

N.C. Chikungunya Update

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N.C. Chikungunya Update

- ▶ Wake AHEC requires all speakers to disclose any relevant financial conflicts of interest.
- ▶ Dr. Williams has no relevant financial conflicts of interest to disclose.

Chikungunya Virus

- ▶ RNA virus in *Alphavirus* genus
 - ss (+) in Semliki Forest Complex
 - Three genotypes: Asian, West African, East Central South African (ECSA)
- ▶ Transmitted by mosquitos of *Aedes* genus
 - Historically *aegypti* (vector of Dengue), now also *albopictus*
 - Reservoirs are infected humans
- ▶ Infection causes Chikungunya fever

Aedes Mosquito

Location of *Aedes* Mosquito Species in U.S.

Approximate distribution of *Aedes aegypti* in the United States*

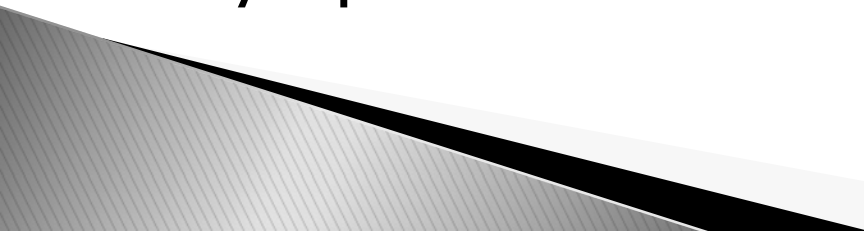


Approximate distribution of *Aedes albopictus* in the United States*

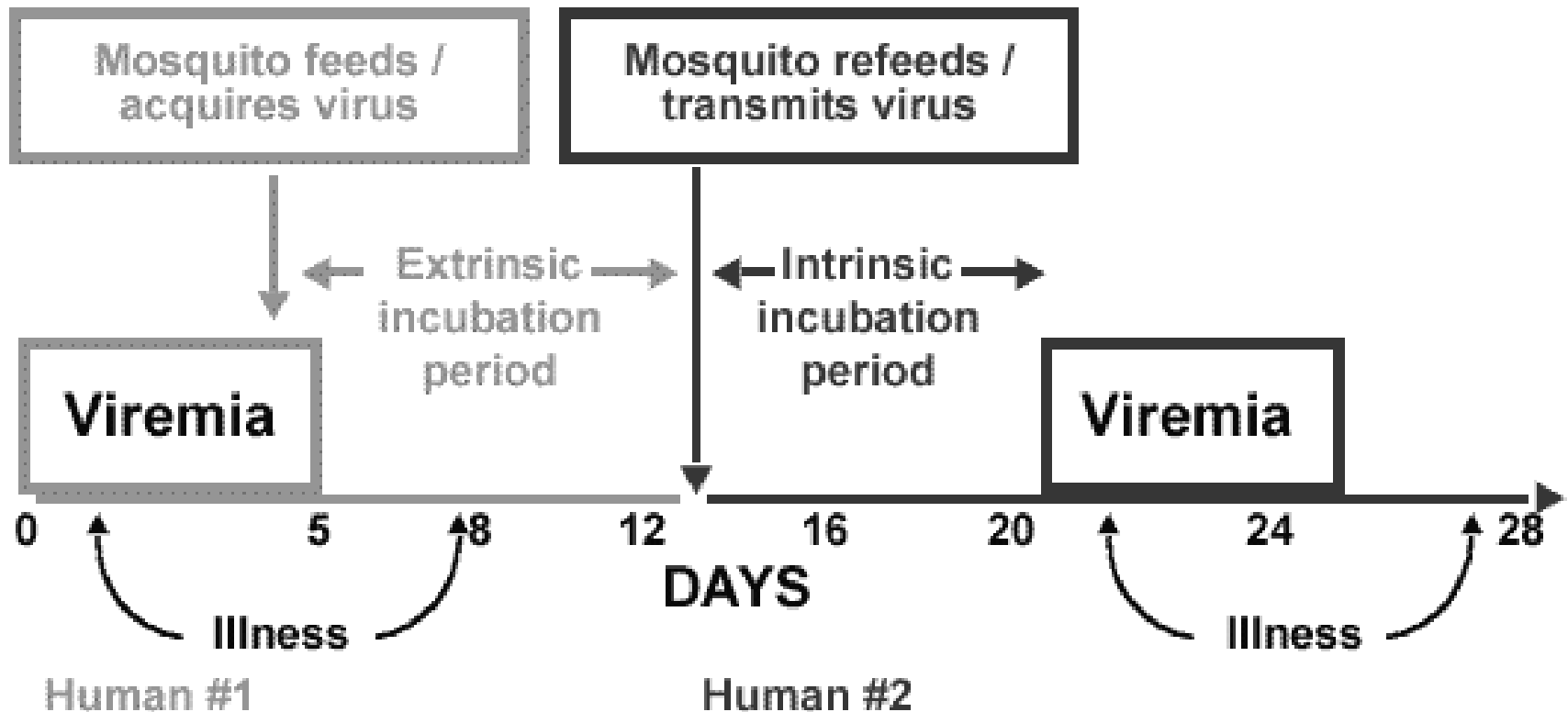


