

**STATE OF RHODE ISLAND
AND PROVIDENCE PLANTATIONS
MANUAL FOR
RABIES MANAGEMENT
AND PROTOCOLS**

REVISED 5/98

**STATE OF RHODE ISLAND
AND
PROVIDENCE PLANTATIONS
MANUAL FOR RABIES MANAGEMENT
AND PROTOCOLS**

INTRODUCTION

This material has been formulated by the State of Rhode Island Rabies Advisory Committee and printed with the assistance of the Rhode Island Veterinary Association from grant monies received from the Rhode Island Foundation. The participation of members of the Department of Health, Office of Communicable Diseases and the Department of Environmental Management, Division of Fish & Wildlife, and Estuarine Resources and Enforcement are greatly appreciated and gratefully acknowledged.

Many thanks to the New Jersey Veterinary Medical Association and the Connecticut Veterinary Medical Association for providing the document from which this manual was modeled.

Since 1977, an epizootic of rabies in raccoons progressed outward from a focus in West Virginia. Rhode Island experienced its first confirmed case in a raccoon in January of 1994. In Rhode Island, the principal responsibility for the handling of rabies is vested in the local Animal Control Officers, State Department of Health and the State Department of Environmental Management/Animal Health Section. In addition, the Division of Fish & Wildlife, and Enforcement became directly involved with any wildlife rabies suspects, providing expert advice and assistance in the capture, destruction and transport of wildlife specimens for rabies examinations.

The State Laboratory conducts the tissue examinations for rabies. In other cases, the rabies testing of brain tissue may be conducted (for a fee basis) by outside laboratories: but these arrangements must be made privately. The direct fluorescent antibody State approved test (DFA) on brain tissue is the only confirmatory test utilized by the State Department of Health Laboratories. After a positive specimen is confirmed, the state laboratory may submit the specimen to the Center for Disease Control for a Monoclonal antibody test to determine the strain of rabies involved.

The Rhode Island Veterinary Medical Association, in cooperation with local municipalities, sponsors rabies vaccination clinics, distributes information on rabies to its membership and the public, and coordinates activities between veterinarians and other organizations. Their generosity, funded by a grant from the Rhode Island Foundation, paid for the initial printing and distribution of this manual.

INDEX

Who to Call in a Rabies Crisis.....	1
Rabies Management – A Guide to Formulating Veterinary Hospital Police	2
Rabies Post-Exposure Management, A Guide for Veterinarians	6
Part I – Human Bitten	6
Part II – Animal Bitten	9
By Target Species.....	10
By Domestic Animal	12
Livestock Exposure	13
Summary of What is Expected of the Veterinarian.....	14
Biology of Rabies.....	15
Rhode Island Fish and Wildlife Rabies Policies and Services	18
Standard Operative Procedures for Destroying, Handling and Submitting Potentially Rabid Wildlife.....	21
Specimen Preparation, Lab Submission and Delivery Procedures.....	24
Disease of Wildlife that resemble Rabies	29
Rabies Education Materials.....	31
Strict Confinement Instruction for Owners.....	32
Specimen Submission Form.....	33
Rabies Advisory Notice.....	34
Needs Assessment for Rabies Prophylaxis.....	36
Acknowledgement of Rabies Vaccination Advisement.....	37

APPENDIX

Compendium of Animal Rabies Control, 1998
Department of Health – Management of Human Exposures

WHO TO CALL IN A RABIES CRISIS

ROUTINE

EMERGENCY

RHODE ISLAND DEPARTMENT OF HEALTH
Questions concerning human exposures

277-2577

272-5952

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Please help us by screening call and training staff to answer routine questions. There are very few of us and many calls should be handled in your office. **DO NOT GIVE OUT THESE NUMBERS WITHOUT IT BEING VERY IMPORTANT.**

STATE VETERINARIAN

Questions concerning livestock and domestic animal exposures unanswerable by your local veterinarian. Questions concerning livestock submissions.

222-2781

222-3070
277-5952

RHODE ISLAND DIVISION OF FISH & WILDLIFE

Questions concerning wildlife including unusual behavior or exposures.

789-0281

or
277-1267

RHODE ISLAND DIVISION OF ENFORCEMENT

Questions concerning trapping/pick-up of sick or injured animals.

277-2284

277-3070
or 24 Hr.
1-800-498-1336

RHODE ISLAND VETERINARY MEDICAL ASSOCIATION

General Public information recording.

254-1052

SUBMISSION OF SAMPLES

State Laboratory. All animals which need to be tested for rabies.

274-1011

272-5952

**RI EMERGENCY MANAGEMENT AGENCY-
RABIES HOTLINE**

General Rabies questions

1-800-482-7878

LOCAL ANIMAL CONTROL OFFICER

LOCAL POLICE DEPARTMENT

STATE POLICE

RABIES MANAGEMENT

GUIDE TO FORMULATING VETERINARY HOSPITAL POLICY

Veterinarians should develop their knowledge of rabies, create a state and local contact list and formulate plans on how to handle rabies related situations. These should be shared with your entire staff and kept available for review by staff members. It is very important that your entire staff be prepared for all types of rabies related situations and emergencies that might arise. Your staff must be educated as to how rabies can be contracted by handling dead animals or tissue versus being infected by the bite of an unvaccinated animal during handling for routine treatment. We will handle these two cases separately.

1. The Centers for Disease Control (CDC), the American Veterinary Association (AA), RIVMA and both departments of Health and Environmental Management strongly recommend that "high-risk" personnel receive "pre-exposure" rabies inoculations (See Appendix C). This helps prevent contracting rabies from the bite, scratch or contamination of a person's mucous membranes by the handling of an animal which is not known to be rabid.
2. During the handling of a carcass, a large problem will be to dispel the fear that rabies is a highly contagious disease which your staff "could get from just touching the animal". You must assure your staff that if proper procedures are followed during the handling of specimens, they have nothing to fear. Remind them that during the entire mid-Atlantic raccoon rabies epizootic not a single case of human rabies has been reported originating from the raccoon rabies virus strain.

1. Have entire Staff Review This Manual and Videos

It is the intent of this manual to review all aspects of rabies so that a workable policy can be developed. Videos are available through various sources. After all staff have reviewed the manual, have a group discussion on rabies and hospital policies. Please try to impress upon the staff that they should handle as many calls as possible, rather than referring calls. If the staff has questions, they should call us, then they will be educated and can handle further related calls from the public.

2. Post "Who To Call In A Rabies Crisis" List (see page 4)

Pertinent names, addresses, and telephone numbers should be listed and kept available throughout your clinic. Minimum information should include routine and emergency numbers of the state health agencies, animal control officers and local police departments in municipalities from which you draw your clientele.

3. Discussions With Animal Control Officers, Police Shelters and Wildlife Organizations

It will be most useful to have prior discussions with police, animal shelters, animal control officers, wildlife rehabilitators and nuisance wildlife operators, all of whom may have become involved in catching, destroying, transporting and sheltering animals. Local police departments are a very important group since they are often called on by the public in emergency situations involving suspect rabid animals. It is also important to instruct police officers not to kill animals with gunshots to the head as this may render brain tissue unsuitable for testing. Please remember

to dispel fears of the "highly contagious nature of rabies" and to instill proper handling to insure their safety. **IT IS VERY IMPORTANT THAT INDIVIDUALS IN POSITIONS OF AUTHORITY BE EDUCATED TO CONTROL SITUATIONS, MAKE INFORMED DECISIONS AND NOT TO CONTRIBUTE TO ANY HYSTERIA WHICH THE LAY PERSON MAY FEEL.**

4. Establish a Policy Regarding Pre-exposure Vaccination for Your Staff

The Rhode Island VMA, RIDOH and the RIDEM recommend that veterinarians and their staff, animal control officers, shelter workers, persons who will be preparing rabies specimens, persons working with high risk wildlife species and persons routinely handling unvaccinated animals be preimmunized against rabies. You should discuss preimmunization for rabies with your entire staff. Each staff member should discuss with his or her family physician whether there are any contraindications to being preimmunized.

Should you decide to vaccinate hospital staff, you should do this either through the employee's family physician or arrange a clinic with a local physician to vaccinate staff members. You may want each employee to sign a statement attesting to the fact that you recommended that they be preimmunized with rabies vaccine.

The Rhode Island VMA has found four nearby clinics that will offer the series of three intra-dermal inoculations. Costs may vary, generally between \$200.00 and \$240.00 per person for ID's and approximately \$55.00 for titers. The fee is payable at the time of the first visit. The clinics are:

Route 6 Walk-In Emergency Office
1589 Fall River Avenue
Seekonk, MA
508-336-4550 Contact: Trisha

Warwick Emergency Office
Airport Plaza
1800 Post Road
Warwick, RI
401-738-6900 Contact: Patty

Newport County Emergency Office
67 Valley Road
Middletown, RI
401-847-4950 Contact: Chris or Linda

North Providence Emergency Office
1637 Mineral Spring Avenue
North Providence, RI
401-353-1012 Contact: Dottie
*Prepaid & ordered **No titers

5. Establish a policy Concerning Exposed Staff Members

Please remember when making hospital policy that immediate reporting of bites sustained by your staff to the DOH should always be carried out promptly. The standard recommendation is that all wounds be immediately flushed out thoroughly and washed with soap and water and attended to by a physician. The necessity for post-exposure rabies treatment or animal quarantine will be decided on a case by case basis. (See section entitled "Rabies Post-Exposure Management, A Guideline for Veterinarians" on Page 12).

