

## Table: Retrospective Level 1 Trauma Center Studies of Dog Bite Injuries Published from 2009 to 2016 in the U.S.

### All Geographical Regions Report Pit Bulls Highest Prevalence

Retrospective studies from level 1 trauma centers from all major geographical regions in the U.S. are reporting a higher prevalence of pit bull injuries than all other breeds of dogs. In many cases, the studies also report that pit bull injuries have a higher severity of injury and require a greater number of operative interventions. Only one study in 11 reported different results over this 8-year period, a level 1 pediatric trauma center in the Denver-Aurora region, where pit bulls are banned.

Inclusion requirements for this table: A peer-reviewed, multi-year retrospective level 1 trauma center examination of hospital records for patients injured by dogs. The study must be authored by doctors, human injury medical experts, and published in a scientific medical journal. Below are 11 studies published from 2009 to July 2016 that meet those requirements. Hospital records do not always contain breed data, however, some trauma centers are capturing up to 79% of this data.

*DogsBite.org is a national dog bite victims' advocacy group. We are the primary 501(c)(3) nonprofit organization dedicated to putting the safety of humans before dogs and the principal source of information on this topic that is not owned, controlled, or funded by dog breeders, dog advocacy, veterinarian or animal welfare groups. We do not receive government or corporate funding. Please visit our website to learn more: [www.dogsbite.org](http://www.dogsbite.org)*

Years	Region	Studied & Breed	Top Biting	Ref
1999-2006	<b>Midwest</b> - Two Level 1 trauma centers (5 hospitals total) - Indianapolis, IN	1,347 studied. 122 were hospitalized or under 23 hour observation; breed identified in 34 cases 28%, of this subset.	Pit bull (15) 12% of total subset reviewed for breed.	1
1999-2007	<b>Northeast</b> - Level 1 trauma center (tertiary care) - Buffalo, NY	84 studied. Head and neck injuieres only. Total number of dogs identified by breed not listed.	Pit bull (11) 13% of total studied.	2
2001-2005	<b>Northeast</b> - Level 1 trauma center (pediatric) - Philadelphia, PA	551 studied. Breed identified in 269 cases, 49%. Over 30 different breeds identified.	Pit bull (137) 51% when breed known and 25% of total studied.	3

Years	Region	Studied & Breed	Top Biting	Ref
1994-2009	<b>South</b> - Level 1 trauma center - San Antonio, TX	228 studied. Breed identified in 82 cases, 36%. Pit bulls associated with higher morbidity rates, higher hospital charges, and a higher risk of death. Three fatalities.	Pit bulls (29) 35% when breed known. Pit bulls inflicted all three fatalities.	4
2005-2009	<b>Southeast</b> - Level 1 trauma center - Charleston, WV	40 studied. Facial, head and neck injuries only. Breed identified in 30 cases, 75%. The skull and orbital fractures were caused by pit bulls.	Pit bull (12) 40% when breed known and 30% of total studied.	5
2003-2008	<b>West</b> - Level 1 trauma (pediatric) - Denver/Aurora, CO. <b>Both Denver and Aurora ban pit bulls, starting in 1989 and 2005 respectively.</b>	537 studied. Facial injuries only. 58 breeds identified in 366 cases, 68.2%. "Our study found 11 victims of pit bull bites from 2003 to 2008, including the patient who suffered the most extensive injuries and the longest hospitalization of our entire population, indicating that despite legislation, pit bull bites continue to be a public health concern."	Mixed breed (84) 23% when breed known and 16% of total studied.	6
2012-2013	<b>West</b> - Level 1 trauma center - Sacramento, CA	334 studied. Breed identified in 211 cases, 63%. Pit bull injuries had the highest rate of consultation (94%) and 5 times the relative rate of surgical intervention when compared to other breeds.	Pit bull (114) 54% when breed known and 34% of total studied.	7
2007-2013	<b>Southwest</b> - Level 1 trauma center (pediatric) - Phoenix, AZ	282 studied. Breed identified in 213 cases, 75.5%. Pit bulls accounted for 38% of all head, neck or facial bites. Of the 11 patients with the highest AIS (3-5), pit bulls were responsible in 45.5% of cases.	Pit bull (83) 39% when breed known and 29% of total studied.	8
2006-2013	<b>Southeast</b> - Level 1 trauma center - Knoxville, TN	20 studied. Facial, head and neck injuries only (oral and maxillofacial region). Breed identified in 16 cases, 80%. One fatality.	Pit bull (9) 56% when breed was known and 45% of total studied. Pit bull inflicted fatality.	9

