

Announcements

- Register for the Epi-Tech Trainings:
 1. Log-on or Request log-on ID/password:
<https://tiny.army.mil/r/zB8A/CME>
 2. Register for Epi-Tech Surveillance Training:
<https://tiny.army.mil/r/LEAid/EpiTechFY15>
 - Please enter your name/service and e-mail into the chat box to the left or email the disease epidemiology program at:
usarmy.apg.medcom-phc.mbx.disease-epidemiologyprogram13@mail.mil
 - You will receive a confirmation email within the next 48 hours with your attendance record
- Please mute your phones and DO NOT place us on hold. Press *6 to mute/unmute your phone.



Chikungunya: Outbreak in the Americas, 2013-2015

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Contract support to Division of
Integrated Biosurveillance, AFHSC
30 June 2015

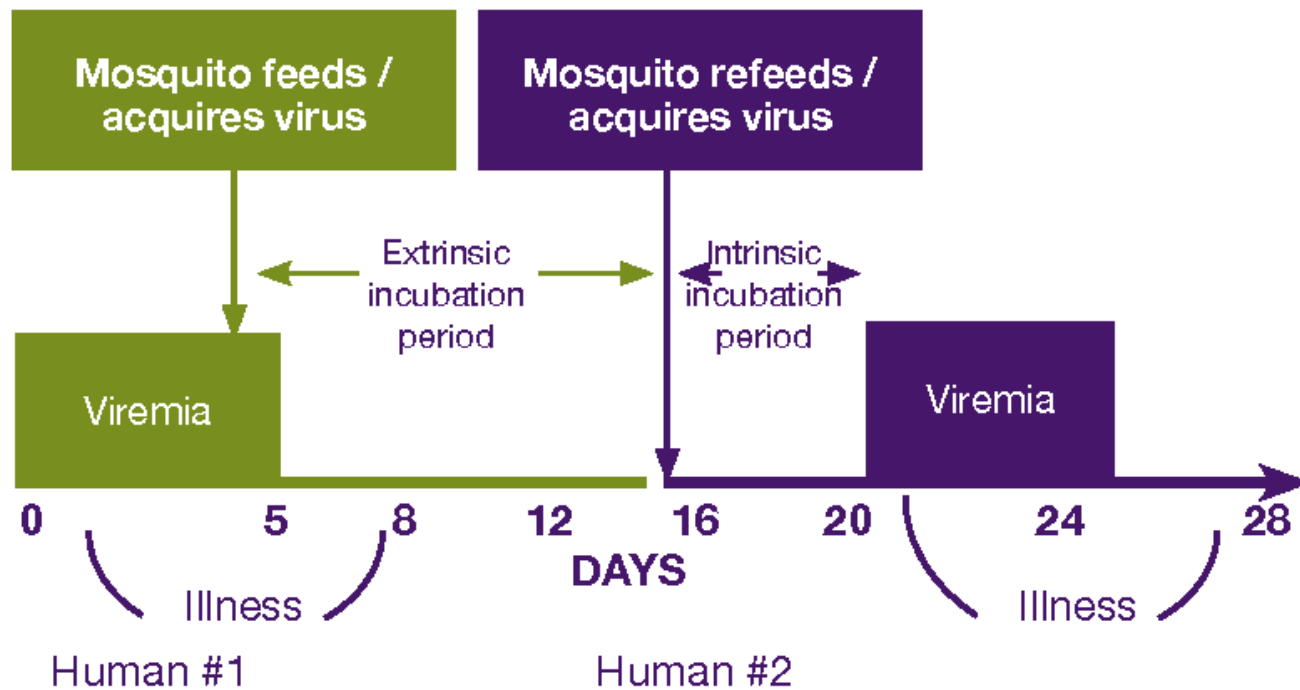


The Virus

- Family *Togaviridae*, genus *Alphavirus*
- Three genotypes
 - **Asian** / East, Central, South Africa / West Africa
- Mosquito-borne: *Aedes* spp. (*aegypti* & *albopictus*)
- Reservoir
 - maintained primarily in a sylvatic (jungle) cycle between mosquitoes and primates in Africa, with variable numbers of human cases.
 - No sylvatic reservoir has yet been definitively identified in Asia or the Americas.
- Causes a generally self-limited febrile disease with debilitating joint pain and fever in humans