6. Establish a Pet Pre-exposure Vaccination Policy

All animal rabies vaccinations for licensing must be administered by a veterinarian or under the direct and specific supervision of a veterinarian. This is state law (R.I. Gen. Laws section 4-13-31) and is the only way to assure the public that the animal has been properly vaccinated. Fourteen days to one month after an initial vaccination, a peak rabies antibody titer is reached and the animal can be considered to be currently immunized. Animals which are maintaining a proper reimmunization schedule may be considered to be currently immunized directly after their booster dose.

7. As of this date, the major vaccine manufacturing/distributing companies have been contacted and the currently marketed U.S. rabies vaccines afford cross protection if they are utilized for the approved species and administered by the route recommended by the manufacturer.

Veterinarians should be sure to question the rabies immunization status of all animals if unknown, in order to advise immunization if needed, or to add rabies to their list of differential diagnosis if the patient is showing signs of illness. Many people have their pets vaccinated at RIVMA clinics. This should be noted on their record.

Please note that immunosuppressed or ill animals may not be able to mount an adequate immune response to vaccination. Veterinarians may want to vaccinate some animals more frequently and avoid administering corticosteroids concurrently with rabies vaccine.

DOGS AND CATS

It is highly recommended that rabies vaccines with a 3-year duration of immunity be used. This eliminates the need for annual vaccination and constitutes the most effective method of increasing the proportion of immunized dogs and cats. It is currently state law to limit the revaccination period to 2 years even when a 3 year vaccination is used. All dogs and cats with no previous history of rabies vaccination, will require revaccination one year later, regardless of age. For dogs and cats that were properly immunized with an initial vaccination at or over three months of age, followed by a second vaccination 12 months later, a 2 (or 3 year) duration of immunity will be recognized. To ascertain vaccination history, the owner should be asked to show proof of previous vaccinations. In cases where this information is unknown, or the owner is unsure, only a one year duration of immunity should be marked on the certificate.

LIVESTOCK

It is not justified from a public health or economic standpoint to vaccinate all livestock against rabies. Livestock that have high contact with humans, are economically, genetically or emotionally valuable and/or are located in areas where wildlife rabies is epizootic should be vaccinated against rabies where economically feasible. Use only those vaccines approved for use in those species to be vaccinated. Any livestock for which there is an approved rabies vaccine and which are going to be in contact with the public (shows, petting zoo, zoo) must be kept current on rabies.

FERRETS

According to R.I. Gen. Laws section 20-16-3 "Possession of Ferrets Prohibited", the Director of DEM may, upon application, give special permission for ownership and possession of a European ferret (*Mustela putorius furo*). In practical terms, this currently means that any one who wishes to legally own a ferret in Rhode Island must obtain a permit from the Division of Fish and Wildlife. The policy concerning the granting of a permit states that the ferret must:

- 1. Be spayed or neutered.**
- 2. Be vaccinated against rabies and canine distemper.**
- 3. The applicant must sign a waiver that states that no children under the age of two reside in or routinely visit the home.**

CANINE / WOLF HYBRIDS

Ownership of wolves or canine / wolf hybrids (any percentage) is illegal in the State of Rhode Island. There is no approved vaccine for use in wolf hybrids. In the case of a human bite exposure, they will be disposed of in a similar manner to any other wild animal.

7. Establish a Pet Treatment Policy on Patients presenting with wounds.

We will all be faced with the problem of how to treat a cat fight abscess, dog fight wound, an animal with a sudden behavioral change or the pet that is showing neurological signs when rabies is in our area. These are the instances where difficult judgement calls often must be made.

a. BE EXTREMELY CAUTIOUS WHEN HANDLING SUSPICIOUS WOUNDS, WEAR GLOVES.

Veterinarians and their staff should be extremely cautious when handling animals with wounds of unknown origin or from high risk animals. The wounds of these animals may contain viable rabies virus contamination from the saliva of the infected animal. Gloves should be worn when handling these animals, especially if it within 2 hours of the contamination. Owners handling such animals (especially if they have done so directly after the wounds were sustained) should be referred to their physician and Animal Control should be notified if you treat such an animal.

b. Determine if an injured pet has bitten anyone. If the pet has bitten anyone, the health department and the local animal control officer must be notified. In most cases these pets will be quarantined for a period of 10 days.

c. In very unusual circumstances, the clients may want to euthanize their pets rather than wait the required period of days. Prior permission to euthanize a healthy domestic animal for rabies testing must be obtained from the Department of Health or the State Veterinarian. The head of the euthanized animal must be removed and properly submitted to the State Lab. Removal of the head is not necessary for any animal weighing less than 5 lbs: the entire body may be submitted intact.

d. Verbally inquire of all clients requesting euthanasia for whatever reason, if the patient has bitten anyone within the last 10 days. If so, the animal cannot be euthanized without permission from the Department of Health or the State Veterinarian.

RABIES POST-EXPOSURE MANAGEMENT

A GUIDELINE FOR VETERINARIANS

PART 1: HUMAN BITTEN

The following guidelines should be helpful to the veterinarian in advising owners what may need to be done with the biting animal. Please note, however, that the local Animal Control Officer, RIDOH or DEM, and **not** the veterinarian, will decide the fate of biting animals.

A. What Is a Human Rabies Exposure:

BATS

Most of the human deaths due to rabies in the United States are from infections with bat strain rabies. The majority of the people who succumb to bat strain rabies are unable to recall any contact with bats. Because bats have very small teeth, a bat easily goes undetected. The Center for Disease Control therefore recommends that **ALL BATS (dead or alive) DISCOVERED IN A ROOM WHERE ANYONE HAS BEEN ASLEEP, OR WHERE A CHILD OR PET HAS BEEN UNATTENDED, MUST BE TRAPPED AND SUBMITTED TO THE DOH LAB FOR RABIES TESTING.** If the bat is not made available for testing, the DOH is often forced to recommend treatment.

The rabies virus is designed to be most readily transmitted via a bite exposure where the virus is injected deep in the victim tissue. A non-bite exposure is a contamination of a scratch, abrasion, mucous membrane, or open wound (one that has been bleeding within the previous 24 hours) with potentially infectious material, such as saliva or central nervous system tissue. Casual contact such as petting does not constitute exposure. Aerosolized rabies virus (specifically in a bat cave or research lab) has caused disease and is considered an exposure requiring prophylaxis.

Once exposure is suspected, you should

1. Identify the person or persons involved and how they might be contacted.
Complete information is essential!
2. Identify the species of animal involved.
3. Secure the immunization status of the animal involved.
4. Note the location of bite wound(s).
5. Note the circumstances of the exposure (i.e. provoked or unprovoked).
6. Contact the Health Department. They will need the above information and will determine if the animal should be quarantined or euthanized and the brain tissue sent to the State Laboratory.
7. **NOTIFY ANIMAL CONTROL.** They will need the above information and will determine if the animal will be quarantined or euthanized and the brain tissue sent to the State Laboratory.

B. Management of Animals that Bite Humans:

1. DOGS, CATS, AND FERRETS

- a) Any dog, cat, or ferret, rabies vaccinated or not, which bites a human, shall be euthanized and the head sent for rabies examination, however,

- b) If the owner is unwilling to euthanasia the dog, cat, or ferret, the animal may be allowed to be quarantined in a State/City/Town approved facility for ten (10) days. The owner/keeper shall be responsible for all costs resulting from such ordered quarentine.
- c) Any vaccinated dog, cat, or ferret may be allowed an at home quarantine if the ACO deems the quarantine conditions adequate as per Rabies Regulations.
- d) Any dog, cat, or ferret which bites a human on the neck or facial area may not necessarily be offered a quarantine as provided in (b).

All healthy dogs and cats or ferrets which bite a human should be quarantined for 10 days. The local animal control officer will arrange for the quarantine of dogs and cats, and ferrets. If the animal exhibits any unusual behavior during confinement, it must be immediately evaluated by a veterinarian. If the animal is healthy at the end of 14 days it may be released. If currently unvaccinated the animal will be given a rabies vaccination at the time of release.

It is a classic belief that rabies virus excretion occurs for a brief period prior to the onset of neurologic signs and continues until the animal dies. The period of virus shedding prior to neurologic signs was thought to be 1 to 5 days. In 1982 Fekadu and co-workers demonstrated that rabies infected dogs shed virus in their saliva from 1 to 13 days prior to the onset of neurologic signs.

