

Rabies

Agent: Rabies virus, a rhabdovirus of the genus Lyssavirus

Mode of Transmission: Most commonly transmitted through the bite of an infected animal, but may be transmitted through any method by which virus-infected saliva or central nervous system tissue enters the body.

Signs/Symptoms: Vary widely, but in people, symptoms often include an initial headache, fever and apprehension which progresses to paralysis, spasms of the muscles used for swallowing, delirium and convulsions. Once symptoms appear, rabies is almost invariably fatal.

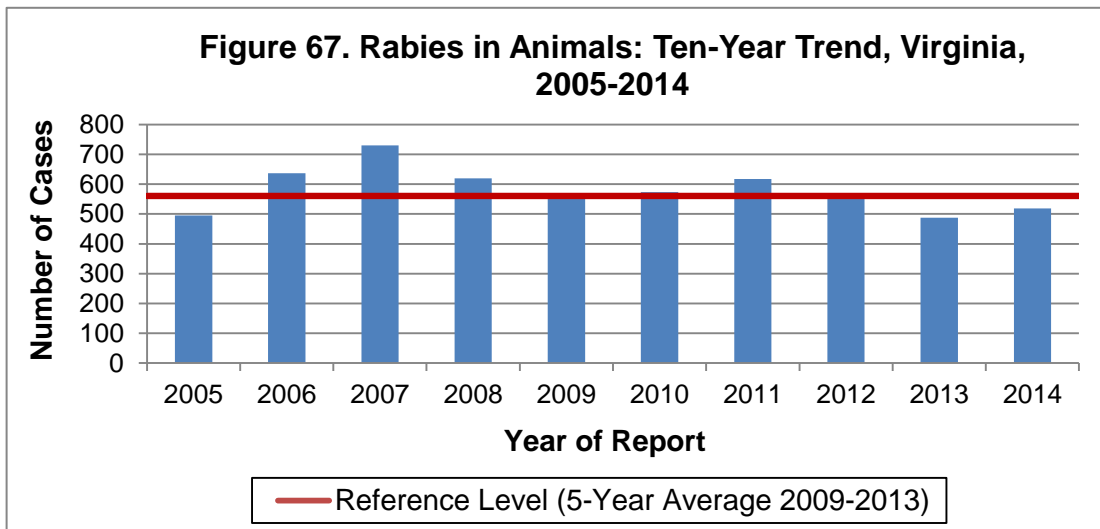
Prevention: Important prevention methods include vaccinating cats, dogs, and ferrets; using animal control to remove stray animals; and avoiding handling wildlife. A series of vaccines is recommended for people whose occupations increase their likelihood of being exposed to rabies (e.g., veterinarians and laboratorians working with rabies virus) and a vaccine series is also available for people who have been exposed.

Other Important Information: The main reservoir of rabies in the United States is wildlife. In most other countries, the main reservoir is dogs. Not everyone who meets the health department's definition of possible exposure to rabies is required to undergo the rabies vaccination series, also known as post-exposure prophylaxis (PEP). A person may receive PEP if he is considered exposed to rabies and the animal associated with the exposure is either not available or tests positive for rabies.

Human

In 2014, no human rabies cases were reported in Virginia. The last human rabies case reported in Virginia occurred in 2009 in an adult male who was infected with the Indian canine variant of the rabies virus. This person was thought to have been exposed during an encounter with a dog while traveling in India. The patient died as a result of this infection.

In 2014, 1,545 individuals were reported as having received rabies post-exposure prophylaxis in Virginia. This represents a statewide rate of 18.7 per 100,000 individuals receiving PEP and is an increase of 4% from 2013 when 1,483 individuals were reported as having received PEP. Fairfax Health District had the highest number of individuals (236) receiving PEP, but the highest rate was reported from the New River Health District, where 91 individuals received PEP (50.5 per 100,000). Rates in the remaining districts ranged from 3.7 per 100,000 (Hampton Health District, 5 people) to 39.5 per 100,000 (Lord Fairfax Health District, 90 people). The number of individuals receiving PEP by region ranged from 194 (10.6 per 100,000) in the eastern region to 463 (19.4 per 100,000) in the northern region. For health districts that recorded exposures by species among those receiving PEP, more than 40% of individuals received PEP due to exposure to a wildlife species, approximately 30% received PEP due to exposure to a dog, and approximately 25% received PEP due to exposure to a cat. Less than 3% of people received PEP due to livestock exposure. Twelve individuals received PEP due to an unknown animal exposure. Most potential human exposures to rabies reported to the health department each year are associated with dogs and cats.