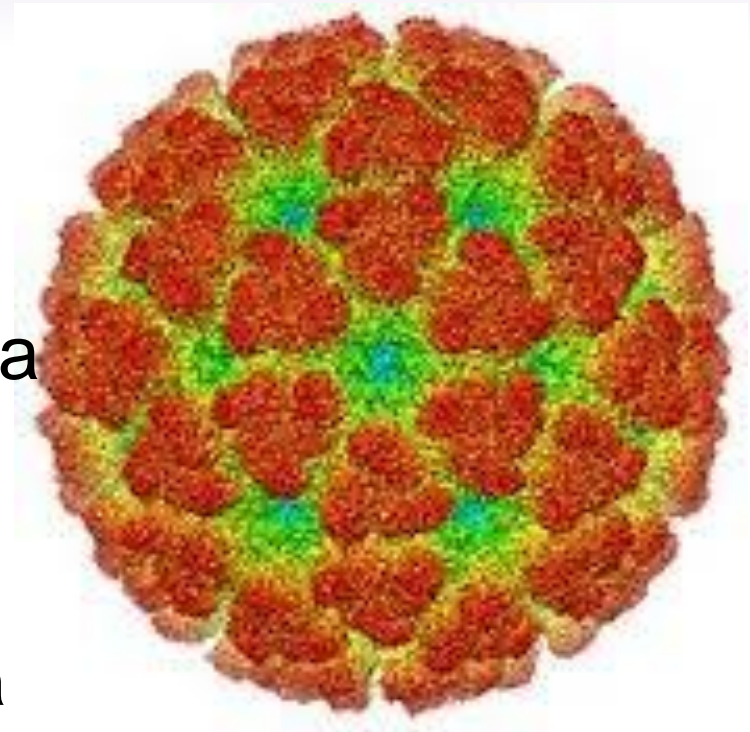


Transmission Cycle

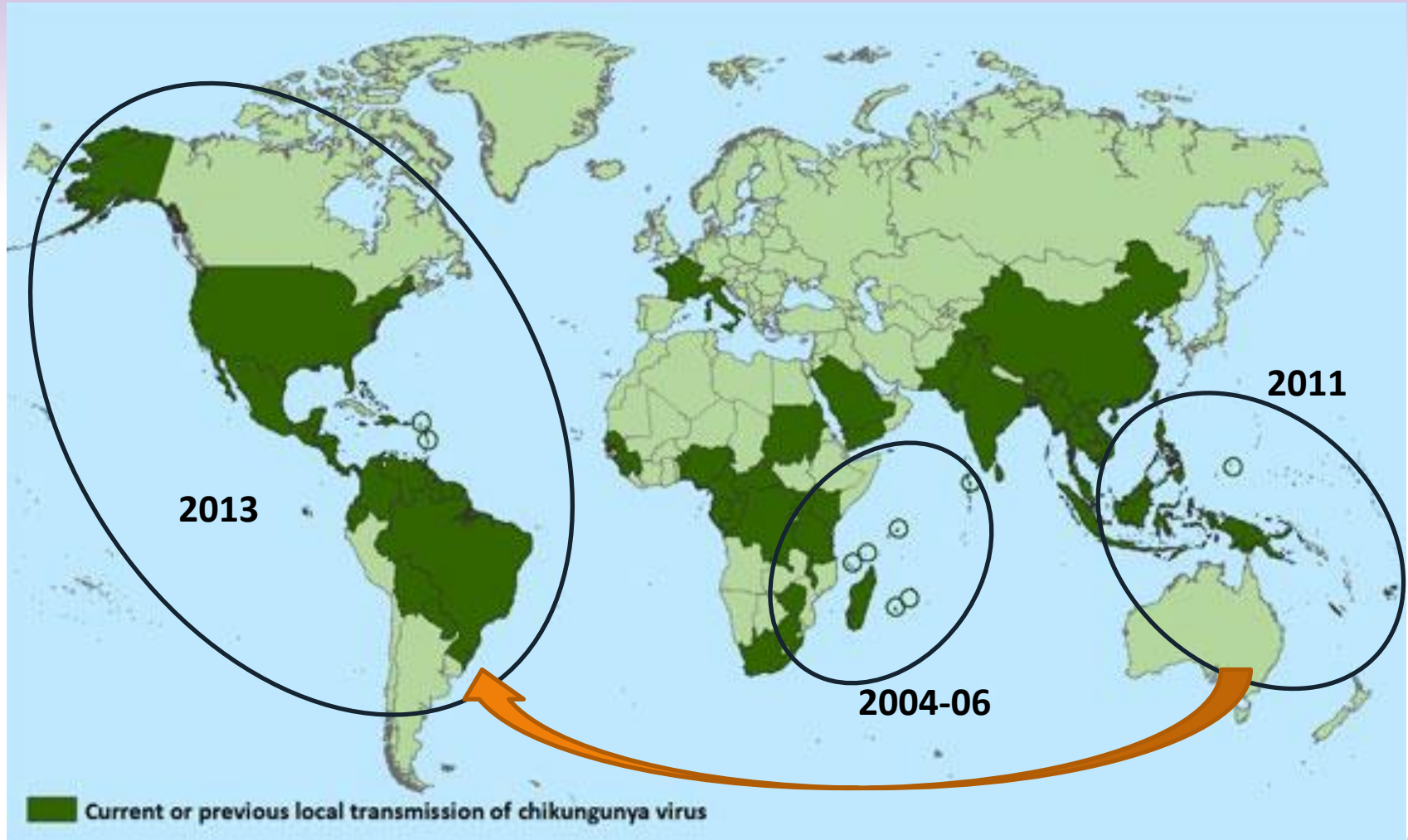


History of Chikungunya Fever

- Discovered in Tanzania in 1952/3
- Described in in 1700s
- Small outbreaks in Africa
- Large urban outbreaks in Asia
- 2004-2006 Outbreak
 - Originated in Kenya
 - Indian Ocean islands, SW Asia
 - >500,000 case reported