Any animal showing signs of rabies at the time of the bite (i.e. unprovoked aggression, impaired locomotion, varying degrees of paralysis, extreme depression, etc.) should be evaluated immediately by a veterinarian and sacrificed for testing if indicated.

2. Dogs and cats ferrets unavailable for observation.

Throughout Rhode Island, any biting and unavailable dogs, cats or ferrets will be considered rabid unless proven otherwise. Bite victims should be given first aid instructions (i.e. thorough flushing of the wound and washing with soap and water) and instructed to immediately contact their personal physician. The DOH should be contacted as well as the local A.C.O..

3. Raccoon, skunk, fox, bat, woodchuck or any carnivorous wild animal.

These animals are considered to be rabid unless proven otherwise. These animals should be sacrificed and tested for rabies under the direction of the RIDOH. Groundhogs (woodchucks) are unusually susceptible to the raccoon strain of the rabies virus.

4. Rodent or Lagomorph

If the animal is healthy, it is not necessary to test. If it is behaving abnormally or is sick, it should be sacrificed and tested for rabies if recommended by the RIDOH.

A small number of rodents and lagomorphs are found each year to be rabid. These animals have never been documented to transmit rabies to humans or even other animals. Post-exposure treatment might be considered in cases of unprovoked attacks, or in exposure to animals that exhibit bizarre behavior or obvious illness. The RIDOH will determine which animal will be sacrificed and tested.

5. Livestock, Exotic Mammals.

There are a wide variety of other wild and domestic mammals in this state. Livestock, and other mammals not listed above are also susceptible to rabies. Livestock and exotic animals that expose a human will be evaluated on an individual basis. The RIDOH in conjunction with the advice of the State Veterinarian will determine the appropriate course of action.

Bites by reptiles, fish, and birds carry no risk of rabies transmission. Rabies is a disease of mammals.

METHODS OF LIMITING HUMAN EXPOSURE TO RABIES

A reduction in rabies in both the human and pet population was not possible until widespread rabies vaccination of dogs was provided in the 1950's. Where rabies epizootics have occurred, vaccination programs that have vaccinated 70% of the dog population have been shown to greatly reduce the spread of an outbreak (Kelly et al., 1983). Vaccination of dogs and cats provides an effective buffer zone between rabid wildlife and the susceptible human population. It is therefore important that both dogs and cats have booster doses at the recommended intervals to maintain proper immunity. **VACCINATE YOUR PETS.**

Management of stray and unwanted dogs and cats is also essential to a successful rabies control program. Unclaimed dogs and cats should be dealt with humanely.

Leash laws must be strictly enforced and violators should be prosecuted.

Reduction of wildlife vectors has been used on a limited scale in high contact areas when epizootics of rabies in dogs and cats have been traced to a particular reservoir. This might be useful in campgrounds and parks where people will have a greater than normal exposure to wildlife. Based on studies both in Europe and the United States, however, large scale wildlife elimination is NOT a viable method of disease control. **STAY AWAY FROM WILDLIFE.**

Strict controls on the rehabilitation and relocation of high risk wildlife vectors have been instituted to both slow the rate of spread of the epizootic and to reduce the risk of human exposure. (See DEM Surveillance and Wildlife Relocation Contingency Policy).

An oral raccoon bait vaccine is currently being used in limited areas of the United States.

RECOMMENDATIONS REGARDING PLACEMENT OF STRAY ANIMALS FOR ADOPTION

Adoption of dogs and cats is an extremely popular way for people to acquire pets. It is important that we recommend a policy for handling these pets. Our primary goal should be to protect our human population and to humanely care for our pet population. It would be unfortunate if all adoptions were eliminated due to a rabies panic.

The Rhode Island Department of Environmental Management recommends that impounded, unclaimed stray animals should not be offered for adoption if they have the appearance of having been out in the wild for a considerable period of time, or if they have evidence of current or recent wounds (within the last 3-4 weeks) or if they seem sick in any way. If possible, vaccination status and any wound history should be obtained and evaluated before offering them for adoption.

PART II: ANIMAL BITTEN

This section deals with the management of animals that have or may have been exposed to rabies. Veterinarians will be asked to play an active and crucial role in helping insure that exposed pets are properly managed. One of the most important principles built into this regulation is that the **UNVACCINATED** pets that are exposed to potentially rabid animals warrant very strict control measures, while the vaccinated pets do not. The importance of developing a good relationship with the local ACO and DOH officials cannot be over-emphasized. The key to a successful rabies control program is a good working relationship between the RIVMA, local ACO's, state officials and veterinarians.

- 1. ALWAYS WEAR GLOVES WHEN HANDLING SALIVA CONTAMINATED WOUNDS OR FUR.**
- 2. ALWAYS ADVISE OWNERS OF RABIES RISK.**
- 3. ALWAYS RECORD ANY POTENTIAL RABIES CONTACT CASES TREATED AT YOUR OFFICE.**
- 4. FOLLOW PROTOCOL ON PAGE 17.**
- 5. NEVER BOOST AND EXPOSED "NOT CURRENT" PET.**
- 6. ALWAYS BOOST AND EXPOSED "CURRENT" PET.**
- 7. ALWAYS NOTIFY ANIMAL CONTROL.**

NOTE: If the most recent rabies vaccination was administered within a month, it is not necessary to revaccinate. Any questions on management of any exposed pet, call the State Veterinarian at 222-2781

DEFINITIONS

- 1. CLOSE OBSERVATION (Low Risk)**
 - a. Animal may be kept at home.
 - b. Owner informed of potential rabies.
 - c. Owner required to notify veterinarian or Animal Control of unusual behavior or change in health status of pet.
- 2. STRICT CONFINEMENT --- IMPOSED BY ANIMAL CONTROL ONLY!(low to moderate risk)**
 - a. Animals may be kept at home in the house, garage or some other escape proof building or enclosure.
 - b. May be leash walked under immediate control of an adult.
 - c. Owner informed of potential rabies and given instructions in writing.
 - d. Owner required to notify veterinarian of unusual behavior or change in health status of pet.
- 3. QUARANTINE --- IMPOSED BY ANIMAL CONTROL ONLY! (High Risk)**
 - a. Animal to be confined off owner's premises in a state approved facility, i.e., dog pound, veterinary hospital or commercial kennel.
 - b. Isolate animal from human or animal contact.

REVISED RABIES MANAGEMENT AND PROTOCOL
MANAGEMENT OF DOGS & CATS EXPOSED TO WILDLIFE
 (Raccoon, Fox, Skunk, Bat, Groundhog)

Exposure Category	If Dog or Cat Currently Vaccinated	If Dog or Cat Not urrently Vaccinated
Direct Contact or Visible Bite from known Rabid Animal	<ol style="list-style-type: none"> 1. Booster Immediately (intra muscular if approved by manufacturer) 2. Notify Animal Control Officer who will issue a 3. Strict confinement for <u>45 Days</u> *Advise owner of rabies risk.*Use Gloves to handle wounds	<ol style="list-style-type: none"> 1. Notify Animal Control Officer <ol style="list-style-type: none"> a. euthanize or order euthanasia b. If owner is unwilling: will issue a Quarantine at an approved facility 6 months at owners' s expense. 2. Vaccine 1 month before release.
Direct Contact or Visible Bite from Suspect Rabid Animal (unavailable for testing)	<ol style="list-style-type: none"> 1. Booster Immediately (intra muscular if approved by manufacturer) 2. Notify Animal Control Officer who will issue a 3. Strict confinement for <u>45 Days</u> *Advise owner of rabies risk.*Use Gloves to handle wounds	<ol style="list-style-type: none"> 1. Notify Animal Control Officer <ol style="list-style-type: none"> a) euthanize or order euthanasia b) If owner is unwilling: will Quarantine for 3 months at owners expense. 2. Vaccine 1 month before release.
Wound of unknown origin: Suspected Bite or Scratch (i.e. cat abscesses)	<ol style="list-style-type: none"> 1. Booster Immediately (intra muscular if approved by manufacturer) 2. Close observation by owner for 45 days. 	<ol style="list-style-type: none"> 1. Advise strict confinement for 6 months. 2. Vaccinate immediately with killed rabies vaccine.
Exposure by Proximity (seen near or in the same area as confirmed rabid animal – no contact)	<ol style="list-style-type: none"> 1. Consider booster (intra muscular if approved by manufacture) 2. Advise close observation by owner for 45 days. 	<ol style="list-style-type: none"> 1. Vaccinate Immediately 2. Advise close observation by owner for 6 months.

REVISED RABIES MANAGEMENT & PROTOCOL 5/94

WOUND MANAGEMENT OF DOMESTIC ANIMALS EXPOSED TO OTHER DOMESTIC ANIMALS IN EPI -- AND ENZOOTIC AREAS

In addition to management of bites by wildlife, we also recommend the following management protocol for bites from domestic animals.

Recommendations should be based on the pet's vaccination history, the vaccination history and health of the attacking animal.

