

# **Communicable Diseases**

## **Public Health Issues**

A communicable disease is one in which an infected person is capable of spreading the disease to another person. These diseases can be spread via the air, blood, intestinal tract, or by direct contact. The control and prevention of communicable diseases is a major focus of the Infectious Disease Investigation Section (IDIS) of the New Hampshire Public Health Department. Access to health care and education are two important issues in the control of communicable diseases. The local health officers support this vital public health role with the provision of current information about the occurrence, transmission, and prevention of communicable diseases in their towns.

## **Role of the Health Officer:**

- ❑ Reports communicable diseases. By New Hampshire law, local health officers may report communicable diseases to the Bureau of Infectious Disease Control.
- ❑ In a food borne outbreak, assists the Bureau of Infectious Disease Control and Bureau of Food Protection, in the investigation ( i.e. specimen collection, interviewing staff people, keeping town officials notified, completing questionnaires from people who ate at the same time).
- ❑ Assists the Bureau of Infectious Disease Control or other health officials with the control of an identified illness in their community. (i.e. posting signs regarding swimming in a contaminated public beach.)
- ❑ May assist the Bureau of Infectious Disease Control with educational information for their community.
- ❑ Assist with the isolation and quarantine policies and procedures that are based on each region's Public Health Emergency Preparedness Plan, as directed by the State of NH Infectious Disease Investigation Section.

## **Reporting of Communicable Disease (RSA 141-C:1-8)**

1. Any physician or other health care provider who assesses, diagnoses, or treats a person believed by him to be a case or suspect case of a reportable disease shall immediately report the same to the Department by telephone, mail or electronic transmission on forms provided by the commissioner.

2. Reports provided pursuant to (1) above shall include: The full name, age, sex, race, ethnicity, address, telephone number, occupation, and place of occupation of the patient; the name of the disease; the date of onset; diagnostic test(s) performed, specimen type(s), date(s), and result(s); the name of the person reporting; and, in the case of sexually transmitted diseases, the name and amount of the medication prescribed.

3. When no physician or other health care provider is in attendance, the person in charge of any institution, which could be a Health Officer, public or non - public school, child care agency, hotel, restaurant, boarding house, labor camp or other camp, vessel, workplace, hospital, dispensary, pharmacy, or charitable, penal, or other institution or place of detention in which there is a case or suspect case of a reportable disease, shall report the same immediately to the Bureau of Communicable Disease Control.

4. Reports provided pursuant to (3) above shall include: The full name, age, sex, race, ethnicity, address, telephone number, occupation, and place of occupation of the patient; the name of the disease; the date of onset; and, the name of the person reporting.

5. Local Boards of Health shall report immediately to the Bureau of Communicable Disease Control those cases or suspect cases of reportable diseases of which they have knowledge.

## **Isolation and Quarantine**

Isolation is defined in the law, “as the separation, for the period of communicability, of infected persons from others in such places and under such conditions as to prevent or limit the direct or indirect transmission of the infectious agent from those infected to those who are susceptible or who may spread the agent to others.” (RSA 141-C:2, XII)

Quarantine is defined in the law, “as the restriction of activities of well persons who have been exposed to a case of communicable disease, during its period of communicability, to prevent disease transmission during the incubation period if infection should occur.” (RSA 141-C:2, XIII)

The Bureau of Infectious Disease Control per order of the Commissioner of Health and Human Services or his agent is the only agency that can issue a legal order of isolation or quarantine. The Bureau of Infectious Disease Control may ask the Health officer for assistance in helping the individual or group of individuals with compliance and helping them fulfill their everyday needs. In most instances people who are infected with a disease that requires isolation will remain isolated on a voluntary basis.

## **Communication with Public Health**

While the Bureau of Infectious Disease Control makes every effort to keep the Health Officer informed when it comes to illness in their town, it is typically not necessary to inform a Health Officer regarding a single case of communicable disease. Decisions about whether or not to inform the Health Officer about individual cases are made on a case-by-case basis. A Health Officer may be notified in situations that involve an outbreak or cluster of illness.



