

Animal Bites and Other Potential Rabies Exposures in West Virginia, 2011

Background. In West Virginia, animal bites and other potential rabies exposures (OPREs) must be reported to local health departments within 24 hours of occurrence. The administration of rabies post-exposure prophylaxis (PEP) is also reportable to local health departments within 24 hours of identification. Reporting of these events ensures local health department involvement to help mitigate risk from human exposures to potentially rabid animals. Local health departments investigate exposures and report them to the Division of Infectious Disease Epidemiology (DIDE) via the West Virginia Electronic Disease Surveillance System (WVEDSS). Additionally, the West Virginia Office of Laboratory Services (OLS) conducts rabies testing on animal specimens. The following summary includes potential human rabies exposures reported via WVEDSS and animal rabies test results from OLS during the time period from 1/1/2011 to 12/31/2011. This analysis includes exposures that occurred in 2010 but were reported in 2011.

WVEDSS Summary. In 2011, 2,629 confirmed animal bites and OPREs were reported in West Virginia in 2011. Animal bite or OPRE victims represented 52 counties in West Virginia.

Dog exposure was the most frequent potential rabies exposure accounting for 71.9% of total exposures reported; dogs and cats accounted for 87.9% of all exposures. “Pets” were identified as the source for 64.1% of all exposures. The overall female to male ratio of victims was 1.1. Females had more exposures involving bats, cats, livestock, and rodents. Males had more exposures raccoons and other wild animals.

Table 1. Summary of animal bites and other potential rabies exposures to humans reported in 2011^a.

Animal Exposure (n)	Median Age of Victims in Years (Range)	Female to Male Ratio of Victims	Bite Injury (%)	Hospitalized (%)	Rabies PEP Initiated (%)	Reported As “Pet” (%)
Bat (n=47)	30 (2 – 93)	1.08	13 (27.7)	0 (0.0)	29 (61.7)	0 (0.0)
Cat (n=583)	43 (1 – 90)	2.24	510 (87.4)	11 (1.9)	79 (13.5)	328 (56.3)
Dog (n=1,891)	27 (1 – 99)	0.92	1,802 (95.3)	30 (1.6)	90 (4.8)	1,667 (88.2)
Livestock^b (n=10)	41.5 (2 – 65)	1.50	7 (70.0)	0 (0.0)	1 (10.0)	7 (70.0)
Raccoon (n=42)	32.5 (2 – 70)	0.56	26 (61.9)	0 (0.0)	25 (59.5)	1 ^c (2.4)
Rodent^d (n=24)	17 (4 – 74)	1.67	20 (83.3)	0 (0.0)	3 (12.5)	5 (20.8)
Other^e (n=30)	42 (2 – 81)	0.41	20 (66.7)	0 (0.0)	19 (63.3)	6 (19.4)
Unknown mammal^f (n=2)	44 (30 – 58)	1.0	2 (100.0)	0 (0.0)	1 (50.0)	0 (0.0)
Total (N=2,629)	31	1.1	2,400 (91.2)	41 (1.6)	247 (9.4)	2,014 (76.6)

a All percentages are row percentages based on available data for each variable.

b Livestock included cattle, horses, pigs, donkeys, sheep, and goats.

c It is illegal and dangerous to keep wild animals, such as raccoons, as pets.

d Rodents included mice, rats, squirrels, hamsters, and moles.

e Other included skunks, rabbits, coyotes, foxes, monkeys, bobcats, wild boar, and opossums.

f For two cases, the animal exposure was unknown because the victim did not see the animal.

