

Preventing Dog Bite-Related Injuries among New York City Residents

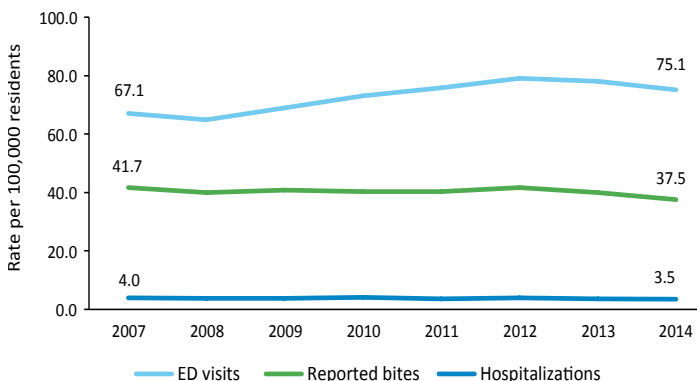
There are an estimated 500,000 dogs owned in New York City (NYC).¹ Among NYC residents from 2007 to 2014, there were an average 6,028 emergency department (ED) visits and 315 inpatient hospitalizations related to dog bite injuries each year. These injuries are largely preventable and have significant public health impacts related to physical trauma, infections and psychological effects, as well as large monetary costs. In 2014, charges for hospital-treated dog bite-related injuries totaled more than \$17 million, and the average charge for a dog bite-related ED visit increased 82%, from \$1,503 in 2007 to \$2,739 in 2014.

Children often lack awareness about dog bite prevention and may engage in risky behaviors that lead to a dog bite. Most bite injuries are from an owned pet, and young children are usually bitten by a dog that is familiar to them.² Among NYC residents in 2014, children ages 5 to 12 were at the highest risk of a reported dog bite.

In NYC, all animal bites must be reported to the Department of Health and Mental Hygiene (DOHMH). This report characterizes dog bite-related ED visits and inpatient hospitalizations among NYC residents and also describes the circumstances of reported dog bites.

The rate of dog bite-related emergency department visits has increased since 2007

Hospital-treated dog bite-related injuries and reported bites among NYC residents



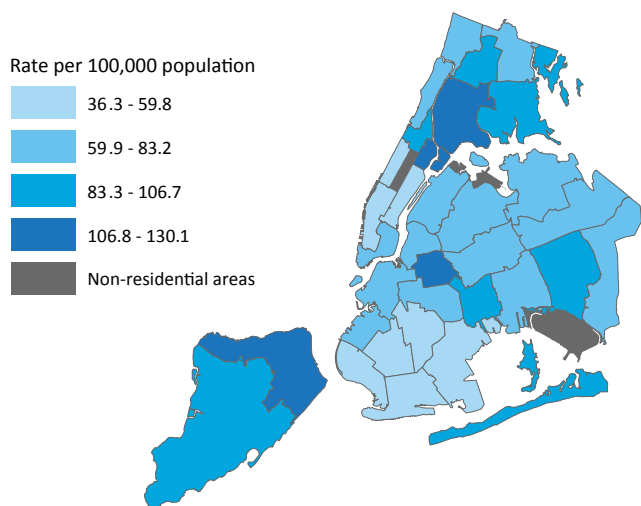
Rates are not age-adjusted.

Sources: New York Statewide Planning and Research Cooperative System (SPARCS) 2007-2014; NYC DOHMH Animal Case Management System 2007-2014

- In 2014, 6,373 ED visits were related to dog bite injuries, 4% of which required hospital admission. Overall, there were 293 dog bite-related hospitalizations in 2014.
- While hospitalization rates have remained stable, the rate of dog bite-related ED visits among NYC residents increased by 12% from 2007 to 2014.
- The rate of reported dog bites has been consistently lower than the ED visit rate. In contrast to the upward trend in dog bite-related ED visits, the rate of reported dog bites decreased by 10% from 2007 to 2014.
- In 2014, 3,188 dog bites to NYC residents were reported. Of the 2,009 dog bites with reported injury descriptions, 6% were severe, defined here as involving more than five stitches or staples, bone fracture, joint dislocation, hospitalization or surgery.

Dog bite-related emergency department visit rates vary by neighborhood poverty and borough

Dog bite-related emergency department visits by United Hospital Fund neighborhoods, New York City, 2014



Rates are not age-adjusted.

