

# Traumatic Deaths from Dog Attacks in the United States

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**ABSTRACT.** A newspaper survey and search of the medical literature identified 74 deaths from dog attacks, 51 of which occurred in a designated five-year study period. Most attacks were by single pet dogs without a preceding history of viciousness and without known provocation by the victim. The highest number of deaths (23) occurred in infants less than 1 year of age. Most of the remaining victims were children aged 1 through 8 years, and elderly women. *Pediatrics* 69:193-196, 1982; *dogs, bites, pets*.

Bites are a well-known hazard of dog ownership.<sup>1-4</sup> Conservative estimates indicate that at least 2 million persons are bitten in the United States each year.<sup>1</sup> Epidemiologic studies indicate that more than one half of bites leave permanent scars,<sup>2</sup> that one tenth require suturing,<sup>3</sup> and that one third cause disability defined as time lost from school or work.<sup>2</sup>

The possibility of death from dog bites is not generally appreciated by physicians or the public. When we reported the radiographic findings in bitten skulls of infants,<sup>5</sup> we discovered that the medical literature contains few reports of such deaths.<sup>6-8</sup> We therefore have conducted a survey of major newspapers in this country to obtain data relating to fatal dog attacks. These data and additional cases from the medical literature are reported.

## MATERIALS AND METHODS

Letters were mailed to the editors of 245 major newspapers listed by the *Standard Periodical Directory*.<sup>9</sup> We requested copies of all stories that

related to deaths caused by dog attacks in the preceding five years in the United States.

We received 118 replies (48%). Some replies indicated that the newspaper had no files, that their files did not go back as far as five years, or that their files were not available to requests such as ours. Some newspapers reported many fatal attacks whereas other papers in the same vicinity claimed to have reported none. We received news stories of 49 fatal dog attacks in the five-year period specified (May 1, 1975 to April 30, 1980). To this we add two cases from the medical literature<sup>5,7</sup> for a total of 51 cases in five years. From outside this five-year period we received 22 additional news stories and found one medical report.<sup>8</sup> The final total of cases available for analysis was 74 (March 1966 through June 1980). We received many stories of severe nonfatal attacks and fatal attacks from outside the United States that are not included in this report.

We made no attempt to verify the news stories, but supplementary information from the medical literature was available in 11 previously reported cases.<sup>6</sup>

## RESULTS

### Geography

The fatal attacks were distributed in a geographic pattern roughly similar to the distribution of the human population (Figure). They were reported in 31 of 50 states, and in 17 of 18 most populous states. California had the highest number of attacks with 13, followed by New York with eight.

### Dogs

Ownership of the dogs was known in 71 cases, and not mentioned in the stories of the remaining three cases. No attacks by stray dogs were recorded. In 38 cases the dogs were owned by the victim's family. In the other 33 cases ownership was as

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follows: a neighbor, 25 cases; friends, three cases; babysitters, two cases; neighborhood businesses, two cases; and family employer, one case.

In most instances the dogs were described as pets or "family" dogs, and in three cases function as a guard dog was mentioned. In 43 instances no mention was made regarding prior behavior of the dog or dogs. In 29 cases prior behavior was specifically stated as friendly or without viciousness. In two instances the dogs were known to have previously bitten people. One of these was a serious attack in which the larynx of a 4-year-old boy was crushed.

A total of 106 dogs were involved in 73 fatal attacks. Of these, 79 were of recognizable breed, 22 were mixed breeds, and for five dogs no breed was specified (Table 1). The attack was by a single dog in 55 cases, by two dogs in nine cases, by three dogs in six cases, by four dogs in one case, by five dogs in one case, and by seven dogs in one case. The 74th attack was by 20 to 40 dogs of unspecified breeds.

### Victims

Ten of the 74 victims were adults aged 17, 18, 25, 59, 63, 75, 78, 89, and 91 years; one victim was of unspecified age. Eight were women and two were men. Sixty-four victims were children aged several days to 12 years. The distribution of age and deaths is as follows: age <1 year, 23 deaths; age 1, four deaths; age 2, five deaths; age 3, eight deaths; age 4, five deaths; age 5, ten deaths; age 6, five deaths; age 7, two deaths; age 8, one death; age 12, one death. There were 41 boys and 22 girls; the sex of the remaining victim could not be determined.