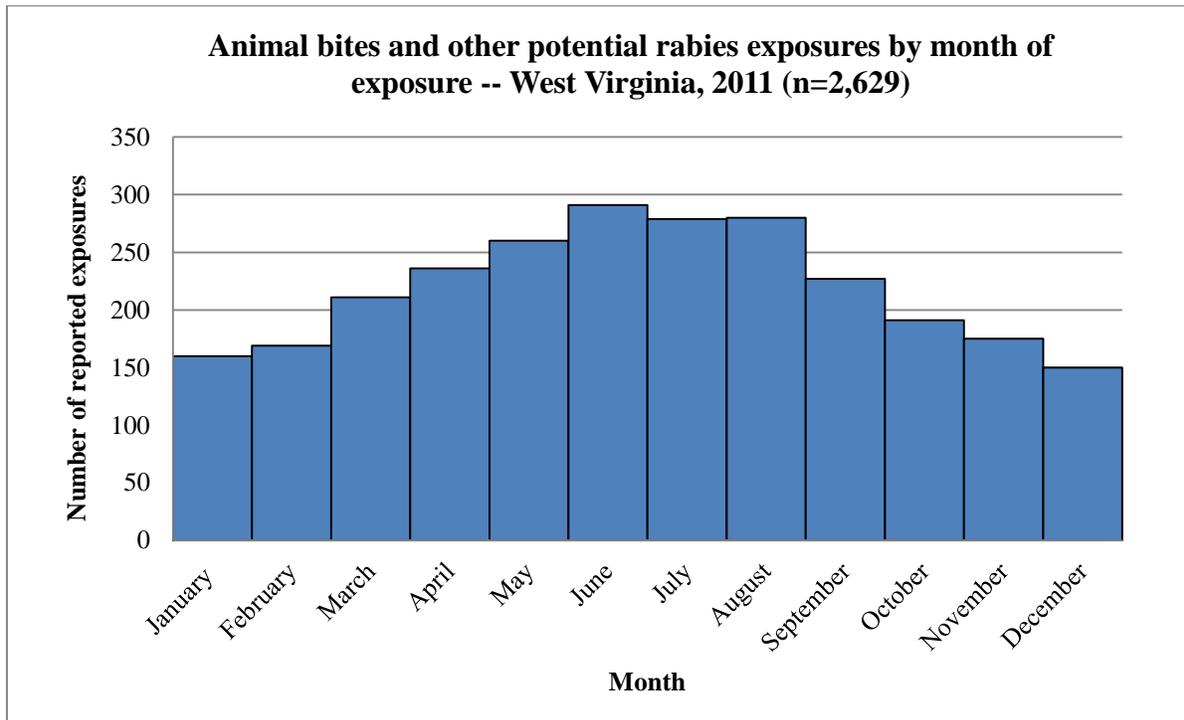


Figure 1. Number of reported animal bites and OPREs by reported month of exposure.

