



North Carolina Department of Health and Human Services
Division of Public Health

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Date: 23 JUN 2014
To: N.C. Health Care Providers
From: Megan Davies, MD, State Epidemiologist 
Subject: **Chikungunya Virus and Concern for Introduction into the United States (2 pages)**

Introduction:

An outbreak of mosquito-borne infection caused by the chikungunya virus has been spreading over the past six months in the Caribbean, causing illness in residents and visitors. Information about this outbreak is provided below.

Chikungunya is a mosquito-borne disease caused by an alphavirus, chikungunya virus. The virus is transmitted predominantly by *Aedes aegypti* and *Ae. albopictus*, aggressive daytime biting mosquitoes. Chikungunya virus was first identified in Tanzania in 1953 and has periodically caused outbreaks in Africa for decades. It continues to cause outbreaks in central Africa, Southeast Asia and the Pacific Islands. The first local transmission of chikungunya virus in the western hemisphere was reported on the island of St. Martin on December 6, 2013. Since then, it has spread throughout the Caribbean. Current case counts can be viewed on the Centers for Disease Control & Prevention website. Imported cases have been identified in residents from North Carolina and other states returning from endemic areas. While transmission has not yet been documented in the continental US, local transmission within N.C. is possible, as a competent mosquito vector (*Ae. albopictus*) is found throughout North Carolina.

Disease Transmission:

During epidemics, transiently infected humans are the reservoir for chikungunya. The incubation period following the bite of an infectious mosquito is typically 3-7 days (range, 1-12 days). Persons become viremic approximately two days prior to symptom onset and remain viremic for up to seven days. During the viremic phase, the patient can transmit the virus to mosquitoes which bite them, which could then potentially infect another person. The disease is not directly transmitted from person-to-person.

Clinical Presentation:

Most people infected with chikungunya virus become symptomatic. The most common clinical findings are acute onset of fever and polyarthralgia, primarily affecting the hands, wrists, ankles and feet. Joint pains are often severe and debilitating. Chikungunya should be considered in patients who develop acute onset of fever and polyarthralgia within two weeks of returning from the Caribbean or from other endemic areas. Other symptoms may include headache, myalgia, arthritis, or rash. Persons at risk for more severe disease include neonates exposed in utero, adults ≥ 65 years of age, and persons with underlying medical conditions (e.g., hypertension, diabetes, or cardiovascular disease).

Case Management:

No specific antiviral treatment is available for chikungunya. Treatment is focused on symptoms and includes rest, fluids, and use of analgesics and antipyretics. Dengue fever should be considered in the differential diagnosis for

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these patients because of the similarities in geographic distribution and symptoms. People infected with chikungunya or dengue virus should be protected from further mosquito exposure during the first few days of illness to reduce the risk of local transmission. For more detailed case management information and keys to differentiating chikungunya infection from dengue infection, visit <http://www.cdc.gov/chikungunya/hc/index.html>.

Diagnosis:

Serologic testing for chikungunya is currently offered by Focus Diagnostics and the Centers for Disease Control and Prevention (CDC). Please report the case to your local health department if you plan to submit specimens for testing. (See Surveillance and Reporting below.)

- Focus Diagnostics (www.focusdx.com) has agreed to report positive chikungunya virus test results to the appropriate state/local health department through their usual reporting channels.
- Submissions to CDC must be sent through the North Carolina State Laboratory of Public Health (NCSLPH). **Both** CDC and SLPH submission forms should be completed
 - CDC testing guidelines are found at: <http://www.cdc.gov/ncezid/dvbd/specimensub/arboviral-shipping.html>. Please include all clinical and travel information on the CDC form.
 - NCSLPH submission form, DHHS 3445, is available at <http://slph.state.nc.us/virology-serology/special-serology.asp>. At the bottom of the NCSLPH form, please check forward to CDC.

Diagnostic Assay	Days post-illness onset	Where Performed
Viral culture	≤ 3 days	CDC
RT-PCR	≤ 8 days	CDC
IgM antibody test	≥ 4 days	Focus Dx, CDC

Surveillance and Reporting:

Chikungunya is reportable immediately in North Carolina effective June 23, 2014, under Temporary Order of the N.C. State Health Director. Due to the threat of introduction of this illness into the United States, this disease is required to be immediately reported by physicians to the local health department, as soon as clinically **suspected**. Laboratory confirmed cases are also reportable. Laboratories are also required to report positive results, to the Division of Public Health.

A suspected case is defined as a clinically compatible illness:

- Fever or chills as reported by the patient or a health-care provider, AND
- Arthralgia or arthritis involving two or more joints, AND
- Absence of a more likely clinical explanation

Education of Patients, Prevention of Disease:

We encourage all providers to educate their patients about personal protective measures that can be used to minimize the risk of acquiring this disease. Patients should be advised to consult their physician if they develop a compatible illness. If chikungunya is suspected, patients should be encouraged to stay indoors or use mosquito repellent consistently during the first 5 days of illness, when they might be viremic, in order to minimize the risk that they transmit the virus to local mosquitoes.

Resources and Contact Information:

- CDC website: <http://www.cdc.gov/chikungunya/>
- CDC Health Advisory: <http://emergency.cdc.gov/HAN/han00358.asp>
- NC DPH Communicable Disease Branch Epidemiologist On-Call: 919-733-3419 (24/7)