



Army Public Health Center Army Vector-borne Disease Report

27 May 2016

Data are preliminary and subject to change

- **Zika virus:** 591 travel-associated cases have been reported to the CDC in the United States; 5 confirmed cases have been reported among Army beneficiaries.
- **PHC-Atlantic:** 9/234 (3.8%) ticks tested for *Ehrlichia spp.* were positive. However, no mosquitoes tested positive for any pathogens.

Dengue Virus (DENV)

- Dengue virus infection (DENV) is caused by one of four related viruses transmitted by mosquitoes.
- The *Aedes aegypti* mosquito is the primary vector of DENV and can be found in tropical and sub-tropical locations. *Aedes albopictus* (Asian tiger mosquito) mosquitoes are also vectors of DENV.
- Symptoms of DENV include high fever, severe headache, severe pain behind the eyes, joint pain, muscle and bone pain, rash, and mild bleeding (e.g., nose or gums bleed, easy bruising). Symptoms usually appear 3-14 days after a bite from an infected mosquito.
- Through 14 May, 205 provisional cases of Dengue virus have been reported to the CDC in 2016, compared to 163 cases during the same time last year.
- In 2016, three confirmed/probable DENV infections in Army AD or other beneficiaries have been reported.
 - ⇒ 2 AD cases with non-duty related travel to Honduras and South America and 1 non-AD case with travel to American Samoa.



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Zika Virus (ZIKV) Update

- From January 1, 2015 through May 25, 2016, 591 ZIKV cases have been reported in the U.S., all travel-associated. 935 locally acquired and 4 travel-associated cases were reported in Puerto Rico, U.S. Virgin Islands, and American Samoa.
- To date, five confirmed cases of ZIKV have been reported in Army beneficiaries: 3 AD and 2 non-AD cases.



DoD Army Laboratory Mosquito Surveillance

- PHC-Atlantic tested 40 *Culex spp.* mosquitoes from 18 pools for WNV and 150 *Aedes spp.* mosquitoes from 26 pools for DENV, CHIKV, and ZIKV. Pools were collected from Cuba and Puerto Rico; none were positive for any of these pathogens.

Ehrlichiosis

- In the U.S., ehrlichiosis is an emerging tick-borne zoonotic disease affecting both humans and animals. The obligate intracellular bacteria *Ehrlichia chaffeensis*, *E. ewingii*, and *Ehrlichia Muris*-like agent (EML) infect white blood cells (leucocytes) and cause febrile illness in humans. Most human cases are caused by *E. chaffeensis* transmitted by the bite of an infected nymph (tick in juvenile stage) or adult female Lone star tick (*Amblyomma americanum*) which gets its name from the single white dot on the adult female's back. *Ehrlichia muris*-like agent, known to cause disease with very similar symptomology, is suspected of being transmitted to humans by the bite of an infected Blacklegged tick (*Ixodes scapularis*) primarily in Minnesota and Wisconsin. Ehrlichiosis in dogs is caused by *E. ewingii* transmitted by the bite of an infected Lone star tick or less commonly by *E. canis* transmitted by the bite of an infected Brown Dog Tick (*Rhipicephalus sanguineus*).
- Common symptoms of human ehrlichiosis include fever, headache, muscle pain, nausea, vomiting, diarrhea, confusion, and conjunctival infection (red eyes). Symptoms usually appear 1-2 weeks after a bite from an infected tick. Infected dogs may suffer from lack of energy, loss of appetite, joint pain, and discharge from the eyes and nose. However, symptoms in canines may go unnoticed and lead to chronic infection.
- Through 14 May, 80 provisional cases of human ehrlichiosis in the U.S. and U.S. territories caused by *E. chaffeensis* have been reported to CDC in 2016, compared to 134 during the same time last year.
- PHC-Atlantic tested 108 *R. turanicus* ticks and 126 *A. americanum* ticks for *Ehrlichia spp.* Three *R. turanicus* ticks (2.8%) and six (4.8%) *A. americanum* ticks tested positive. The positive ticks were collected from Kandahar Air Field, Afghanistan, Fort Knox, KY, Blossom Point, MD, and Adelphi Laboratory Center, MD from the environment and animal hosts.
- PHC-Central collected 90 *A. americanum* ticks from Fort Riley, KS and Ft. Leonard Wood, MO. Test results are pending.