Global Spread of CHIK



Signs and Symptoms



Symptom or Sign	Frequency Range (% patients)
Fever	76-100
Polyarthralgias	71-100
Headache	17-74
Myalgias	46-72
Back Pain	34-50
Nausea	50-69
Vomiting	4-59
Rash	28-77
Polyarthritits	12-32
Conjunctivitis	3-59
72% to 97% are symptomatic cases	
PAHO/CDC, 2011	



Acute and Chronic Symptoms

- Acute onset of fever and debilitating joint pain lasting up to 1 week and often longer
- Persistent / Chronic Symptoms
 - La Reunion Island, 18 month post infection:
 - 33% of joint pain
 - 10% of cerebral disorders
 - 7.5% of sensory and neural impairments
 - India:
 - 72% of patients report arthralgia 1 month after onset
 - mean duration of arthritic pain was 89 days



Signs



A. Edematous rash of the face



B. Edematous polyarthritides of the hands



C. Erythema that blanches with pressure



D. Periarticular swelling and joint effusion in knees



E. Maculopapular rash in trunk and extremities



F. Maculopapular rash in extremities, including palms



G. Bullous lesions in infant leg



H. Infant with maculo-papular rash, petechial spots and erythema of upper and lower limbs associated with edema of the extremities



Chikungunya vs. Dengue

Clinical and laboratory features	Chikungunya virus infection	Dengue virus infection
Fever (>102°F or 39°C)	+++	++
Myalgias	+	++
Arthalgias	+++	+/-
Headache	++	++ ^b
Rash	++	+
Bleeding dyscrasias	+/-	++
Shock	-	+
Leukopenia	++	+++
Neutropenia	+	+++
Lymphopenia	+++	++
Elevated hematocrit	-	++
Thrombocytopenia	+	+++



CHIK Case Counts: Americas and U.S.

	Local Transmission		Imported	
	Dec 2013 to Dec 2014	Jan 2015 to Jun 2015*	Dec 2013 to Dec 2014	Jan 2015 to Jun 2015*
Americas (PAHO)	1,134,409	387,843	2,538	646
United States** (CDC)	11	0	2,481	170

*Through 19 Jun for the Americas and 16 Jun for the United States

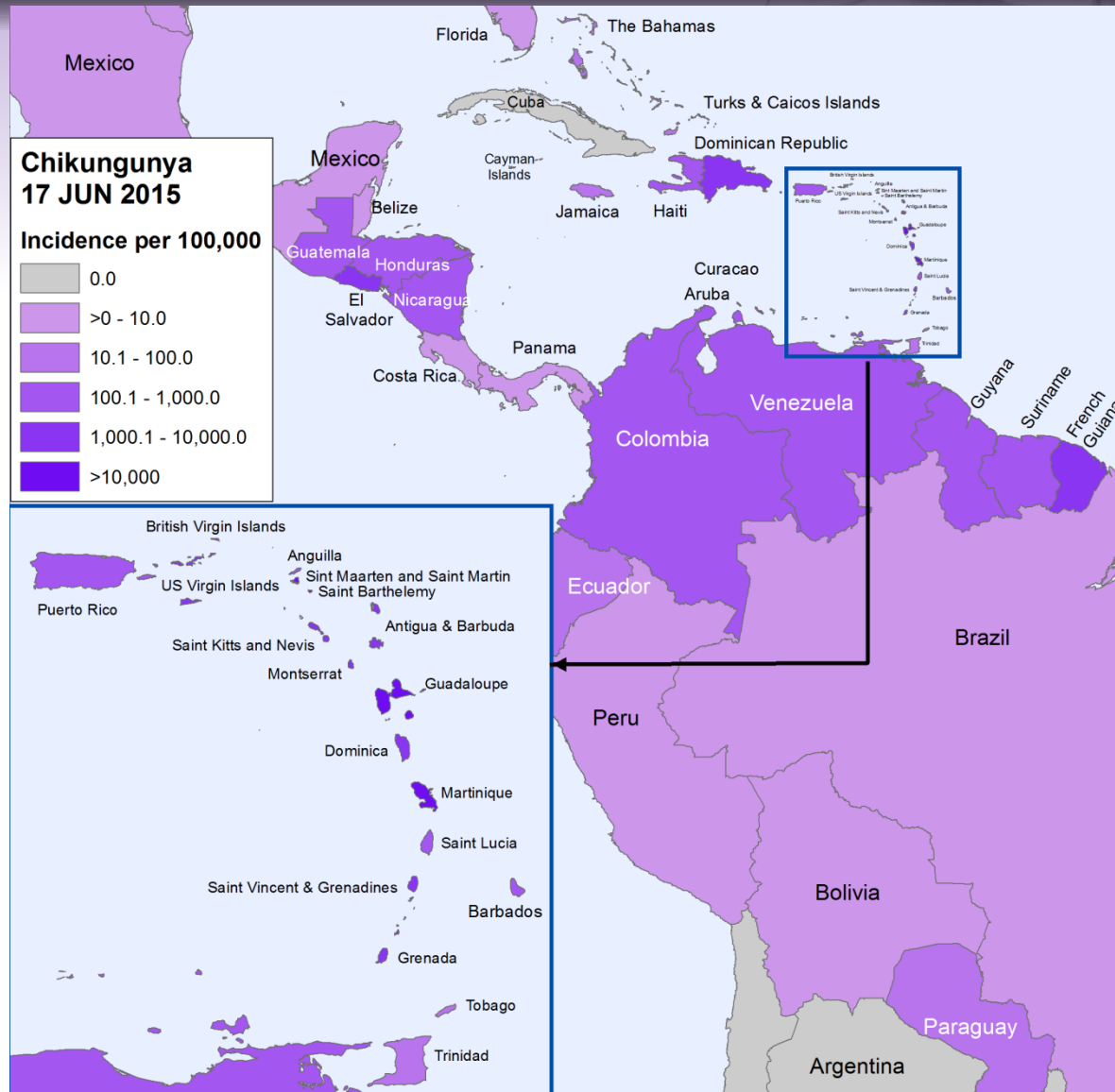
**50 States and the District of Columbia; importation from all risk areas