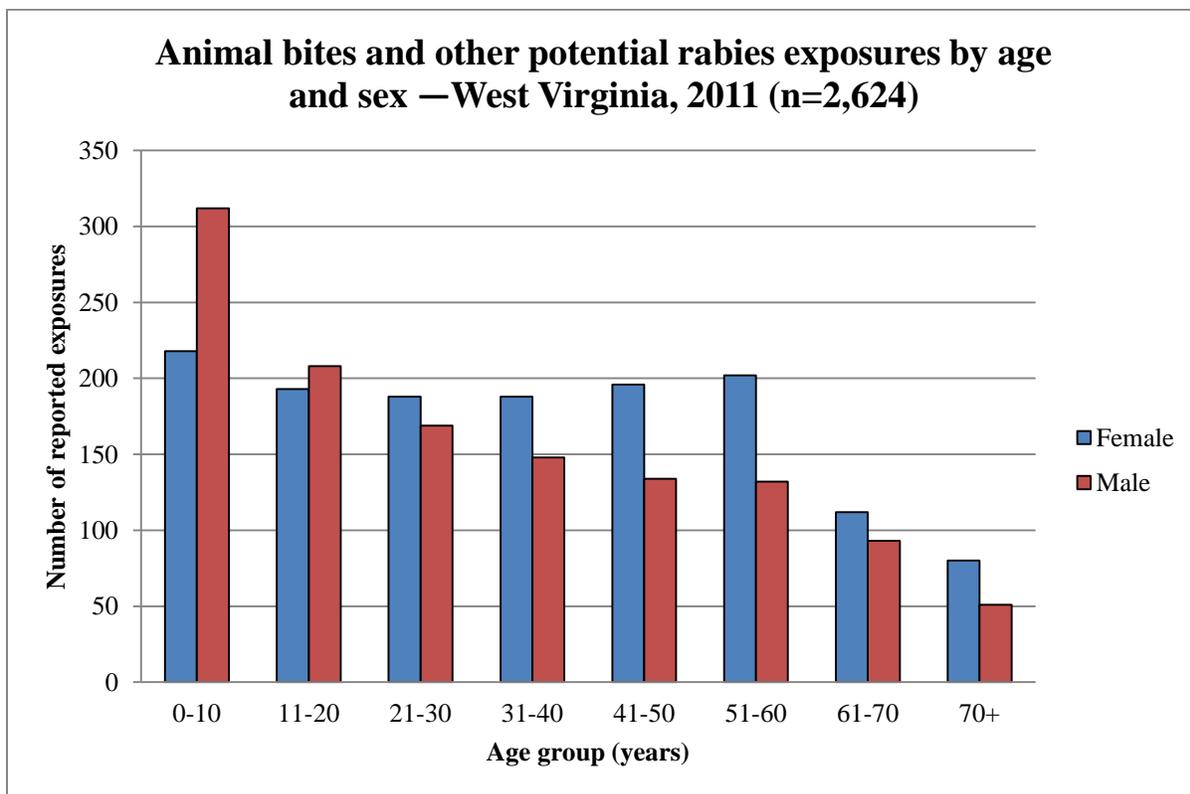


Figure 2. Number of reported animal bites and OPREs by age group and sex. Five reports were excluded from analysis due to missing age or gender information.

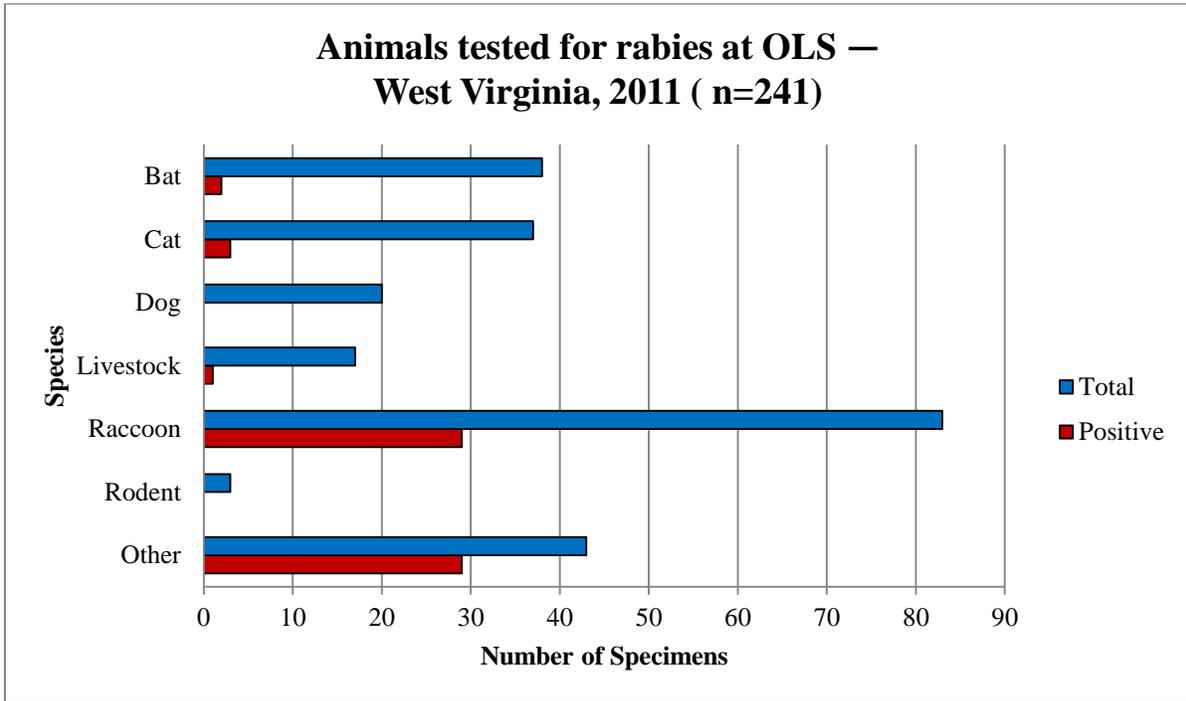


Figure 3. Number of animal specimens submitted to the West Virginia Office of Laboratory Services in 2011. Other includes specimens from skunks, opossums, foxes, and a rabbit.