Of the 74 victims 50 were either dead at the accident scene or were dead when they arrived at a hospital. Fifteen others died within six hours following hospitalization. Four survived longer than six hours: these victims died 1½ days, four days, ten days, and 19 days, respectively, following the attack. Length of survival was not specified in five victims.

In 33 instances the site of the fatal injury was not



Figure. Geographic distribution of fatal attacks.

TABLE 1. Breeds of Dogs in 73 Fatal Attacks\*

Breed (No. Registered†)	Deaths	No. of Dogs	No. At- tack- ing Alone	No. At- tack- ing with Other Dogs of Any Breed
German shepherd (74,723)	16	21	10	11
Husky (20,598)	9	9	8	1
Saint Bernard (17,537)	8	8	7	1
Bullterrier (929)	6	8	4	4
Great Dane (19,869)	6	7	4	3
Malamute (8,324)	5	5	5	0
Golden retriever (27,612)	3	3	2	1
Boxer (13,057)	2	6	0	6
Dachshund (38,927)	2	2	2	0
Doberman pinscher (73,615)	2	2	2	0
Collie (25,161)	2	2	0	2
Rottweiler (1,406)	1	2	0	2
Basenji (1,674)	1	1	1	0
Chow chow (6,211)	1	1	1	0
Labrador retriever (39,939)	1	1	0	1
Yorkshire terrier (20,392)	1	1	0	1
Mixed breed	10	22	5	17
Unknown breed*	5	5	4	1
	—‡	106	55	51

\* Not included is a 74th attack in which the victim was killed by 20 to 40 dogs of unspecified breeds.

† American Kennel Club registration, 1976.<sup>10</sup>

‡ Total of this column exceeds true number of deaths because when two breeds are involved in a single death, it is counted as one for each.

specified. Of the remaining 41 cases, the fatal injury was located as follows: neck, 21 victims; head, eight victims; head and neck, four victims; viscera, four victims, and extremities, four victims. Hemorrhage and shock were the cause of death in most patients.

### Attacks

The location of the attack was not specified in ten cases. Of the remaining 64, all but one occurred within, or immediately adjacent to, residences, most within a home or yard, and some in nearby streets or alleys. One attack occurred in a rural area away from any dwellings. The locations are listed in Table 2.

In 36 instances there were no witnesses to the attack. In 24 cases one or more persons witnessed part of the attack, but in only 11 instances was the start of the attack witnessed. In 14 cases no mention of the presence or absence of witnesses was made.

In two cases a female dog in heat was confined near the site of attack, and one attack was by a

**TABLE 2.** Location of Attacks

Location	No. of Attacks
Indoor	
Home of both dog and victim	23
Home of dog, not victim	6
Home of neither	1
Home of victim, not dog	0
Outdoor	
Yard of dog's home	15
Yard of both dog and victim	7
Yard of victim's home	4
Yard of neither	1
Street/alley/road	4
Other	3
Unspecified	10
Total	74

female dog in heat and a male dog. In one instance a dog with young puppies attacked an infant. In two cases hunger may have been a motivation.

In most instances the victim was not seen or suspected of knowingly provoking the dog's attack. Deliberate provocation of a dog was recorded in three cases in which a dog was kicked, poked with a stick, or had stones thrown at it. In another attack a child waved a stick at a dog, and in one instance an adult pointed a cane toward the dog. In several cases a child was attempting to pet or hug the dog. In many instances the dog and victim were previously known to one another.

Details of the attack are lacking for most cases. The initial bite, in which the dog seized the victim's throat, is described in only two cases. In three instances the dogs shook their victims vigorously. Of the 24 witnessed attacks the end of the attack is mentioned in 19. In 18 of these the dogs continued to attack until someone intervened. In 12 of the 18 cases the person intervening had difficulty stopping the attack. In two cases the dogs were shot to death while continuing to attack; in one case a dog was stabbed with a knife; and in several other cases the dogs were struck with boards, broomsticks, or other objects. Three people were bitten while attempting to stop attacks.

Following the attack most dogs were killed at the scene or quarantined for observation of possible rabies. No subsequent finding of rabies or other disease was reported in any case. Once subdued, no further viciousness by the dogs was reported in any case.