Deaths: 232 (178 in Dec 13 - Dec 14 and 54 in Jan 15 - Jun 15)

Includes confirmed, suspect and probable



CHIKV in the Americas, as of 17 Jun 15



Military Significance

- Considered 2nd greatest mosquito borne virus threat after dengue
 - Potential for debilitating disease with epidemic spread in naïve populations
 - Potential for arthritic sequelae: operational and HC system burden
 - Impact on individual readiness



Military Significance

- Information on the epidemiology of CHIK in U.S. military personnel is limited
 - no published studies on CHIK epidemiology in military personnel after 1669.
 - suggests a limited impact or unrecognized disease
 - hindered by the lack of specific ICD-9 code
 - In Vietnam conflict, one of three most significant arthropod-borne viral diseases along with dengue and Japanese encephalitis
 - Limited laboratory diagnostics complicated diagnosis of the disease, especially in the early years of the conflict
 - Identified in two of five studies of fevers of unknown origin (FUO)
 - In studies, CHIK was identified in:
 - nine percent of 110 FUO cases
 - less than one percent of 94 FUO cases
 - three found no CHIK cases among 688 total FUO cases

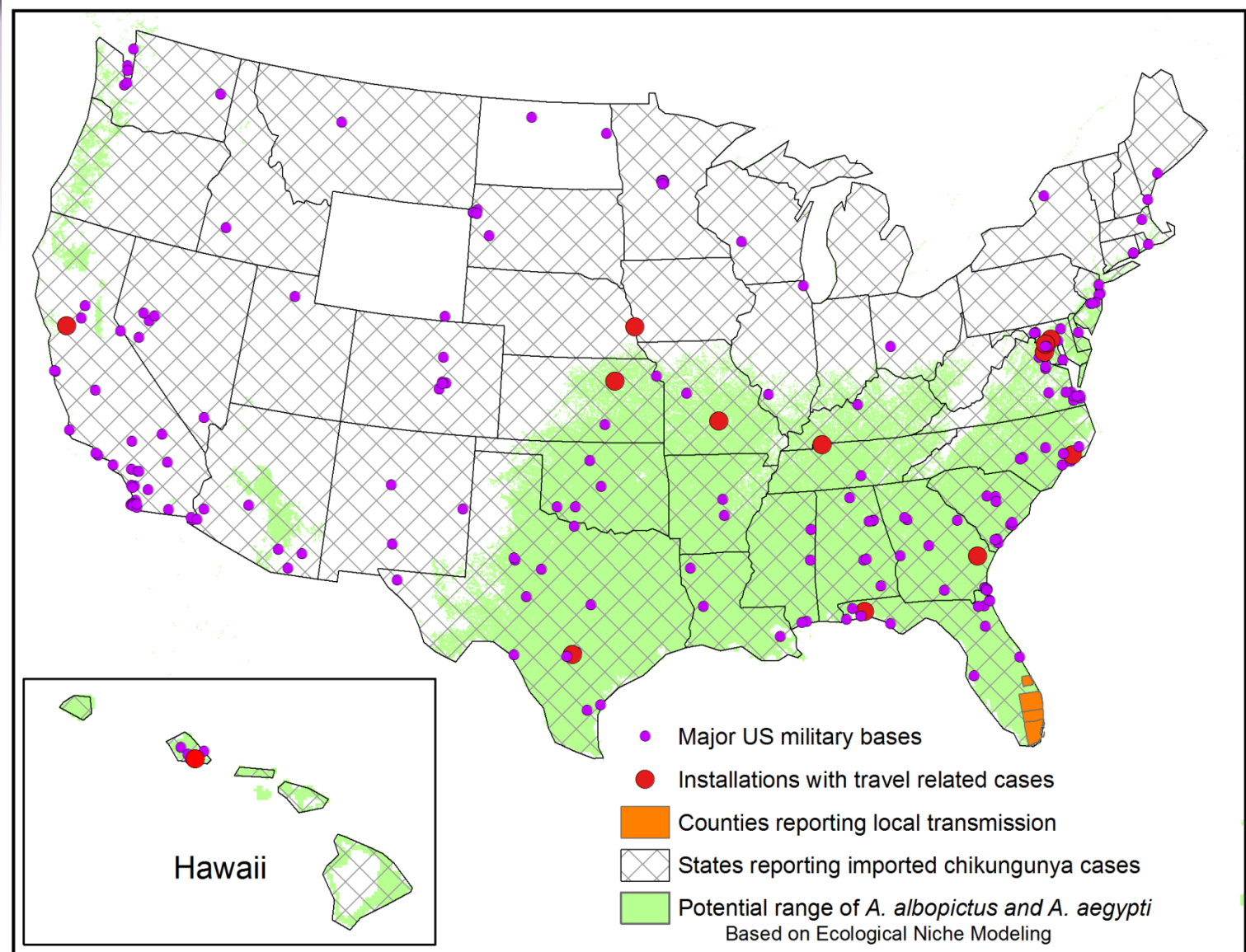


