



West Nile Virus and Eastern Equine Encephalitis in the United States

Jake Oatess

West Nile Virus and Eastern Equine Encephalitis are two viruses in the United States that are transmitted by mosquitos that have garnered a lot of attention, albeit for different reasons. Both of these viral diseases receive a lot of focus due to their unique characteristics. The West Nile Virus is one of the most common viruses in the United States when it comes to arboviruses (viruses that are spread by insects). Cases have been reported in all forty eight states in the continental United States and seasonal outbreaks occur every summer in certain local areas that vary year to year all over America. Thankfully, West Nile Virus rarely is fatal and doesn't pose that big of a health risk.¹ Eastern Equine Encephalitis, on the other hand, is a serious viral disease that can often be fatal if not dealt with immediately. Only a few cases are reported in the United States each year, mostly in the Atlantic and Gulf Coast States, but those cases that are reported are dealt with seriously as Encephalitis is potentially fatal.²

West Nile Virus, like the Zika Virus, affects most adults mildly and a lot of the time a person will not even know that they had been infected with the virus and will not exhibit any symptoms. About one in five people who are infected will exhibit some symptoms of the virus, usually developing a fever with other symptoms like body aches, joint pains, headaches, vomiting, diarrhea, and sometimes a rash. Less than one percent of infected people will develop serious symptoms of neurological illness like inflammation of the brain and the surrounding tissue. About ten percent of this one percent of people who develop these severe symptoms end up dying.³ Eastern Equine Encephalitis is much more serious. This virus can result in one of two different types of illness, systematic or encephalitic. It is possible that people infected with Encephalitis will not develop any symptoms, but this is rare. Systemic infection has a quick onset and results in symptoms such as fever, chills, malaise, arthralgia, and myalgia. Signs of the encephalitic form of illness manifests itself in symptoms like fever, headache, irritability, restlessness, drowsiness, anorexia, vomiting, diarrhea, cyanosis, convulsions, and comas. Incredibly dangerous, one in three people who come down with Eastern Equine Encephalitis ends up dying.⁴

¹ <https://consumer.healthday.com/encyclopedia/diseases-and-conditions-15/misc-diseases-and-conditions-news-203/west-nile-virus-648389>

² <https://www.cdc.gov/easternequineencephalitis/gen/qa.html>

³ <https://www.cdc.gov/westnile/symptoms/index.html>

⁴ <https://www.cdc.gov/easternequineencephalitis/tech/symptoms.html>

There is no vaccine available that can prevent West Nile Virus or Eastern Equine Encephalitis and there is also no antiviral medication developed that can treat them as well. For the West Nile Virus, the best thing to do in regards to treatment is utilizing over the counter pain relievers which can be effective in reducing fever and alleviating some of the other symptoms. In more severe cases of West Nile, patients may need to be hospitalized to receive supportive care through methods like intravenous fluids and pain medications. For Encephalitis, patients should always go to the hospital and receive serologic and other diagnostic tests as well as supportive treatment like that mentioned above.

The best way to avoid both West Nile Virus and Eastern Equine Encephalitis is to avoid being bitten by mosquitos. The best ways to combat mosquitoes include: making sure to wear both long sleeves and pants in mosquito populated areas, staying inside and having screens installed on windows and doors to prevent mosquitos from entering the house, spraying yourself with EPA-approved insect repellent, and spraying your clothing and gear with permethrin. Insect repellent must be reapplied after each use, but permethrin will last on clothing and gear for multiple washes. Since permethrin is not supposed to be used on your skin, be sure to either wear long clothing or spray yourself with insect repellent too so you can utilize both methods fully.⁵ Be conscientious of your surroundings; mosquitos mostly inhabit and breed in pools of standing water and puddles that form on the ground.⁶ Try to eliminate areas like this around your house and try to avoid these kinds of settings when out in nature.

Thankfully, mosquitoes do not eat crops. In the abundance with which they are present, mosquitoes would have the ability to decimate crops around the world if that was a source of food for them. Fortunately, that is not the case and they are just more a pest than anything else. And although West Nile Virus and Eastern Equine Encephalitis are both problems here in the continental United States, they are to a lesser degree than what they were back in the 1800's and 1900's. Our mosquito-control methods are much better now compared to what they were as our technology has increased. What used to be a crisis that we faced is now a manageable issue that we do not really have to worry about as much as we did back then. Even though we still do face challenges due to both of these viruses, we have it more under control now more than ever before.

⁵ <https://www.cdc.gov/easternequineencephalitis/gen/pre.html>

⁶ <http://www.orkin.com/other/mosquitoes/mosquito-habitats/>