Note: Locally-acquired cases of Chikungunya have been found in Florida and Northern Mexico.

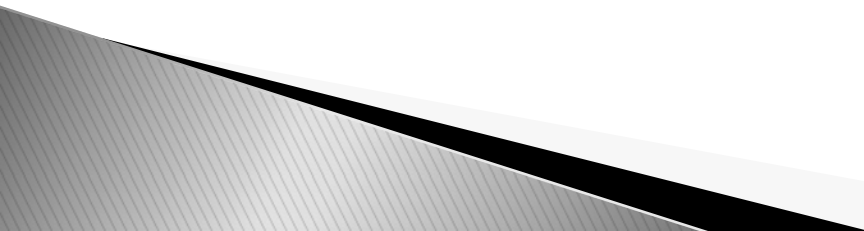
Transmission of Chikungunya

- ▶ Mosquitoes become infected when they feed on a person already infected with the virus.
 - ▶ Infected mosquitoes can then spread the virus to other people through bites.
 - ▶ Period when an infected human can transmit to mosquito = Viremic Period, from 2 days before onset of symptoms to 5 days after symptom onset.
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Transmission Cycle



Clinical Presentation

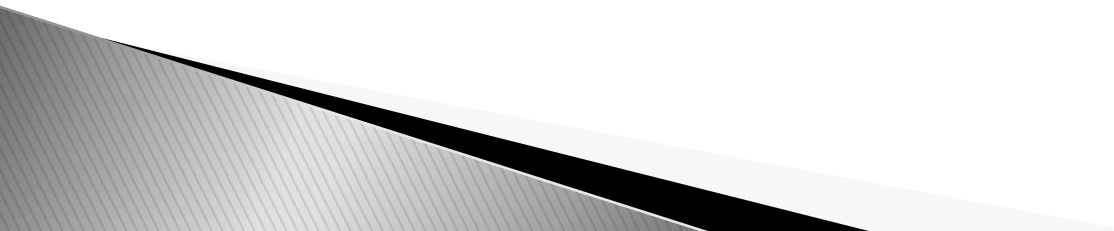
- ▶ Majority (72%–97%) of infected people develop clinical symptoms
 - ▶ Incubation period usually 3–7 days (range 1–12 days)
 - ▶ Primary clinical symptoms are fever and polyarthralgia
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Fever and polyarthralgia

