Nebraska Department of Health and Human Services

Health Alert Network

ADVISORY

October 16, 2023

Detection of Raccoon Rabies Variant in Douglas County

On September 28, 2023, a stray kitten that had died in Douglas County, Nebraska was confirmed with rabies by direct fluorescent antibody (DFA) testing at University of Nebraska-Lincoln's Nebraska Veterinary Diagnostic Center (NVDC). Rabies had not been detected in a domestic animal in Douglas County for more than 20 years. Given this fact and very limited detections of skunk variant rabies in eastern Nebraska in recent years, NDHHS requested immediate rabies virus variant typing at NVDC. Preliminary results with follow-on antigenic typing at CDC confirmed on October 6, 2023, that this kitten was infected with the Eastern Raccoon Rabies Virus Variant (RRVV). Further sequencing by CDC confirmed the virus that infected this kitten is most similar to RRVV found in GA, NC, and TN. This case threatens 20+ years of RRVV management efforts in the eastern United States to stop the westward spread of this variant. If this variant becomes established in an entirely new geographic area, millions more Americans and domestic animals/livestock would be placed at risk for rabies exposure. The timely detection of this case will allow for immediate response efforts. Implementation of an enhanced public health surveillance system in coordination with USDA and local Nebraska partners is needed to determine if additional cases of the RRVV is present in animal populations in or near Douglas County. Data from this enhanced public health surveillance system will help inform the scale and methods of current or future mitigation efforts.

Given the need for expanded localized surveillance testing, Nebraska Department of Health and Human Services (NDHHS) is engaging the veterinary community in Nebraska for their situational awareness. For animals involved with HUMAN EXPOSURES regardless of location, please continue with submissions seeking Rabies Approvals or "RA Numbers" as usual. Beyond these normal processes, efforts are underway for expanded surveillance in the Omaha Metro area. To date, we have no information to suggest that RRVV is present elsewhere in the state nor that other endemic variants of rabies (i.e., skunk, bat) pose any additional risk to domestic animals or the public. As such, we are not asking for additional surveillance efforts elsewhere in the state but do encourage veterinarians to be vigilant for rabies among their patients as usual. For any animals with suspicion of rabies (domestic or wild), please proceed with testing as usual at owner expense. Post-exposure management of potentially exposed domestic animals should be commenced following appropriate guidance.

Submission forms are available on the NVDC website here: https://vbms.unl.edu/nvdc-submission-forms

Rabies is a fatal but preventable viral disease. In the United States, rabies is enzootic in at least 20 species of bats and 4 terrestrial reservoir hosts, including raccoons, skunks, foxes, and mongooses. The variant of rabies that infects raccoons has been present in the southeastern Unites States since the 1950s and was introduced into the mid-Atlantic region of the Unites States in 1977, resulting in one of the world's largest documented wildlife disease outbreaks. The United States Department of Agriculture (USDA) has spent $500 million since 1997 on large-scale efforts to prevent the westward expansion of raccoon rabies virus variant. Raccoons are extremely susceptible to this variant and when it is found in a new location, there is an increased risk that it could lead to a largescale outbreak in local raccoon populations, with implications for spillover of rabies into other wildlife and among domestic animals and humans.

NDHHS manages the Nebraska Rabies Control Program (NRCP). The NRCP pays for testing of animals involved in potential human rabies exposures using state general funds and issues Rabies Approval (RA) numbers if required criteria are met to establish risk; human exposure data are captured at time of RA requisition. Since 2018, the NRCP has contracted with University of Nebraska-Lincoln's Nebraska Veterinary Diagnostic Center (NVDC) for testing with results messaged via electronic laboratory reporting (ELR) to Nebraska's Electronic Disease Surveillance System (NEDSS). These ELR reports include both test results with human exposure (i.e., with RA numbers) and results for testing independent of NRCP activities. For all potential human exposures, the NRCP and local public health partners make test-

based recommendations for or against post-exposure prophylaxis (PEP) and also provide consultation to partners (e.g., veterinary practitioners, animal control, law enforcement) for post-exposure management of domestic animals as needed.