Years	Region	Studied & Breed	Top Biting	Ref
2003-2013	<b>Northwest</b> - Regional level 1 trauma center - Seattle, WA	342 studied. Breeds identified in 270 cases, 79%. Among dogs unknown to patients, pit bulls were responsible for 60% of all injuries and 63% of ocular injuries.	Pit bull (92) 27% of total studied and (22.7) 25% of all ocular injuries.	10
4 years	<b>Southeast</b> - Level 1 trauma center (pediatric) - Atlanta, GA	1616 studied. 46 breeds identified in 506 cases, 31.3%. Pit bulls responsible for 50% of injuries requiring surgery and over 2.5 times as likely to bite in multiple anatomic locations than other breeds. Operative intervention more than 3 times as likely to be associated with pit bull injury than any other breed. One fatality.	Pit bull (195) 38.5% when breed was known and 12% of total studied. Pit bull inflicted fatality.	11

### Citations

1. Daniels DM, Ritzi RBS, O'Neil J, et al., [Analysis of Nonfatal Dog Bites in Children](#), *J Trauma Inj Infect Crit Care* 2009;66:S17–22.
2. Monroy A, Behar P, Nagy M, et al., [Head and Neck Dog Bites in Children](#), *Otolaryngol Head Neck Surg* 2009;140:354–7.
3. Kaye AE, Belz JM, Kirschner RE, [Pediatric Dog Bite Injuries: A 5-Year Review of the Experience at The Children's Hospital of Philadelphia](#), *Plast Reconstr Surg* 2009;124 (2):551–8.
4. Bini JK, Cohn SM, Acosta SM, McFarland MJ, Muir MT, Michalek JE; TRISAT Clinical Trials Group, [Mortality, Mauling, and Maiming by Vicious Dogs](#), *Ann Surg.* 2011;253:791-797.
5. Horswell BB, Chahine CJ, [Dog Bites of the Face, Head and Neck in Children](#), *West Virg Med J* Nov-Dec 2011.
6. Chen HH, Neumeier AT, Davies BW, Durairaj VD, [Analysis of Pediatric Facial Dog Bites](#), *Craniofacial Trauma Reconstr.* 2013;6:225-232.
7. O'Brien DC, et al, [Dog bites of the head and neck: an evaluation of a common pediatric trauma and associated treatment](#), *Am J Otolaryngol–Head and Neck Med and Surg*, January–February, 2015.
8. Garvey EM, Twitchell DK, Ragar R, [Morbidity of pediatric dog bites: A case series at a level one pediatric trauma center](#), *J Pediatr Surg.* 2015;50:343-6.
9. Foster MD, Hudson JW, [Contemporary Update on the Treatment of Dog Bite: Injuries to the Oral and Maxillofacial Region](#), *J Oral Maxillofac Surg.* 2015 May;73(5):935-42
10. M. A. Prendes et al., [Ocular Trauma From Dog Bites: Characterization, Associations, and Treatment Patterns at a Regional Level I Trauma Center Over 11 Years](#), *Ophthal Plast Reconstr Surg*, June 2015.
11. Michael S. Golinko, MD, MA, Brian Arslanian, MD, and Joseph K. Williams, MD, FAAP, [Characteristics of 1616 Consecutive Dog Bite Injuries at a Single Institution](#), *Clinical Pediatrics*, July 2016.