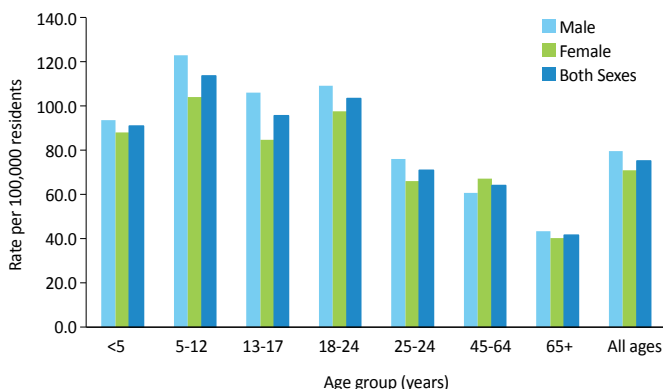
The United Hospital Fund classifies New York City into 42 neighborhoods, comprised of contiguous ZIP codes, several of which were combined to create the 34 neighborhoods presented here.

Source: New York Statewide Planning and Research Cooperative System (SPARCS) 2014

- In 2014, the ED visit rate was 1.5 times higher in neighborhoods with very high poverty than those with low poverty (94.1 versus 61.5 per 100,000).
- Medicaid was the primary payer for two-fifths (42%) of all dog bite-related ED visits among NYC residents in 2014.
- In 2014, Staten Island had the highest ED visit rate per 100,000 people (114.7), almost twice the rate in Manhattan (59.7). Numbers of ED visits were highest in Queens (1,781) and Brooklyn (1,683), but rates were low (76.7 and 64.2 per 100,000 people, respectively) because of the large populations in these boroughs.
- In 2014, the rate of reported dog bites was also highest among Staten Island residents (62.3 per 100,000). From the most recent estimates in 2008, Staten Island also had the highest estimated percentage of the population owning one or more dogs (32%).¹

Dog bite-related emergency department visit rates are higher among children

Dog bite-related emergency department visit rates by age and sex, New York City, 2014



Source: New York Statewide Planning and Research Cooperative System (SPARCS) 2014

- In 2014, the ED visit rate was 1.5 times higher among children 17 years of age and younger than among adults (101.8 versus 67.9 per 100,000).
- Among children, those ages 5 to 12 had the highest ED visit rate (113.7 per 100,000).
- Among adults, those ages 18 to 24 had the highest ED visit rate (103.3 per 100,000) and adults ages 65 and older, the lowest (41.5 per 100,000).
- Males were overall at higher risk for dog bite-related ED visits than females (79.5 vs. 71.0 per 100,000). Within age groups, males ages 5 to 12, 13 to 17, and 25 to 44 were at higher risk than females of the same age ranges.

Data for this report were obtained from the NYC DOHMH Animal Case Management System (accessed October 22, 2015) and New York State Department of Health's Statewide Planning and Research Cooperative System (SPARCS) 2007 to 2014 (updated July 2014, June 2015 and October 2015). SPARCS data were limited to NYC residents, with a case defined as the ICD-9-CM code E906.0 (dog bite) in the E-code, primary diagnosis or other diagnosis fields. Animal Case Management System data were limited to NYC residents based on geocoded and reported ZIP codes of victims. Duplicate data and victim addresses listed as post office boxes and NYC Animal Care and Control were excluded from analysis. Rates are not age-adjusted. Population denominators were produced by DOHMH modified from U.S. Census Bureau intercensal population estimates, 2000-2014, updated October 2015. Neighborhood poverty (based on ZIP code) is defined as the percent of residents with incomes below 100% of the Federal Poverty Level, per American Community Survey 2010-2014. Activity and bite severity categorizations were based on free-text analysis using keyword search and then individual record review, with a threshold of 100 cases for an activity category. Address were analyzed by matching geocoded coordinates and address fields with individual record review. Null apartment numbers were considered private homes.

Circumstances of reported dog bites vary between children and adults

Reported dog bites by victim age group, New York City, 2014

Reported bite characteristics	Percent of reported bites by victim age	
	0 to 17 years old (Total = 886)	18 years and older (Total = 2,147)
Season*		
Spring (March to May)	27.4	26.4
Summer (June to August)	33.9	28.6
Fall (September to November)	20.5	24.7
Winter (December to February)	18.2	20.4
Dog Ownership		
Appeared stray and no known owner	3.2	3.3
Owned within victim's household †^	27.8	20.5
Owned within victim's building or household †^	35.8	28.1
Setting		
Uncontrolled or unleashed †	8.2	10.6
Incident occurred in victim's household †^	29.0	18.9
Incident occurred in victim's building or household †^	36.9	27.9

*Percentages do not sum up to 100% due to rounding.

