4. **Heartworm:**
This disease is transmitted by a mosquito that bites an infected dog. It passes the infection on to other dogs or cats that it bites. The developing heartworm migrates to the dog's heart, where they can grow up to 14 inches in length as they mature. Heartworm infections are common along the Atlantic and Gulf Coasts and the Mississippi River Valley and its tributaries, and now have been reported in every state in America, including Alaska, and in Canada as well. The treatment for heartworm can be dangerous and costly. However, if the heartworm is not removed, it can cause permanent heart and lung damage and even death.

~**Symptoms in Dogs:** Fatigue, weight loss, and a chronic cough. These symptoms may not appear in an infected dog for sometime.

~**Symptoms in Cats:** Heartworm can also infect cats although the worm density is normally lower in a cat's heart. Occasionally, a small number of worms will enter the lungs of the cat causing what is called "Sudden Death Syndrome". Symptoms of heartworm in cats can mimic upper respiratory infections, hairballs, or other things, so cats should be taken to their veterinarian for proper diagnosis.

5. **Filariasis:**
This disease is transmitted from person to person by various species of mosquitoes. The World Health Organization estimates that at least 250 million people are infected with the filarial nematode parasites *Wuchereria bancrofti* and *Brugia malayi*. These nematodes undergo developmental changes in the mosquito which is an essential link in the cycle of transmission. The infective filariae are not injected into the new host by the mosquito but actively penetrate the skin, perhaps at the site where the mosquito punctured the skin. The immature worms, called microfilariae, occur in the human bloodstream. Filariasis is widespread in many tropical and subtropical regions throughout the world. In many parts of the U.S., people who have recently left the tropics may have the immature worms circulating in their blood. However, the disease is not known to be naturally acquired in the U.S. at the present time.

~**Symptoms:** Persons may harbor the parasites with no apparent symptoms, or the filarial worms may cause inflammation and other complications. In some persons who have had prolonged and repeated infections, there may be extreme enlargement of the external genitalia, breasts, or legs.

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**Diseases Transmitted by Mosquitoes**

- West Nile Virus
- Encephalitis
- Filariasis
- Malaria
- Yellow Fever
- Dengue
- Heartworm
What is Encephalitis?
Encephalitis is an inflammation of the brain that results from either direct infection or the immune response to an infection.

Types of Encephalitis

1. Eastern Equine Encephalitis (EEE):
EEE is a viral disease that is spread to pheasants, horses and humans by infected mosquitoes. The disease produces serious illness and the probability of recovery is less than 50%. Of people who recover, many suffer permanent brain damage. The infection can also be transmitted to horses and other animals. Small outbreaks of human disease have occurred in the United States, and epidemics in horses can be common during the summer and fall. A vaccine is available for horses, but not for humans.

~Symptoms: Most people have no symptoms, while others get a mild flu-like illness with a fever, headache, and sore throat. An infection of the central nervous system, a sudden fever and severe headache can be followed quickly by seizures and coma.

2. St. Louis Encephalitis (SLE):
SLE is one of a group of mosquito-borne viruses that can affect the central nervous system. SLE may cause severe complications and even death. Since 1964, there have been about 5,000 confirmed cases of SLE, with an average of 128 cases per year. The incidence of SLE in people older than 60 is generally 5 to 40 times greater than in those less than 10 years old. The largest outbreaks in the last 15 years occurred in 1990 in Florida and Texas.

~Symptoms: Dizziness, headache, tiredness, and fever. A more severe form can cause convulsions and even death.

3. La Crosse Encephalitis (LAC):
LAC is a rare viral disease that is spread by infected mosquitoes. It usually affects children and is one of several mosquito-borne viral diseases that can affect the central nervous system and cause severe complications. LAC is most common in the North Central U.S. Clinical cases have also been reported from other states in smaller numbers.

~Symptoms: Fever, headache, nausea, vomiting, and tiredness can occur in the mild cases of LAC. Severe cases of LAC are usually found in children. Children can have seizures, coma, paralysis, and brain damage. It takes approximately 5 to 15 days after the bite of an infected mosquito to develop any symptoms.

4. West Nile Virus (WNV):
WNV, which is similar to SLE, was historically found in Africa, Asia, and Europe, until its appearance in North America in 1999. WNV is transmitted to humans by mosquitoes. This cycle of transmission is usually limited, but as the mosquito population expands, the chance of human infection is raised. The WNV is located in the mosquito’s salivary glands and it is then injected into a human or animal. About 10% of the symptomatic cases result in death. Fatalities are more likely in people over the age of 50. There is no known treatment for persons infected with WNV. Case-fatality rates range from 3% to 15% and are highest in the elderly.

~Symptoms: Mild infections are common and include a fever, headache, body aches, often with a skin rash and swollen lymph glands. Severe infections include a headache, high fever, stiff neck, stupor, disorientation, coma, tremors, convulsions, muscle weakness, paralysis, and rarely death.

5. Jamestown Canyon Virus (JC):
JC virus is widely distributed throughout North America. This virus has been isolated from numerous species of mosquitoes (mostly spring mosquitoes) and tabanid flies. The white-tailed deer is believed to be the primary host. Serologic surveys of Michigan residence by the University of Notre Dame have shown that 28% had evidence of JC infection.

~Symptoms: Normally a mild illness that includes headache, fever, chills, and sweating. Often signs of respiratory tract infection, such as a cough, precede the onset of the principal illness symptoms.

Other Mosquito-Borne Diseases:

1. Malaria:
A very significant and serious tropical disease. It is a protozoal infection transmitted through the bite of an infected Anopheleine mosquito. Malaria infects 300-500 million people per year and some 1.5-2.7 million people die each year. If malaria is adequately and promptly treated, it is a curable disease.

~Symptoms: Muscle pain, tiredness, headache, loss of appetite, chills, and a slight fever (much like flu symptoms).

2. Yellow Fever:
This mosquito-borne tropical disease has symptoms that vary from mild to fatal. Yellow fever is caused by an arbovirus (flaviviridae), and is transmitted by the bite of mosquitoes. Yellow fever usually infects the liver, kidneys, and the digestive tract. There is no specific treatment for yellow fever. Persons with yellow fever should rest and drink plenty of fluids. Antibiotics have no effect on the yellow fever virus, however a vaccine is available.

~Symptoms: Fever, headache, backache, weakness, nausea, vomiting, unusual bleeding, and jaundice.

3. Dengue:
A flu-like illness spread by the bite of an infected mosquito. In the U.S., approximately 100 cases are reported each year in travelers returning from tropical areas. The dengue risk is increasing for persons living along the Texas-Mexico border and in other parts of the southern United States. There is no therapeutic cure or vaccine available.

~Symptoms: High fever, bone and joint pain, skin rash, hemorrhages under the skin, nausea, vomiting, and headaches.