

RABIES MANAGEMENT IN LIVESTOCK AND HORSES

Introduction

Rabies is a fatal viral disease that causes acute inflammation of the brain in all mammals. It is transmitted primarily in saliva through a bite and occasionally by the exposure of open wounds or mucous membranes (eyes, nose, mouth, etc.) to the saliva or nervous tissue of an infected animal. In the United States, rabies is primarily maintained in five wildlife reservoir species: raccoons, foxes, coyotes, skunks, and bats. In Oklahoma, skunks and bats are of the highest concern. Although people commonly think of dogs when it comes to rabies, livestock and horses are infected more commonly in Oklahoma. These species have a greater incidence of rabies due to their exposure to skunks. This document is dedicated to rabies management in livestock and horses; for information on rabies management in humans or pets, please contact the Oklahoma State Department of Health at (405) 271-4060.

Symptoms

The form of rabies that an individual animal expresses depends upon the portions of the central nervous system most significantly affected by the disease. Rabies is commonly believed to be characterized as aggressive behavior, and although this “furious” form of rabies does occur in livestock and horses, it is more commonly seen in infected carnivore species, such as dogs and cats. Livestock and horses usually manifest symptoms of the “dumb” or “paralytic” form of rabies. Symptoms may include depression, inappetance, difficulty eating/drinking/swallowing, profuse salivation, blindness, head-pressing, circling, vocalization, fever, strained defecation, increased sexual excitement/activity, or limp tail, anus, or tongue. Constant yawning, itching, or nibbling may be a sign of rabies also. Rabies can be associated with neurological deficits such as incoordination, decreased muscle tone and reflexes, shifting lameness, or partial-to-complete paralysis. Horse owners should be aware that rabies can often mimic symptoms of colic in horses. Irrespective of the clinical manifestation or “form”, rabies is rapidly progressive and uniformly fatal. Symptoms generally develop 3-4 weeks after exposure; however, the incubation period (time between exposure and development of symptoms) may extend to as long as six months.

Prevention

Routine veterinary care and vaccination is a key component of rabies prevention. Livestock and horses that have frequent contact with humans should be vaccinated on a regular basis against rabies. This would include all horses, exhibition animals, livestock “pets”, petting zoo animals, etc. Livestock from which raw (un-pasteurized) milk or milk products are produced for direct human consumption should also be vaccinated. Additionally, livestock that are particularly valuable should be vaccinated. Table 1 includes possible rabies vaccines licensed in the United States (see below). Consult with your local veterinarian regarding these vaccines and appropriate booster intervals. No rabies vaccines are currently licensed in the United States for goats, pigs, llamas, or alpacas; with these species, a veterinarian will be able to assist in the extra label use of one of the licensed products for other species.

Although it would be difficult to exclude all wildlife from a location, livestock and horse owners can mitigate potential rabies exposure by taking steps to deter wildlife. Feeding areas should be kept clean so that extra feed or garbage does not attract wildlife. Derelict barns, farm equipment, lumber piles, and debris should be removed from the property so that wildlife does not use it as shelter. Extensive killing of skunks is not recommended as a solution in and of itself and purportedly can lead to increased transmission of rabies within new skunk populations due to a new “pecking order” being established. However, if needed, licensed hunters may kill striped skunks with a legal firearm year-round and statewide in Oklahoma with no daily or seasonal limits; for more information please contact the Oklahoma Department of Wildlife Conservation at (405) 521-3851. Live traps are also very effective when placed near the entrance to skunk dens. USDA Wildlife Services may be able to provide technical assistance or direct control for livestock or horse owners needing additional support with wildlife. USDA Wildlife Services may be contacted at (405) 521-4039.

Post-Exposure Management

This section refers to any animal bitten or otherwise exposed to a confirmed or suspected rabid animal. Wild mammalian carnivores or bats that are not available or suitable for rabies testing should be regarded as rabid. Rabies testing can be performed by the Oklahoma State Department of Health and coordinated with your local veterinarian. Rabies exposed livestock and horses which are currently vaccinated with a vaccine approved for that species should be revaccinated immediately following exposure and placed in confinement for observation for a period of 45 days. If symptoms of rabies develop, the animal should be euthanized and tested for rabies. Unvaccinated livestock or horses bitten or otherwise exposed to a laboratory-confirmed rabid animal can be managed in one of two ways: the owner may euthanize the exposed animal immediately, or strictly confine from all other animals, prevent direct human contact with the animal, and observe for a period of six months. This six-month quarantine period requires supervision and direction from a licensed veterinarian. Rabies vaccine approved for that species should be administered immediately upon entering isolation (in a 3-dose series under the discretion of the Oklahoma State Department of Health), or 28 days before release from isolation. If symptoms of rabies develop, the animal should be euthanized immediately and tested for rabies. There is no approved treatment for an animal exposed to rabies; even the vaccine is not proven to completely prevent rabies occurrence once exposure has occurred.