# New Hampshire

## Department of Health and Human Services



### Reportable Diseases 2008

- Acquired Immune Deficiency Syndrome [HIV]
  - Anaplasmosis [*Anaplasma Phagocytophilum*]
  - Anthrax [*Bacillus anthracis*]\*
  - Arboviral infection, including EEE & WNV\*
  - Babesiosis [*Babesia microti*]
  - Botulism [*Clostridium botulinum*]\*
  - Brucellosis [*Brucella abortus*]\*
  - Campylobacteriosis [*Campylobacter* species]
  - Chlamydial infection [*Chlamydia trachomatis*]
  - Cholera [*Vibrio cholerae*]\*
  - Coccidioidomycosis [*Coccidioides immitis*]
  - Creutzfeldt-Jakob Disease\*
  - Cryptosporidiosis [*Cryptosporidium parvum*]
  - Cyclospora infection [*Cyclospora cayentanensis*]
  - Diphtheria [*Corynebacterium diphtheriae*]\*
  - Ehrlichiosis [*Ehrlichia* species]
  - Escherichia coli* O157 infection and other shiga toxin producing *E. coli*
  - Giardiasis [*Giardia lamblia*]
  - Gonorrhea [*Neisseria gonorrhoeae*]
  - Haemophilus influenzae*, invasive disease, sterile site\*
  - Hantavirus Pulmonary Syndrome [Hantavirus]\*
  - Hemolytic Uremic Syndrome (HUS)
  - Hepatitis, viral: A\*, B, E, G
  - Hepatitis, viral: positive B surface antigen in a pregnant woman
  - Human Immunodeficiency Virus (HIV), including perinatal exposure
  - Human Immunodeficiency Virus-related CD4+ counts and all viral loads
  - Legionellosis [*Legionella pneumophila*]
  - Leprosy, Hansen's disease [*Mycobacterium leprae*]
  - Listeriosis [*Listeria monocytogenes*]
  - Lyme disease [*Borrelia burgdorferi*]
  - Malaria [*Plasmodium* species]
  - Measles [Rubeola]\*
  - Mumps\*
  - Neisseria meningitidis*, invasive disease, sterile site\*
  - Pertussis [*Bordetella pertussis*]\*
  - Plague [*Yersinia pestis*]\*
  - Pneumococcal disease, invasive [*Streptococcus pneumoniae*]
  - Pneumocystis pneumonia [*Pneumocystis jiroveci* formerly *carinii*]
  - Poliomyelitis [Polio]\*
  - Psittacosis [*Chlamydia psittaci*]\*
  - Rabies in humans or animals\*
  - Rocky Mountain Spotted Fever [*Rickettsia rickettsii*]
  - Rubella, including Congenital Rubella Syndrome\*
  - Salmonellosis [*Salmonella* species] (report *S. Typhi*\* within 24 hours)
  - Shigellosis [*Shigella* species]
  - Streptococcus Group A/B, invasive disease [*S. pyogenes/agalactiae*]
  - Syphilis, including Congenital Syphilis Syndrome [*Treponema pallidum*]
  - Tetanus [*Clostridium tetani*]
  - Toxic-Shock Syndrome (TSS) [*streptococcal* or *staphylococcal*]
  - Trichinosis [*Trichinella spiralis*]
  - Tuberculosis disease [*Mycobacterium tuberculosis*]\*
  - Tuberculosis infection, latent
  - Tularemia [*Francisella tularensis*]\*
  - Typhoid fever [*Salmonella Typhi*]\*
  - Typhus [*Rickettsia prowazekii*]\*
  - Varicella\*
  - Vibriosis [any *Vibrio* species]\*
  - Vancomycin Resistant Enterococci (VRE)
  - Vancomycin Resistant *Staphylococcus aureus* (VRSA)\*
  - Yersiniosis [*Yersinia enterocolitica*]
- Any suspect outbreak, cluster of illness, or unusual occurrence of disease that may pose a threat to the public's health must be reported within 24 hours of recognition\*

### Disease Reporting Guidelines

- ✓ All suspect and confirmed cases must be reported within 72 hours of diagnosis or suspicion of diagnosis
- ✓ Diseases with an asterisk (\*) and in red must be reported within 24 hours of diagnosis or suspicion of diagnosis
- ✓ Reports are handled under strict confidentiality standards

#### Disease Reports Shall Include:

1. Name of the disease
2. Name of the person reporting
3. Physician name and phone number
4. Patient information
  - Name
  - Date of birth and age
  - Sex
  - Race
  - Ethnicity
  - Address
  - Telephone number
  - Occupation
  - Place of employment
  - Date of onset
5. Diagnostic test information
  - Type of test performed
  - Specimen type(s)
  - Drug
    - Date
6. Treatment
  - Date
  - Dosage

#### How to Report a Disease:

**PHONE** 

Office: 1-603-271-4496  
 Toll Free Office: 1-800-852-3345 ext. 4496  
 Hotline: 1-888-836-4971

**After Hours Response: 1-603-271-5300**  
**Toll Free After Hours: 1-800-852-3345 ext. 5300**

FAX: 1-603-271-0545 Do Not FAX HIV/AIDS Reports

**MAIL** 

NH Department of Health and Human Services  
 Division of Public Health Services  
 Communicable Disease Control and Surveillance  
 29 Hazen Drive, Concord, NH 03301-6504