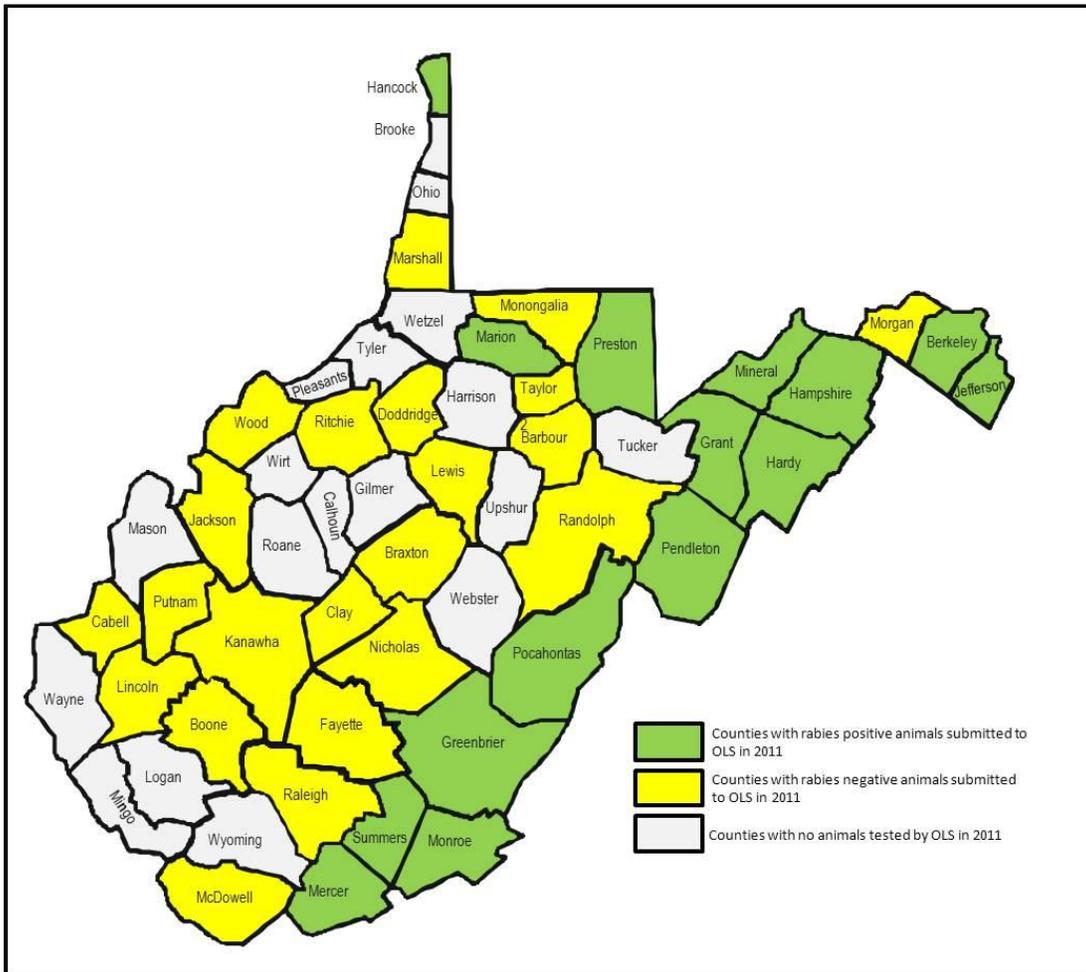


Figure 4. Map of counties represented by OLS testing for rabies in animals in 2011.

Most animal bites and OPREs resulted from bite injuries (89.7%). Forty-four people were hospitalized (1.6%) as a result of exposure, and 247 people received rabies PEP (9.4%). The highest proportion of reported exposures occurred in June (n=291), and four months (May-August) had greater than 250 animal encounter reports (Figure 2).

Children 10 years of age and under had the highest number of potential rabies exposures (for both females and males) accounting for 20.2% of all exposures (Figure 3). Females had more exposure events across all age groups with the exception of the 0-10 and 11-20 age groups. For males, as age increased, the number of potential rabies exposures decreased. For females, the number of exposures remained stable across age groups up to 51-60 years of age, then decreased.

