
Public health officials highlight rabies risks and prevention methods

By Gigi Reed, MD October 9, 2026

Rabies is among medicine's most feared infections: a virus that attacks the brain and spinal cord and is almost always fatal once symptoms begin. Yet it also offers one of public health's most important lessons—after a possible exposure, prompt wound care and vaccination can prevent the disease before it takes hold.

Rabies is a zoonotic disease, meaning it passes from animals to people. It is usually transmitted when saliva from an infected mammal enters the body through a bite, scratch, open wound, or mucous membrane such as the eye or mouth. Worldwide, infected dogs account surprisingly for about 99% of human rabies deaths! In the United States, however, rabies is primarily a disease of wildlife, including bats, raccoons, skunks, and foxes.

The virus has an unusual and dangerous route through the body. After entering a wound, it may multiply in nearby tissue, then invade peripheral nerves. Rather than circulating widely in the bloodstream, it travels inside nerves toward the brain and spinal cord. This nerve route partly shelters the virus from immune defenses. By the time the immune system detects the infection fully, the virus may already have reached the central nervous system.

And this is why rabies is so deadly. In the brain, it causes progressive encephalitis—severe inflammation and malfunction of the nervous system. The first symptoms can resemble a routine viral illness: fever, headache, fatigue, and discomfort at the bite site. Tingling, pain, itching, or burning at the wound can be a warning sign. As the infection progresses, patients may develop agitation, confusion, hallucinations, difficulty swallowing, excessive salivation, muscle spasms, or paralysis. The typically disease associated hydrophobia, an inability or intense fear of drinking water is triggered by painful swallowing spasms.

The delay between an exposure and illness is narrow but a lifesaving window. Symptoms often do not begin for one to three months. During that period, the virus has not yet established itself in the brain, so the body can still be protected with post-exposure prophylaxis, commonly called PEP.

PEP begins with immediate, thorough washing of the wound with soap and running water. If a rabies vaccine is needed, vaccine doses over several days and weeks stimulate the immune system to make protective antibodies before the virus reaches the brain. However, once symptoms begin, there is no proven, reliably effective cure; and care is generally supportive.

Not every animal that could transmit rabies is visibly sick. Any mammal can be infected, but some species serve as reservoirs—animal populations in which particular rabies-virus variants circulate. In the United States, bats are an especially important concern because their bites can be tiny and may go unnoticed. A bat found in a bedroom with a sleeping person, a young child, or someone unable to reliably report contact deserves prompt evaluation.

Animals that spread rabies may also themselves become ill and die. The virus is not harmless to its reservoirs. The virus persists because enough infected animals transmit it onward, not because every infected animal remains healthy.

Testing for rabies is very specialized and differs in animals and people. In animals, the definitive test is generally performed only after the animal has died or has been euthanized. A laboratory test usually visualizes the actual rabies-own protein. Molecular methods (those that I had worked on before medical school) can detect the virus's genetic material and may help identify its variant.

Living people with possible exposure are not routinely tested for rabies, because tests may be negative before illness becomes evident and waiting for a test could delay life-saving prevention.

Rabies is rare in Americans largely because prevention works. Vaccination of dogs and cats, animal-control programs, testing of suspicious wildlife, public-health surveillance, and access to PEP have broken many transmission chains. Globally, however, rabies still kills tens of thousands of people each year, disproportionately in rural communities where unvaccinated dogs are common and vaccines or immune globulin may be difficult to obtain.

The practical message is straightforward: do not touch bats or unfamiliar wildlife, keep pets vaccinated, and take every bite, scratch, or possible saliva exposure seriously. Rabies is almost universally fatal after symptoms appear—but it is nearly always preventable when a possible exposure is recognized and treated in time

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