# ARBOVIRAL DISEASES:

## **WEST NILE VIRUS/EASTERN EQUINE ENCEPHALITIS**

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### **PUBLIC HEALTH ISSUE:**

West Nile virus (WNV) was first seen in the western hemisphere in the U.S. in 1999, in the New York City area of Queens. In 2003, New Hampshire reported 3 human cases of WNV. One WNV human case was reported in 2010. Between 1964 and 2010, 270 human cases of Eastern Equine Encephalitis (EEE) were reported nationwide. New Hampshire reported 7 human cases of EEE in 2005, 4 human cases in 2007 and 1 human case in 2009. These viruses may be found in birds and are passed from bird to bird by certain types of mosquitoes. Occasionally, an infected mosquito will pass these viruses to humans or other animals. Most healthy people do not get sick from these viruses, but sometimes they can cause illness, and occasionally death. When a human gets ill from WNV or EEE, they may have serious symptoms that include encephalitis (inflammation of the brain) or meningitis (inflammation of the lining of the brain and spinal cord); encephalitis and meningitis can also be caused by other means, such as head injury, bacterial infections, or most commonly, other viral infections.

### **ROLE OF THE HEALTH OFFICER:**

The health officer may be consulted by the citizens of his/her community to provide recommendations for various WNV or EEE issues. The following information will guide the health officer in providing such information. For issues not addressed below, you may call the WNV/EEE information line @ 1-866-273-6453 or the Bureau of Infectious Disease Control @ 1-800-852-3345 x 4496 (NH only) or 603-271-4496. Many resources including fact sheets and the State Arboviral Plan are available at [www.dhhs.nh.gov](http://www.dhhs.nh.gov).

### **DISEASE CHARACTERISTICS:**

Most people who get infected with WNV or EEE have no symptoms; some can experience mild illness such as a fever, headache, mild rash, swollen lymph glands, and body aches before fully recovering. In some individuals, particularly the elderly and people with immune system disorders, WNV or EEE can cause serious disease that affects brain tissue. They can cause permanent neurological damage and can be fatal. Encephalitis (inflammation of the brain) symptoms include the rapid onset of severe headache, high fever, stiff neck, confusion, loss of consciousness (coma), and muscle weakness. Death may result in some cases.

There are presently no specific therapies for treating WNV or EEE. In more severe cases, intensive supportive therapy is indicated, i.e., hospitalization, intravenous (IV) fluids and nutrition, airway management, ventilatory support (ventilator) if needed, and prevention of secondary infections (pneumonia, urinary tract, etc.), along with good nursing care.

Being bitten by an infected mosquito will not necessarily cause illness, since most people who are infected with WNV or EEE have no symptoms or experience mild illness. If illness were to

occur, it would be within 3-14 days of being bitten by a WNV infected mosquito and 4-10 days after being bitten by an EEE infected mosquito.

### **IMMUNIZATION:**

Currently, there are no human vaccines for the prevention of WNV or EEE. However, an equine (horse) vaccine is available for both viruses through local veterinary services.

### **EXPOSURE AND TRANSMISSION OF WNV AND EEE:**

Mosquitoes become infected when biting a bird that carries WNV or EEE. WNV and EEE are spread to humans by the bite of an infected mosquito. You or your child cannot get WNV or EEE from a person who has the disease. WNV and EEE are not spread by person-to-person contact such as touching, kissing, or caring for someone who is infected. In rare cases, WNV can be transferred through blood transfusions and in utero (from mother to unborn child). Currently, all human blood products are screened for WNV to reduce the risk from blood transfusions.

### **PROTECTION AGAINST WNV AND EEE:**

From June to October, when mosquitoes are most active, take the following precautions:

- If outside during evening, nighttime and dawn hours, or at any time mosquitoes are actively biting, children and adults should wear protective clothing such as long pants, long-sleeved shirts, and socks.
- If outside during evening, nighttime and dawn hours, or at any time mosquitoes are actively biting, consider the use of an effective insect repellent.
- Repellents containing DEET (N, N-diethyl-methyl-meta-toluamide) have been proven effective. Use no more than 30% DEET for children and adults.
- Repellents containing Picaridin (KBR3023) or oil of lemon eucalyptus (a plant based repellent) provide protection similar to repellents with low concentrations of DEET. Oil of lemon eucalyptus should not be used on children under the age of three years.
- Always use repellents according to manufacturer's directions.
- Do not apply repellent directly on children. Apply to your own hands and then put it on the child's skin.
- The length of time a repellent is effective varies with ingredient and concentration. Avoid prolonged or excessive use of repellents. Use sparingly to cover exposed skin and clothing.
- Wash all treated skin and clothing after returning indoors.
- Store repellent out of reach of children.
- Vitamin B, ultrasonic devices, incense and bug zappers have not been shown to be effective in preventing mosquito bites.