#### Attacks on Infants

Of the 23 victims less than 1 year of age, 14 were 6 weeks of age or less. There were 12 boys and ten girls; the sex of the 23rd victim could not be determined. Of these attacks 22 occurred inside a home, and the site of the 23rd attack is not known. In 16

instances both the dog and the child lived in the home. In five instances the child was a visitor in the home where the dog lived, and in one instance both the dog and the child were visitors. The dog was owned by the victim's immediate family in 18 cases, by grandparents in three, by friends in one, and by a babysitter in one. Only one infant was attacked in the waking presence of an adult. One infant was attacked while the mother slept in the same room, and one attack occurred while other children slept in the same room. Ten infants were attacked inside a crib; most of the other attacks occurred on a bed, sofa, playpen, or floor. In 22 cases the victim was attacked by a single dog; in one case two dogs attacked.

#### DISCUSSION

The newspaper stories collected by this survey provide a data base that is incomplete and may not be entirely reliable. However, we believe that the importance of the problem justifies its presentation at this time, but requires a cautious interpretation.

The true incidence of fatal dog attacks in the United States remains unknown and is undoubtedly underestimated by our survey. Winkler<sup>6</sup> described 11 deaths during a two-year period, 1974 to 1975, and suggested that more must have occurred. Our study found 19 deaths in the same two years (including Winkler's cases) and a total of 51 in the five years designated study. This incidence of approximately ten deaths per year seems small compared to the large dog population in the United States, which is estimated to be at least 50 million<sup>11</sup> (about one fatal attack per 5 million dogs per year). Even so, the risk of traumatic death from dog attacks far exceeds the risk of death from rabies.

Although there are more than 100 breeds of dog, only 16 breeds (excluding mixed breeds) accounted for all of the fatal attacks. The most striking similarity of these dogs was their large size; in most cases, the dog outweighed its victim. Beyond size, however, it is difficult to incriminate any particular breed as more dangerous than another, because there are no reliable population figures for the various breeds. German shepherds were involved in more deaths than any other breed, but German shepherds have the highest registration of any large breed according to the American Kennel Club. The greater number of deaths may simply reflect a larger population. In relation to its small registration the bullterrier (pit bull) was responsible for the highest number of deaths, but the popularity of this breed may be increasing and, therefore, its population might not be reflected by its registration.

The victims of fatal dog attacks may be separated into three major groups: infants less than 1 year of

age, young children aged 1 through 8 years, and elderly women. These groups represent the physically immature and the fragile elderly, those least able to defend themselves. This pattern has not been observed in nonfatal bites affecting the entire population; these bites occur most frequently in children aged 5 to 15 years and show a gradually tapering incidence through the adult years.<sup>1-4</sup> In nonfatal bites male victims outnumber female victims by approximately 2:1, a ratio that also applies to fatalities in children aged 1 through 8 years. However, there is no definite sex predilection among fatal bites to infants, and women are more common among adult victims. We do not know whether the age and sex distribution observed with these fatal attacks is due to vulnerability of the victims or to a larger number of serious attacks on them.

The relatively high incidence of fatalities in infants (nearly one third of all deaths) was unexpected and deserves special comment. These victims were too immature to threaten or provoke a dog to attack, even unintentionally. However, they were usually newcomers to the home in which the dog lived and must have received considerable attention from the dog's owners. Therefore, the motivation for these attacks appears to be what in humans would be called jealousy. The victims were most often attacked while sleeping alone in a crib or bed, and in only one case was the start of the attack witnessed. This suggests that the presence of an adult is a deterrent to attack.

Previous studies have shown that most nonfatal dog bites occur on, or adjacent to, the property of a dog's home.<sup>3</sup> Dogs, like other canids, are territorial animals in whom defensive behavior and assertion of social dominance will be displayed more vigorously within home territory.<sup>12</sup> We found that a majority of outdoor fatal attacks and almost all fatal indoor attacks occurred on the property of the dog's owner. The fact that the victim was also at home seems not to have protected him. However, these observations must be interpreted with some

caution because the higher number of attacks at home may simply reflect a larger amount of time being spent there.

In conclusion, we believe this survey raises many more questions than it answers. It perhaps identifies a problem, but does not define its scope. What is the true incidence of fatal and life-threatening dog attacks? What is the cause of these attacks? How might they be prevented? How should parents be advised regarding their children and pet dogs in their home and neighborhood? More detailed studies by epidemiologists and dog behaviorists are needed to properly define the problem and its possible solutions.

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