The Oral Rabies Vaccine Program

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WILDLIFE SERVICES
What is Rabies?
Rabies Virus Facts...

What is Rabies?

- Deadly virus that attacks the central nervous system and infects all mammals

How is Rabies Transmitted?

- Primary exposure = direct contact with a rabid animal via a bite or scratch

- Secondary exposure = fresh infectious material contacts a wound that has bled in the last 24 hours

- Infectious material = saliva, brain matter, spinal cord

- Virus NOT found in blood, urine, feces, or skunk spray
Rabies is Fatal...

- 50,000 – 100,000 people die annually worldwide, mostly in developing countries.

- In the USA, only 27 people died from rabies between 1990-2000.

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CDC report: First Human Death from Raccoon Rabies

ATLANTA — Scientists have documented the first human death in the United States from raccoon rabies.

A 25-year-old office worker from Virginia died in March after 14 days in the hospital, the Centers for Disease Control and Prevention reported Thursday. Genetic analysis of tissue samples determined the man had gotten rabies from a raccoon.

Doctors could not figure out how or when the man became infected, despite extensive interviews with relatives, friends and co-workers.
Common Rabies Symptoms in Animals:

- **Change in behavior**
  - Become aggressive or docile

- **Paralysis of throat**
  - Drool and strange vocal sounds
  - Cannot eat or drink

- **Change in motion**
  - Paralysis of hind end

- Incubation phase
  - 3-15 weeks.
Rabies Symptoms in Humans

3 different steps

Step 1 – fever, headache, general malaise

Step 2 – insomnia, anxiety, confusion, partial paralysis, excitation, hallucinations, agitation, hypersalivation, difficulty swallowing, hydrophobia

Step 3 – Death - within 10 days of onset of symptoms
Effective Public Health Strategy

- Post-exposure prophylaxis
- Pre-exposure vaccination
- Surveillance (mostly passive)
- Laboratory diagnostics
- Case investigations
- Public education
- Dog, cat & livestock vaccinations
- Animal and wildlife control

$450 Million
Raccoon Strain Rabies
Distribution of Major Terrestrial Reservoirs of Rabies in the United States
Rabies in Domestic Animals, 1955-2005

The graph shows the number of rabies cases in domestic animals from 1955 to 2005. The y-axis represents the number of cases, ranging from 0 to 4500. The x-axis represents the years, ranging from 1955 to 2005.

The graph includes four lines, each representing a different category of animals:
- Total cases
- Cats
- Cattle
- Dogs

The total cases show a significant decrease over the years, with a minor spike around 1980. The cat cases also show a decrease, but with a more stable pattern compared to the total cases. The cattle cases remain relatively low throughout the years. The dog cases show a slight increase in the later years.
U.S. Animal Rabies Cases – 2005
(6417 Reported Cases: 92% in Wildlife)

Data from CDC
Distribution of Raccoon Variant of Rabies in the late 1970’s

Spread Rate--25 Miles Per Year

Kemere et al. 2000
Raccoon rabies has a much greater impact than other terrestrial rabies variants in U.S.

- Larger number of rabid animals
- More spillover to other species
- More impact on agriculture
- Greater risk of exposure to people/pets
- More indirect ‘exposures’—saliva on surfaces, pet’s fur, etc. resulting in PEP
2002 TENNESSEE RACCOON RABIES SITUATION
2003 TENNESSEE RACCOON RABIES SITUATION

1st Tennessee case in Johnson County in April 2003. 5 total cases in Johnson and Carter Counties in 2003.
1st case in Chattanooga in January 2004. During 2004 there were 14 cases in TN, all in Hamilton County.
Unicoi County became positive in early May 2005 when a woman was attacked by a rabid gray fox near Erwin. In June 2005 a rabies positive raccoon attacked a dog in Washington County.
A sick-acting red fox picked up by Knox County Animal Control in October and tested by USDA’s Enhanced Surveillance system had raccoon strain rabies, representing a several county “jump” in the disease.
Bradley County became the 7th Tennessee county positive for raccoon strain rabies in January 2006.
Sullivan and Greene Counties became the 8th and 9th Tennessee counties positive for raccoon strain rabies in May and June 2007. Washington county records 19 positive animals.
Oral Rabies Vaccine
Raboral V-RG® Rabies Vaccine
Merial Limited, Inc.

More than 50 Million Distributed

Fishmeal Polymer Bait (26 g)  Coated Sachet (6g)

Conditional License: 1995
Full License: 1997

Full License: 2000
**GOALS**

Phase 1  Prevent spread of specific terrestrial wildlife rabies variant

Phase 2  Eliminate specific terrestrial wildlife rabies variant
■ Extensive use in Europe against rabies in red foxes

■ Switzerland received rabies-free status in 1998 after extensive oral baiting, as of 2004 Italy, Belgium, Sweden, and the Czech Republic have been declared rabies-free

■ Canada has restricted the spread of raccoon rabies with oral baiting
South Texas Coyote ORV 1995 - 2003

Model for Success

ORV zone
Coyote Success Story in SW Texas

1994 | 166 cases
1995 | 58 cases
1996 | 21 cases
1997 | 6 cases
1998 | 5 cases
1999 | 10 cases
2000 | 0 cases
2001 | 1 case
2002 | 0 cases
ORV Program in Tennessee
ORV Cooperators - Tennessee

- Centers for Disease Control and Prevention (CDC)
- State and Local Health Departments
- Tennessee Department of Agriculture
- Tennessee Wildlife Resources Agency
- USFS, TVA, and NPS Involved – EA Adopted
- Many Others: Local Animal Control Agencies, Federal, State, and Private Landowners, Hunters, Nuisance Wildlife Trappers, Rehabbers, TDOT
Bait Distribution

OMNR – Twin Otter
Dynamic Aviation –– King Air
ORV Bait Zones – 2003
ORV Bait Zones – 2004
## TENNESSEE BAITING SUMMARY

<table>
<thead>
<tr>
<th>BAITING TYPE</th>
<th>TOTAL BAITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerial</td>
<td>2,197,586</td>
</tr>
<tr>
<td>Ground</td>
<td>901,253</td>
</tr>
<tr>
<td>TOTAL</td>
<td><strong>3,098,839</strong> baits across 4,444 square miles in 22 Counties</td>
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