1. Low risk scenario -- Attacking animal healthy and has current approved vaccination.

- A. Victim's vaccination is current
 - 1. No action necessary
- B. Victim unvaccinated or vaccination expired
 - 1. Vaccinate pet for rabies immediately
 - 2. Not necessary to notify authorities

1. High risk scenario -- Attacking animal is unvaccinated or has unknown vaccination status or is unavailable for quarantine.

A. NOTIFY ANIMAL CONTROL

- B. Victim's vaccination is current
 - 1. Vaccinate pet for rabies immediately
 - 2. Euthanasia attacker and test for rabies -- if owner unwilling
 - 3. Quarantine attacker for 14 days at owner's expense
 - 4. If quarantined attacker develops signs of rabies, handle victim as directed in Management of Dogs & Cats Exposed to Wildlife on page 17.
 - 5. If attacker not available for quarantine:
 - a. Observe victim closely over the next 45 days
 - b. Not necessary to contact authorities
 - c. If animal shows signs of rabies notify authorities promptly.

- C. Victim unvaccinated or vaccination expired
 - 1. Vaccinate pet for rabies immediately
 - 2. Euthanasia attacker and test for rabies -- if owner unwilling
 - 3. Quarantine attacker for 14 days at owner's expense
 - 4. If quarantined attacker develops signs of rabies, handle victim as directed in Management of Dogs & Cats Exposed to Wildlife on page 17.
 - 5. If attacker not available for quarantine:
 - a. Observe victim closely over the next 6 months
Recommend revisits at 1,2,3, and 6 months.
 - b. Revaccinate in 12 months if never vaccinated
 - c. If animal develops signs of rabies notify authorities immediately.

LIVESTOCK

Management procedures of the Rhode island Department of Environmental Management/Division of Agriculture/Animal Health.

ALL LIVESTOCK RABIES EXPOSURES SHOULD BE REPORTED TO THE STATE VETERINARIAN. THE DEGREE OF CONFINEMENT WILL BE RELATED TO THE LIKELIHOOD OF RABIES IN THE ANIMAL. IT IS PRUDENT TO PROTECT VALUABLE BREEDING STOCK AND OTHER VALUABLE ANIMALS THROUGH VACCINATION.

1. UNVACCINATED (NOT CURRENTLY VACCINATED) AGAINST RABIES

All species of livestock are susceptible to rabies; cattle are among the most susceptible. Livestock bitten by a rabid animal should be destroyed (slaughtered) immediately. If the owner is unwilling to have this done, the animal should be kept under very close confinement for six months at the discretion of the State Veterinarian.

Maximum (Type A) Confinement:

1. Animal kept in a secure stall or pen separate from other animals and humans for 6 months.
2. Human contact with the animal kept to a minimum
3. Owner is not allowed to remove animal from premises except with written permission of State Veterinarian.
4. Other exposed animals on the property must not move without written permission of the State Veterinarian until the 6 month confinement has elapsed.

2. VACCINATED AGAINST RABIES

Exposed livestock currently vaccinated with an approved vaccine should be revaccinated immediately and observed by owner for a period of 90 days.

Minimum (Type B) Confinement:

1. Animal kept under confinement to prevent escape.
2. Animal is not to be sold or relocated without permission of the State Veterinarian.

USE ONLY VACCINES APPROVED FOR USE IN LIVESTOCK. (See Compendium of Animal Rabies control guidelines 1994, Appendix).

Off label use of rabies vaccine in non-approved species may be performed by veterinarians within a valid veterinary/client/patient relationship. However, veterinarians are responsible for informing their clients that in the event of a rabies exposure, the animals may be treated as on-vaccinates.

Livestock located in areas where wildlife rabies is epizootic and exhibiting signs of abnormal behavior should be suspected of rabies. Under no circumstances, should anyone place their hands in the oral cavity of such animals in an effort to examine or medicate.

SUMMARY OF WHAT IS EXPECTED OF THE VETERINARIAN IN A RABIES CRISIS

1. **You are required** to report wounds to animals to Animal Control as indicated on pages 11, 13. A suggested procedure would be to call the proper official on the phone and then note on your medical record the date, time and person notified.
2. **You are required** to immediately revaccinate **currently vaccinated** animals at the time of a rabies exposure or suspected rabies exposure unless the last rabies vaccination was given within the past 30 days.
3. You should recommend euthanasia of unvaccinated pets exposed to rabies suspects. If the owner refuses to have this done, a quarantine will be put into effect. The decision as to the length of quarantine, the location of quarantine, or the strictness of quarantine is not yours to make. **You are legally responsible for the notification of the animal control officer.**
4. You are responsible to see that any animal that is euthanized in your hospital which has bitten or exposed a human is properly and promptly submitted for rabies testing at the State Laboratory in Providence.
5. You are responsible to see that any animal exhibiting signs compatible with rabies while under your care be handled in an appropriate manner and upon the death or euthanasia of such animal, that you properly and promptly submit the animal for rabies testing (see page 37) and notify the State Veterinarian. All arrangements for testing and transportation should be made prior to euthanasia.
6. You are **not** required to quarantine animals on your premises. However, in many cases the local animal control officer will seek your help and advice on the confinement of suspected pets. Many officers say they would feel better if the 14 day confinements could be carried out in a veterinary facility. It becomes important to have made prior arrangements with the local animal control officer to establish costs and to work out any details on how the process is to be implemented.
7. You should hand out the Rabies Advisory Notice (SEE INDEX) to all owners of dogs and cats that have suffered from any rabies exposure.
8. **You are required** to refer any human who has been exposed to a possible rabid animal to the immediate care of a physician.
9. We suggest that you keep a log book of phone conversations in which you give specific advice concerning rabies exposure. Information included in the book would be the date and time of the call, the name, phone number, and address of the caller, the type of rabies exposure, and the advice given. If a definite possibility of rabies exposure exists, you may want to make a follow-up call to the Health Department or ACO during the next 24-36 hours to make sure your advice was followed. (See Sample Phone Log on page 27).
10. **YOU ARE NOT TO VACCINATE AN UNVACCINATED ANIMAL EITHER BITTEN BY OR IN DIRECT CONTACT WITH A KNOWN RABID ANIMAL OR A HIGHLY SUSPECT RABID ANIMAL. YOU ARE TO CALL ANIMAL CONTROL.**

BIOLOGY OF RABIES

In this section we will briefly deal with some of the facets of this disease. A thorough knowledge of the epidemiology of rabies, the characteristics of the virus and the manifestation of clinical signs is essential in formulating any rational approach aimed at managing a rabies crisis. The practitioner should review a good textbook for a detailed description of the disease.

1. Susceptibility

All warm-blooded mammals are susceptible to rabies (a Rhabdovirus). However, there are degrees of susceptibility.

- * Foxes, Coyotes, Jackals, Wolves are the most susceptible.
- * Hybrid Wolves---there is no data on the susceptibility of the hybrid.
- * Skunks, Ferrets, Raccoons, Bats, Cattle---high susceptibility.
- * Dog (domestic), Sheep, Goats, Horses and non-human primates---moderate susceptibility.
- * Cats---much less susceptible than dogs.

According to the CDC, inconsistent use of vaccination in cats over the past years has been responsible for an increased incidence of feline rabies in recent years. Due to their free roaming, nocturnal predatory habits, cats also have a higher exposure rate to rabid raccoons. The frequency of human rabies exposures attributed to cats is increasing at a greater rate than those associated with dogs. Some reports state that rabid cats are more likely than dogs to stalk and attack humans and other animals. (Prather et al., 1975).

The incidence of rabies in raccoons and skunks has dramatically climbed; since the disease entered Rhode Island in 1994 it is considered epidemic in many northeastern states. The incidence in bats and skunks is also increasing; but rabies in dogs is declining. Today, the number of humans exposed to rabies from cats is much higher than the number exposed by dogs.

Major wildlife species affected:

Raccoons
Skunks
Foxes

Major domestic species affected:

Cats
Cattle
Dogs

*Humans---relatively resistant to clinical disease. The risk of developing rabies following the bite of a proven rabid dog is estimated to be about 15%. (Hatwick 1974)

In the US, there are usually 0-5 cases of human rabies per year; roughly half of which have been exposed while outside the States or the source of exposure is unknown.

*Rodents and lagomorphs---when compared with rabies among carnivores, the incidence of clinical rabies is extremely low. Isolated cases of unprovoked attacks by rodents and rabbits subsequently confirmed as rabid have occurred. The raccoon rabies virus strain is in some way adapted to groundhogs.

2. **Incubation** **Dogs** 2 weeks to 6 mos. (average 3-8 weeks)
Cats 2 weeks to 6 weeks
Humans 2 weeks to 23 weeks (average 3-6 weeks)

The incubation period for rabies is influenced by the strain of virus, species susceptibility, and the site of inoculation. The spread of the virus once it is in the CNS is relatively rapid (48 hours to 120 hours).

