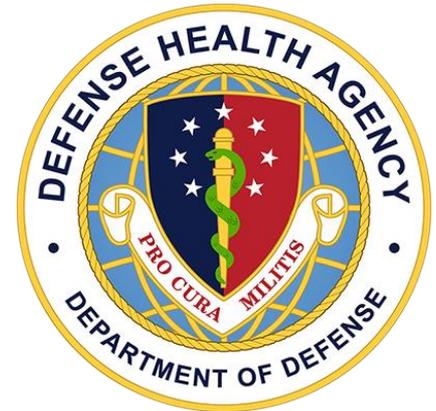


Department of Defense
Armed Forces Health Surveillance Branch
Global Zika Virus Surveillance Summary
(2 NOV 2016)



Approved for Public Release

For questions or comments, please contact:

dha.ncr.health-surv.list.afhs-ib-alert-response@mail.mil



DEPARTMENT OF DEFENSE (AFHSB)

Global Zika Virus Surveillance Summary #42

2 NOV 2016 (next report 9 NOV 2016)



DoD SURVEILLANCE: As of 1300 on 2 NOV, there have been 149 (+6) confirmed Zika virus (ZIKV) disease cases in Military Health System (MHS) beneficiaries (see table) since the first case was reported during the third week of 2016. There are four cases in pregnant Service members and one case in a pregnant dependent.

On 21 SEP, AFHSB issued [updated guidance](#) for detecting and reporting DoD cases of confirmed and probable ZIKV disease and ZIKV congenital disease. Cases should be reported in DRSi as “Any Other Unusual Condition Not Listed,” with “Zika” entered in the comment field along with additional pertinent information such as travel history and pregnancy status.

IgM ELISA and rRT-PCR assays are available under an [Emergency Use Authorization \(EUA\)](#) at DoD laboratories (see map on [Slide 4](#)). Confirmatory PRNT testing is available at the NIDDL.

[Strategy for Control of Zika Virus Transmitting Mosquitoes on Military Installations](#) is available from the [Armed Forces Pest Management Board](#).

CASE REPORT: As of 1 NOV, [FL health officials have reported](#) 204 (+14) ZIKV infections that were likely acquired through local mosquito transmission, including 19 cases that were infected in FL but live out of state. As of 26 OCT, 139 (+2) met the CDC definition of a Zika case. The FL DOH believes ongoing transmission is only taking place in two defined areas of Miami-Dade County: Miami Beach and the Little River neighborhood. Advice for people living in or traveling to South Florida is available from [CDC](#). According to the FL DOH and CDC in an [early release MMWR article](#) published on 23 SEP, aggressive mosquito control, including aerial spraying that targeted both adult and larval mosquitoes, most likely contributed to stopping ZIKV transmission in the Wynwood neighborhood. The FL DOH is investigating additional areas in Miami-Dade and Palm Beach counties.

Demographics for all confirmed Zika cases in Military Health System Beneficiaries as of 1300, 2 NOV 2016 (N = 149 confirmed cases)			
Demographic		N	%
Service	Army	66 (+2)	44.3%
	Air Force	24 (+4)	16.1%
	Navy	19	12.8%
	Marine Corps	12	8.1%
	Coast Guard	28	18.8%
Status <small>*includes Reserve Component</small>	Service Member*	106 (+5)	71.1%
	Dependent	32	21.5%
	Retiree	11 (+1)	7.4%
Age	0-20	10	6.7%
	21-35	70 (+5)	47.0%
	36-50	44 (+1)	29.5%
	51+	17 (+1)	11.4%
	Not Reported	8 (-1)	5.4%
Gender	Female	58 (+2)	38.9%
	Male	91 (+4)	61.1%

As of 2 NOV, [CDC](#) and [WHO](#) report 60 [countries and territories](#) with a first reported Zika outbreak since JAN 2015; 49 are in the Western Hemisphere, nine are in PACOM and two are in AFRICOM. CDC has issued Alert Level 2, Practice Enhanced Precautions, travel notices for 58 of these [areas](#). On 29 SEP, the [CDC posted information](#) about ZIKV for travelers to 11 countries in Southeast Asia. The countries are: Brunei, Burma (Myanmar), Cambodia, Indonesia, Laos, Malaysia, Maldives, Philippines, Thailand, Timor-Leste (East Timor), and Vietnam. These countries have either reported low level local ZIKV transmission or are adjacent to countries with known ZIKV transmission. Past evidence of local transmission has been reported from other areas of [Africa, Asia, and the Pacific Islands](#), where sporadic transmission may continue to occur.

