



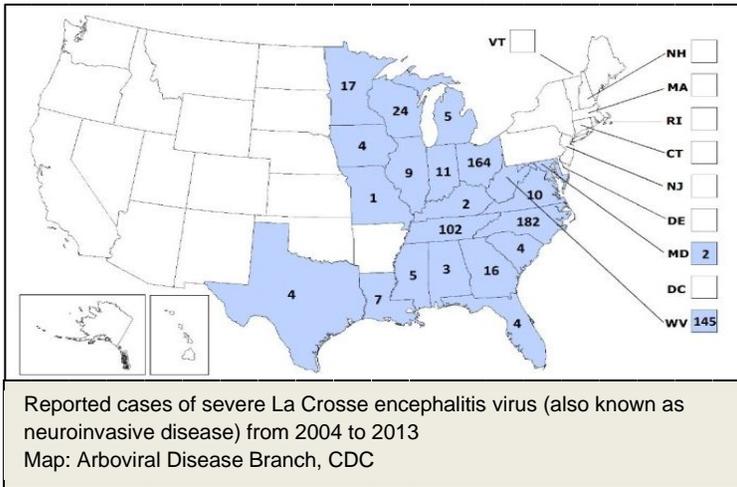
# La Crosse Encephalitis Virus

FACT SHEET 18-022-1115

## Just the Facts...

*La Crosse encephalitis virus (LACV) is a rare viral disease spread by infected mosquitoes. It gets its name from La Crosse, Wisconsin, where the infection was first recognized in 1963. It is one of a number of mosquito-borne virus diseases that can affect the central nervous system including West Nile fever, Western/Eastern equine encephalitis and St. Louis encephalitis. After infection, some people (most commonly children) may develop severe neuroinvasive disease involving encephalitis (inflammation of the brain).*

*In the United States, LACV is mainly found in the upper Midwest and in the Appalachian region, most commonly in hardwood-forested areas. Recently, more cases have been reported from mid-Atlantic and southeastern states.*



### How do people become infected with La Crosse encephalitis virus?

People contract LACV through the bite of an infected mosquito, particularly the eastern treehole mosquito *Ochlerotatus triseriatus*, also known as *Aedes triseriatus*. This mosquito breeds in tree holes and/or manmade containers, and bites during the day. LACV is maintained in a cycle between mosquitoes and small mammal hosts (chipmunks or squirrels). People become infected by accident and are not part of the transmission cycle in nature. However, during an average year about 80 to 100 human cases of LACV are reported.

### Who is at risk for contracting La Crosse encephalitis virus?

Anyone living in or visiting areas where both the virus and mosquitoes are found is at risk of contracting LACV. Those at highest risk include children less than 16 years of age, and people who live in, frequently visit or work outside in woodland habitat areas where the disease is known to occur.

### What are the symptoms of a La Crosse encephalitis virus infection?

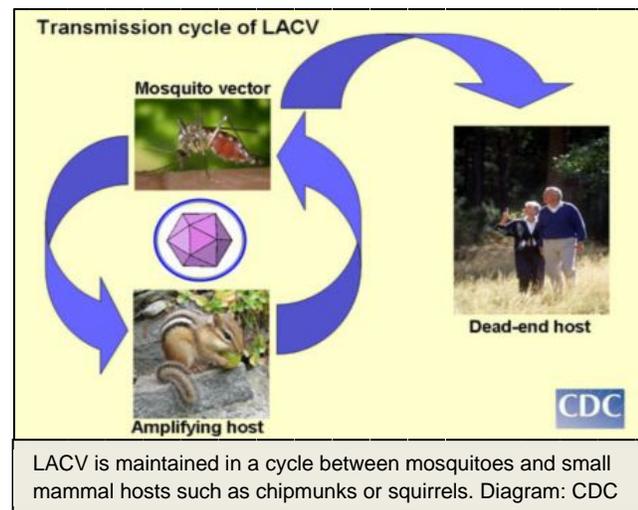
It takes from 5 to 15 days to develop symptoms of LACV after the bite of an infected mosquito. Symptoms include fever (lasting 2 to 3 days), headache, nausea, vomiting, tiredness and lethargy. Severe cases of LACV, called neuroinvasive disease, affect the nervous system and can result in encephalitis (an inflammation of the brain), most commonly in children under 16. While most people recover completely from LACV infections, the disease is fatal in approximately 1% of cases. Diagnosis is based on tests of blood or spinal fluid.

### Is there a treatment for La Crosse encephalitis virus infection?

Seek medical attention if you experience the symptoms described above and have been in an area with LACV. No vaccine or specific antiviral treatment for LACV infection is available; treatment is mainly supportive (including seizure control), directed at relieving the symptoms and preventing complications.

### What can I do to reduce my risk of becoming infected with La Crosse encephalitis virus?

**AVOID MOSQUITO BITES!** Using the DoD Insect Repellent System provides the best protection from mosquito bites. It incorporates permethrin repellent on the uniform, DEET or picaridin repellent on exposed skin, a properly worn uniform and sleeping inside a permethrin-treated bed net.