3. **Clinical Findings**

Rabies infection has classically been divided into three major stages: Prodromal, Furious ("Mad"), and Paralytic ("Dumb"). It is advisable that all veterinarians review and become re-acquainted with a good textbook description. **CLASSICAL DESCRIPTIONS MAY BE MISLEADING HOWEVER, AS RABIES CAN BE QUITE VARIABLE IN ITS PRESENTATION.** Not all animals pass through all of the clinical stages and the animal may vacillate between stages

There are also many diseases found in both wildlife and domesticated species in the northeast that have neurologic clinical signs that resemble rabies. These include canine distemper, toxoplasmosis, visceral larvae migrans, lead poisoning, ethylene glycol intoxication, herpesvirus infection, listeriosis, and eastern and western equine encephalomyelitis. See page 31 for a more detailed description. Bovine spongiform encephalopathy in cattle has clinical symptoms that can be confused with rabies, but this "mad cow disease" has not been diagnosed in the US.

4. **Diagnosis**

Rabies infection is often suspected because of the neurological signs that are present in an animal. However, due to the atypical nature of the disease, rabies should be considered in any animal that suddenly develops profound behavioral changes or features of **LMN** paralysis or both.

Direct Immunofluorescence Antibody (DFA) of Nerve Tissue (also called Direct Fluorescent Antibody Test (FAB))

In the State of Rhode Island, the only accepted confirmation of a rabid animal is the DFA of nervous tissue. The test is a rapid, sensitive and reproducible laboratory method for detecting rabies antigen in tissue. Fresh brain tissue is required. Tissue should be stored under refrigeration and should be maintained on wet ice for transport to the laboratory.

Rabies antigen in the brain is detected earlier and more consistently with DFA examination than with Negri body formation. It is not necessary that animals show neurological signs at the time of examination, and all animals excreting virus in their saliva should have detectable virus in the brain by DFA examination.

DFA Skin Biopsy

Recently, researchers have modified the DFA procedure for use on extra-neural tissue. Positive fluorescence in the skin surrounding the base of the sensory vibrissae on the maxillary areas has a high correlation with a positive diagnosis. This test may some day have an important application in the pre-mortem evaluation of a biting animal or one showing vague clinical signs.

Monoclonal Antibodies

A technique utilizing monoclonal antibodies has been developed to distinguish between vaccine and the various strains of rabies virus. It is essential to epidemiologic studies for it provides important information regarding the spread and possible origin of rabies. There are six different serotypes ("strains") which appear to exist in the USA:

1. Gray fox rabies of the Southwest
2. Arctic and red fox rabies of Alaska, Canada and New York
3. Raccoon rabies of the Southeast and Mid-Atlantic states
4. Skunk rabies of the South-Central US
5. Skunk rabies of the North-Central US and California
6. Bat rabies

With the monoclonal antibody technique, "raccoon rabies" can be distinguished from "bat rabies".

Mouse Inoculation

Intracerebral inoculation of laboratory mice with homogenized tissue has been a classic and standard technique for the detection of rabies virus for years. This test does not distinguish between virulent and vaccine viruses.

Mice inoculated with rabies virus usually die of neurologic disease within 8 to 20 days post injection, therefore this test is not a useful tool when a quick result is needed. Brains and salivary glands are commonly removed at 5 days post injection and impression smears are made and examined using immunofluorescence for rabies virus.

**RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF FISH AND WILDLIFE,
PROGRAMS AND SERVICES RELATED TO RABIES IN
RHODE ISLAND WILDLIFE**

PREPARED BY : WILDLIFE DIVISION

The Department of Environmental Management (DEM) is responsible for the management of the native fish and wildlife resources of the State under the authority of the Rhode Island General Law, Section 20-1-1. Programs that address the introduction or spread of epizootic diseases in wildlife populations are administered by the Department's Divisions of Agriculture and Fish and Wildlife. The objectives of the Division programs are to ensure the health and welfare of the state's wildlife resources. Division activities include regulation of the importation, transport, and possession of live wildlife by the public, control of wildlife populations, assisting in the collection of specimens for disease diagnosis, and monitoring the occurrence and spread of wildlife diseases. The Division also provides assistance to other agencies when diseases transmitted by vectors affect human or domestic animal health.

1. Statutes, regulations and policies regarding importation, possession, and translocation of wildlife and disposal of wildlife carcasses.

In general, the importation and possession of wildlife by the general public is prohibited without special authorization, such as a propagation permit or scientific collection permit, or a DEM importation permit. Raccoons and skunks cannot be imported except by scientific or educational institutions. No permits are being issued for the importation of foxes from rabies endemic areas.

Several wildlife policy changes have been implemented in an effort to limit contact between the public and potentially rabid animals and to reduce the possibility of spreading the disease to unaffected populations through translocation of wildlife.

Translocation of raccoons, skunks, foxes, bats, and feral cats within the state by authorized agents or the general public is prohibited by authority of the Rhode Island Department of Environmental Management, RI GL 20-1-18 and 20-2-1.

Nuisance Wildlife Control Specialists (NWCS) are regulated under Rhode Island General Law, Section 20-1-18. NWCS's activities are governed by specific regulations and policies as a condition of their license. Effective January 1, 1992, NWCS's have been prohibited from relocating raccoons, skunks, bats, woodchucks or foxes. These restrictions require target species to either be released on the same property or euthanized.

Wildlife rehabilitators (custodians) are permitted by the Division of Fish and Wildlife and authorized under Department of Environmental Management Policy to temporarily possess sick, injured or orphaned wildlife until such time as they can be released into the wild. Effective January 1, 1992, wildlife rehabilitators can no longer accept target species (raccoons, skunks, woodchucks, bats or foxes) for the purpose of rehabilitation

Carcasses of potential rabies carriers that have not been involved in human or domestic animal exposure can be disposed of by on-site burial, incineration or disposal at a municipal landfill. Carcasses should be buried 2-3' deep on-site or wrapped in newspaper, packaged in a double plastic bag, put in a secure

container and placed out with the household trash or brought to a landfill.

2. DEM services related to sick, nuisance or injured animals

A. Technical Assistance

The personnel of the Divisions of Fish and Wildlife, Enforcement and Agriculture can provide information and advice to the general public regarding nuisance, sick or injured wildlife. Problems that cannot be resolved via phone or mailed information sheets may be referred to NWCS or handled by the Conservation Officers of the Division of Enforcement. Phone assistance is available Monday - Friday, 8:30 a.m. - 4:00 p.m. **(1-800-498-1336)**.

B. Destruction of potentially rabid wildlife

Field assistance by DEM Enforcement Division Conservation officers is based on priority response basis, with the highest priority level being assigned to high risk, target species where there is known or probable contact with domestic pets or humans. There is no priority given to dead animals, with the exception of dead deer or high risk species, where there is known exposure to humans or pets. The determination of availability of such personnel and their ability to provide a prompt response is dependent upon calling a dispatcher in DEM Communications at 277-2284. Priority will be given to those situations in which there is human exposure and the wild animal is kept under surveillance until Division personnel arrive. Calls received by dispatchers from the general public for assistance in destroying potentially rabid wildlife will be advised to contact local municipal animal control or police officials if a prompt response is not possible by Division personnel. DEM Communications dispatch is staffed 24 hours a day, 7 days a week at 277-3070. Routine, non-emergency situations involving minimal or insignificant risk of exposure should be referred to the Wildlife Division (277-1267 or 789-0281) during normal office hours.

As a veterinarian, always inquire if the individual with a wildlife problem has contacted their local ACT first, as in many cities and towns, the ACT's will capture wild animals. If this avenue has already proved unworkable, then contact DEM.

C. Transport of Rabies Specimens

The Enforcement Division (as well as the local ACT) may provide assistance in transporting carcasses for testing to the DOH Laboratory in Providence. Only animals that have exposed humans or domestic animals will be transported to the State Lab for testing. Transport is not available on a daily basis, therefore, exposure cases may require an alternative, more timely method of transport. Local police, animal control officers, veterinarians and primarily private citizens in need of having these animals tested should make independent arrangements for transport. Refrigerated rabies specimen depositories have been set up at selected State Police facilities in Rhode Island for non-human exposures.. These barracks are:

Chepachet
Hope Valley
Lincoln Woods

Portsmouth
Wickford

Procedures for using the depositories including packaging and labeling instructions and restrictions, especially concerning skunks, can be obtained by contacting the DEM Enforcement Division Dispatch (277-2284).

It is always the primary responsibility of the individual (or individual's family) or the pet owner to

transport to the State Lab.

D. Wildlife Population Control

The DEM will not attempt population reduction of principle rabies-vector species over broad areas or at this time attempt wildlife vaccination programs. Raccoon, skunk, fox, bat, groundhog and feral cat population control is logistically impractical. In addition, an injectable vaccine has not been approved for use in wildlife. We are however, monitoring other states and municipalities, and if the technology becomes available, vaccination may be an option.