Handling and consumption of tissues from rabid or rabies-exposed animals carries a risk of rabies transmission. Rabies virus may be widely distributed in tissues of infected animals through nerves, and tissues and products from a known rabid animal should not be used for human or animal consumption. Risk factors depend in part on the site of exposure in the animal, amount of virus present, severity of wounds, and whether sufficient contaminated tissue has been excised prior to consumption. If an exposed animal is to be slaughtered for consumption, it should be done immediately after exposure and all tissues should be cooked thoroughly. USDA Food Safety and Inspection Service meat inspectors should be notified if such exposures occur in food animals prior to slaughter. Persons handling exposed animals, carcasses, or tissues should be vaccinated prior to handling and should use personal protective equipment such as latex gloves, eye protection, face shield, etc.

Multiple rabid animals in a herd or herbivore-to-herbivore transmission are uncommon; therefore, the Oklahoma Department of Agriculture generally does not restrict movement on those herds when a single animal has been infected or exposed to rabies. In extenuating circumstances, the Oklahoma State Veterinarian may choose to quarantine the herd until a sufficient amount of time has passed to ensure that exposed animals are not infected. Restricted movement measures are used to prevent the potential exposure of additional animals and people.

For more information, please contact Dr. Justin Roach of the Animal Industry Services Division of the Oklahoma Department of Agriculture at (405) 522-8396 or justin.roach@ag.ok.gov.

Table 1. Rabies Vaccines Licensed in the United States

Product Name	Produced by	Marketed by	For Use In	Dosage	Age at Primary Vaccination ^a	Booster Recommended	Route of Inoculation
A) MONOVALENT (Inactivated)							
RABVAC 1	Fort Dodge Animal Health License No. 112	Fort Dodge Animal Health	Dogs Cats	1 ml 1 ml	3 months ^b 3 months	Annually Annually	IM ^c or SC ^d IM or SC
RABVAC 3	Fort Dodge Animal Health License No. 112	Fort Dodge Animal Health	Dogs Cats Horses	1 ml 1 ml 2 ml	3 months 3 months 3 months	1 year later & triennially 1 year later & triennially Annually	IM or SC IM or SC IM
RABVAC 3 TF	Fort Dodge Animal Health License No. 112	Fort Dodge Animal Health	Dogs Cats Horses	1 ml 1 ml 2 ml	3 months 3 months 3 months	1 year later & triennially 1 year later & triennially Annually	IM or SC IM or SC IM
DEFENSOR 1	Pfizer, Incorporated License No. 189	Pfizer, Incorporated	Dogs Cats	1 ml 1 ml	3 months 3 months	Annually Annually	IM or SC SC
DEFENSOR 3	Pfizer, Incorporated License No. 189	Pfizer, Incorporated	Dogs Cats Sheep Cattle	1 ml 1 ml 2 ml 2 ml	3 months 3 months 3 months 3 months	1 year later & triennially 1 year later & triennially Annually Annually	IM or SC SC IM IM
RABDOMUN	Pfizer, Incorporated License No. 189	Schering-Plough Animal Health	Dogs Cats Sheep Cattle	1 ml 1 ml 2 ml 2 ml	3 months 3 months 3 months 3 months	1 year later & triennially 1 year later & triennially Annually Annually	IM or SC SC IM IM
RABDOMUN 1	Pfizer, Incorporated License No. 189	Schering-Plough Animal Health	Dogs Cats	1 ml 1 ml	3 months 3 months	Annually Annually	IM or SC SC
CONTINUUM RABIES	Intervet, Incorporated License No. 165A	Intervet, Incorporated	Dogs Cats	1 ml 1 ml	3 months 3 months	1 year later & triennially 1 year later & quadrennially	SC SC
EQUI-RAB	Intervet, Incorporated License No. 165A	Intervet, Incorporated	Horses	1 ml	4 months	Annually	IM
PRORAB-1	Intervet, Incorporated License No. 165A	Intervet, Incorporated	Dogs Cats Sheep	1 ml 1 ml 2 ml	3 months 3 months 3 months	Annually Annually Annually	IM or SC IM or SC IM
IMRAB 1	Merial, Incorporated License No. 298	Merial, Incorporated	Dogs Cats	1 ml 1 ml	3 months 3 months	Annually Annually	SC SC
IMRAB 1 TF	Merial, Incorporated License No. 298	Merial, Incorporated	Dogs Cats	1 ml 1 ml	3 months 3 months	Annually Annually	SC SC
IMRAB 3	Merial, Incorporated License No. 298	Merial, Incorporated	Dogs Cats Sheep Cattle Horses Ferrets	1 ml 1 ml 2 ml 2 ml 2 ml 1 ml	3 months 3 months 3 months 3 months 3 months 3 months	1 year later & triennially 1 year later & triennially 1 year later & triennially Annually Annually Annually	IM or SC IM or SC IM or SC IM or SC IM or SC SC
IMRAB 3 TF	Merial, Incorporated License No. 298	Merial, Incorporated	Dogs Cats Ferrets	1 ml 1 ml 1 ml	3 months 3 months 3 months	1 year later & triennially 1 year later & triennially Annually	IM or SC IM or SC SC
IMRAB Large Animal	Merial, Incorporated License No. 298	Merial, Incorporated	Cattle Horses Sheep	2 ml 2 ml 2 ml	3 months 3 months 3 months	Annually Annually 1 year later & triennially	IM or SC IM or SC IM or SC