



# CO-OCCURRENCE OF POTENTIALLY PREVENTABLE FACTORS IN 256 DOG BITE-RELATED FATALITIES IN THE UNITED STATES (2000-2009)

NATIONAL CANINE RESEARCH COUNCIL

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## THE CONTINUING IMPORTANCE OF THE 2013 JAVMA PAPER ON DOG BITE-RELATED FATALITIES.

In December 2013, The Journal of the American Veterinary Medical Association (JAVMA) published a comprehensive multifactorial study of dog bite-related fatalities (DBRFs). It was based on investigative techniques not previously employed in DBRF studies and identified a significant co-occurrence of multiple potentially preventable factors. It remains the most comprehensive investigation of DBRFs that has ever appeared in the scientific literature.<sup>1</sup>

Experts have for decades recommended ownership practices that can reduce the number of dog bite injuries. The paper confirmed the importance of the multifaceted, breed-neutral companion dog regulation recommended by organizations such as the American Bar Association,<sup>2</sup> the American Veterinary Medical Association,<sup>3</sup> the National Animal Control Association,<sup>3</sup> the Humane Society of the United States,<sup>5</sup> American Society for the Prevention of Cruelty to Animals,<sup>6</sup> and the Best Friends Animal Society.<sup>7</sup>

The five authors, two of whom are/were on the staff of the National Canine Research Council, and one of whom (Injury epidemiologist Dr. Jeffrey J. Sacks) was lead author of four widely publicized earlier studies,<sup>8</sup> analyzed all the DBRFs known to have occurred during the ten-year period 2000 – 2009. Rather than rely exclusively on news accounts, as had earlier studies, the primary source for this study was law enforcement. The authors compiled detailed case histories based on written reports and interviews with investigators. They also obtained reports from animal control agencies, interviewed medical examiners and breeders, and collected available photographs of the incident scene and the dog. They then had the benefit of first-hand information not reported in the media. They often identified errors of fact that had been reported in the media in the immediate aftermath of an incident that had not later been corrected.

## SEVEN POTENTIALLY PREVENTABLE FACTORS IDENTIFIED

The researchers reliably identified seven potentially controllable factors. These factors occurred both individually, and in various combinations, in a large percentage of the





incidents. Individually, the factors were: absence of an able-bodied person to intervene (87.1%); incidental or no familiar relationship of victims with dogs (85.2%); owner failure to neuter dogs (84.4%); compromised ability of victims to interact appropriately with dogs (77.4%); owners keeping dogs isolated from regular positive human interactions versus family dogs (76.2%); owners' prior mismanagement of dogs (37.5%); and owners' history of abuse or neglect of dogs (21.1%).

Collectively, four or more of these seven controllable factors co-occurred in 80.5% of the cases.

### **BREED WAS NOT A RELIABLY IDENTIFIED FACTOR**

The authors reported that the breed(s) of the dog or dogs could not be reliably assigned in 82.4% of cases. News accounts disagreed with each other and/or with animal control reports in a significant number of incidents, casting doubt on their accuracy. In only 45 of the 256 cases (17.6%) could these researchers make a valid determination that the animal was a member of a distinct, recognized breed. Twenty different breeds, along with two known mixes, were identified in connection with those 45 incidents.

The widely publicized previous DBRF project mentioned above was based on media reports. It qualified the breed identifications in the dataset, recognizing that the identification of a dog's breed may be subjective, that even experts can disagree as to the breed(s) of a dog of unknown parentage, and that some breeds might have been named simply because they were more newsworthy.<sup>9</sup>

The lack of reliable breed identifications is consistent with surveys on both coasts showing that opinions ventured by those working in animal-related fields regarding the breed or breeds in a dog of unknown parentage did not agree with breed as detected by DNA analysis. Further, survey participants frequently disagreed with each other when attempting to name the breed(s) in the same dog.<sup>10</sup> Indeed, the cross-bred offspring of purebred dogs of different breeds often bear little or no resemblance to either their sires or dams.<sup>11</sup>

90% of the dogs described in 2013 study's case files were characterized in at least one media report with a single breed descriptor, potentially implying that the dog was a purebred dog. Population-based studies indicated that ~46% of the dogs in the U.S. in





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the period under study were mixed breed. Thus, either the breed identifying in the media reports was done very loosely, or purebred dogs were heavily over-represented. The latter conclusion did not seem likely, considering the extensive photographic evidence the researchers had obtained.

### BREED NOT PREDICTIVE, WHETHER OR NOT IDENTIFIED

Earlier papers reported that behavioral variation within a breed approached the variation between breeds.<sup>12</sup> Specifically with respect to dog bite-related injuries, a recent study of 478 dog bite incidents reported over an 8-year period in Detroit concluded that breed did not appear to be related to bite propensity.<sup>13</sup> Studies published since 2020 confirm separately that breed or presumed breed does not predict whether an individual dog will inflict an injury. A team from the Broad Institute of Harvard and MIT collected surveys from more than 18,000 dog owners and sequenced the genomes of more than 2000 of the same dogs that were the subject of the surveys. They found that breed was not a reliable predictor of individual behavior and that agonistic threshold was not significantly different among breeds.<sup>14</sup>

A study published in February of 2023 that surveyed dog owners using two validated psychometric tools found that the breeds evaluated – eight breeds subject to breed-specific regulation and seventeen not subject to breed regulation – did not differ from each other in terms of aggression.<sup>15</sup>

### HUSBANDRY FACTORS AND INJURY PREVENTION

Even before the publication of these more recent findings, the trend in public policy had been shifting away from ineffective breed-based regulation in favor of improved ownership and husbandry practices, better understanding of dog behavior, education of parents and children regarding safety around dogs, and consistent enforcement of breed-neutral dangerous dog/reckless owner ordinances.

The NCRC report that included the years of the 2013 paper (2000-009) and added the years 2010 – 2015) found a high co-occurrence of the same seven potentially preventable factors. These findings and methodology enable anyone concerned with the prevention of dog bite-related injuries to develop an understanding of the multifactorial nature of fatal incidents, and to appreciate the applicability of the methodology to non-fatal incidents, as well.





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### Source Notes:

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