More information on mosquito repellents is available in a technical article for physicians at the American College of Physicians website ([Mark S. Fradin, MD. Mosquitoes and mosquito repellents: A clinician's guide.](#) Annals of Internal Medicine, June 1 1998. 128:931-940) and the

websites for the NH Department of Health and Human Services [www.dhhs.nh.gov](http://www.dhhs.nh.gov) and Centers for Disease Control and Prevention ([www.cdc.gov](http://www.cdc.gov)).

## **HOUSEHOLD PRECAUTIONS FOR THE PREVENTION OF MOSQUITO BREEDING:**

Mosquitoes lay their eggs in standing water. Weeds, tall grass, and bushes provide an outdoor home for the adult mosquitoes. Mosquitoes can enter homes through unscreened windows or doors, or broken screens. Here are some steps that you can take:

- Make sure that doors and windows have tight-fitting screens. Repair or replace all screens in your home that have tears or holes.
- Remove all discarded tires from your property. The used tire has become the most important domestic mosquito-breeding habitat in this country.
- Do not allow water-holding containers. Dispose of tin cans, plastic containers, ceramic pots, or similar water-holding containers. Do not overlook containers that have become overgrown by aquatic vegetation.
- Drill holes in the bottom of recycling containers that are left out of doors. Drainage holes that are located on the sides collect enough water for mosquitoes to breed in.
- Make sure roof gutters drain properly. Clean clogged gutters in the spring and fall.
- Tightly screen "rain barrels" to ensure mosquitoes can't deposit eggs in or on water.
- Clean and chlorinate swimming pools, outdoor hot tubs. If not in use, keep empty and covered.
- Drain water from pool covers.
- Aerate ornamental pools or stock them with fish. Water gardens are fashionable but become major mosquito producers if they are allowed to stagnate.
- Turn over wheelbarrows and change water in birdbaths at least twice weekly. Both provide breeding habitat for domestic mosquitoes
- Eliminate any standing water that collects on your property. Use landscaping as needed. Mosquitoes can develop in any puddle that last more than 4 days.
- Remind or help neighbors to eliminate breeding sites on their properties.

**Please Note:** Although certain pesticide products are available for sale in the market place to control mosquito larvae, one must obtain a special permit from the Department of Agriculture, Division of Pesticide Control to be able to apply pesticides to any surface waters in the State of New Hampshire. Questions regarding how to apply for such special permits may best be directed to the New Hampshire Department of Agriculture, Division of Pesticide Control at 603-271-3550.

## **RABIES**

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### **PUBLIC HEALTH ISSUE:**

Rabies in humans is an acute viral encephalomyelitis, which is the inflammation of the brain and spinal cord, and is almost always fatal. Worldwide there is an estimated 30,000 deaths from rabies a year, most occurring in less developed countries. In the United States, there were three deaths in 1993. In New Hampshire, there have been no human cases of rabies recorded.

There is no effective way to treat rabies once acute illness has begun. The current emphasis is on the prevention of the disease by avoiding exposure and providing vaccine or immune globulin as appropriate. When a person has been bitten by a rabid animal, or bitten by an animal that is high risk for having rabies, a prophylactic injection of immune globulin and a series of rabies vaccine shots is usually begun immediately. Once clinical symptoms of rabies appear, the disease is almost always fatal.

### **ROLE OF THE HEALTH OFFICER: THIS IS AN AREA THAT IS USUALLY COVERED BY THE ANIMAL CONTROL OFFICER IN TOWN, HEALTH OFFICERS MIGHT BE ASKED TO ASSIST.**

- Enforce the Rabies Control Act (RSA 436:99 - 109) in conjunction with the local animal control officer. This law addresses the vaccination of domestic dogs and cats, quarantine of animals when there has been a human exposure, euthanization of the animal and submission of the head to the New Hampshire Public Health Laboratories for testing.
- Serve as a local source of public information and education about rabies (i.e. prevention, exposure, and transmission).

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### **PROTECTION AGAINST RABIES/ Suggestions for the public:**

- Do not try to touch or pick up wild animals, strays cats or dogs, or baby animals.
- Do not try to feed wild or stray animals, or make them into pets.
- Report unknown or strangely behaving animals to your town's animal control officer. If the animal is wild, contact the game warden.
- Do not make your yard inviting to wild animals. Feed your pets inside the house. Fasten trashcan lids tightly. Raccoon-proof your compost.
- Keep pets indoors at night. Pets that roam freely are more likely to get rabies.
- Wear protective gloves when handling a pet that has been involved with a wild or stray animal.