Resources: WHO Dengue • CDC Dengue • CDC Ehrlichiosis • APHC Zika Virus • Permethrin Treated Uniforms • Army Vector-borne Disease Reports • APHC

Key: CDC Centers for Disease Control and Prevention; DRSi Disease Reporting System Internet; AD Active Duty

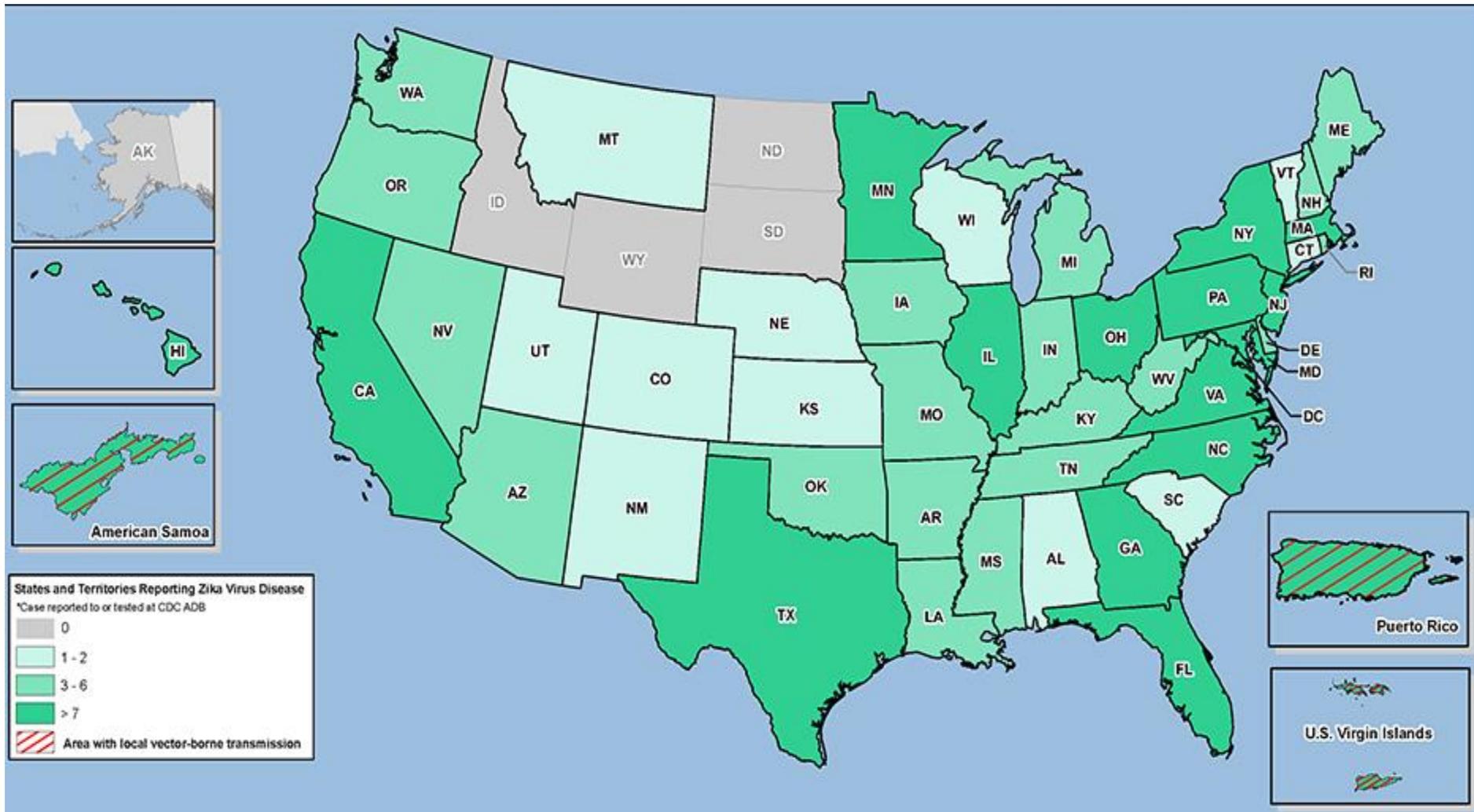
Contact us: APHC Disease Epidemiology or 410-417-2377

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Aedes aegypti



Zika virus disease in the United States, 2015-2016



Provisional data reported to ArboNET for January 1, 2015 – May 25, 2016. *Data as of May 25, 2016.*

Source: Centers for Disease Control and Prevention (CDC) Arboviral Disease Branch. *Zika virus disease in the United States, 2015-2016.*

Available at: <http://www.cdc.gov/zika/geo/united-states.html>

Geographic Distribution of *Amblyomma americanum*



Source: Centers for Disease Control and Prevention (CDC). *Geographic distribution of ticks that bite humans.*

Available at: http://www.cdc.gov/ticks/geographic_distribution.html

Amblyomma americanum (Lone star tick)