Animal

In 2014, health districts investigated over 19,000 incidents where either an animal potentially exposed a person to rabies or the animal itself was potentially exposed to rabies. Almost two-thirds of these incidents involved dogs. Cats accounted for less than one-fourth of all incidents. Among all the incidents investigated, only 3,743 animals were submitted for rabies testing. Of these, 519 (14%) were laboratory confirmed positive for rabies. This is within the range of 13-16% of animals testing positive that has been observed over the last 10 years. The 519 animals that tested positive for rabies in 2014 represents a 6% increase from the 488 animals that tested positive for rabies in 2013 (Figure 67). The largest number of laboratory-confirmed rabid animals was reported from the northwest region (138 animals, 27%) followed by the southwest region (124 animals, 24%). The number of lab-confirmed rabid animals in the remaining regions ranged from 82 to 90. By district, the largest number of rabid animals were reported from the Lord Fairfax Health District (51 animals, 10%), followed by the Fairfax Health District (47 animals, 9%), and Central Shenandoah Health District (36 animals, 7%) (Table 11). No rabid animals were identified in the Arlington Health District or Lenowisco Health District in 2014.

Table 11: Animals Testing Positive for Rabies by Health District, Virginia, 2014

Health District	Number of Animals Tested	Positive	
		Number	Percent
Alexandria	28	1	4%
Alleghany	65	19	29%
Arlington	41	0	0%
Central Shenandoah	199	36	18%
Central Virginia	217	34	16%
Chesapeake	57	4	7%

Table 11: Animals Testing Positive for Rabies by Health District, Virginia, 2014 (cont.)

Health District	Number of Animals Tested	Positive	
		Number	Percent
Chesterfield	156	3	2%
Chickahominy	125	16	13%
Crater	57	9	16%
Cumberland Plateau	37	3	8%
Eastern Shore	61	17	28%
Fairfax	399	47	12%
Hampton	44	5	11%
Henrico	160	12	8%
Lenowisco	24	0	0%
Lord Fairfax	206	51	25%
Loudoun	151	20	13%
Mount Rogers	121	19	16%
New River	137	17	12%
Norfolk	32	3	9%
Peninsula	91	13	14%
Piedmont	63	18	29%
Pittsylvania/Danville	82	16	20%
Portsmouth	7	1	14%
Prince William	148	17	11%
Rappahannock	135	12	9%
Rappahannock/Rapidan	171	23	13%
Richmond City	149	9	6%
Roanoke City	124	6	5%
Southside	54	15	28%
Thomas Jefferson	110	16	15%
Three Rivers	77	19	25%
Virginia Beach	87	14	16%
West Piedmont	73	10	14%
Western Tidewater	51	14	27%
Out Of State (DE, MD, NY)	4	0	0%
Total for 2014	3,743	519	14%

Among all animal species tested for rabies, cats were tested most frequently (869 cats tested, 3% positive) (Table 12). Bats were the most commonly tested wildlife species, with 864 specimens submitted and 3% positive. Aside from a single otter testing positive (100%), skunks had the highest percentage of positive test results (63%), followed by bobcats (50%), and raccoons (41%). Of the 519 animals testing positive for rabies in Virginia in 2014, raccoons accounted for almost half (45%) of all positive results, followed by skunks (31%), and foxes (9%). Cattle accounted for the largest proportion (16%) of livestock testing positive for rabies. All small rodents submitted for testing were negative. Cats remain the domestic animal

most commonly diagnosed with rabies, and raccoons remain the most common wildlife species to test positive; these trends have been consistent for over 10 years.

Table 12. Animals Testing Positive for Rabies by Species, Virginia, 2014

Animal Species	Number of Animals Tested	Positive	
		Number	Percent
Alpaca	5	0	0%
Bat	864	23	3%
Beaver	1	0	0%
Bobcat	2	1	50%
Cat	869	28	3%
Chipmunk	7	0	0%
Cow	77	12	16%
Coyote	8	1	13%
Deer	5	0	0%
Dog	575	1	0%
Donkey	3	0	0%
Ferret	2	0	0%
Fox	130	45	42%
Goat	38	1	3%
Groundhog	86	5	6%
Guinea Pig	1	0	0%
Horse	35	0	0%
Kinkajou	1	0	0%
Llama	1	0	0%
Mink	1	0	0%
Mole	1	0	0%
Mouse	2	0	0%
Muskrat	3	0	0%
Nutria	1	0	0%
Opossum	130	0	0%
Otter	1	1	100%
Rabbit	11	0	0%
Raccoon	577	236	41%
Rat	2	0	0%
Rodent	4	0	0%
Sheep	11	1	6%
Skunk	256	162	63%
Squirrel	45	0	0%
Vole	1	0	0%
Wolf Hybrid	1	0	0%
Total for 2014	3,743	519	14%

The largest proportion of animals submitted for rabies testing occurred during the late spring and summer months, while the fewest animals were submitted for testing during the winter months (Figure 68). This seasonal pattern is likely a result of increased domestic animal and human interaction with wildlife during warmer months. No particularly strong seasonal pattern was observed in the number of animals testing positive for rabies, but August had the highest number of any month, with 62 animals testing positive.

