

What is rabies?

Rabies is a preventable viral disease of mammals (including humans) most often transmitted through the bite of a rabid animal. The rabies virus infects the central nervous system. Rabies is almost always fatal once symptoms appear. The vast majority of rabies cases in the United States each year occur in wild animals like raccoons, skunks, bats, and foxes. Animal rabies is reported annually in New York City and State, primarily in bats, skunks and raccoons.

In the United States, rabies rarely infects humans because of companion animal vaccination programs and the availability of human rabies vaccine. There have been no human cases of rabies in New York City for more than 50 years. New York State has reported 14 human cases since 1925.

Human rabies vaccine, if administered promptly and as recommended, can prevent infection after a person has been bitten or otherwise exposed to an animal with rabies. The human rabies vaccine is given in a series of five vaccinations along with one initial dose of rabies immune globulin (RIG). The one time dose of RIG and five vaccines administered over the course of one month is referred to as post exposure prophylaxis (PEP).

Who gets rabies?

All mammals, including humans, can get rabies, but it most often seen among wild animals such as raccoons, skunk, bats, fox and coyotes.

Which animals get rabies?

Animal species most often diagnosed with rabies in the United States are wild and include raccoons, skunks, bats, foxes and coyotes. In the eastern US, raccoons are the principal reservoir of rabies and primarily transmit the virus to other raccoons. On occasion, when raccoon rabies is widespread in an area, raccoons may infect other animals such as cats, dogs or other mammals.

Rabbits and small rodents (such as chipmunks, gerbils, guinea pigs, hamsters, mice, rats, and squirrels) are rarely found to be infected with rabies and have not been known to transmit rabies to people. Bites by these animals are usually not considered a risk of rabies unless the animal appeared sick or was behaving in an unusual manner. The one exception has been woodchucks or groundhogs, which have occasionally been reported to have rabies. In all cases involving rodents, the health department should be consulted before a decision is made to initiate postexposure prophylaxis (PEP).

How do people get rabies?

People usually get rabies from the bite of a rabid animal. It is also possible, but quite rare, for people to get rabies from a scratch or from direct contact with a rabid animals saliva or nerve tissue if it gets directly into their eyes, nose, mouth, or an open wound. While raccoons, skunks, foxes and coyotes are considered high-risk sources of virus, bats are the most common source of infection for people across the United States.

From 1990 to 2003 there have been 38 human rabies cases acquired within the US. Two of those occurred in New York State, and none occurred in New York City. Of the 38 cases, 32 were due to bats. A history of having had contact with a bat could only be documented in approximately half of the cases, suggesting that even limited contact with bats may be associated with transmission of the rabies virus. Bat bites may not be obvious as their teeth are small and very sharp. Every known or suspect encounter with a bat is considered a possible rabies exposure and is treated as such. A suspect encounter would include any scenario in which a bat is found in an enclosed setting with a person who may not be fully aware of its presence (i.e. an infant, a person that is sleeping or

intoxicated). If the bat can be captured safely and tested, results will determine whether the person exposed needs PEP. If the bat is not available for testing, the bat is assumed to be rabid, and the person exposed should receive PEP.

Anyone who thinks they may have been exposed to a bat or a rabid animal should contact their physician or their local health department for advice. For more information on bats, rabies and advice on how to capture a bat, please contact your local health department.

Can I get rabies in any way other than an animal bite?

It is extremely rare for a person to get rabies from an exposure other than an animal bite. A non-bite exposure could include a scratch, abrasion, open wounds, or mucous membranes of the nose or eye that gets contaminated with saliva or other potentially infectious material (such as brain or other nerve tissue) from a rabid animal. Occasionally non-bite exposures are treated with PEP.

Rabies has been transmitted through organ transplantation, but this is extremely rare. There have been eight well-documented cases of rabies transmission through corneal transplantation. More recently, four persons became infected and died from rabies after receiving solid organ donations from one infected donor. Inhalation of aerosolized rabies virus is also a potential non-bite route of exposure, but other than laboratory workers who work with the rabies virus, most people are unlikely to encounter an aerosol of rabies virus.

