

Animal Rabies

2011 Case Total 60

2010 Case Total 62

The Oklahoma State Department of Health (OSDH) Public Health Laboratory (PHL) is the only Oklahoma laboratory with validated methods for the performance of rabies diagnostic testing. In 2011, a total of 1,044 animals were submitted to the OSDH PHL for rabies testing, and 59 (5.6%) were positive for rabiesⁱ. There were 960 (92%) animals that were negative for rabies and 25 (2.4%) animals that had inconclusive (unsatisfactory) results due to decomposed brain tissue or crushed skull. The skunk is the most common rabies reservoir in Oklahoma. A total of 84 skunks were tested during 2011, and 41 (49%) were positive. Bats are another wildlife vector of rabies virus in Oklahoma. Of the 33 bats tested during 2011, 2 (6.1%) were positive. Due to the interactions between pets and people, dogs and cats are the most frequently tested animals for rabies; however, they have a lower positivity rate. Of 487 dogs tested, 9 (1.9%) were positive; and of 275 cats tested, 4 (1.5%) were positive. Other rabid animals in Oklahoma during 2011 were a bobcat (1), cow (1), and horse (1).

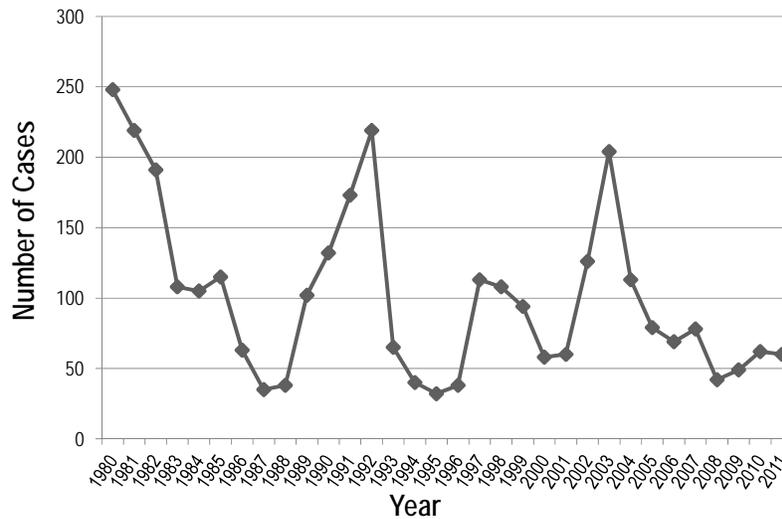
Animal rabies activity in Oklahoma is cyclical with epizootics occurring approximately every six to eight years, and tends to correlate with changes in regional skunk population numbers (Figure 1). During the most recent epizootic in 2003, 204 animals were found to be positive for rabies by laboratory testing. There is a seasonality to animal rabies incidence, with bimodal activity in the spring and fall. In 2011, the highest number of rabies cases was reported in October (10), April (9) and March (8). All counties in Oklahoma have the potential for animal rabies transmission; however, the geographic distribution of animal rabies tends to vary regionally from year to year. During 2011, at least one rabid animal was identified in 27 counties with a concentration of activity in the southeastern and south central regions of the state (Figure 2). Five rabid animals originated from Pontotoc and Le Flore counties, while Beckham, Bryan and McCurtain counties each had four rabid animals. A large percentage of rabid animals were found in eastern Oklahoma along the Arkansas border, accounting for 23% of all animal rabies cases in 2011.

When an animal tests positive for rabies or the result is inconclusive, an epidemiologist in the OSDH Acute Disease Service (ADS) initiates a thorough investigation of potentially exposed animals and humans. Recommendations for human post-exposure prophylaxis (PEP) and/or requirements for animal quarantine or euthanasia are made based upon the findings of the investigation. Exposure to rabies virus usually results from the bite of a rabid animal, when the animal's saliva is introduced into the wound. However, transmission may also occur if saliva or neural tissue of a rabid animal comes into direct contact with mucous membranes or broken skin. As a result of the 2011 case contact investigations, a total of 98 domestic animals were identified as exposed to a laboratory-confirmed rabid animal. Of the exposed animals, only 22 (22%) were deemed currently vaccinated by a licensed veterinarian, and therefore only required to receive a booster dose of the rabies vaccine along with a 45-day observation period on the owner's property. Of the 76 (78%) exposed pets that were not currently vaccinated, owners of 8 (11%) elected placement in a six-month quarantine under the supervision of a licensed veterinarian, and owners of 69 (91%) chose to have the animal euthanized. A total of 201 humans were assessed for exposure to a confirmed rabid animal; 47 (23%) were determined to have potential exposure to rabies virus and recommended to receive PEP.

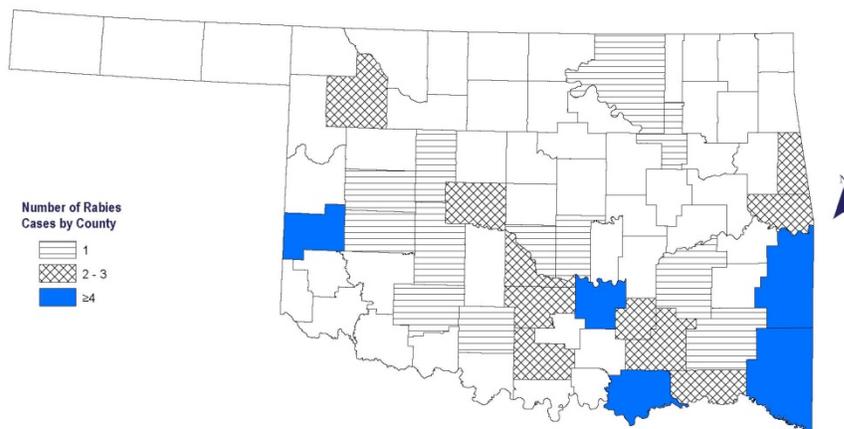
Human rabies PEP should be sought through an individual's health care provider, as it is not provided through the OSDH or county health departments. Due to access to life-saving rabies biologics, human rabies is rare in the United States (US). Most indigenous human rabies cases are associated with rabid bats, whereas in developing countries, dogs are the most common reservoir and vector speciesⁱⁱ. Canine rabies acquired from dog bites in Africa and Asia account for >95% of all human rabies cases worldwideⁱⁱⁱ. Human rabies prophylaxis is nearly 100% effective, and human fatalities in the US due to rabies occur in people who fail to seek medical assistance or were unaware of their exposure. The last case of human rabies in Oklahoma occurred in 2004 and was associated with an organ transplant. Prior to this incident, the most recent human rabies case in Oklahoma was in 1981.

Consultation regarding animal bites and the PEP series is available by contacting the epidemiologist-on-call at (405) 271-4060. Questions regarding rabies testing can be directed to the OSDH PHL at (405) 271-5070. For additional Oklahoma rabies statistics, click on "Disease Information" and select the rabies webpage at <http://ads.health.ok.gov>.

Figure 1. Number of Confirmed Animal Rabies Cases by Year, Oklahoma, 1980 - 2011 (N = 3,238)



County Location of Animal Rabies in Oklahoma January 1 through December 31, 2011 (N=60)



ⁱ Of the 60 rabid animals identified in Oklahoma during 2011, two were tested at out-of-state laboratories; one animal that tested positive at the OSDH PHL originated from another state.

ⁱⁱ CDC. Imported Human Rabies—California, 2008. *MMWR* 2009; 58(26): 713-716.

ⁱⁱⁱ CDC. Imported Human Rabies in a US Army Soldier—New York, 2011. *MMWR* 2011; 61(17): 302-305.