Risk to US Personnel

- Chikungunya typically occurs as large explosive outbreaks in susceptible populations in both rural and urban areas.
- Levels of transmission between outbreaks are typically very low.
- Conditions may support unpredictable and explosive increases in transmission.
- During peak transmission, operationally significant attack rates (potentially 1-50% per month) could occur among personnel exposed to mosquito bites, primarily during the day.



Overlap of Vector Range and Installations



Impact on DoD: Study

- Descriptive Study (in progress)
- All DoD health beneficiaries
- Diagnosed between 1 January 2014 and 28 February 2015
- Data Sources:
 - DMSS Reportable Medical Events (RME)
 - NMCPHC's HL7 laboratory test results
- Matched to personnel records to collect demographic data
- Searched for hospitalization and outpatient encounters
 - Diagnoses of joint pain or malaise/fatigue
 - More than three months after the CHIKV diagnosis date.



Impact on DoD: Results

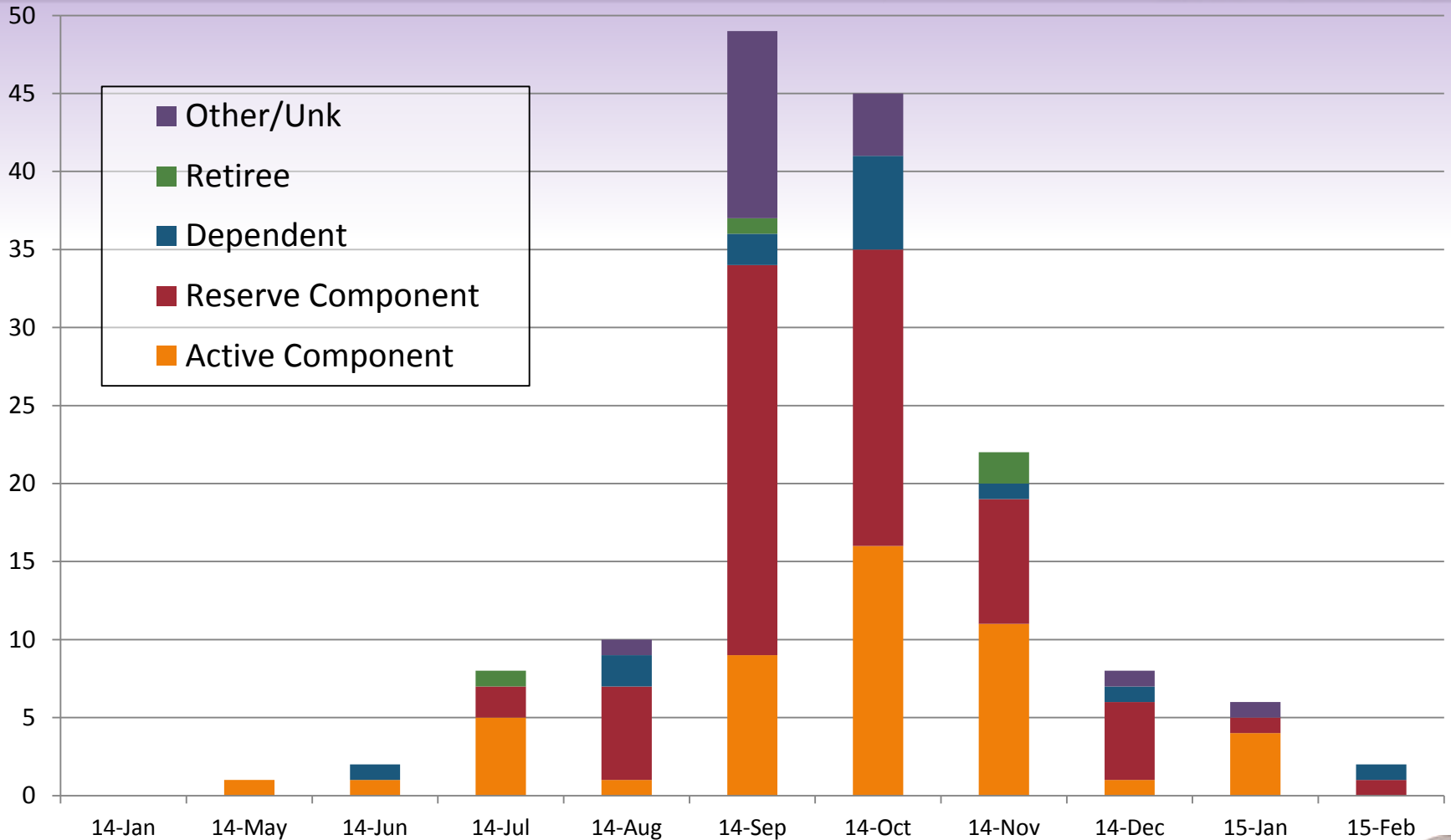


- Found 157 unique confirmed diagnoses of chikungunya
- 327 out-patient encounters among 51 patients > 3 months post diagnosis for joint pain or malaise/fatigue
- Zero in-patient encounters