†Categories are overlapping within section.

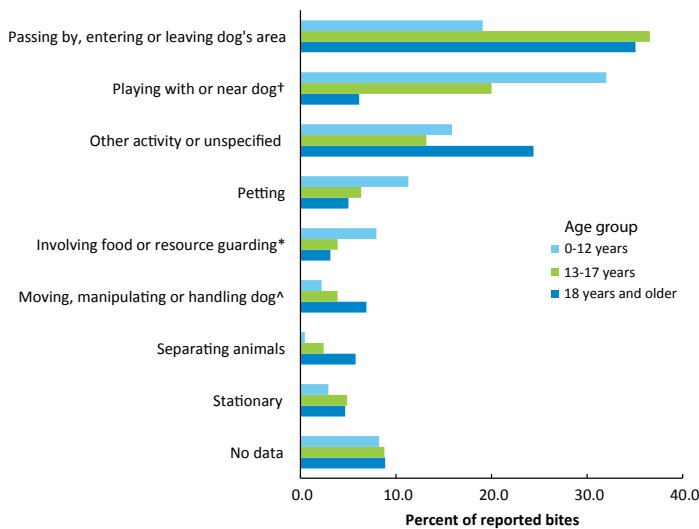
^Data on owner and incident addresses may be less reliable than other estimates because 31% of owner building and 26% of incident information was not available in 2014 where victim age was reported.

Source: NYC DOHMH Animal Case Management System 2014

- In 2014, the reported dog bite rate was 1.5 times higher among children 17 years of age and younger than among adults (49.5 vs. 32.0 per 100,000). Children ages 5 to 12 had the highest rate (61.5 per 100,000).
- In 2014, reported dog bites to children occurred most often in the summer (34%), with June as the peak month. Bites to adults occurred in similar proportions in the spring, summer and fall.
- Compared with bites to adults, reported bites to children were more likely to involve a dog owned within the victim's household (21% vs. 28%) and to occur in the victim's home (19% vs. 29%).

The victim's activity at the time of the reported bite varies by age

Reported dog bite victim activity by age, New York City, 2014



Categories are mutually exclusive based on most direct activity with dog at the time of bite.

†Does not include playing around food, taking toy or petting while playing.

*Does not include guarding an area or a person. Includes playing and petting a dog around food or taking toy while playing.

^Includes moving, grabbing, picking up, restraining or handling dog for treatment or grooming.

Source: New York City DOHMH Animal Case Management System, 2014

- In 2014, more than one third of reported bites among older children and adults occurred while the victim was passing by, entering or leaving a dog's area (including walking, running, skating or biking by a dog and entering or leaving the home).
- Among children 12 years of age and younger, 32% of reported bites occurred while the child was playing with or near a dog (not including play involving taking a toy, petting or food).

Recommendations



All New Yorkers should:

- Always supervise children around dogs, even familiar dogs.
- Teach children safe behaviors to prevent bites, including moving slowly around dogs and leaving a dog alone while it is eating, sleeping or playing with a toy.
- Learn more about bite prevention. Visit nyc.gov and search "protecting children from dog bites."
- If a dog bites you, get the owner's name, address and phone number, and call 311 to report the bite.



All dog owners should :

- Train their dogs to respond to simple commands and socialize them early, starting as puppies if possible. Get professional help if your dog behaves aggressively.
- Be aware at all times of other pets and people interacting with your dog. Never leave your dog unattended. Never use a leash longer than six feet, and shorten the leash when approaching other dogs or children.
- Spay or neuter your dog to reduce aggression and territorial behavior.
- Vaccinate your dog against rabies by four months of age, and get boosters thereafter as required by law.
- [License your dog](#) – it's the law and can help reunite you with your dog if it gets lost.
- Learn more about responsible dog ownership. Visit nyc.gov and search "responsible dog ownership."



Medical care providers, veterinarians and animal care facilities should:

- Provide dog bite prevention counseling as part of routine visits.
- Provide guidance for matching the right dog to a household during the purchase or adoption process.
- [Report all animal bites](#) to the NYC DOHMH as required by law. Reported information can help the person bitten avoid unnecessary rabies shots.

REFERENCES

1. New York City Department of Health and Mental Hygiene. Epiquery: NYC Interactive Health Data System - Community Health Survey 2008. Accessed on August 1, 2016. <https://a816-healthpsi.nyc.gov/epiquery/>.
2. Overall L and Love M. Dog bites to humans – demography, epidemiology, injury, and risk. JAVMA. 2001;218(12):1923-1934.



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