Another important preventive measure is to eliminate mosquito breeding sites. Do not allow water to accumulate in outdoor containers and drain standing water, especially in shaded areas. Stay in air-conditioned areas or make sure door and window screens are in place and do not have holes. Minimize time outdoors and wear repellents during the day, which is the peak biting time for mosquitoes that transmit LACV.

### How do I know if my uniform is treated with permethrin repellent?

Factory-treated permethrin Army Combat Uniforms (ACU Permethrin) are now available to all Soldiers. The ACU Permethrin trouser and coat will have a sewn-in label indicating the uniform is factory-treated with permethrin. If not factory-treated, Soldiers can field-treat using either the IDA Kit (NSN 6840-01-345-0237), which can last up to 50 washings, or the 0.5% aerosol spray can (NSN 6840-01-278-1336), which should be reapplied after six weeks and the sixth washing. When applying permethrin, always read and follow the label directions. Permanently mark the uniform label with the permethrin field-treatment date. **Never apply permethrin to the skin.** Aerosol products containing 0.5% permethrin and permethrin factory-treated clothing are also commercially available for civilian use.

### What standard military insect repellent products are available for exposed skin?

Approved military insect repellents for use on exposed skin come in a variety of formulations. Always refer to the label to determine frequency of repellent application based on activity. **Do not apply repellent to eyes, lips or sensitive/damaged skin.** Available military repellents are:

- **Ultrathon™** (NSN 6840-01-284-3982) contains 33% controlled-release DEET lotion; one application protects for 12 hours.
- **Ultra 30™ Insect Repellent Lotion** (NSN 6840-01-584-8393) contains 30% Lipo DEET; one application protects for up to 12 hours.
- **Cutter® pump spray** (NSN 6840-01-584-8598) contains 25% DEET; one application protects for up to 10 hours.
- **Sunsect** combination sunscreen & repellent (NSN 6840-01-288-2188) contains 20% DEET with SPF 15 sun protection.
- **Natrapel® pump spray** (NSN 6840-01-619-4795) contains 20% picaridin; one application protects for up to 8 hours.

### What is considered a “properly worn combat uniform”?

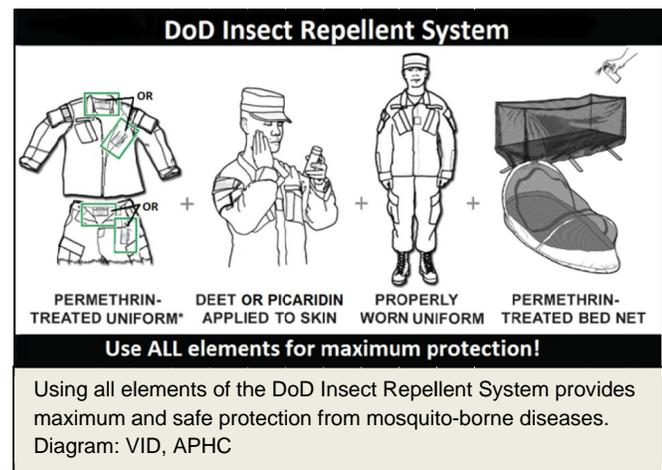
Worn properly, military combat uniforms act as a physical barrier against insects, ticks and other disease transmitters and biting nuisance pests. Wear uniforms with the sleeves rolled down; tuck pants into boots and undershirt into pants. Wear uniform loosely since mosquitoes can bite through fabric that is pulled tight against the skin. A permethrin-treated uniform does not provide protection to exposed skin; protect exposed skin with an approved skin repellent.

### What standard bed nets are available to help protect Soldiers from mosquito bites while sleeping?

Treated bed nets provide a barrier between a sleeping Soldier and pests (e.g. mosquitoes/ticks). Lightweight, self-supporting, pop-up bed nets factory-treated with permethrin are available in coyote brown (NSN 3740-01-518-7310) or green camouflage (NSN 3740-01-516-4415) or the Egret bed net (NSN 3740-01-644-4953). Untreated mosquito bed nets (NSN 7210-00-266-9736) should be treated with 0.5% permethrin aerosol spray and assembled properly on a cot. Check for holes in the netting and keep loose edges off the ground by tucking them under the sleeping bag.

### Where can I find more information about La Crosse encephalitis virus and protection from insect-borne diseases?

- The Centers for Disease Control Prevention: <http://www.cdc.gov/lac/>
- Armed Forces Pest Management Board's Technical Guide-36, Personal Protective Measures Against Insects and Other Arthropods of Military Significance: <http://www.afpmb.org/sites/default/files/pubs/techguides/tg36.pdf>



All standard approved skin repellents contain the active ingredient DEET or picaridin, and are registered by the U.S. Environmental Protection Agency (USEPA). These products are safe to use and effectively repel mosquitoes, sand flies, fleas, ticks and other potential disease vectors and pests. Photo: VID, APHC