Other contact, such as petting a rabid animal or having contact with the blood, urine or feces (e.g., guano or skunk spray) of a rabid animal, does not constitute an exposure and is not an indication for PEP.

What are the symptoms of rabies in humans?

Early symptoms, which may last for several days, include irritability, headache, fever, malaise, and sometimes discomfort or tingling at the site of the bite or exposure. Within days the patient may develop slight or partial paralysis, hallucinations, agitation, hypersalivation, difficulty swallowing, hydrophobia (fear of water), anxiety, confusion, excitation, convulsions, delirium and death.

What are the symptoms of rabies in animals?

Animals with rabies most often exhibit behavior changes such as a friendly dog that becomes withdrawn or belligerent, an aloof animal that becomes suddenly affectionate, or an animal that demonstrates unusual aggression. They may eat or chew things such as wood, soil, stones, plants, or other foreign objects. One of the most recognizable signs is excessive drooling or foaming at the mouth. Other signs may include a change in voice so that it is hoarse, with a throaty bark or snarl, dilated pupils, vacant stare, muscle tremors (especially in cats), varying degrees of paralysis frequently beginning at the head and neck causing jaws to hang open, and or impaired locomotion.

How soon after infection do symptoms appear?

Typically, symptoms of rabies may start to appear within 1 to 3 months of exposure, although time periods of up to several years have been reported.

When and for how long is an animal able to spread rabies?

An animal can only transmit rabies through a bite when the virus has infected the animal's brain. Once the brain is infected, the animal begins shedding the virus in its saliva. It is at this time or

soon after that the animal begins to show signs of illness. For dogs, cats, ferrets and some other animals the period during which they can shed the virus has been documented. In these animals, rabies virus is present in saliva only a few days prior to the onset of their illness and up until their death. This allows us to observe a biting dog, cat or ferret for 10 days to determine whether it could have been shedding rabies at the time of the bite. If the animal does NOT develop rabies illness during the 10 days observation period, the animal was not shedding rabies virus and the exposed person does not need PEP. This protocol may not apply to all animal species. Animal bites from animals other than ferrets, cats or dogs should be discussed with the Department Of Health.

What constitutes a possible rabies exposure?

A person is considered to have had a possible rabies exposure if:

1. they were bitten by a skunk, fox, coyote, raccoon or bat that either has tested positive for rabies or the animal is not available for rabies testing
2. they were bitten by a dog, cat or ferret that is unavailable for testing or a 10 day observation period
3. they had contact with a bat, or a bat is found in an enclosed setting with a person that may not be fully aware of its presence (i.e., an infant, a person that is sleeping or intoxicated).

It is sometimes difficult to determine whether a possible rabies exposure occurred, so any injury from an animal, or exposure to a bat within the household, should be discussed with a medical provider

What is the preventive treatment for a potential rabies exposure (e.g., animal bite or bat exposure)?

If a physician determines that rabies exposure may have occurred, they will recommend PEP. Preventive treatment requires prompt washing of the bite site with soap and copious amounts of water, followed by the injection of PEP which includes rabies immune globulin (dosage depending on weight) and five doses of rabies vaccine injected into the arm muscle on days 0, 3, 7, 14 and 28 after exposure. Rabies preventive vaccine is no longer given in the abdomen.

How can rabies be prevented?

Avoiding contact with bats and staying away from all wild and stray animals, especially those acting abnormally may minimize exposure to rabies. It is also important to have domestic animals (dogs, cats and ferrets) vaccinated against rabies. Any animal-related injury, and any household exposure or other direct contact with a bat, should be discussed with a physician to determine if rabies preventive treatment is necessary

What happens if I am exposed to rabies but I don't get PEP?

Exposure to a rabid animal does not have to result in rabies. If preventive treatment is obtained promptly following a rabies exposure, most cases of rabies will be prevented. Untreated cases of rabies will likely result in death.