OLS Summary. In 2011, OLS tested 241 animals from 39 counties in West Virginia for rabies as a result of human or pet exposure. Rabies-positive animals came from 15 counties (Grant, Greenbrier, Hampshire, Hancock, Hardy, Jefferson, Marion, Mercer, Mineral, Monroe, Pendleton, Pocahontas, Preston, and Summers). Raccoons accounted for the largest number of specimen submissions (n=83), followed by bats (n=38), cats (n=37), and skunks (n=32). Animals that tested positive for rabies included 2 bats, 3 cats, a cow, 2 foxes, 29 raccoons, and 27 skunks (Figure 3).

Discussion.

Analysis of the 2011 WVEDSS animal bite and OPRE data showed that children ≤ 10 years of age are at highest risk of an exposure and that reports of animal bites and OPREs increase during warm weather months. These findings are consistent with data from previous years. Based on this information, prevention messages should be targeted towards school-aged children and parents. Prevention campaigns at the end of the school year may be particularly useful as children will be outdoors more during the summer. Signs and posters could also be placed in recreational outdoor areas during warm weather months reminding people to avoid contact with wildlife and to keep pets on leashes.

The 2011 data also showed that pet dogs and cats were involved in the majority of animal bites and OPREs. Recommendations that emphasize responsible pet ownership is an important prevention tool and can be done any time of year. Pets should be kept up to date on rabies vaccinations and should be prevented from having contact with wildlife. Spaying and neutering dogs and cats can decrease roaming behavior that would increase their risk of wildlife contact. Also, pet food should not be left outside as this can attract wild animals into yards. Partnering with local veterinarians may be an efficient way to help emphasize these messages.

Overall, the hospitalization rate among animal bite and OPRE victims was low (1.6%). This may indicate that even minor injuries from animal bites and OPREs are being reported to local health departments, which is essential for appropriate follow up. All hospitalizations that did occur during 2011 were results of exposures that involved dogs and cats. This may be a reflection of the high number of overall exposures that involved dogs and cats and again, emphasizes the importance of responsible pet ownership. Households with dogs and cats and young children should be especially careful; veterinarians can offer helpful advice on introducing pets to children and watching for behavioral cues that could indicate a problem before a bite occurs.

Regarding appropriate administration of PEP, there were some notable findings from the 2011 animal bite and OPRE data. First, small rodent exposures are generally classified as low-risk and PEP is not usually recommended for these exposures. Yet, 12.5% of rat exposures reported in 2011 resulted in PEP. Education among healthcare providers may be needed for better understanding regarding the risk assessment of animal bite exposures. Also, although 27.7% of bat exposures were known to be caused by bites, 61.7% of all bat exposures resulted in PEP administration. This likely reflects current recommendations that if a bat bite cannot be ruled out and/or the bat is not available for testing, PEP should be considered. Consultation with state and local health officials is recommended in situations where the type of exposure from a bat is unclear.

Bat bites are often too small to be seen or felt by the exposure victim; however certain factors need to be considered before PEP is administered. These include state of the person at the time of the bat exposure, behavior of the bat, and location of exposure. It is also important to note that a small proportion (4.8%) of dog exposures resulted in PEP. This is likely due to the availability of most dogs to be observed for 10 days or tested for rabies. In most situations, PEP can be deferred during the observation period (unless the dog becomes sick) or until the test results are available. This is important in reducing unnecessary PEP administration. Regardless of the exposure, however, decisions on PEP administration can be difficult and DIDE is available 24/7 to provide assistance with animal bite and OPRE situations.

As a reminder, animal bites and OPREs that occur in West Virginia are to be reported to local health departments within 24 hours. Contact information for local health departments can be found at <http://www.wvochs.org/dlh/localhealthdepartmentwebsiteslinks.aspx>. In addition, West Virginia state law requires that dogs and cats be vaccinated against rabies; free and reduced-cost vaccination clinics are available in many areas and should be publicized to encourage increased vaccination rates. Additional information about animal bites and OPREs in West Virginia is available on the Division of Infectious Disease Epidemiology (DIDE) website at [Animal Bites and Rabies](#). OLS data showed that rabies-positive animals continue to be found in the eastern portion of the state. Epidemiology of animal rabies is described in more detail in the rabies quarterly and annual rabies reports, which can also be accessed via the DIDE website.