### **EXPOSURE:**

Exposure to rabies occurs when the saliva or neural tissue (brain or spinal cord) of an infected animal is introduced into open cuts or wounds in a person's skin or contacts the mucous membranes (mouth, nose, eye).

The two categories of exposure are:

- a. Bite: Any penetration of the skin by an animal's teeth. Bites, in general, are high-risk exposures.
- b. Non-Bite exposure: Scratches received from an animal, or scratches, abrasions, open wounds or mucous membranes contaminated with an animal's saliva or neural tissue. A common example of this type of exposure is touching a pet shortly after a rabid animal has attacked it and getting wet saliva from the animal in an open sore on a person's skin.

While there is no documented record of a person contracting rabies in this manner, it is theoretically possible and, hence, the public should be educated about non-bite exposures.

Finally, airborne, non-bite transmission has occurred in a bat cave and in laboratories where the rabies virus was being handled. Airborne transmission of rabies has not been documented in homes or any other settings.

### **TRANSMISSION:**

The rabies virus may be transmitted when an animal or human is exposed to infectious saliva or central nervous system tissue (i.e. brain or spinal cord tissue). Humans are usually exposed when an infected animal bites them. Humans can also be exposed to rabies if an infected animal's saliva gets into a cut or open wound or into a person's eyes, nose or mouth.

Rabies is not transmitted through blood, urine or feces.

The virus can only be transmitted if the material containing the virus (i.e. saliva) is wet. The virus is not infectious when it is dry.

Regular household bleach (at a solution of 1 part bleach and 10 parts water) kills the rabies virus. Rotting of a rabies-infected animal carcass kills the virus.

Freezing does not destroy the virus. It is usually destroyed after a few minutes at temperatures greater than 122 degrees Fahrenheit. However, all meats should be cooked in accordance with safe cooking requirements, which typically are greater than 122 degrees.

### **DISEASE CHARACTERISTICS:**

Rabies is a viral disease of the nervous system in humans and lower mammals. It is almost always fatal in humans once clinical symptoms begin.

Signs and symptoms in humans usually start between 5 days to 1 year from the time of exposure. This is another reason that vaccination is recommended following exposure. The time from exposure to when symptoms may appear also varies depending on the site of exposure, the amount of rabies virus transmitted, viral strain, the immune status of the exposed person, and muscle and nerve supply at the exposure site.

Early signs include apprehension, headache, fever, tiredness, itching and/or pain at the exposure site. Later signs include difficulty with swallowing/fear of water (hydrophobia), delirium, convulsions, paralysis, and death.

Pathology: The virus multiplies in skeletal muscle near the exposure site, and then moves on to the nerves, the spinal cord and to the brain, then to salivary glands and saliva.

## **RABIES VACCINATION AMONG HUMANS:**

Pre-exposure prophylaxis with rabies vaccine is recommended for individuals at high risk of exposure to potentially rabid animals, such as veterinarians and their staff, conservation and animal control officers, animal shelter personnel, trappers, other wildlife workers, or anyone who routinely is in contact with at-risk animals.

Post exposure prophylaxis (PEP) is indicated for persons possibly exposed to a rabid animal. Possible exposures include animal bites, or mucous membrane contamination with infectious tissue, such as saliva. PEP should begin as soon as possible after an exposure. There have been no vaccine failures in the United States (i.e. someone developed rabies) when PEP was given promptly and appropriately after an exposure.

Administration of rabies PEP is a medical urgency, not a medical emergency. Physicians should evaluate each possible exposure to rabies and as necessary consult with state public health officials regarding the need for rabies prophylaxis.

## **IMMUNIZATION OF DOMESTIC ANIMALS:**

Under state law (RSA 436:100) every dog, cat, and ferret 3 months of age and older shall be vaccinated against rabies. Young dogs, cats, and ferrets shall be vaccinated within 30 days after they have reached 3 months of age. Unvaccinated dogs, cats, and ferrets acquired or moved into the state shall be vaccinated within 30 days after purchase or arrival, unless under 3 months of age, as specified above. Every dog, cat, and ferret shall be revaccinated at such intervals and with such vaccines as the Commissioner shall specify from time to time. In rabies infected areas, dogs, cats, and ferrets recently vaccinated must be kept under control for at least 30 days before being allowed to run free.

Vaccines start protecting dogs and cats about a month after they are vaccinated. It is recommended, but not required, that cows, horses, sheep and all other animals be vaccinated against rabies.

More rabies cases are reported annually in cats than dogs. Cats are more likely to get rabies than dogs because they are hunters and are frequently outside at night when many wild animals are active.