Zika Cases in the U.S. States and Territories	U.S. States*	U.S. Territories		
		Puerto Rico**	U.S. Virgin Islands*	American Samoa*
Total Zika Cases	4,091 (+75)	31,464 (+1,489)	575 (-14)	47
Travel-Associated	3,918 (+72)	-	-	-
Local Vector Transmission	139 (+2)	-	-	-
Laboratory Exposure	1	-	-	-
Sexual Transmission	33 (+1)	-	-	-
Guillain Barré Syndrome (GBS)	13	57 (+3)†	-	-

U.S. Zika Pregnancy Registry Data, as of 20 OCT		
Pregnant Zika Cases	953 (+54)	2,027 (+100)
Infants Born with Birth Defects	23	1††
Pregnancy Losses with Birth Defects	5	1††

*Zika cases reported to ArboNET as of 26 OCT (U.S. States and Am. Samoa). Zika cases reported by USVI as of 26 OCT; USVI also reported 61 Zika cases in pregnant women.
 **From the Puerto Rico DOH as of 13 OCT; PR DOH is tracking 2,469 (+156) ZIKV cases in pregnant women.
 † Of the 57 (+3) GBS cases, 12 (+1) are classified as evidence of flavivirus infection, but specific virus undetermined.
 †† CDC last reported these cases on 29 SEP.

(+xx) represent the change in number from the previous AFHSB summary (26 OCT 2016).

All information has been verified unless noted otherwise.

For questions or comments, please contact: dha.ncr.health-surv.list.afhs-ib-alert-response@mail.mil

Approved for Public Release



DEPARTMENT OF DEFENSE (AFHSB)

Global Zika Virus Surveillance Summary #42

2 NOV 2016



CASE REPORT cont'd: The Singapore National Environment Agency, which reported the country's first local ZIKV transmission on 27 AUG, reports 444 (+9) cases and four identified clusters as of 2 NOV.

According to PAHO on 20 OCT, over the previous four weeks, most Caribbean and North, Central, and South American OCONUS countries and territories were reporting a decreasing trend in Zika cases, except for Anguilla, Saint Barthelemy, Sint Maartin, Saint Martin, and Guatemala.

MICROCEPHALY and GUILLAIN-BARRÉ SYNDROME: As of 26 OCT, 23 countries have reported cases of microcephaly and other fetal malformations potentially associated with ZIKV infection or suggestive of a congenital infection, including four with travel-related microcephaly cases. As of 26 OCT, 19 countries and territories in the Western Hemisphere as well as French Polynesia have reported Guillain-Barré syndrome (GBS) cases that may be associated with of ZIKV infection. The Western Hemisphere countries reporting microcephaly or GBS are listed in the table on [slide 7](#). Countries in PACOM and AFRICOM reporting microcephaly are Cape Verde, French Polynesia, the Marshall Islands, and Thailand. One microcephaly case in Vietnam is under investigation as of 26 OCT.

USG RESPONSE: CDC issued [ZIKV infection control guidance](#) on 25 OCT. On 19 OCT [CDC released guidance](#) on the assessment and follow-up of infant hearing in children with evidence of congenital ZIKV infection. On 30 SEP, [CDC updated its interim guidance](#) for preconception counseling and for preventing sexual transmission of ZIKV among exposed persons. The primary change was a recommendation that men with possible ZIKV exposure, but no symptoms, wait six months after the last possible ZIKV exposure before attempting conception with their partner. This recommendation is now consistent with the recommendation for men who experienced Zika symptoms to wait six months after symptom onset. WHO made a [similar recommendation](#) on 6 SEP. Also on 30 SEP, CDC published an updated [ZIKV response plan for CONUS and Hawaii](#). In an early release MMWR article published on 30 SEP, CDC described the characteristics of ZIKV disease in 158 children with a postnatal infection. The researchers found that the clinical course of ZIKV disease is typically mild in children, as it is in adults. On 29 SEP, President Obama signed a bill providing \$1.1 billion to combat ZIKV in the U.S. and abroad.