**STANDARD OPERATING PROCEDURES
FOR DESTROYING A POTENTIALLY RABID SICK RACCOON, FOX SKUNK, BAT
FERAL CAT OR WOODCHUCK**

PREPARED BY: FISH AND WILDLIFE DIVISION

The first question is to ask is, "Has there been an exposure?" Then, follow the outline below:

A. Human exposures:

1. Advise victim to wash the wound vigorously with soap and water for 5-10 minutes immediately.
2. Advise caller to contain the animal, if possible, without further risk of exposure or to monitor the location of the animal until the officer arrives (give E.T.A.).
3. If safe to do so, shoot the animal in the chest. If not, seek DEM Enforcement Division or local animal control assistance.
4. Put on plastic or latex gloves, if available, place hands inside a plastic garbage bag, which you bring with you, and holding the animal by the tail or hind legs, turn the bag inside out. Tie the bag off and place it, along with the gloves, into a second bag and tie off. Obtain all necessary information at the scene.
5. Advise the victim not to place the bag in the sun - place in an ice chest or refrigerator for transport. A label must be attached to the **OUTSIDE OF THE BAG** and include the following:
 - a. Name, address, and phone number of submitter.
 - b. Name, address, and phone number of person exposed or owners of pets exposed;
 - c. Description of the animal's sickness or behavior.
6. Advise the victim to contact his or her own physician immediately for advice on medical treatment.
7. Advise the victim to report the bite to the local animal control officer or call the Office of Communicable Diseases at 277-2577 during weekday working hours. Emergency consultation regarding the management of human exposure cases can be arranged by calling (401) 272-5952 after hours or on weekends.
8. Advise the caller that bleach (**1 cup bleach/1 gallon water**) will kill rabies virus on contaminated surfaces.

B. Domestic animal exposures:

1. Advise caller not to touch the saliva contaminated hide of the domestic animal for 2 hours unless rubber gloves are worn.
2. Same as A2.
3. Same as A3.

4. Same as A4.
5. Same as A5.
6. Advise the animal owner to contact his or her veterinarian immediately for advice on medical treatment for the domestic animal.
7. Advise the animal owner to report the bite incident to the local animal control officer or call DOH Office of Communicable Diseases at 277-2577.
8. Same as A8.

C. No human or domestic animal bite victims:

1. Advise caller to keep people and pets away from the sick animal.
2. Same as A2.
3. Same as A3.
4. Same as A4.
5. Testing may be warranted in some non-exposure cases. Contact DEM Fish and Wildlife 277-1267 or DEM Enforcement at 277-2284 for the latest information regarding rabies surveillance efforts and procedures for transport. If transport is not practical, the carcass may be buried 2-3 feet deep on -site or placed in a double plastic bag and secure container and placed out with the household trash.
6. Same as A8.

**PROCEDURES FOR SAFE HANDLING OF POTENTIALLY RABID WILDLIFE
PREPARED BY: FISH AND WILDLIFE DIVISION**

1. Rule number 1 is not allow one's bare skin to come in contact with the saliva or brain of the animal.
2. It is recommended by the Director of the Department of Health and the Director of Environmental Management, that all personnel involved in the handling of furbearers or bats should have had prophylactic pre-exposure rabies vaccinations.
3. Live animals should be captured using capture poles or box traps. If circumstances dictate shooting the animal, it should be shot through the chest. Intact brain tissue is required for laboratory examination.
4. Bite resistant gloves should work in circumstances where contact is possible. **ALWAYS REMEMBER THAT MOST ANIMALS CAN BITE THROUGH MOST GLOVES; USE CAUTION AND COMMON SENSE.**
5. If entering bat caves or cave-like locations (closed attics with numerous bats) a surgical mask should be worn to reduce the potential of aerosol inhalation of rabies virus.
6. All equipment used to capture or transport sick should be disinfected in tamed iodine, bleach or some other appropriate disinfectant.
7. Should one be bitten or contaminated with saliva or brain tissue:
 - a. The wound or skin surface should be immediately flushed and washed thoroughly with soap and water for 5- 10 minutes. Bleeding of the wound should be encouraged, within reason.
 - b. If possible, the animal should be destroyed without damaging the head, which should be transported to the DOH State Laboratory, 50 Orms Street, Providence, immediately.
 - c. If a physician cannot be consulted immediately, then a call should be placed to the State Department of Health for advice and instructions.

Weekdays - (401) 277-2577 Nights or Weekends (401) 272-5952

Note: The health authorities must be informed if you have had prophylactic rabies vaccination.

8. Carcasses of suspect rabid animals should be incinerated, buried on-site at a depth of 2- 3', or packaged and placed in a secure container and placed out for the regular solid waste disposal.
9. The aggressive attack behavior associated with rabies occurs in less than half the cases confirmed in raccoons. Nearly as frequently, rabid raccoons will demonstrate a fearless, seemingly tame, behavior or will be seen active in midday. In coordination is also observed. These latter two behaviors are also typical of canine distemper. Canine distemper may only be differentiated from rabies by laboratory procedures. Don't forget, raccoons are highly adaptable and if food is only available during the day, the normally nocturnal animals will take advantage of the food source then.

SPECIMEN PREPARATION, SUBMISSION AND DELIVERY PROCEDURES

To facilitate testing, veterinarians should prepare the specimen as soon as possible and make prior arrangements with either the pet's owner, the family of the exposed individual, or the local ACO for delivery of the specimen.

1. Removal of Animal Heads for Rabies Testing.

There has never been a case of human rabies associated with decapitation. However, caution should be taken as the brain, spinal cord, salivary glands, and saliva of the animal may contain rabies virus that, if entering into an open cut or onto mucous membranes, could possibly cause rabies infection.

It is, therefore, important to wear protective clothing. Eyes and mucous membranes must be protected with either a face shield or surgical mask and glasses. Exercise caution with knives and other sharp objects used during the procedure. Any exposure during decapitation, should be noted on the laboratory submission form for the animal. If the animal is diagnosed rabid, your physician or Department of Health should be consulted as soon as possible concerning the need for rabies post-exposure treatment.

NOTE: Only the head of animals larger than a gray squirrel should be sent to the laboratory. **small** animals such as bats and kittens may be sent intact.

A. Supplies:

1. Sharp knife and sharpener.
2. Optional - sharp hacksaw, dehorner, lopping shears, pruning shears, or cutters.
2. Protective clothing. **It is very important to wear these items to protect yourself from Exposure to rabies.**
 - a. Heavy waterproof autopsy gloves (or use 2 pairs disposable latex surgical gloves).
 - b. Mask (disposable or launderable).
 - c. Safety glasses or goggles.
 - d. Coveralls or waterproof apron. A large plastic garbage bag with holes for arms and head cut out can serve as disposable protection for clothes.
 - e. Newspapers or disposable plastic bag or sheet to lie under area of head removal to catch body fluids (if procedure not performed in a tub or table with drain).
4. Cleaning supplies
 - a. Cleaning agent (liquid or powdered soap) (spray bottles are most convenient).
 - b. Disinfectant (see Section B2 below)(spray bottles are convenient).
 - c. Paper towels.
 - d. Plastic trash bags.

B. Procedure

1. Head Removal

NOTE: These methods are suggestions. Use the techniques you are most familiar with.

- a. Lay animal on its back and extend the head by pushing top of nose toward ground or bend neck back over edge of table. (See Figure 1)
- b. Locate larynx (voice box). Immediately caudal to the larynx, using a sharp knife, make an incision through the skin and continue cutting down through the trachea (windpipe) and other soft tissue to the backbone.
- c. If you have cut in the correct place, you can identify the membrane covering the spinal chord between the first vertebra (atlas) and the skull (occipital bone). The joint made by these 2 bones can be seen and felt as the animal's head is flexed and extended. The next step is to separate these two bones and open up the joint. It is possible to cut through the ligaments connecting this joint, but probable easier and faster to extend the head backwards, which will tear the ligaments. You will hear and feel the snap when this is accomplished.
- d. After separation of this joint, the remaining muscle and skin can be cut with a knife to completely free the head from the body.

Some individuals may prefer to cut through the vertebra instead of separating the joint. After cutting down to the backbone, use shears or a hacksaw to cut through the first vertebra (atlas). DO NOT use an axe, hatchet or power saw because of the danger created by flying bone or tissue.

2. Clean up.

Instruments and contaminated surfaces should be washed with detergent and water, and disinfected with a freshly prepared solution of bleach (1 cup per gallon of water), alcohol (40-70% ethanol), iodine (25ppm) or quaternary ammonium (200ppm) compounds.

C. Carcass Disposal.

1. Carcasses should be disposed of through a veterinary, animal shelter, or animal disposal facility. These facilities should either incinerate the carcasses, submit them to a rendering facility or ensure that they are disposed of in a pet cemetery or a landfill with normal household garbage. With permission of the DAM division of Groundwater, in rural areas, individual carcasses may be buried at least 2 feet deep.

For those state or municipal employees who have arranged for decapitation of specimens at veterinary clinics, please see:

"Policy Regarding Responsibility for Disposal of Animal Carcasses Following Decapitation for Rabies Analysis".