Source	Active	Reserve	Dependent	Retiree	Other/UNK	Total
Lab Test	18	7	7	0	4	36
RME	15	25	6	2	9	57
Both	17	36	2	2	7	64
Total	50	68	15	4	20	157

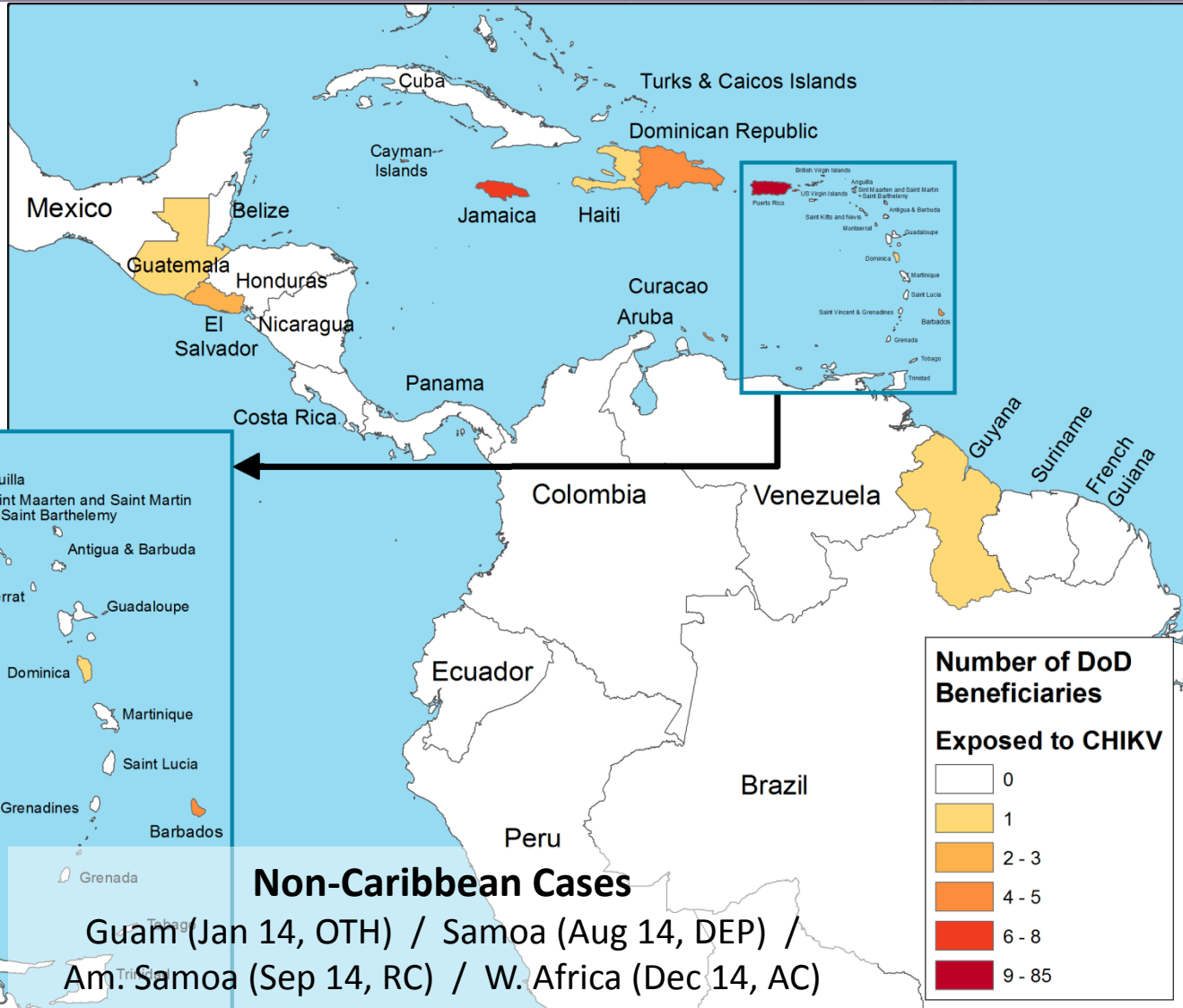


Impact on DoD: Date of Diagnosis



Impact on DoD: Where Acquired

Countries in Which DoD Beneficiaries Are Believed to Have Acquired Chikungunya Virus



Impact on DoD: Reason for Exposure

- Why were they at risk
 - 5 Deployed (Curacao)
 - 9 on Leave
 - 3 Residents
 - 77 Garrison (Puerto Rico)
 - 26 Not Reported