GLOBAL RESPONSE: On 26 OCT, WHO published its [Zika Virus Research Agenda](#). On 25 OCT, WHO issued the [first quarterly update](#) to its [JUL 2016 Zika Strategic Response Plan](#). Following the fourth meeting of the [WHO Emergency Committee](#) concerning ZIKV and observed increases in neurological disorders and neonatal malformations on 1 SEP, WHO said that the clusters of microcephaly cases and other neurological disorders continue to constitute a Public Health Emergency of International Concern (PHEIC). WHO reaffirmed its previous advice, including that there should be no general restrictions on travel and trade with countries, areas, and/or territories with ZIKV transmission. PAHO has created a [searchable database](#) of published primary research and protocols. For additional information, visit the [WHO](#) and [PAHO](#) Zika web pages.

MEDICAL COUNTERMEASURES and RESEARCH: In an [early release Emerging Infectious Diseases \(EID\) article](#), researchers modeled the average rate of ZIKV spread in Brazil, estimating a rate of 42 km/day, or 15,367 km/year, since its introduction. On 2 NOV, EID published an early release study investigating the potential cost-effectiveness of [increasing access to contraception in Puerto Rico](#) and concluded that these measures could decrease overall Zika-related costs by \$65.2 million. In another [early release EID article](#), researchers estimated the incidence of GBS in Puerto Rico following the introduction of ZIKV was 3.2 to 5.1 times above baseline in 2016. On 17 OCT, EID posted research showing that ZIKV RNA could be isolated in [vaginal secretions, whole blood](#), and [semen](#) up to 14 days, 81 days, and 92 days after symptom onset, respectively. The authors in both reports caution that the detection of ZIKV RNA does not necessarily equate to the detection of infectious virus. On 6 OCT, the National Institutes of Health awarded the [Infectious Disease Research Institute](#) a grant to rapidly develop a RNA-based ZIKV vaccine. HHS's Biomedical Advanced Research and Development Authority (BARDA) issued grants to [Moderna Therapeutics](#) and [Takeda Vaccines](#) for research and development of ZIKV vaccines. Moderna submitted an Investigational New Drug (IND) application to the FDA on 14 OCT for their mRNA vaccine. Clinical trials should begin in approximately 30 days at three U.S. sites: Peoria, IL, San Diego, CA, and Melbourne, FL. Phase 1 clinical testing of a Zika purified inactivated virus (ZPIV) that was first developed by Walter Reed Army Institute of Research (WRAIR) and Harvard University is expected to begin later this year. Sanofi-Pasteur, received a [\\$43 million development grant from BARDA](#) on 26 SEP to continue development of the ZPIV. On 26 JUL, Inovio Pharmaceuticals began a Phase 1 trial of its Zika DNA vaccine (GLS-5700) and launched a double-blind clinical trial of the vaccine in Puerto Rico on 29 AUG.

(+xx) represent the change in number from the previous AFHSB summary (26 OCT 2016).

All information has been verified unless noted otherwise.