State law (RSA 436:102) requires that each veterinarian, at the time of vaccinating any dog, cat, or ferret complete a certificate of rabies vaccination in triplicate which includes the following information: owner's name and address, description of dog, cat, or ferret (breed, sex, markings, age, name), date of vaccination, rabies vaccination tag number, type of rabies vaccine administered, manufacturer's serial number of vaccine, and the expiration date of the vaccination. Distribution of copies of the certificate shall be: the original to the owner, one copy retained by the issuing veterinarian and, within 40 days of the vaccination, one copy to the town or city clerk where the dog, cat or ferret is kept. The veterinarian and the owner shall retain their copies for the interval between vaccinations as specified in RSA 436:100.

For dogs, a metal or durable plastic tag, serially numbered, shall be securely attached to a collar or harness. The collar or harness with the vaccination tag shall be worn whenever the dog is out-of-doors, whether on or off the owner's premises. Cats and ferrets are not required to wear a collar or harness with the tag.

The offspring of wild animals crossbred to domestic dogs and cats (wild animal hybrids) are considered wild animals by the National Association of State and Public Health Veterinarians (NASPHV) and the Council of State and Territorial Epidemiologists (CSTE). Because the period of rabies virus shedding in these animals is unknown, these animals should be euthanized and tested rather than confined and observed when they bite humans. Wild animals and wild animal hybrids should not be kept as pets. Animals maintained in United States Department of Agriculture- licensed research facilities or accredited zoological parks should be evaluated on a case-by-case basis.

## **ANIMAL BITES**

### **CIRCUMSTANCES OF THE BITING INCIDENT:**

An unprovoked attack or other unusual behavior in an animal is a sign of danger regarding possible rabies in that animal. A provoked attack by an otherwise healthy animal, although associated with a lower risk, should still be considered serious and medical attention is recommended.

### **SIGNS OF RABIES IN ANIMALS:**

Rabies should be suspected in any animal that exhibits behavioral changes, such as becoming aggressive, agitated, hyperactive and easily excited. The animal may also become docile and even unusually friendly. A nocturnal animal may become active during the day. Unfortunately, these presentations are not unique to rabies and may be associated with other common diseases of domestic animals and wildlife. Finally, an infectious rabid animal may be healthy in appearance and behavior for a period of time prior to the onset of clinical rabies in that animal.

### **BITES BY WILD ANIMALS:**

The rabies virus is shed in the saliva of wild animals for varying lengths of time prior to the onset of clinical signs or symptoms. Therefore, confinement and observation of behavior for ten days is not an acceptable procedure for determining whether or not a wild animal was infectious for rabies at the time of a bite. A suspect high-risk wild animal that has exposed a human must be humanely euthanized. The brain, which must be handled carefully to prevent damage and decomposition of the brain tissue and contamination of the handlers, should be brought in to the New Hampshire Public Health Laboratories for testing.

A person bitten by a high-risk wild animal should contact their physician immediately to determine if the post exposure vaccination is needed. If the animal is available for testing, the New Hampshire Department of Fish & Game should be called to arrange for euthanasia and testing of the animal.

**High Risk Wild Animals:** The most common wild reservoirs of rabies are raccoons, skunks, bats, foxes, and coyotes. Bites from large rodents, especially woodchucks, should result in consultation with the state health department before a decision is made to initiate post exposure vaccination.

Small rodents (such as squirrels, rats, mice, hamsters, guinea pigs, gerbils, and chipmunks) and lagomorphs (such as rabbits and hares) are almost never found to be infected with rabies and have not been known to cause rabies among humans in the United States.

## **TREATMENT AND FOLLOW-UP OF AN ANIMAL BITE:**

- Wash the bite wound with large amounts of soap and warm water for ten minutes.
- Seek medical attention as soon as possible to evaluate if post-exposure vaccination is warranted.

A physician should assess tetanus immunity status whenever a person has been bitten.

It is important to inform people not to release any animals that may have exposed a person to rabies. There have been cases of human exposure to animals in which an animal that had been captured was released and not available for testing. Because the animal could not be tested, the exposed person had to undergo post-exposure treatment, perhaps unnecessarily.

- Report the bite to the local animal control officer.
- Try to capture the animal only if getting bitten is not a risk.
- Considering the possibility of animal rabies vaccine failure, the immunization status of a biting dog or cat is not used as the sole criterion for decision-making regarding management of the exposed person. The animal should be observed for a period of 10 days to be sure it was not infectious for rabies at the time of exposure.