In Nebraska, rabies is enzootic in bats and skunks. Raccoons are not a reservoir for rabies west of the Appalachian Mountain chain. All mammals, including domestic pets and livestock, are susceptible to rabies, and can transmit rabies to people. However, no domestic animals or livestock in Nebraska are reservoirs for the disease. Nebraska typically detects 20 to 30 cases of animal rabies per year, mostly in bats. As of the date of this detection, 16 animal rabies cases had been identified – two of which were in non-bat species, including a dog in January confirmed with skunk rabies virus variant and the kitten confirmed on October 6 by CDC as being infected with RRVV.

How can Nebraska veterinarians help their clients protect their pets from rabies?

1. First, encourage clients to have regular veterinary visits with their pets and keep rabies vaccinations up-to-date for all cats, ferrets, and dogs.
2. Second, recommend that clients maintain control of their pets by keeping cats and ferrets indoors and keeping dogs under direct supervision when they are allowed outside.
3. Third, spay or neuter all pets not intended for breeding to help reduce the number of unwanted pets that might not be properly cared for or vaccinated regularly.
4. Finally, encourage the public to call animal control to remove all stray animals from your communities since these animals may be unvaccinated or ill.

While wildlife are much more likely to be rabid than domestic animals in the United States, people have much more contact with domestic animals compared with wildlife. Pets and other domestic animals can be infected when they are bitten by rabid wild animals, and this type of “spillover” increases the risk to people. Limiting interactions between pets and wildlife and keeping all pets up to date on their rabies vaccination will prevent them from acquiring the disease, and thereby prevent possible transmission to your clients, their families, or other people.

Importance of finding raccoon variant in Nebraska

Why is this event concerning?

This raccoon variant of rabies is only seen along the US east coast and has been stopped from spreading west of Appalachia via widespread and expensive mitigation efforts, including oral vaccination of raccoons and enhanced surveillance activities. This recent detection is ~850 miles farther west than any other detection of this variant to date.

What type of mitigation efforts are being carried out?

At this time, health authorities are asking all residents to report strange-acting wildlife and free-roaming animals such as feral cats, as these animals may be exhibiting signs of rabies and could indicate community spread of this virus. The public can also assist Health Officials by reporting found-dead cats, skunks, racoons, and foxes. In the Omaha Metro Area, call the Nebraska Humane Society immediately at (402) 444-7800 Ext. 1 to report any domestic or wild animals that are dead or alive and acting strangely. If community-spread of this virus is detected, additional efforts might be required which could include additional surveillance efforts, hand-vaccination, and oral-vaccination of susceptible animals.

What are the potential implications of this rabies variant being found in Nebraska?

As this variant was detected in a feral cat, we do not know how the virus was translocated from the East Coast to Nebraska. We are concerned that this feral cat could have been exposed locally, in Nebraska, suggesting that the virus may currently be spreading among local animal populations. The introduction of a new rabies virus into a naïve population could have significant human and animal health implications, including increased instances of rabid wildlife, increased rabies exposures in people, increased need for rabies post-exposure prophylaxis, and increased risk for exposure and death in domestic pets and livestock. The overall cost to humans and livestock could be substantial.

RESOURCES:

USDA: https://www.aphis.usda.gov/aphis/ourfocus/wildlifedamage/programs/nrmp/ct_rabies
CDC: https://www.cdc.gov/rabies/exposure/animals/other.html
NDHHS: https://dhhs.ne.gov/Pages/Rabies-Data.aspx

Bryan Buss, DVM, MPH, DACVPM
State Public Health Veterinarian
402-471-8820

Timothy Tesmer, MD
CMO Public Health
402-471-8566

Matthew Donahue, MD
State Epidemiologist
402-471-8566