II. Submission of Specimens to the Laboratory For Rabies Testing

A. Packaging for transport.

1. Please the animal head in two heavy gauge plastic bags to prevent fluid leakage and deliver to the laboratory as quickly as possible. If a delay in shipment to the laboratory is expected, the specimen should be kept on ice or in a refrigerator. **DO NOT FREEZE.** Badly decomposed specimens cannot be examined.
2. All information requested on the investigation(laboratory submission) form must be completed.
3. The Rabies Investigation form should be sent in an envelope accompanying the specimen and be securely attached **TO THE OUTSIDE OF THE TRANSPORT CONTAINER.** A master copy suitable for photocopying can be found on page 43 of this manual.
4. The State Laboratory does not accept live animals for examination.
5. Rabies specimens must be delivered through the loading dock door on the west side of the laboratory building and placed in one of the rigid containers marked “rabies”. Inform Receiving Room personnel that a rabies specimen has been delivered.

The State Laboratory will accept specimens for rabies examination that meet the following guidelines:

1. Generally, only animals that have potentially exposed humans or domestic animals to rabies virus through contact with saliva will be examined.
2. All dogs and cats must be approved by the State Veterinarian (222-2781) or the Division of Disease Control (222-2577) prior to submission to the laboratory. Cities and towns may be accessed a \$125.00 rabies test fee for unapproved dogs or cats.
3. Wild animals other than target species (bats, raccoons, skunks, woodchucks, and foxes) must be approved by the Division of Disease Control in the case of human exposure and the State Veterinarian when domestic animals are exposed.
4. Healthy dogs and cats should be quarantined for 10 days, if the animal remains healthy enough at the end of quarantine, testing is not necessary.
5. Non-biting animals may be examined only when there is a clinical suspicion of rabies as judged by a licensed veterinarian. The veterinarian is the only one authorized to make such submission.

C. Transportation to the Laboratory---Responsibility:

1. Specimens must be hand delivered to the State Laboratory at 50 Orms Street in Providence and not mailed. The State Lab is open from 8:30 a.m. to 4:00 p.m. Monday through Friday. For after hours delivery, please make arrangements with the laboratory at 274-1011 (normal hours) or 272-5952 (emergency hours). Positive results are phoned to the veterinarian or physician involved and to an epidemiologist in the state Department of Health.
2. Transporting of specimens related to human exposures to rabies is the responsibility of first , the family of the person bitten, second, the owner of the animal, and third, the attending veterinarian.
3. If transport is still not possible to arrange, the local animal control officer, the local police force or perhaps someone in DAM could provide assistance.
4. For exposures involving domestic animals, owners are encouraged to transport their own specimens.

D. Testing and Reporting

1. Animals are prioritized and tested based on the potential for disease in humans. Target species that have exposed humans receive top priority.
2. In most cases testing is completed within two working days of submission.
3. Results of rabies tests are reported immediately upon completion to the submitting agency as listed on the investigation form under “sender” and also fax to the Division of Disease Control and the State Veterinarian.
4. The laboratory generally does not report results directly to animal owners and patients.
5. Since rabies test results are reported immediately to the above agencies and “sender” please refrain from calling the laboratory. We occasionally have three to four different individuals calling on the testing status of one animal. Calling the laboratory delays test reporting by interrupting the public health microbiologists performing the analysis.

**RHODE ISLAND DEPARTMENT OF HEALTH
DIVISION OF DISEASE PREVENTION AND CONTROL**

AND

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

20 February 1992

**Policy Regarding Responsibility for Disposal of Animal
Carcasses Following Free Decapitation
for Rabies Analysis**

When a state or municipal employee brings an animal to a veterinarian for free or at-cost euthanasia and/or decapitation for purposes of rabies analysis, the animal carcass should be returned to the city or town for disposal. For any city or town that has resources for, or access to, euthanizing an animal, they should be euthanized before bringing it to a veterinarian for decapitation.

If you have any questions concerning this policy, please contact the State Veterinarian at DEM (222-2781) or Disease Control at DOH (222-2577).

DISEASES OF WILDLIFE IN THE NORTHEASTERN UNITED STATES WITH NEUROLOGIC SIGNS RESEMBLING RABIES

1. **Canine Distemper ("Hard-Pad" or Carre's Disease)**

A disease of canidae, Procyonidae, and Mustelidae families, caused by a paramyxovirus, which is antigenically similar to the measles virus of man. Distemper is a systemic disease that affects the nervous system and epithelium of the respiratory tract, skin, alimentary, and urinary tract. The species most frequently affected in the northeast are dogs, mink, ferrets, foxes, skunks, and raccoons. Distemper poses no human health problems, but is serious in non-vaccinated dogs and susceptible zoo animals and wildlife.

Animals with distemper often display neurologic signs, many of which can be confused with the signs of rabies, such as abnormal behavior, aggressiveness, and disorientation. In addition, there may be discharge from eyes and nose, excess keratinization of skin, nose, and footpads. with formation of so-called "hard pad" disease.

Diagnosis of distemper is made either serologically or from microscopic examination of brain, lungs, liver, stomach, kidney, and urinary bladder, with demonstration of eosinophilic viral inclusion bodies. A rapid diagnosis may be made from microscopic examination of smears from the conjunctiva or oral mucosa during the acute phase of the disease, when inclusions are present in epithelial cells.

2. **Toxoplasmosis:**

The protozoa, **Toxoplasma gondii**, affects most mammalian species, causing lesions in brain, lung, heart, liver, and placenta. Toxoplasmosis is a serious disease of the young, but usually a non-fatal disease in adult animals. It does not appear to be highly contagious and is most often contracted by eating raw meat, or food contaminated with feces from cats with acute intestinal toxoplasmosis. Toxoplasmosis is common in many species of herbivorous and carnivorous wildlife. It presents a danger to humans and their pets. particularly in cats that are hunters of small rodents. The clinical symptoms may resemble rabies or distemper.

The diagnostic methods include serologic examination or histologic examination of brain and other tissues to show the presence of the organism either directly or by fluorescent antibody techniques.

3. **Larvae Migrans:**

Migrating nematode larvae in aberrant hosts produce parasitic granulomas in the brain, eye, and other internal organs.

The transmission is by ingestion of fecal material containing various nematode larvae. Feces of the raccoons, dog, and cats with roundworms may produce larvae migrans in chickens, groundhogs, rabbits, and several other rodents as well as humans. Groundhogs and rabbits occupying vacant carnivorous animal burrows from raccoons, skunk, and fox, may ingest infective eggs or larvae. The parasitic larval migration to brain and eye may result in nervous disorders such as circling, head tilt, blindness, or paresis. The lesions in the nervous tissues may render the affected animal easy prey to predators.

Diagnostic methods include necropsy with careful microscopic examination of eye, brain, and internal organs for parasitic granulomas.

4. Lead Poisoning:

This is not infrequent in dogs and raccoons, where it produces marked neurologic signs, such as tremors, convulsions, and blindness. In addition, lead has a toxic effect on red cell and hemoglobin production, resulting in anemia. The diagnosis is made either by laboratory studies of blood, or by necropsy and histopathologic examination of brain, bone, kidney, and liver.

5. Mercury Poisoning:

This is primarily a disease of fish eating carnivores such as mink, otter, and cats, and in domestic pigs from eating mercury-treated seed grains. The target organ is nervous tissue, particularly cortical neurons, which show necrosis, satellitoses, and removal by glia cells. The clinical signs of mercury poisoning are changes in posture reflexes, ataxia, blindness, and paresis. The diagnosis is made by chemical determination of mercury in the liver, kidney, and brain, and/or histologic examination of the brain.

6. Ethylene Glycol Intoxication:

Intoxication of dogs and raccoons by drinking antifreeze results in neurologic signs and death. Because of its sweet taste, most cases occur from drinking leftover antifreeze in the fall or drained antifreeze in the spring. Animals with access to a garage may find it when it has not been securely stored or discarded.

The amount required to produce fatal poisoning from species to species is about 6 ml/kg of body weight. The diagnosis is made on histologic examination of brain and kidney.

7. Herpes virus Infection:

Species-specific herpesviruses occur in many species of domestic and wild animals. They may cause fatal illness in very young animals. Man has a herpesvirus infection that causes cold sores in adults and occasionally fatal virus encephalitis in the newborn. A herpesvirus has been found in skunks causing lesions in adrenals and liver.

8. Listeria Monocytogenes Infection:

A non-contagious disease found primarily in farm animals, with sheep and cattle being most frequently affected, but it may be seen in other mammals including man and red fox. The source of infection may be decaying vegetable matter, particularly silage. Listeriosis is not readily transmitted from animal to animal, but due to common feed source, numerous animals may be affected.

The symptoms of this disease are neurologic and are similar to those of rabies or distemper, with circling, head tilt, stupor, and paralysis. Diagnostic methods include microscopic examination and bacterial culture of the brain and liver.