## **PROCEDURE FOR ANIMALS THAT EXPOSE A PERSON TO RABIES:**

State law describes what actions need to occur following a puncture of the skin or a “non-bite” exposure based on the vaccination status of the animal and whether or not it is symptomatic. A brief explanation follows, with full details found in RSA 436:105; 436-105-a; and 436-105-b. The owner of the animal is responsible for fees incurred for the confinement, examination, and/or testing of the animal.

- Dogs, cats, and ferrets *that have been vaccinated in accordance with state law* (RSA 436:100) and show no signs of rabies shall be confined for a period of ten days by the owner or another responsible person as required by local authorities. A veterinarian must examine them at the end of the ten days before being released from confinement. However, if signs suggestive of rabies develop during the observation period, the animal shall be humanely euthanized, its head removed, and sent for testing to the New Hampshire Public Health Laboratories.
- Dogs, cats, and ferrets that *are apparently healthy, which are unvaccinated or whose vaccination status is unknown*, shall be seized and impounded under the supervision of the local authorities for a period of ten days. If, upon examination by a licensed veterinarian, there are no signs of rabies at the end of the impoundment, the animal may be released to the owner. However, if signs suggestive of rabies develop during the impoundment period, the animal shall be humanely euthanized, its head removed, and sent for testing to the New Hampshire Public Health Laboratories.
- Dogs, cats, and ferrets that *are displaying symptoms*, which indicate a likelihood of infection with rabies, shall be immediately euthanized.
- When a stray dog or cat is the source of a potential human exposure, the local rabies control authority shall be responsible for the expense of confinement and veterinary examination. For stray ferrets, the state is responsible for these costs.
- Wild animals must not be quarantined and watched for signs of rabies. They must be humanely killed by game wardens or veterinarians and tested for rabies immediately.
- Prior vaccination of an animal may not preclude the necessity for euthanasia and testing if the period of virus shedding is unknown for that species. Management of animals other than dogs and cats depends on the species, the circumstances of the bite, and the epidemiology of rabies in the area.

- Farm animals that do not seem sick when they bite can usually be watched on site under the supervision of the owner.

### **PROCEDURES FOR DOMESTIC ANIMALS EXPOSED TO RABIES:**

Any animal bitten or scratched by a wild, carnivorous mammal (or a bat) not available for testing should be regarded as having been exposed to rabies.

- a. **Dogs, Cats, and Ferrets:** Unvaccinated dogs, cats, and ferrets exposed to a rabid animal should be euthanized immediately. If the owner is unwilling to have this done, the animal should be placed in strict isolation in a kennel under veterinary supervision and in cooperation with local authority (as stated in RSA 436) for a minimum of 6 months and vaccinated 1 month before being released. Dogs and cats that are currently vaccinated should be revaccinated immediately, confined, and observed for 90 days. When the animal is not immediately revaccinated, it shall be confined in strict isolation in a kennel for 6 months under the supervision of the local authority in cooperation with a licensed veterinarian.
- b. **Livestock:** All species of livestock are susceptible to rabies; cattle and horses are among the most frequently infected of all domestic animals. Livestock exposed to a rabid animal and currently vaccinated with a vaccine approved by USDA for that species should be revaccinated immediately and observed for 45 days. Unvaccinated livestock should be slaughtered immediately. If the owner is unwilling to have this done, the animal should be kept under very close observation for 6 months.  
The following are recommendations for owners of unvaccinated livestock exposed to rabid animals:
  1. If the animal is slaughtered within 7 days of being bitten, its tissues may be eaten without risk of infection, provided liberal portions of the exposed area are discarded. Federal meat inspectors must reject for slaughter any animal known to have been exposed to rabies within 8 months.
  2. Neither tissues nor milk from a rabid animal should be used for human or animal consumption. However, since pasteurization temperatures will inactivate rabies virus, drinking pasteurized milk or eating meat cooked to at least 122 degrees Fahrenheit does not constitute a rabies exposure.
  3. It is rare to have more than one rabid animal in a herd, or herbivore-to-herbivore transmission, and therefore it may not be necessary to restrict the rest of the herd if a single animal has been exposed to or infected by rabies.
- c. **Other Animals:** Other animals bitten by a rabid animal should be euthanized immediately. However, any animal currently vaccinated with a vaccine approved by USDA for that species may be revaccinated immediately and placed in strict isolation for at least 90 days.