AFHSC Guidelines

- Information for HCWs
- Clinical case definitions
- Lab resources
- Case reporting
- Population & vector surveillance
- Risk Communications

http://www.afhsc.mil/documents/pubs/documents/Detecting_and_Reporting_DoD_Cases_of_Chikungunya_25JUL2014.pdf



Reporting CHIKV Cases

- Report confirmed cases of chikungunya infection through the DRSi as “Chikungunya Fever,” include clinical presentation, travel history, and hospital admission status/dates.
- Be aware of local civilian reporting requirements to improve communication, facilitate diagnosis, and mitigate the risk of local transmission
- Consider and rule out dengue



Confirmed CHIKV Cases

- Confirmed cases of chikungunya are defined as:
 - History of acute onset of fever of $>102^{\circ}\text{F}$ (39°C) and severe arthralgia/arthritis not explained by other conditions
 - Consider recent travel to an area with reported transmission
 - Positive lab tests, at least one
 - Virus culture
 - RT-PCR
 - Serology to detect IgM, IgG, and neutralizing antibodies
 - Detection of IgM in a single serum sample (collected during acute or convalescent phase).
 - Four-fold increase in chikungunya-specific IgG or NA antibody titers (samples collected at least two weeks apart, first sample collected after 7 days.)
 - Consult local guidance for information and diagnostic criteria



Testing Capability In DoD

- RT-PCR and virus culture are available at
 - USAMRIID Special Pathogens Laboratory (SPL)
 - NMRC Navy Infectious Disease Diagnostic Laboratory (NIDDL)
- Chikungunya testing is also performed at CDC, several state health departments, and one commercial laboratory.
- If a non-DoD lab is used, saving an aliquot of refrigerated serum for DoD lab characterization is highly recommended.

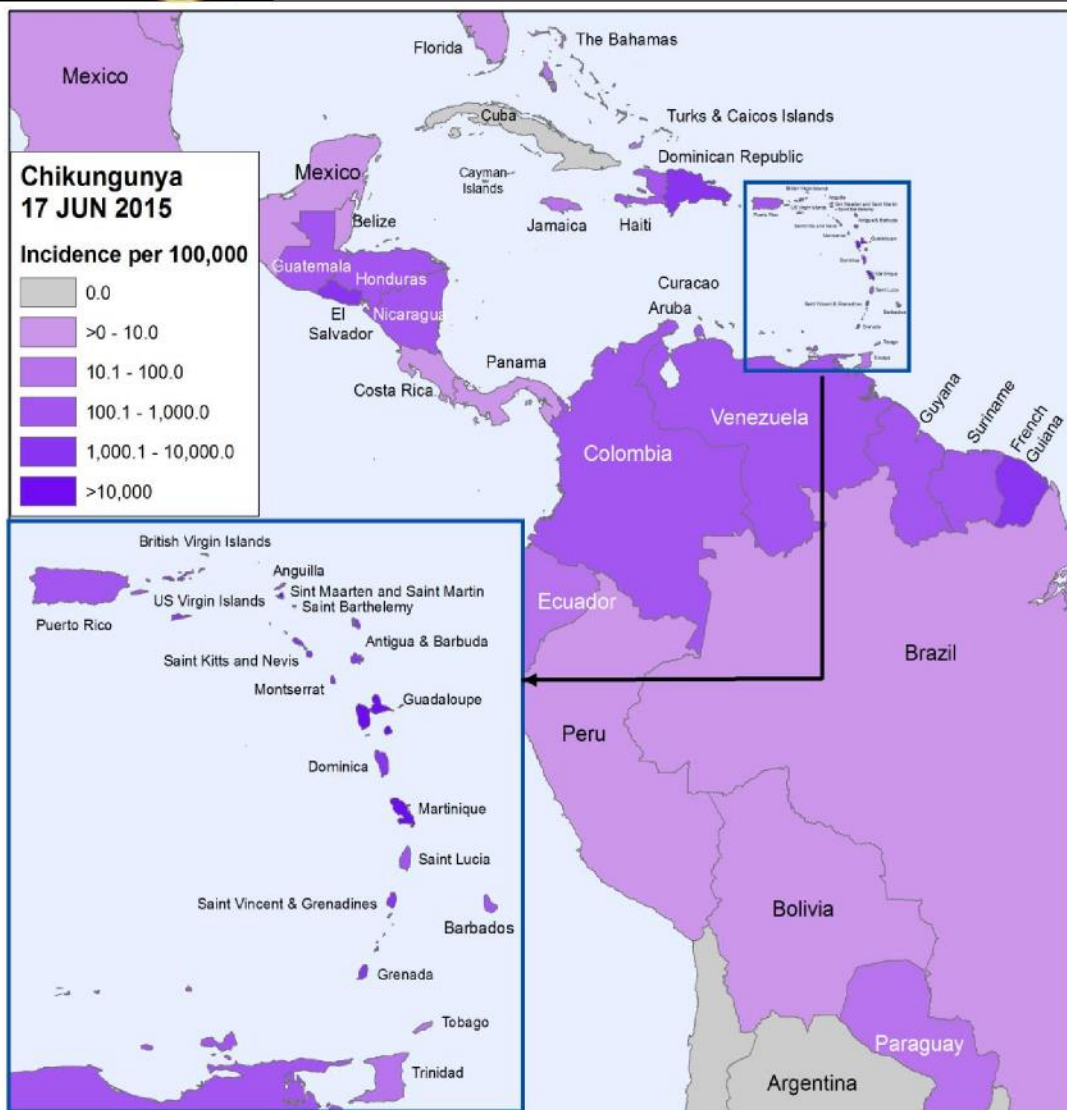




DEPARTMENT OF DEFENSE (AFHSC)