Section reproduced from "Veterinary Topics"

Published By:

Department of Preventive Medicine Extension Program

New York College of Veterinary Medicine

Edited by Dr. Michael A. Brunner and Ann Marcham.

TABLE IV RABIES EDUCATIONAL MATERIALS

American Veterinary Medical Association
&
Auxiliary to the American Veterinary Medical Association
1931 North Meacham Road, Suite 100
Shaumburg, Illinois 60173-4360
1-800-248-2862

Pamphlets: "What You Should Know About Rabies"
A good overview of rabies. Suitable for junior high and above reading levels.

"Once Bitten...!"
This 8-page brochure gives advice about what should be done after an animal bite occurs, together with a resume of truths and falsehoods about rabies. Suitable for any audience.

Videos: "RABIES"
Approximately 15 minutes. Suitable for fourth grade and above. Involves school children and a stray dog that is rabid. Several people come in contact with the animal and the process of capture, destroying, testing, and medical follow-up.

Please call telephone number listed above for the cost and availability information.

State of RI
& DEM General Information brochure above rabies, suitable for grades 5 above.

St. Huberts Giralda Educational program suitable for grades 1-5. Includes outline, reproducible Handouts and worksheets with reproduction permissible. Suggested selection of Videos available. Videos purchased through Pyramid Films and Educational Communication Center.

STRICT CONFINEMENT INSTRUCTIONS FOR OWNERS

THE FOLLOWING MUST BE DONE:

- 1) Confine the animal in a house, garage, kennel or other escape-proof-enclosure or building.
- 2) Observe the animal daily for any signs of illness or behavioral changes.
- 3) Contact the local animal control officer and your veterinarian IMMEDIATELY if any illness or behavioral changes are noted.
- 4) The animal must be on a leash and under the control of an adult if it outside of an enclosure.
- 5) If the animal escapes, notify the local animal control officer immediately.
- 6) Do not remove the animal from the premises during the period of confinement, except for emergencies.
- 7) Do not sell, give away, kill or otherwise dispose of the animal during the quarantine period without permission of the State Veterinarian.
- 8) Your pet must be examined by an Animal Control Officer or Veterinarian and certified free from signs of rabies before the confinement is listed.

SYMPTOMS OF RABIES

The symptoms of rabies can be very inconsistent and vary from species to species. In general, the symptoms of rabies include fever, loss of appetite, excessive irritability, unusual vocalization, changes in behavior, restlessness, jumping at noises, difficulty walking, excess salivation, tremors, convulsions, paralysis, stupors and/or unprovoked aggression. Rabies usually begins subtly, with pet owners first noticing that their animal goes off its food and just “doesn’t seem right”. The animal may then become restless and irritable, have a “strange look in its eyes” and make funny sounding cries or barks. As illness progresses, nervous system signs become more obvious with tremors appearing, difficulty walking and swallowing, and even convulsions and paralysis developing. Affected animals may or may not try to bite or show other signs or aggression.

If your pet begins to show any of these symptoms, notify the local animal control officer and seek the care and advice of a veterinarian. Separate your animal from other animals and humans immediately.

Please contact your local animal control officer or the State Veterinarian if you have any questions about this notice.

RHODE ISLAND DEPARTMENT OF HEALTH
DIVISION OF LABORATORIES

RABIES INVESTIGATION

Date Shipped _____ Date Received _____

Failure to find evidence of rabies DOES NOT EXCLUDE THE POSSIBILITY OF THE ANIMAL BEING RABID. It is important that this form be filled in and accompany the specimen.

ANIMAL IDENTIFICATION:

Kind _____ Vaccination for rabies? _____ Date _____
Wild () Stray () Pet () Died () Killed () Date _____

**LAB RESULTS _____ Initials _____ Date _____

List of persons and/or Animals exposed.	Date of Exposure	Address	Provoked Attack
			Unprovoked Attack Accidental

NOTE: The Laboratory must be contacted by telephone (222-5600) prior to submission.

SYMPTOMS: Fits () Convulsions () Running Spells () Let Home ()
Unable to eat or drink () Dragged hind limbs () Howled or showed change
In voice () Unusually vicious or attacks other animals ()
Exposed by other sick or mad animals ()

ADDITIONAL INFORMATION:

Physician _____ Address _____

_____ Telephone Number _____

Owner _____ Address _____

_____ Telephone Number _____

Sender _____ Address _____

RABIES ADVISORY NOTICE

Rabies is a fatal disease of warm blooded mammals caused by a virus, most frequently spread through a bite from an infected animal. Bites are the main route of transmission because a diseased animal has the rabies virus in its saliva, and frequently will bite other animals.

This notice is being given to you because your dog or cat came into contact with a known or suspect rabid animal, has a bite from an unknown source, or has been seen near or in the same area as a known or suspect rabid animal. The vaccination status greatly influences the amount of risk an exposure poses to your pet. Your pet falls into one of the following categories:

A. UNVACCINATED FOR RABIES OR VACCINATION EXPIRED

(Check one)

_____ **DIRECT CONTACT OR BITE FROM A CONFIRMED RABID ANIMAL**

Your pet has a high risk of developing rabies. For your protection, we strongly recommend that your pet be euthanized. The only other alternative is for you to allow your pet to be quarantined in a state approved facility for 6 months. The proper local and state officials will be notified that this exposure has occurred.

_____ **DIRECT CONTACT OR BITE FROM A SUSPECTED RABID ANIMAL**

Your pet has a high risk of developing rabies. For your protection, we strongly recommend that your pet be euthanized. The only other alternative is for you to allow your pet to be quarantined in a state approved facility for 3 months and then to strictly confine your pet at home in an escape-proof enclosure approved by the local animal control officer for an additional 3 months. The proper local and state officials will be notified that this exposure has occurred.

_____ **WOUND OF UNKNOWN ORIGIN**

Since we cannot be absolutely sure that the wound was not inflicted by a rabid animal, we advise you to strictly confine your pet at home in an escape-proof enclosure for 6 months. Your pet should receive a vaccination for rabies immediately.

_____ **PET SEEN IN OR NEAR THE SAME AREA AS A CONFIRMED RABID ANIMAL**

We know that there are rabid animals in the vicinity and your pet may have come into contact with one without your knowledge. Your pet should immediately receive a vaccination for rabies. Be aware of the symptoms of rabies and observe your pet closely over the next 6 months.

B. VACCINATION FOR RABIES CURRENT (check one)

 DIRECT CONTACT OR BITE FROM A CONFIRMED OR SUSPECT RABID ANIMAL

Even highly effective vaccinations are not 100% effective. Your pet should receive a booster rabies vaccination immediately and be kept under strict confinement at home for 45 days in an escape-proof enclosure approved by the local animal control officer. The proper local and state officials will be notified that this exposure has occurred.

 WOUND OF UNKNOWN ORIGIN

Be aware of the symptoms of rabies and observe your pet closely over the next 45 days. Obtain a booster rabies vaccination for your pet.

 PET SEEN IN OR NEAR THE SAME AREA AS A CONFIRMED RABID ANIMAL

Your veterinarian will determine if there is a need for a booster rabies vaccination. Be aware of the symptoms of rabies and observe your pet closely over the next 45 days.

NEED ASSESSMENT FOR RABIES PROPHYLAXIS

Patient Name: _____ Telephone Number _____

Address: _____ City: _____ State: _____ Zip _____

Wound Location: _____ Tetanus Status: _____

Check _____ Bite – Penetration of the skin by Teeth
_____ Non-Bite – Scratches, Abrasions

Date of Exposure: _____ Animal: _____

Is Animal know to Patient/Witness? _____ Yes _____ NO

If NO, has animal been seen before in area? _____ Yes _____ No

Name of Owner: _____ Tel. Number: _____

Address: _____ City: _____ State: _____ Zip: _____

Is animal vaccinated: _____ Yes _____ No

Name of Veterinarian who cares for animal: _____

Description of animal: Breed _____ Color _____ Sex _____ Age _____

Has animal been out of the state: _____ Yes _____ No _____ Unknown

If YES, where: _____

Was bite provoked? _____ Yes _____ No

Describe incident:

Was animal acting strangely? _____ Yes _____ No

Describe behavior: _____

Notification:

Animal Control Officer in City/Town where bite occurred? _____ Yes _____ No

Date: _____

Police: _____ Yes _____ No Date: _____

Interviewers Name: _____ Telephone Number: _____

ACKNOWLEDGEMENT OF RABIES VACCINATION ADVICE

Owner's Name: _____

Animal's name or ID#: _____ **Dog** _____ **Cat** _____ **Sex** _____

Address _____
City _____ **State** _____ **Zip** _____

Phone: _____

I am the owner or keeper of the above described animal and have the authority to execute this document.

I hereby acknowledge having been informed of the state law requiring the vaccination of all dogs and cats over the age of three months.

I have refused to have the above described animal vaccinated and absolve this veterinary facility and its employees of any responsibility for my non-compliance with Rhode Island General Law.

I have read and understand this release of responsibility.

Date

Signature of Owner or Keeper

Witness to Above Signature