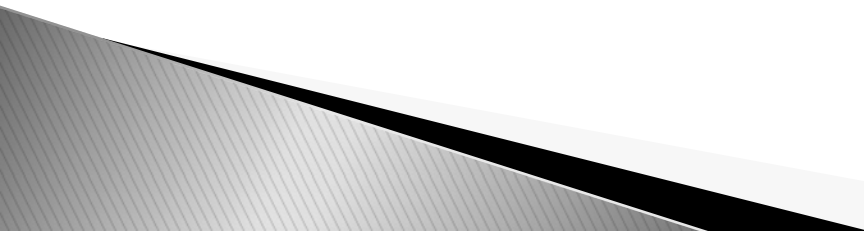
- ▶ Fever
 - Abrupt onset
 - Typically $\geq 39.0^{\circ}\text{C}$ ($\geq 102.2^{\circ}\text{F}$)
- ▶ Joint pain
 - Often severe and debilitating
 - Involves multiple joints
 - Usually bilateral and symmetric
 - Most common in hands and feet



El virus que encorva–virus that bends

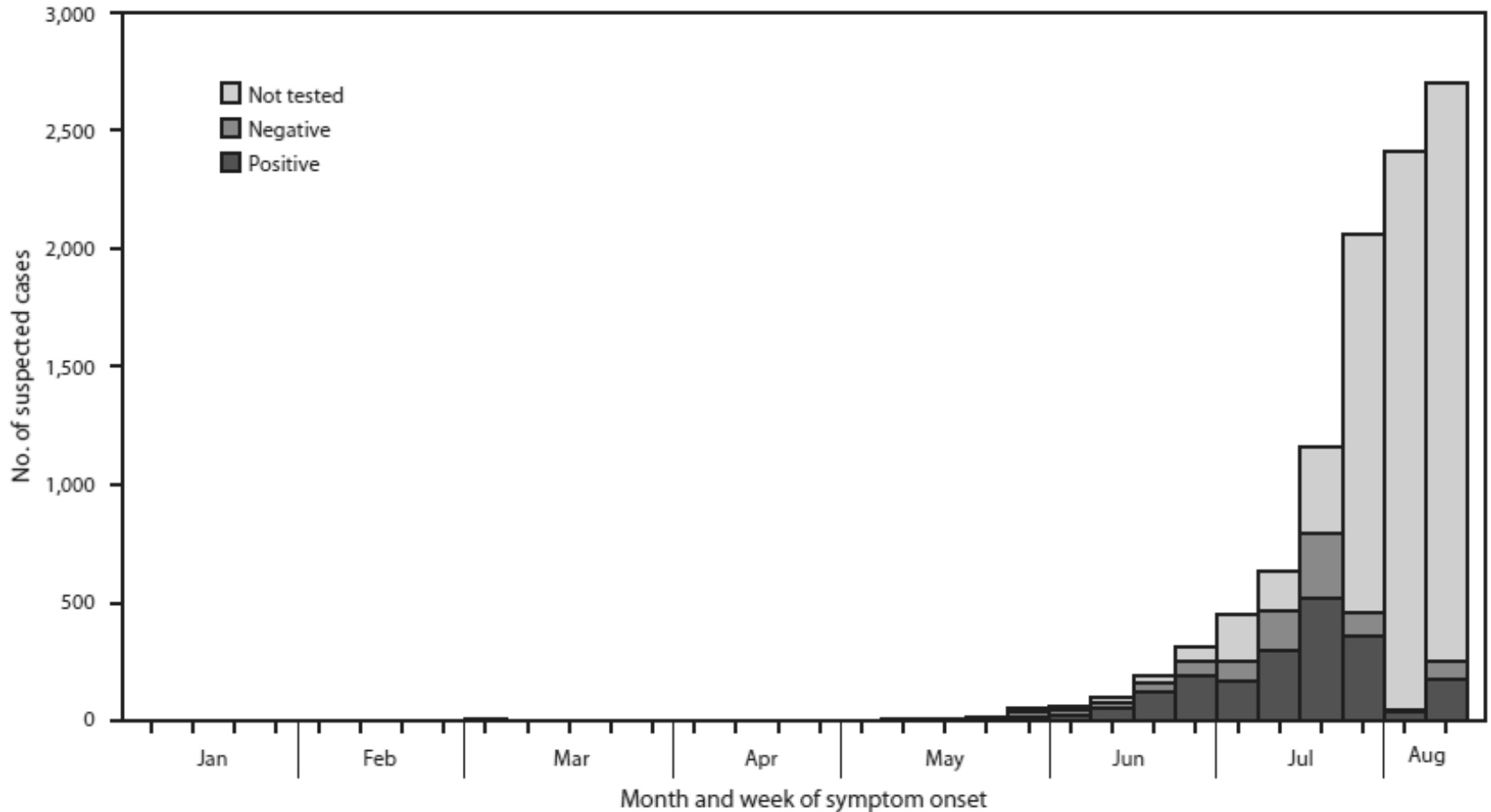


Other clinical signs and symptoms

- ▶ Headache
 - ▶ Myalgia
 - ▶ Arthritis
 - ▶ Conjunctivitis
 - ▶ Nausea/vomiting
 - ▶ Maculopapular rash
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Chikungunya rash

Week of symptom onset and testing status for suspected chikungunya cases reported to the Puerto Rico Department of Health — Puerto Rico, January 1–August 12, 2014



Surveillance in N.C.

- ▶ Reportable in N.C. since June 2014
- ▶ Reportable Via NC EDSS since December 2014

N.C. Chikungunya Case Definition

▶ Clinical criteria

- Fever (chills) as reported by the patient or a health-care provider, **AND**
- Absence of neuroinvasive disease, **AND**
- At least one or more of the following: headache, myalgia, rash, arthralgia, vertigo, paresis, nuchal rigidity, **AND**
- Absence of a more likely clinical explanation.

N.C. Chikungunya Case Definition

Confirmed: A case that meets the clinical criteria and one or more the following laboratory criteria for a confirmed case:

- Isolation of virus from, or demonstration of specific viral antigen or nucleic acid in, tissue, blood, CSF, or other body fluid, **OR**
- Four-fold or greater change in virus-specific quantitative antibody titers in paired sera, **OR**
- Virus-specific IgM antibodies in serum with confirmatory virus-specific neutralizing antibodies in the same or later specimens, **OR**
- Virus-specific IgM antibodies in CSF and a negative result for other IgM antibodies in CSF for arboviruses endemic to the region where exposure occurred.

N.C. Chikungunya Case Definition

Case Classification

- **Probable:** A case that meets the clinical criteria and the following laboratory criteria:
 - Virus-specific IgM antibodies in CSF or serum but with no other testing.

Chikungunya Control Measures

- ▶ Educate public of travel related diseases risk
- ▶ Validate Travel History
- ▶ Validate Viremic Period
- ▶ Counsel suspected patients on importance of staying indoors or wearing mosquito repellent during viremic period

