



# Chikungunya, Dengue and Zika Viruses

FACT SHEET 18-088-0718

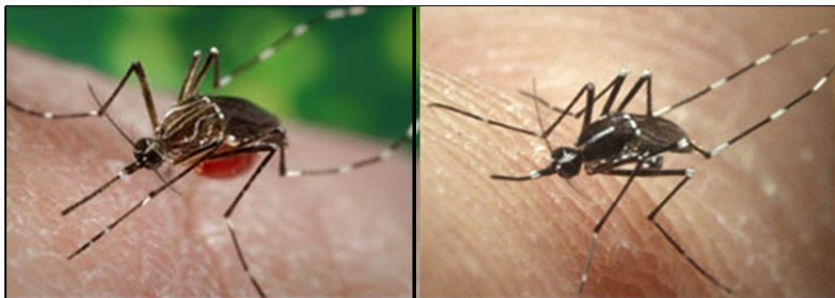
**Chikungunya virus (CHIKV)** [*chick'-en-GUN-yah*], is a viral illness spread by the bite of infected mosquitoes. CHIKV causes a high fever with severe joint pain, similar to other mosquito-borne diseases (like dengue fever).

**Dengue virus (DENV)** [*DEN-ghee*] is a flu-like viral disease spread by the bite of infected mosquitoes. DENV causes high fever with joint pain. Dengue hemorrhagic fever is a severe, often fatal, complication of dengue.

**Zika virus (ZIKV)** is a viral illness spread by the bite of infected mosquitoes. Most people have no symptoms or experience mild symptoms, including fever, rash, joint pain, and red eyes. ZIKV is associated with birth defects in children born to women infected while pregnant.

**There are no specific treatments or vaccines for any of these viruses. Prevention is the only way to mitigate the disease.**

**How do people become infected with CHIKV, DENV and/or ZIKV?** These viruses are most often spread to people by the yellow fever mosquito (*Aedes aegypti*) and the Asian tiger mosquito (*Aedes albopictus*), which are aggressive daytime biters with peak activity at dawn and dusk. If a mosquito bites an infected person, it can later spread the virus when it bites another person. People cannot become sick from direct physical contact with a CHIKV, DENV or ZIKV infected person. However, ZIKV can also be spread through sexual activity, blood transfusion and from mother to fetus during pregnancy.



*Aedes aegypti* (left) and *Aedes albopictus* (right). These mosquitoes are the primary transmitters of CHIKV, DENV and ZIKV. Both are aggressive daytime biters which readily feed on humans. *Ae. aegypti* is the most important vector in tropical climates, while *Ae. albopictus* plays a more significant role in temperate areas. Photo: CDC

### What are the symptoms of CHIKV infection?

Symptoms include sudden onset of high fever, severe joint pain, muscle pain and headaches. Symptoms appear on average 3 to 7 days (can range from 2 to 12 days) after being bitten by an infected mosquito. A common posture of patients is being contorted (or hunched-over) due to severe joint pain, which is the most common symptom of the disease. While most patients recover after a few days or weeks, a small number of patients may develop chronic joint pain. Hospitalization and death are rare.

### What are the signs and symptoms of dengue?

Dengue usually starts suddenly with a high fever, rash, severe headache, pain behind the eyes, muscle and joint pain. The severity of the joint pain has given dengue the name "breakbone fever." A rash usually appears 3 to 4 days after the start of the fever. The illness can last up to 10 days, but complete recovery can take longer. Most DENV infections result in relatively mild illness, but some can progress to dengue hemorrhagic fever.

### What are the signs and symptoms of ZIKV infection?

Symptoms usually begin 2 to 7 days after being bitten by an infected mosquito. Common symptoms include fever, rash, joint pain and red eyes. Other symptoms include muscle pain, headache, pain behind the eyes, and vomiting. As symptoms are often mild, infection may go unrecognized or be misdiagnosed. Only about one in five people infected with ZIKV will develop symptoms.

|                           | Pregnant       | Not Pregnant | Post-deployment                            | Planning a family after Deployment   | If your partner is Pregnant                           |
|---------------------------|----------------|--------------|--|--|---|
| Female                    | Non-deployable | Deployable   | Practice safe sex for 2 months or abstain. | Wait 2 months post deployment before trying to conceive. Practice safe sex or abstain. | *****   |
| Male                      | *****          | *****        | Practice safe sex for 6 months or abstain. | Wait 6 months post deployment before trying to conceive. Practice safe sex or abstain. | Use condoms or abstain for the rest of the pregnancy. |
| Couples deployed together | Non-deployable | Deployable   | Practice safe sex for 6 months or abstain. | Wait 6 months post deployment before trying to conceive. Practice safe sex or abstain. | *****   |

Adapted from the CDC Advice to Travelers to Zika-endemic area.

