

Oral Rabies Vaccination Program in the East

Rabies Background

Rabies is a virus that affects the central nervous system in mammals and is almost always transmitted through saliva when an infected animal bites an uninfected animal or person. Rabies is invariably fatal if left untreated; however, effective vaccines are available to protect people and pets.

More than 90 percent of all rabies cases reported each year in the United States occur in wildlife. Several different variants of the rabies virus exist in this country, and all variants are capable of infecting mammals, including humans. Raccoons and skunks are responsible for most reported cases, but bats, foxes, and coyotes also commonly transmit the disease.

The Role of the Wildlife Services (WS) Program

WS, a program within the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS), helps alleviate or minimize wildlife damage to agricultural, urban, and natural resources. An important part of WS' mission includes assisting in wildlife disease-management to protect public health and safety.

Since 1997, WS has been working cooperatively with local, State, and Federal governments; universities; and other partners to manage rabies in wild carnivores through education, surveillance, and oral rabies vaccination (ORV). A vaccination zone has been established from Maine to Alabama to prevent the westward and northward spread of raccoon rabies. Geographic features such as large lakes and rivers as well as the Appalachian Mountains act as natural barriers that help define the vaccination zone. In 2005, almost 9 million oral rabies vaccine-laden baits were distributed in 15 Eastern States, targeting raccoon rabies.

In addition to working toward eliminating rabies where it already exists, WS also works with States to monitor uninfected areas near the vaccination zones. If a positive case were discovered, a contingency action plan would be implemented. The plan would include WS personnel and cooperators' conducting

enhanced rabies surveillance. WS might also trap raccoons to vaccinate them against the disease and then return them to the wild. In addition, WS would consider distributing oral rabies baits containing vaccine where the first case or cases originated to create immunity and prevent rabies from spreading.

Distributing the Vaccine

The oral rabies vaccine, manufactured by Merial Inc., consists of a sachet or plastic packet containing the Raboral V-RG® rabies vaccine. The vaccine sachets are either coated in fishmeal crumbs or encased inside fishmeal polymer baits about the size of a matchbox.

When a raccoon bites into a bait, the sachet ruptures, allowing the vaccine to make contact in the animal's mouth and throat. Animals that have contact with an adequate dose of the vaccine develop an immunity to rabies. As the number of vaccinated animals in the population increases, the ability to transmit the disease in the raccoon population decreases, creating a barrier to stop the spread of the raccoon variant.

Oral rabies vaccine is distributed mostly by air, but some densely populated areas may be baited by hand. Fixed-wing aircraft are the most effective means for dispersing large numbers of the ORV baits over rural areas. Hand baiting is used in urban and suburban areas to increase the likelihood of raccoons' finding the baits and reduce the chance of people or domestic animals' coming into contact with the vaccine.

If you discover a bait, it is best to leave it where you found it. Do not attempt to remove a bait from your pet's mouth; doing so may cause you to be bitten. This vaccine cannot cause rabies and is safe if eaten by domestic dogs and cats. It has been tested on more than 60 animal species with no adverse effects. If you come into contact with the pink-liquid vaccine contained within the bait, wash the affected area thoroughly with soap and water and call USDA's WS office toll free at 1-866-4-USDA-WS (1-866-487-3297) for further instructions and referral.

Determining the Effectiveness of the Program

After baits have been distributed and raccoons have had a chance to ingest them, WS works with its cooperators to measure the success of the ORV campaign.

Live-traps are set and checked regularly. These traps are affixed with labels in case individuals discover a trapped animal and wish to contact WS. All captured raccoons are temporarily anesthetized so that blood samples can be taken and their first pre-molar, a small, single-rooted tooth, can be removed. Once the anesthesia has worn off, the raccoons are released back into the wild at their capture sites.

All samples are sent to cooperating laboratories such as the rabies laboratory at the Centers for Disease Control and Prevention (CDC) in Atlanta, GA, where the rabies antibody level for each raccoon sample is determined. Tooth samples are sent to laboratories for examination to determine the animal's age and if their tooth contains a tetracycline biomarker indicating whether one or more baits were ingested. The biomarker causes the formation of an altered tissue layer in tooth and bone that is visible under a fluorescent microscope.

The Future

Expertise from a variety of sources, including public-health, wildlife, and agricultural agencies, is integral to the overall team-centered approach for rabies prevention and control.

WS provides a variety of technical and operational services for rabies management, including assistance with effective disease and wildlife population surveillance, a continuing commitment to the development of additional species-specific oral vaccines, and improved strategies to prevent human exposure to rabies.

Protect Yourself From Rabies

As the cost of living with rabies in the United States exceeds \$300 million a year, it is important to educate the public about how to keep from contracting this disease. Listed below are helpful hints on how to reduce the possibility of contracting the rabies virus.

- Do not touch or pick up wild animals or stray domestic animals.
- Properly vaccinate all family pets against rabies.
- Report unknown or strangely acting animals to your local animal control officer or, if the animal is wild, to wildlife officials.
- Do not make your yard inviting to wild animals. Remove trash and secure garbage cans. Do not leave pet food outside.
- Keep family pets indoors at night. During the day, do not let them roam.

If You Are Bitten

- Immediately wash the bite with soap and water for 5 minutes.
- Try to capture the animal only if you can do so without receiving additional bites or other injuries.
- Immediately report the bite to your doctor and your local health officer.

Additional Information

For more information, please visit the National Rabies Management Program's Web site at <http://www.aphis.usda.gov/ws/rabies/index.html> or call 1-866-4-USDA-WS to contact your WS State office.

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