Rabies is caused by a virus that attacks the nervous system, and it is always fatal unless the victim has been protected by immunization or receives proper treatment. Only a few countries isolated by water or mountains are completely free of the disease. In the United States, rabies occurs in all states except Hawaii.

Rabies may affect all mammals, including livestock and pets, but is most often found in raccoons, skunks, foxes, and bats. The virus is found in the animal’s saliva, and infection is usually caused by a bite from a rabid animal. However, rabies can also be contracted by saliva coming into contact with small cuts in the skin or mucous membranes, such as eyes and mouth.

Once the virus enters the body, it attacks the central nervous system by traveling along neural pathways to the brain. After reaching the central nervous system, the virus is transmitted through nerves to salivary glands and other tissues in the body. In most animals, the time from infection to the onset of symptoms is usually two to twelve weeks, but it may be longer. The incubation period in humans can exceed one year. This variability is due to many factors, including differences in susceptibility among species, the amount of virus deposited when bitten, and the location of the bite.

Rabid animals can appear to be either “furious” or “dumb.” In the furious stage, the animal is aggressive and excited, snapping and biting at anything, and there may be foaming at the mouth. In the dumb stage, the animal often seems docile, almost tame. The dumb stage is especially dangerous because the infected animal is easily approached by unsuspecting humans, particularly children.

Indications that an animal may be sick or diseased include the following: loss of coordination where the animal may stumble or appear disoriented; increased aggressiveness or increased passivity where the animal may appear tame; drooling, foaming, or frothing at the mouth; watery discharge from the eyes or nose; and activity at unusual times, such as nocturnal animals wandering around during the day. In most animals, death occurs less than ten days after the onset of clinical signs.

However, signs of rabies in wild animals are unreliable. Occasionally, animals may be infected with rabies while still appearing to be in very good physical condition. Therefore, any wild animal that bites or scratches a person should be tested for rabies. Pets that suddenly appear aggressive or unnaturally shy do not necessarily have rabies. Other diseases, such as distemper, can cause behavioral changes. However, a pet whose personality abruptly changes should be examined by a veterinarian.

Control of Rabies

Since 1977, at least eleven states and the District of Columbia have been involved in the Mid-Atlantic raccoon rabies epidemic. This strain of rabies is apparently a strain of raccoon rabies that began to spread northward in 1977 with the translocation of southern raccoons into the Mid-Atlantic region. A number of these relocated raccoons were apparently rabid and quickly transmitted the disease to raccoons and other wildlife in the region. The virus is now spreading northward at a rate of 25 to 75 miles per year.

The initial wave of the Mid-Atlantic epidemic reached its peak in Pennsylvania in 1989, when 702 cases of rabies were verified, 488 of them involving raccoons. It is likely that this strain of rabies will now remain in Pennsylvania at lower levels punctuated by periodic local outbreaks. Techniques available to control wildlife rabies are limited at this time. Population reduction of the involved species by trapping, hunting, and poisoning has not been effective in preventing the spread of rabies. However, legal furbearer trapping may keep populations in balance with their environment and possibly reduce the chances of a rabies outbreak. A method of immunizing wildlife against the disease—with a dose of vaccine hidden in bait—is currently being used to limit the spread of rabies in some parts of Pennsylvania.

Public health officials generally rely on educating the public about the risk of handling wild animals and the importance of immunizing pets as the most effective means of preventing human rabies. In Pennsylvania, house cats and all dogs more than three months of age are required by law to be vaccinated against rabies. This is because many pets have much more contact with wild animals than their owners realize. In fact, for most of the past ten years, more cats were diagnosed with rabies than either bats or foxes! Furthermore, failure to have a pet vaccinated jeopardizes its life by leaving it vulnerable to exposure to rabid animals. If an unvaccinated animal is bitten by a rabies-positive animal, it must either be quarantined for six months or destroyed. Also, if an unvaccinated pet acquires rabies, it could pass the disease along to you, your family, or neighbors. The treatment to
prevent rabies from developing in humans is costly, and once rabies develops it is nearly always fatal, so immunization of pets is a must. This is one case where an ounce of prevention is definitely worth a pound of cure!

What to Do If Bitten by Any Animal

If you have been bitten or scratched by an animal that might be rabid, do the following:

• Act promptly, but do not panic. It takes time for the rabies virus to react in the body.
• Capture and kill the suspected animal, if possible, without destroying the head. Follow the guidelines given below for submitting a suspected animal for testing.
• Wash the wound immediately and thoroughly with generous amounts of soap and water. Then apply rubbing alcohol or a strong solution of water and iodine to the exposed areas (except for the eyes, of course).
• Contact a physician immediately after administering this first-aid treatment. Rabies vaccine and antiserum will then be administered as required.