### What should I do when I go back home after working in Zika-Affected Countries?

Zika virus often has no symptoms, so the CDC recommends using condoms to prevent transmitting ZIKV to a partner. Women can transmit ZIKV for up to 2 months after infection, while men can transmit ZIKV for up to 6 months.

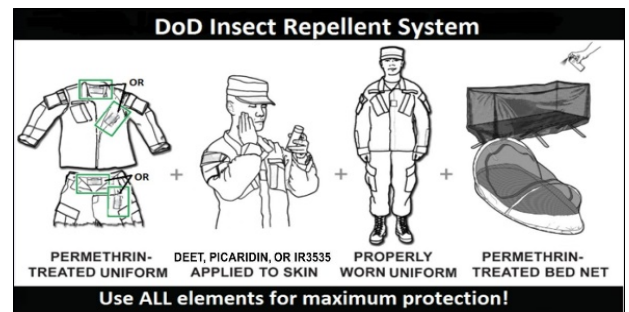
### What should I do if I think I have CHIKV, DENV, and/or ZIKV?

Seek medical attention if you experience the symptoms described above and have traveled to an area where these viruses occur. Symptoms are similar and only laboratory tests can identify the disease. Be sure to tell your health care provider your recent travel history.

## What can I do to reduce my risk of becoming infected with CHIKV, DENV, ZIKV?

The best way to prevent diseases spread by mosquitoes is to protect yourself from mosquito bites by using the DoD Insect Repellent System. It incorporates permethrin repellent on the uniform; DEET, picaridin, or IR 3535 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 containers. Stay in air-conditioned areas or make sure door and window screens are in place and do not have holes. Minimize time outdoors around dawn and dusk, which are the peak biting times for the *Aedes spp.* mosquitoes that transmit CHIKV, DENV, and ZIKV.



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

Factory-treated permethrin Army Combat Uniforms (ACU) and Operational Camouflage Pattern (OCP) uniforms are now available to all Soldiers. The ACU/OCP trouser and coat have a sewn-in label indicating the uniform is factory-treated with permethrin. 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 6 weeks and the sixth washing if they are not factory treated. Always read and follow the label directions when applying permethrin. Permanently mark the uniform label with the permethrin field-treatment date. Never apply permethrin to the skin. Aerosol products containing 0.5% permethrin and clothing factory-treated with permethrin 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 to sensitive or damaged skin.** Available military insect repellents are:

- **Cutter® pump spray** (NSN 6840-01-584-8598) contains 25% DEET; one application protects for up to 10 hours.
- **Bullseye™ Bug Repellent pump spray** (NSN 6840-01-656-7707), contains 20% IR3535®; provides protection for up to 8 hours.
- **Natrapel® pump spray** (NSN 6840-01-619-4795) contains 20% picaridin; one application protects for up to 8 hours.
- **Ultra 30™ Insect Repellent Lotion** (NSN 6840-01-584-8393) contains 30% Lipo DEET; one application protects for up to 12 hours.
- **Ultrathon™** (NSN 6840-01-284-3982) contains 33% controlled-release DEET lotion; one application protects for 12 hours.



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

Military combat uniforms act as a physical barrier against insects, ticks and other disease transmitters and biting nuisance pests when worn properly. 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 protect exposed skin. Protect exposed skin with an approved insect repellent applied to your skin.

## 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 get more information about CHIKV, DENV, ZIKV?

- Centers for Disease Control and Prevention: <http://www.cdc.gov/dengue/>
- The Armed Forces Pest Management Board's Zika Virus Preparation Site
- Army Public Health Center (APHC) Zika virus website: <http://phc.amedd.army.mil/topics/discond/diseases/Pages/Zika.aspx>

Use of trademarked name does not imply endorsement by the U.S. Army but is intended only to assist in identification of a specific product.  
**For more information please consult the APHC website - <http://phc.amedd.army.mil>**