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# Rabies: A Global Threat of Public Health

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## Introduction of rabies

Lyssaviruses, which are bullet-shaped virus like the rabies virus and the Australian bat lyssavirus, causes rabies. When an infected animal bites or scratches a human or another animal, the disease spreads. If saliva from an infected animal comes into contact with the eyes, mouth, or nose, it can transmit rabies. The central nervous system is primarily infected by the rabies virus. Bats, raccoons, skunks, and foxes are the most common carriers of rabies. However, dogs still carry rabies in many other nations, and the majority of rabies deaths in people around the world are caused by dogs bites. According to WHO and CDC reports, rabies kills over 59,000 people every year to all around the world, with somewhat 40% of those being youngsters under the age of 15. Reports also estimate that; more than 95% of rabies-related deaths occur in Africa and Asia. Rabies can be found in over 150 countries and on every continent except Antarctica. More than 3 billion people live in areas where rabies is present. Rabies is not present in dogs in a number of nations, including Australia and Japan, as well as much of Western Europe. Rabies is not present on several Pacific islands.

## Transmission of rabies

The rabies virus is spread by direct contact with saliva or brain/nervous system tissue from an infected animal (such as through broken skin or mucous membranes in the eyes, nose, or mouth. Aside from bites and scrapes, other means of transmission are infrequent. One non-bite form of exposure is inhalation of aerosolized rabies virus, although most people with the exception of laboratory personnel will not come into contact with an aerosol of rabies virus. Rabies has been transmitted through corneal and solid organ transplants, but these cases are extremely rare. Contact with non-infectious fluid or tissue (urine, blood, faeces), such as touching a person with rabies or touching a person with rabies, is not linked to infection risk.

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Contact with a person having rabies vaccine does not result in rabies exposure, illness, or the need for postexposure prophylaxis.

**Signs and symptoms of rabies**

The rabies virus must travel to the brain after being exposed to it before causing symptoms. In humans and other species, rabies is a severe virus that causes brain inflammation. The incubation of a virus to onset of disease is about few weeks to several months it depends on the several factors like location of the exposure site and its distance from the brain, immunity and the type of rabies virus. The earliest signs of rabies, such as weakness or pain, fever, headache are similar to those of the flu. There may also be a stinging, prickling, or itching feeling at the bite site. These signs and symptoms could linger for days. Cerebral dysfunction, anxiety, confusion and agitation are the next symptoms to appear. Delirium, strange behavior, hallucinations, hydrophobia (fear from water), and insomnia may occur as the advances conditions. The acute phase of the illness usually lasts 3 to 10 days. The disease is nearly invariably fatal once clinical indications of rabies develop, and treatment is usually supportive. There have only been a few examples of human survival from clinical rabies. Rabies in animals has a wide range of indications, symptoms, and outcomes. Symptoms in animals are frequently the same as in people.

**Diagnosis**

The history of dog bite, signs and symptoms are the primary methods of detections. The direct fluorescent antibody test (FAT), which looks for rabies viral antigens in brain tissue, is used to detect rabies in animals. Several tests are presents for human diagnosis in people viz. IFT, CFT and PCR.

**Treatment**

There is no effective treatment for rabies once it has been established. It's almost usually lethal once symptoms arise. Infection can be avoided by using a vaccine. Despite the fact that a tiny number of people have survived rabies, the disease is usually fatal. As a result, if you believe you've been exposed to rabies, you'll need to have a series of shots to prevent the disease from spreading and post exposure management of dog bite may prevent the disease to victim.

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**Post exposure management of dog bite**

**A-Wound Care**

Bite wounds can cause serious harm, such as nerve or tendon laceration and infection, regardless of the danger of rabies. Your doctor will assess the best method for caring for your wound, as well as how to treat it for the greatest cosmetic results. Immediate gentle irrigation with water or a dilute water povidone-iodine solution has been found to significantly reduce the risk of bacterial infection in many types of bite wounds. In animal experiments, complete wound washing alone, without any extra post-exposure prophylaxis, has been demonstrated to significantly lower the risk of rabies. If you haven't had a tetanus injection in ten years, you should get one. Antibiotic use and initial wound closure decisions should be made in consultation with your doctor.

**B-Immunization of victims**

Post exposure prophylaxis (PEP) consists of a dose of human rabies immune globulin (HRIG) and rabies vaccination administered on the day of the rabies exposure, followed by another dose of vaccine on days 3, 7, 14, 28, and 90.

**Prevention and control of rabies**

By applying the following measures we can prevent the rabies:

1. This significant source of rabies in humans can be eradicated by assuring proper animal vaccination especially the nearby dogs and their proper management, informing those who are at risk, and improving access to appropriate medical care for those who have been bitten.
2. People in high-risk occupations, such as laboratory workers handling live rabies and rabies-related (lyssavirus) viruses and people whose professional or personal activities (such as animal disease control employees and wildlife rangers), should get pre-exposure vaccine.
3. Awareness on rabies and preventing dog bites Dog bite prevention can be overcome by education for both children and adults is an important component of a rabies vaccination

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programme, since it can reduce both the incidence of human rabies and the cost of treating dog bites.

4. Education and information on responsible pet ownership, how to prevent dog bites, and immediate care procedures after a bite are all part of raising community knowledge of rabies prevention and control. The program's reach and uptake are increased as a result of community involvement and ownership.
5. The annual World Rabies Day campaign brings together researchers and collaborators to achieve these aims by raising awareness and mobilizing resources in support of human and animal rabies prevention and control around the world.