For questions or comments, please contact: dha.ncr.health-surv.list.afhs-ib-alert-response@mail.mil

Approved for Public Release



DEPARTMENT OF DEFENSE (AFHSB)

Global Zika Virus Surveillance Summary #42

2 NOV 2016



Emergency Use Authorization Zika Testing at DoD Laboratories



- BAMC**
Brooke Army Medical Center
- BAACH**
Brian Allgood Army Community Hospital
- CRDAMC**
Carl R. Darnall Army Medical Center
- EAMC**
Eisenhower Army Medical Center
- LRMC**
Landstuhl Regional Medical Center
- MAMC**
Madigan Army Medical Center
- NAMRU-3**
U.S. Naval Medical Research Unit No. 3
- NAMRU-6**
U.S. Naval Medical Research Unit No. 6
- NHRC**
Naval Health Research Center
- NIDDL**
Naval Infectious Diseases Diagnostic Laboratory
- TAMC**
Tripler Army Medical Center
- USAFSAM**
U.S. Air Force School of Aerospace Medicine
- USAMRIID**
United States Army Medical Research Institute of Infectious Diseases
- WAMC**
Womack Army Medical Center
- WBAMC**
William Beaumont Army Medical Center
- WRNMMC**
Walter Reed National Military Medical Center

*Plaque-reduction neutralization test (PRNT)

As of 2 NOV 2016

For questions or comments, please contact: dha.ncr.health-surv.list.afhs-ib-alert-response@mail.mil

Approved for Public Release



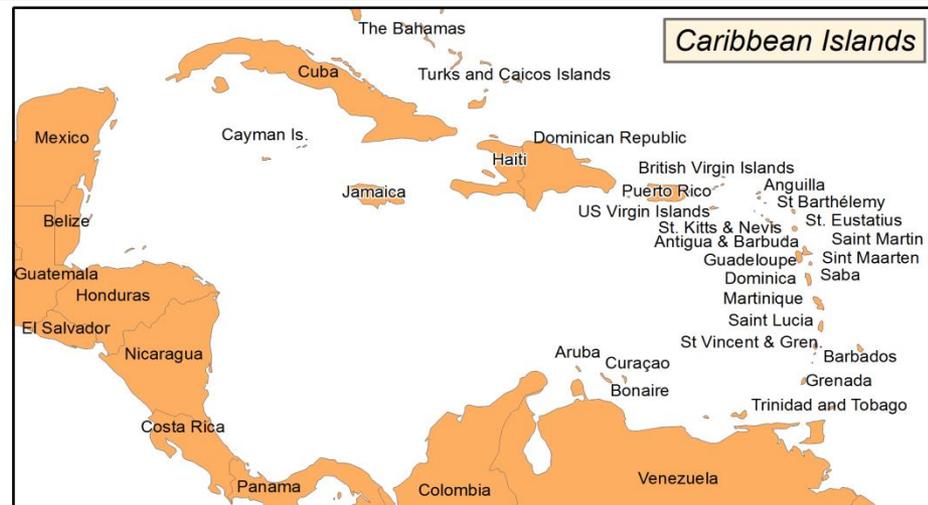
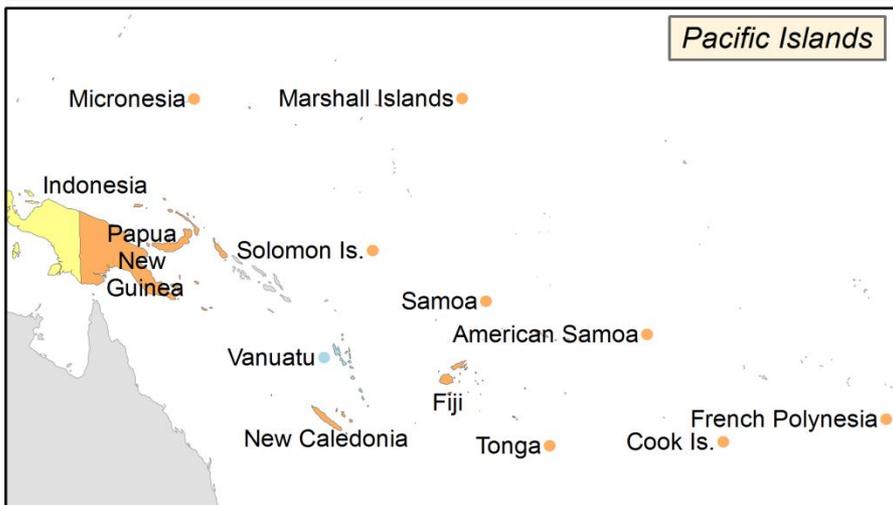
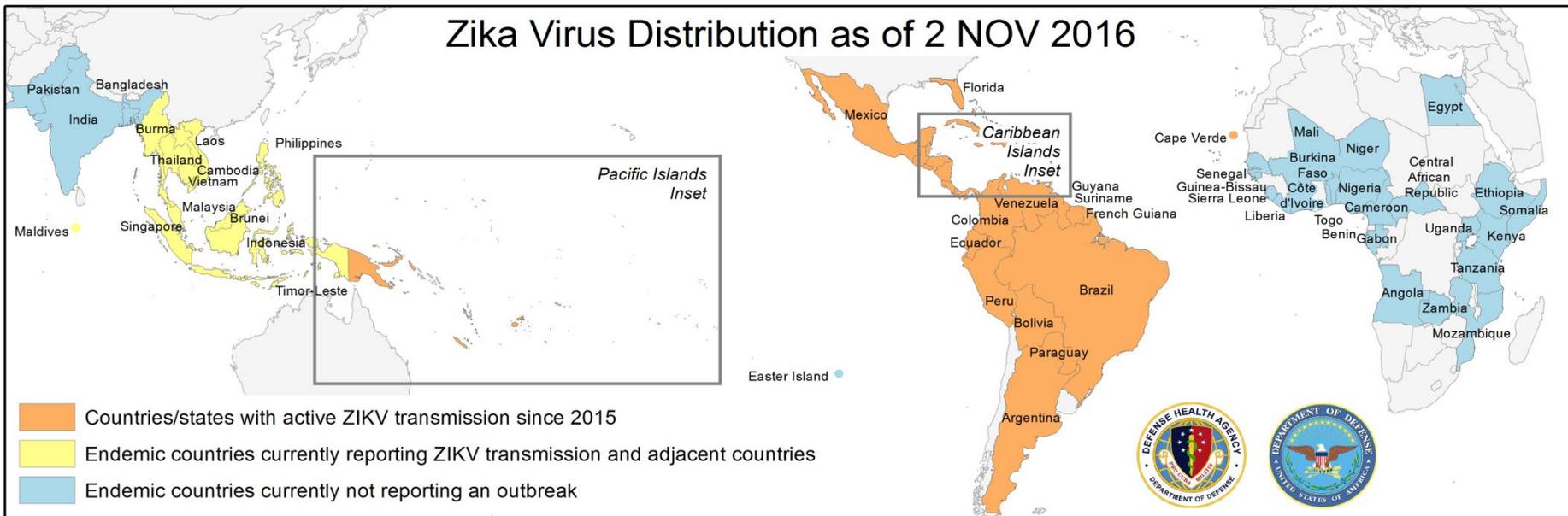
DEPARTMENT OF DEFENSE (AFHSB)