If you have any questions regarding the need for rabies treatment or submitting animals for rabies testing, call the Pennsylvania Department of Agriculture’s Veterinary Laboratory at 717-787-8808 from 8:00 a.m. to 4:00 p.m., Monday through Friday. During evenings, weekends, or holidays, call the Pennsylvania Department of Health at 1-877-PAHEALTH.

If a pet or livestock animal has been bitten by a known or suspected rabid animal, immediately wash the wound with generous amounts of soap and water, and transport the bitten animal to the veterinarian for a rabies booster vaccine. Remember that rabies can be contracted through the saliva remaining on the wound, so wear rubber or plastic gloves when washing the wound and handling the animal. Capture the suspected rabid animal, if possible, following the procedure described below.

If livestock animals have been bitten by a known or suspected rabid animal, notify the Pennsylvania Department of Agriculture at 717-787-8808 from 7:00 a.m. to 4:00 p.m. on weekdays. If there is strong reason to believe that the animal was rabid, representatives of the Bureau of Animal Industry will investigate the situation. A quarantine will be necessary for those animals exposed to the disease, and permits will be issued to move animals that have not been exposed. Signs of rabies in livestock include going off feed, erratic behavior, staggering, and excessive salivation.

What to Do with a Suspected Rabid Animal

If you suspect an animal might be rabid, do the following:

• Be extremely cautious around animals suspected of having rabies. Normally shy animals can lunge and bite even when apparently paralyzed. If you are not familiar with methods for handling wild animals, avoid the animal. Keep any pets in the house and contact the wildlife conservation officer in your region, wildlife pest control operator, or local police.

• An unvaccinated dog or cat that has bitten someone should be examined by a veterinarian and will be confined for ten days. If it remains in good health, it may then be vaccinated and released.
• Suspected rabid wildlife should be killed to limit the spread of the disease. If possible, while killing the animal, do not damage the head because the brain is needed for diagnosis.
• Wear rubber or plastic gloves when touching the carcass to avoid contact between the animal’s and your skin, eyes, nose, or mouth. You can contract rabies by merely scratching yourself on the tooth of a recently killed rabid animal.
• If no human or animal contact has occurred, the carcass should be buried in a hole deep enough that it cannot be uncovered by another animal. Touch the carcass only with rubber or plastic gloves that can be buried and clothing that can be thoroughly washed.
• If human or animal contact has occurred or is suspected, place the carcass in a heavy-duty plastic bag and then place it inside a larger container, packed with ice packs. Keep the specimen cool but not frozen, and keep it away from children and pets.
• Call the number of the appropriate laboratory listed below or the Pennsylvania Department of Health’s Bureau of Laboratories hotline to determine whether the animal should be submitted for rabies testing and for instructions on submitting an animal for testing.
• Some laboratories may require that the head of larger animals, such as livestock, cats, dogs, raccoons, skunks, groundhogs, or foxes, be removed by a veterinarian before submission. Smaller animals, such as bats, chipmunks, or squirrels, can be submitted in their entirety. The laboratory of the Pennsylvania Department of Agriculture in Harrisburg will accept all carcasses and decapitation is not necessary.
• Prior to shipping a specimen, contact the Pennsylvania Department of Agriculture, 717-787-8808, or the Bureau of Laboratories, 610-280-3464. They will give you specific instructions on how to package and send the specimens.
Rabies Information and Contact Numbers
For information and specimen submission forms, go to www.padls.org.

Pennsylvania Department of Agriculture
Pennsylvania Veterinary Laboratory
2305 North Cameron Street
Harrisburg, PA 17110-9449
Phone: 717-787-8808
Fax: 717-772-3895
Email: pvl@pa.gov
Hours: 7:00 a.m. to 4:00 p.m., Monday–Friday
www.agriculture.pa.gov

24 hours, 7 days a week contact:
Pennsylvania Department of Health
Toll free: 1-877-PAHEALTH

Pennsylvania Department of Health
Bureau of Laboratories
110 Pickering Way
Exton, PA 19341-1310
Phone: 610-280-3464
Hours: 7:30 a.m. to 4 p.m., Monday–Friday

Prepared by Lisa M. Williams-Whitmer, former assistant wildlife extension specialist, and Margaret C. Brittingham, professor of wildlife resources.

extension.psu.edu
Penn State College of Agricultural Sciences research and extension programs are funded in part by Pennsylvania counties, the Commonwealth of Pennsylvania, and the U.S. Department of Agriculture.
Where trade names appear, no discrimination is intended, and no endorsement by Penn State Extension is implied.
This publication is available in alternative media on request.
Penn State is an equal opportunity, affirmative action employer, and is committed to providing employment opportunities to all qualified applicants without regard to race, color, religion, age, sex, sexual orientation, gender identity, national origin, disability or protected veteran status.
Produced by Ag Communications and Marketing
© The Pennsylvania State University 2016
Code UH083 2/17pod