## HANDLING INSTRUCTIONS FOR RABIES SPECIMENS

1. Do not handle any material or animal possibly infected with rabies unless you have been adequately and currently immunized against rabies. Even when you have been immunized, the following precautions are necessary. If you think you have been exposed to rabies, contact your physician even if you have received pre-exposure vaccinations against rabies.
2. Do not touch live animals suspected of being rabid; they should be dead before any handling of the animal.
3. When necessary, kill the animal in a humane manner. The best method is a “jab stick” with euthanasia solution, but do not attempt to use this unless you have been trained. Any other methods should result in death as quickly as possible, but if there has been an exposure the head must be intact for testing. Do not shoot or club the animal in the head, because this may make testing impossible and the exposed person will require the full series of post-exposure vaccinations, which may have been avoided if testing were able to be performed.
4. Wear rubber gloves to handle the animal; wear two pairs, with a heavyweight pair on the outside. Wear goggles or other eye protection, a mask to protect nose and mouth, and disposable protection for your clothing. Wash thoroughly with soap and water after you are done and cleanup of the scene and tools is complete.
5. The tools used to handle an infected animal, and any scene contaminated by nervous system tissue from an infected animal, should be cleaned with fresh 10% bleach solution (1 ½ cup bleach with water to make up a gallon).
6. Bringing an animal to someone experienced in decapitation is recommended. Many veterinarians provide this service with domesticated animals. For wild animals, contact the NH Department of Fish and Game or your local animal control officer. Anyone who conducts this activity should use a shovel or other implement to place the carcass in a disposable box or bucket, taking care to avoid touching the outside of the container with the animal. Without touching the container, place it in a heavy plastic bag by inverting the bag over the container; seal the bag tightly by tying the neck of the bag on itself, not by using a twist tie, rubber band, or strap tie. Invert a second bag over the first, and seal that too. Refrigerate the specimen by lining a box with newspaper, and packing the specimen with ice. Take it to the decapitator, and follow the procedures of the facility. Dispose of all disposable items used to handle the animal at the decapitator if possible; if not, double bag them as above and treat them as a biohazard. The shovel and any other non-disposable but cleanable implements should be cleaned with 10% bleach solution; skin protection, eye protection, and mucous membrane protection should be worn until cleanup is complete.
7. Decapitation should be accomplished using a guillotine. Handle the head by double bagging it as described above and place in an insulated container with ice or coolants. If an insulated container is not available, place it in a box lined with newspaper and refrigerated with freezer packs or sealed plastic bottles with ice inside; plastic bottles filled with water and frozen work well. Close the box securely with tape and securely attach the Public Health Lab form to the outside of the box, and deliver it to the lab or contact the off-hours person from the lab for instructions on where to take it.
8. Carcasses of suspect animals may be disposed of safely by burying them under at least two feet of soil, at least 100 feet from the closest water supply.

## **LABORATORY TESTING OF ANIMALS FOR RABIES:**

The standard test for detecting rabies is the fluorescent rabies antibody test on the brain tissue. This test takes 24 hours to complete. If the test is negative, rabies virus is considered not to have been in the saliva at the time of the exposure; and vaccine prophylaxis, if already begun, may be terminated. If the test is positive, it is assumed that the saliva was infectious at the time of exposure and that complete prophylaxis is necessary.

The NH Public Health Laboratories provides rabies testing at no charge on the following animals:

- A high-risk wild animal (fox, skunk, raccoon, or other carnivore, bat, woodchuck) that has exposed a human or domestic animal to possible rabies transmission by bite or not-bite exposure.
- For surveillance purposes, a high-risk wild animal which has not exposed a human or domestic animal when it is exhibiting abnormal behavior and is located in a part of the state from which rabies has not yet been confirmed in that species. The state veterinarian, the DPHS' Infectious Disease Investigation Section (IDIS), or the Fish & Game Department must authorize surveillance testing on a case-by-case basis.
- A cat, dog or other domestic animal displaying behavior suggestive of rabies which has exposed a human or domestic animal after a determination by the state veterinarian, the DPHS' IDIS, or the Fish & Game Department.
- An apparently healthy dog or cat, under observation for 10 days from the time it has exposed a human or domestic animal, which for any reason dies prior to the end of that 10-day observation period.
- A rodent (other than woodchuck) or a rabbit or hare, only if it has exhibited extremely unusual behavior and has exposed a human or domestic animal after a determination by the state veterinarian, the DPHS' IDIS, or the Fish & Game Department.

In addition to the above situations, a cat, dog or other domestic animal will be tested for rabies upon request from a licensed veterinarian for diagnostic purposes when no human or domestic animal exposure to that animal has occurred. A fee of \$175.00 will be charged for this testing.

For more information:

### **NH Bureau of Infectious Disease Control**

1-800-852-3345 ext. 4496 (NH only), or 603-271-4496

NH Public Health Laboratories  
1-800-852-3345 ext. 4461, or 271-4461

NH State Veterinarian  
603-271-2404

NH Fish and Game Department  
1-800-852-3411, or 271-3361  
(nights/weekends)