Chikungunya in the Americas Surveillance Summary #45

17 JUN 2015



CASE REPORT: Based on multiple reliable sources, as of **17 JUN 2015, 45 (+1)** countries or territories in the Americas have reported locally transmitted chikungunya (CHIK) cases since DEC 2013. In the region, there have been at least **1,508,789 (+68,118)** suspected, probable, or confirmed (**33,509**) cases of the disease with **232 deaths (+5)**; **377,260** cases have been reported since 1 JAN 2015. Colombia (+37,469), Ecuador (+11,824), Honduras (+10,999), El Salvador (+3,535), Guatemala (+2,652), and Paraguay (+990) account for more than 99% of the new cases. Peru reported its first confirmed autochthonous case. Thirty-four countries have not reported CHIK cases since the last surveillance summary. Argentina, Bermuda, Canada, Cuba, and Uruguay have no reported autochthonous cases. Mexico has reported local transmission in areas bordering the U.S., increasing the risk of importation. In 2014, in **47 states and Washington, DC** reported 2,481 imported CHIK cases and Florida reported 11 locally transmitted cases between JUL and SEP 2014, the only such cases in CONUS. Since 1 JAN, **30 (+2) states have reported 157 (+7) imported cases.** From 2006 through 2011, 117 cases were reported among U.S. travelers.

TRAVEL ADVISORY: CDC is maintaining its regional travel alerts as [Watch - Level 1, Practice Usual Precautions](#) for the Caribbean, Central America, and South America; protect against mosquito bites.

SURVEILLANCE: The May issue of AFHSC's Medical Surveillance Monthly Report has an [article](#) describing chikungunya and dengue cases in personnel deployed to Curacao. AFHSC guidance on [detecting and reporting DoD cases of chikungunya](#) is available on our website (www.afhsc.mil). Confirmed cases of chikungunya infection should be reported through the chain-of-command and the appropriate Service-specific public health POCs. Report confirmed cases in Disease Reporting System Internet (DRSi) as "Chikungunya Fever." Include in the report clinical presentation, travel history, and hospital admission status/dates. The Armed Forces Pest Management Board has a [chikungunya preparation](#) page on their website.

* Legend: Text updated from the previous report will be printed in red; items in (+xx) represent the change in number from the previous Summary (28 MAY2015). All information has been verified unless noted otherwise. Sources include PAHO, RIVM, ARS, and CDC. For questions or comments, please contact: usarmy.ncr.medcom-afhsc.list.dib.alert-response@mail.mil

CHIKUNGUNYA

Simple steps to stop transmission

Eliminate breeding areas



- Get rid of waste around the home, especially used tires



- Cover water tanks and wells



- Empty and cover pools



- Get rid of standing water on flat roofs



- Get rid of outdoor plant saucers
- Regularly change water in vases



- Take these steps two or three times a week

Protect yourself



- Wear loose clothing that covers arms and legs



- Apply a mosquito repellent to exposed skin following manufacturer instructions



- Sleep under a mosquito net, even during the day
- Put mosquito screens on windows



- Protect yourself at all times: *Aedes* mosquitoes usually bite during the day!

Consult your physician



- High fever (over 38.5°C)
- Headache
- Muscle or joint pain, especially at extremities (ankles, fingers, toes and wrists)
- Aches and fatigue



- Taking aspirin (acetylsalicylic acid) is not recommended
- Chikungunya virus symptoms appear an average of four to seven days after the bite. Protect yourself to help stop the spread of the virus!
- To learn more: www.paho.org/chikungunya

We care. Protect yourself!

Contact Information

- **Alert and Response Operations, DIB, AFHSC**
usarmy.ncr.medcom-afhsc.list.dib.alert-response@mail.mil
- **Army: USAPHC – Disease Epidemiology Program**
Aberdeen Proving Ground – MD
Comm: (410) 436-7605 DSN: 584-7605
usarmy.apg.medcom-phc.mbx.disease-epidemiologyprogram13@mail.mil
- **Navy: Contact your cognizant NEPMU**
NEPMU2: COMM: (757) 950-6600; DSN: (312) 377-6600
Email: usn.hampton-roads.navhosporsva.list.nepmu2norfolk-threatassess@mail.mil
NEPMU5: COMM: (619) 556-7070; DSN (312) 526-7070
Email: HealthSurveillance@med.navy.mil
NEPMU6: COMM: (808) 471-0237; DSN: (315) 471-0237
Email: usn.jbphh.navenpvntmedusixhi.list.nepmu6@mail.mil
NEPMU7: COMM (int): 011-34-956-82-2230 (local): 722-2230; DSN: 94-314-727-2230
Email: NEPMU7@eu.navy.mil
- **Air Force: Contact your MAJCOM PH or USAFSAM/PHR**
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