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## Dog Bites in Children Less Than 4 Years Old

Few situations are more anxiety provoking than that of a small child being attacked by a dog. On occasion dogs have been known to save human lives. Conversely, dogs have actually been known to kill (references 1 and 2; *Chicago Sun-Times*, March 31, 1980). Unfortunately, the incidence of dog bites has increased in recent years, and more than 1 million Americans are bitten by dogs every year.<sup>3-5</sup> In addition, children are the most frequent victims.<sup>1,4-8</sup> With the rising crime rate, more citizens are buying or even renting large and sometimes vicious dogs to protect their family or property. (*Chicago Sun-Times*, March 31, 1980, and reference 5). The city of Chicago had 11,932 reported cases of dog bites in the year of 1978 (H. H. Muriel, personal communication, 1979).

This study was conducted to determine the differing circumstances involving bites in children younger than 4 years of age. These children, whose activities are mostly restricted to the home, are physically defenseless against a violent attack by a dog and hence extremely vulnerable.

### METHODS

Between Jan 1, 1979 and Dec 31, 1979 all visits to the University of Chicago Wyler Children's Hospital Emergency Room were reviewed. A daily log was used to identify the absolute number of visits for the treatment of dog bites. Following initial identification of the patients' name, sex, age, and telephone number, more detailed questions regarding the anatomical site of bite, place of incident, owner of dog, and size of dog were asked through a telephone interview with an adult member of the victim's family.

### RESULTS

Of the 40,316 visits during the 12-month study period, 199 cases of dog bite victims were documented for a ratio of 1:203 emergency room visits. Of these 199 victims, 11 required hospitalization for further treatment. Only two received antirabies vaccine; 39 (19.6%) of the victims were younger than 4 years of age (younger group); the youngest child was 16 months old. The remaining 160 (80.4%) were aged 4 to 16 years (older group).

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Of the 199 victims, 136 (68%) were boys and 63 (32%) were girls with a male predominance of 2.2:1. Boys predominated in the younger group 1.6:1 and in the older group 2.3:1. The Figure demonstrates the variations in the number of children who suffer dog bites throughout the year. More dog bites occur during the warmer months, but this seasonal difference is not as pronounced in the younger group. The smallest number of dog bites occurred in the months of January and December.

Telephone interviews were completed for 114 of 199 dog bite victims (57%). Among these, 19 were in the younger group and 95 in the older group. A number of statistically significant differences were noted when the two groups were compared: 63% of the bites in the younger group were on the head, face, or neck whereas only 18% of the older group were bitten on this part of the body ( $P < .01$ ). Of the children in the younger group 90% were bitten while at home vs 38% of the children in the older group ( $P < .01$ ). In the younger group 47% were bitten by their own dog as compared to 18% of the older group ( $P < .01$ ). Whereas only 16% of the younger group were warned regarding the dangers of dogs before the incident, 57% of the older group received warnings prior to the attack ( $P < .01$ ). Of the children in the younger group, 85% were bitten by dogs that had not bitten anyone before. Of the dogs that attacked the older group, 50% had no previous history of biting anyone ( $P < .05$ ).

The following observations are of interest but did not achieve statistical significance when the two groups were compared. In the younger group, 56% of the attacking dogs were larger than the victims, whereas in the older group only 37% were larger. Of the victims in the younger group, 93% were bitten by pet dogs whereas 75% of the older group were bitten by pets. The bites occurred while adults were nearby for 63% of the younger group vs 39% of the older group.

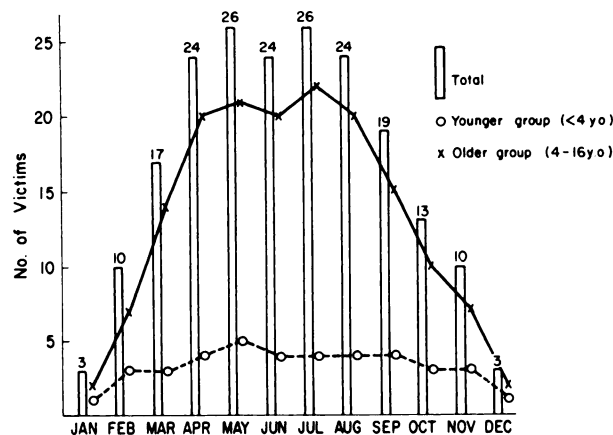


Figure. Monthly distribution of dog bite victims.

## DISCUSSION

Approximately 1 of every 200 emergency room visits to the University of Chicago Wyler Children's Hospital during 1979 was for a dog bite injury. This incidence is comparable to reports from emergency rooms in Los Angeles<sup>9</sup> and Columbus, OH.<sup>10</sup> The ratio of dog bites in children younger than 4 years old to older children is also similar to that found by others in Baltimore,<sup>3</sup> New York City,<sup>5</sup> and St Louis.<sup>8</sup> The male predominance is again confirmed for children in general, in accordance with other reports.<sup>3,5,7-10</sup> The observation that male predominance is less in young children adds support to the hypothesis that the child's behavioral development is a contributing factor in provoking a dog.<sup>10</sup>

The seasonal distribution of occurrences is well established in older children.<sup>4-6,10</sup> For younger children this predilection is not as pronounced. This finding is compatible with younger children, activity patterns which are mostly homebound or indoors. It is known that children are more likely to suffer bites on the head, face, or neck,<sup>2,5,6,10,11</sup> but the frequency of 63% for victims less than 4 years of age underscores their vastly increased risk. Perhaps the most striking finding presented in this brief study is that children less than 4 years of age are at a greatly increased risk of being bitten on the head, face, or neck, by their own family dog, in their own house, during anytime of the year, and while parents are present. Data gathered also document that a dog that has never bitten anyone before is not to be considered safe with a younger child.

Parents need to be aware that their children are at risk of being attacked by a dog. Greater awareness of the inherent dangers of dogs to the younger child might persuade some parents to wait until their child is older before bringing a pet dog into the household. If a decision is made to include a dog as a family pet, utmost care must be taken by parents at all times. Children's behavior, although unintentionally so, can be provocative.<sup>8</sup> It is difficult, if not impossible, to teach the young child to recognize the inherent dangers and how to avoid

conflicts with a pet dog.

As health practitioners choose to emphasize different kinds of anticipatory guidance in pediatric practice, the issues of safety and accident prevention are usually discussed. This study serves to point out the importance of also including potentially harmful pets in this discussion.

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