The larger number comes from a telephone survey, with all the reporting and sampling biases inherent in such a procedure. Also, the emergency-department study counted more actual bites as the basis of their estimate than did the phone survey. This means that when the counted bites were extrapolated to national bite rates, the statistical margin of error was much narrower.

Claims of increased bite-related injuries are often made by insurance spokespersons, attorneys specializing in dog bite litigation, and even by CDC-affiliated researchers. Two National Center for Injury Prevention and Control surveys done in 1986 and 1994^{17,19} are often used to support these claims. The studies appear to show a 36 percent increase in medically treated dog bites by comparing 1994 study results with those from a 1986 study, although the authors themselves do not draw such a conclusion. However, there are difficulties with both numbers, and enough differences between the methodologies of the two studies to make it inadvisable to compare them.

In 1986, in a study of nonfatal injuries, the National Center for Health Statistics interviewed one person in each of 23,838 households. The survey tallied injuries sustained by everyone in those households, thus gathering information on a total of 62,052 people. The survey counted injuries that had resulted in “restricted activity” or a “doctor visit” in the two weeks prior, and injuries requiring hospitalization or “limitation of regular activities” for the entire year. Only the short-term data were used

in the report, since records for the longer period was considered unreliable. The interviewees reported six injurious dog bites, which were used to calculate a national figure of 585,000 bites for 1986. Extrapolation on this scale inevitably leads to a very wide margin of error (technically called a “confidence interval”); in this case, it ranged from 226,000 to 944,000.

Then in 1994, the CDC conducted a much smaller injury survey, interviewing one adult in each of 5,328 households about injuries sustained by that adult and by any children under 15 in the household, thus gathering information on a total of 8,869 people. This survey recorded injuries that occurred over the previous year and counted only injuries that received medical treatment. The reported total of 38 injurious bites was used to calculate a national figure of 756,701 (rounded up to 800,000 to include the bites the researchers thought they would have found among 15- to 17-year-olds, who were not covered in the survey). The margin of error was even greater than in the earlier study; it ranged from 345,038 to 1,168,363, substantially overlapping the 1984 result. The differences in methodologies and the statistically overlapping results make it impractical to use these two studies to compare dog bite injuries in 1986 with those in 1994.

Given these survey weaknesses, it’s probably better to rely upon the emergency department numbers, which are replicated every year in an ongoing injury data collection effort of the CDC called the National Electronic Injury Surveillance System (NEISS).¹ An annual rate of 334,000 injurious dog bites (the average between 1992 and 1994) was collected by a separate but similar emergency department survey system called the National Center for Health Statistics National Hospital Ambulatory Medical Care Survey, which collects data on all emergency room visits arising from both illnesses and injuries.¹⁶ But the NEISS estimates for 2002–2004, a full decade later, suggest stability, averaging 334,000 bite incidents per year once again, even though the dog and human populations had both increased by 12–15 percent in the interim. It should be noted that these data collection systems do not include injuries treated in physicians’ offices, or ones that are not treated at all, so we must assume that the total bite numbers are somewhat higher. It is likely, however, that most serious injuries go through emergency systems.

It's important to note that this more stable data-collection system shows no increase in dog bite injuries over the last decade. Although this may be due to slightly different methodologies, it remains the case that the increases often described in the press have not been documented.

Nevertheless, it is safe to say that dog bite injuries occur relatively frequently. They currently account for 0.2 percent of all emergency department visits, and 0.8 percent of injury-related visits.¹ Approximately one third of American households includes at least one dog.¹⁵ This means that at least 96 million people are in daily contact with dogs, if we include only the members of the dogs' own households. Almost anything with that kind of massive exposure is going to carry some hazards. In fact, dogs are associated with fewer injuries than other ordinary artifacts of daily life, including tables and chairs, doors, beds, even sneakers and slippers.^{19,20} For another example, roughly 180 million people of all ages in the U.S. participate in some kind of sport or physical activity at least occasionally—about double the number of people who live with dogs. Yet emergency departments treat more than 13 times as many sports-related injuries as dog bites.²¹ When looking specifically at injuries to children under 14, dogs bites account for about two-thirds as many injuries as playground equipment.^{1,21}

Dog bites are much rarer than the sorts of injuries that are ordinarily described as common. For every dog bite treated in an emergency room, for example, 23 falls and 13 automobile accident injuries are treated.¹ And as mentioned previously, falls and automobile accidents are much more serious, 51 and 200 times more likely to prove fatal, respectively.

2.3 Injury Severity

Dog bites, on average, are less severe than any of the more common injury categories. Ninety-nine percent of emergency room-treated dog bites are rated as minor, scored as 1 on a six-point injury severity scale.²² (A level 1 injury is one from which the person recovers quickly with no lasting impairment; a level 6 is one likely to be fatal.) Treated fall injuries, on the other hand, average around a 4,²³ meaning a moderate injury that either requires weeks to months to fully heal or results in lasting minor impairment.

Falls are four times as likely to result in hospitalization as dog bites and are 51 times more likely to be fatal.¹ Pennsylvania Department of Health studies found that the average treatment for dog bites costs less than the average fall injury, results in hospitalization less frequently, and that hospital stays (when they do occur) are shorter.^{24,25} This discrepancy holds true for other common injuries as well. Injuries from overexertion, for example, are more severe than those from dog bites, according to national data.¹

Similar disparities in magnitude exist between dog bites and other unusual injuries. Almost half (45 percent) of playground injuries are severe, including internal injuries, concussions, and dislocated, fractured, and amputated limbs.¹² Most dog bite injuries are minor punctures and lacerations.²² More than three percent of patients in emergency rooms because of playground accidents are hospitalized.¹² This is three times the rate of hospitalizations for dog bites.¹

3. Existing and Proposed Legal Remedies: Efficacy and Costs

3.1 Attempts to identify and remove high-risk animals: breed bans

The best known study of fatal dog bites has attributed more fatalities to dogs identified as “pit bull type” dogs over the past two decades than to any single breed.²⁶ News reports of dog attacks often identify the dog or dogs involved as pit bulls. This has led to a widely held perception that some breeds of dogs present a greater risk of injuring people than others and therefore should be eliminated from the population as a public safety risk, even though the researchers themselves caution strongly against such an approach. One of the co-authors of the study, veterinarian Gail C. Golab, has stated, “It is frustrating for me personally because people who want to enact Breed Specific Legislation keep using the report to try and make a case against pit bulls. *The whole point of our summary was to explain you can’t do that.* [emphasis from source]”²⁷ Nevertheless, hundreds of municipalities have instituted statutes that prohibit or limit the ownership of pit bulls and occasionally other breeds, most commonly Rottweilers. Numerous objections have been made to this approach, based on lack of reliable evidence that pit bulls are overrepresented among injurious biters.²⁸

The data presented in support of this practice suffer from a lack of breed-specific population figures from which to determine proportionate representation of a particular breed among biting dogs. There also are difficulties in defining what is meant by a pit bull, difficulties in identifying individual members of the breed or group of breeds once defined, a lack of any scientifically credible evidence for any physiological traits making pit bulls more dangerous than other dogs, and difficulty differentiating between genetic tendencies toward aggression and the kind of aggression elicited by careless and inhumane husbandry practices.

One researcher has found major gaps in the data collection in the two most commonly cited studies on fatal attacks.^{26,28,29} These studies rely on information gathered from newspaper articles, and thus exclude fully 27 percent of the fatalities uncovered by searching death certificates. Research on the missing 27 percent of cases reveals breed