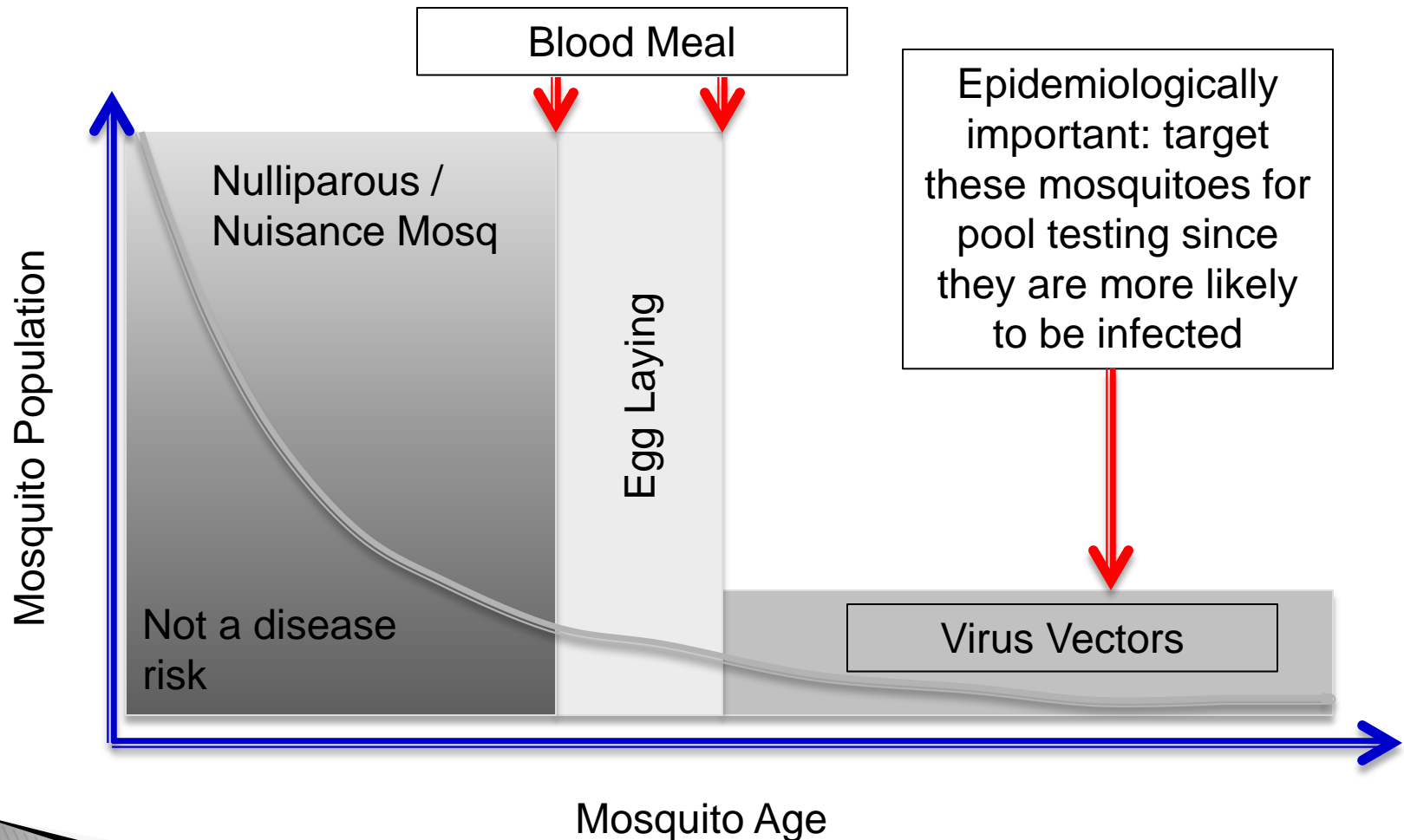
Chikungunya Control Measures

- ▶ Alert Mosquito Control and Local Health Director of situation.
- ▶ Develop a mosquito response plan for Chikungunya in your locality.
- ▶ Notify DPH immediately if locally-acquired case is suspected.

Individual property and Community-wide mosquito control

- ▶ New Hanover County Health Department (NHCHD) provides mosquito control services to protect and promote public's health as authorized by North Carolina General Statutes Chapter 130A-39. NHCHD uses Environmental Protection Agency (EPA) approved pesticides to achieve effective control of mosquitoes with least impact on human health and environment.
- ▶ NHCHD's preferred mosquito control strategy is reduction of mosquito larva numbers through public education, source reduction, and use of mosquito larvicides.

Collaborate with & verify activities of mosquito control programs; Multiparous Mosquitoes Represent Risk



Transovarial transmission of both Chikungunya and Dengue can occur, but in general multiparous mosquitoes represent higher risk, and should be the focus of pool testing, if conducted

Questions??

Resources

- ▶ Centers for Disease Control Chikungunya website, <http://www.cdc.gov/chikungunya/>
- ▶ Pan American Health Organization website, http://www.paho.org/hq/index.php?option=com_content&view=article&id=9053&Itemid=39843