Global Zika Virus Surveillance Summary #42

2 NOV 2016



Zika Virus Distribution as of 2 NOV 2016



* Countries with a small footprint are given a marker by their label to denote current or previous Zika presence. Source: CDC.

For questions or comments, please contact: dha.ncr.health-surv.list.afhs-ib-alert-response@mail.mil

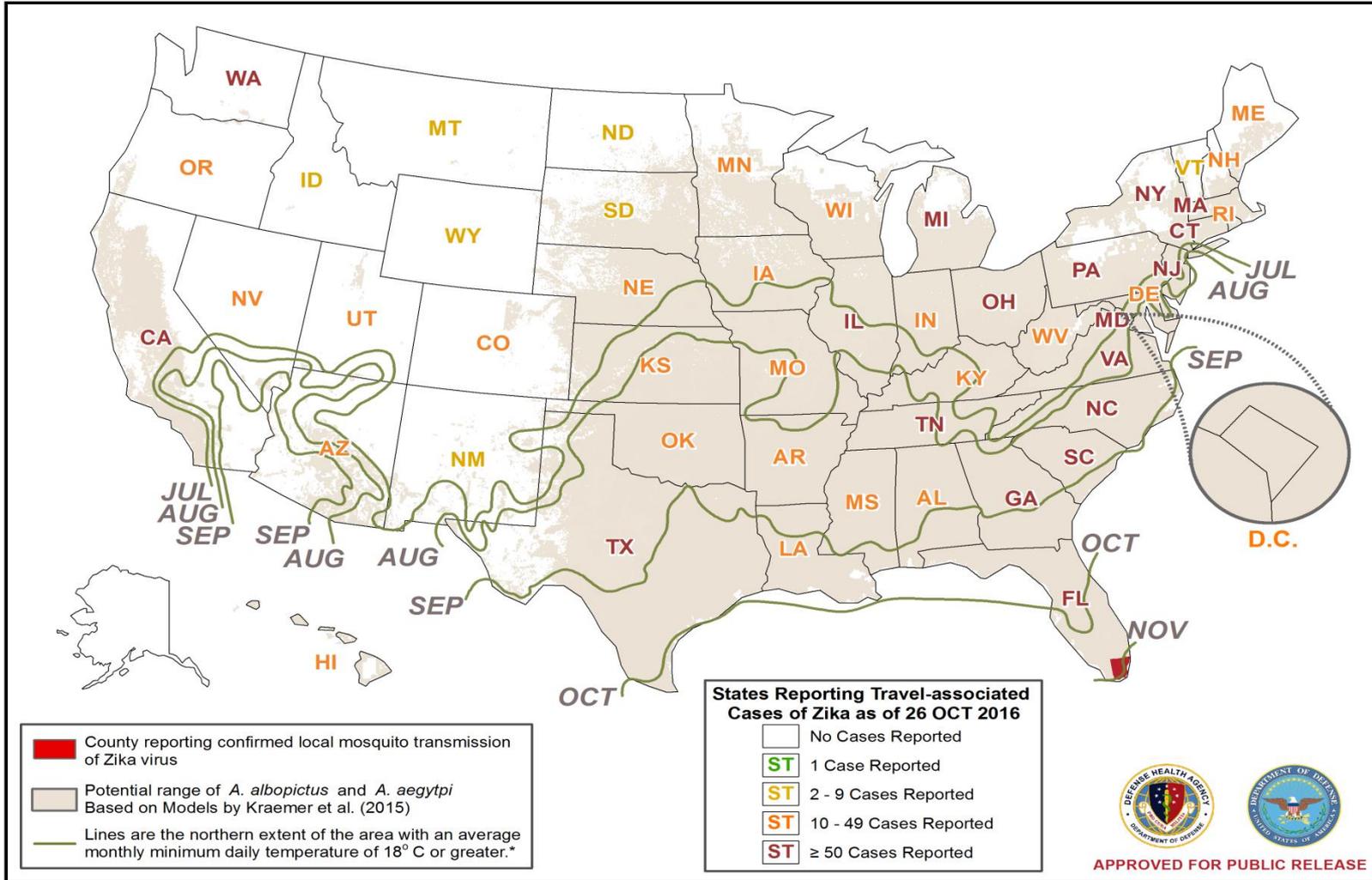
Approved for Public Release



DEPARTMENT OF DEFENSE (AFHSB)

Overlap of States Reporting Imported Zika Cases with the Estimated Range of Mosquito Vectors and Transmission Suitability

2 NOV 2016



This version of the map shows that after JUL the northern extent begins to move southward.

Based on Sang et al, Predicting Unprecedented Dengue Outbreak Using Imported Cases and Climatic Factors in Guangzhou, 2014. PLoS Negl Trop Dis 9(5);e0003808.

For questions or comments, please contact: dha.ncr.health-surv.list.afhs-ib-alert-response@mail.mil

Approved for Public Release



DEPARTMENT OF DEFENSE (AFHSB)

Global Zika Virus Surveillance Summary #42

2 NOV 2016



Western Hemisphere Countries[‡] and Territories with Autochthonous Transmission of Zika Virus: 1 JAN 2015 – 27 OCT 2016

	Confirmed	Suspected	Microcephaly Cases*	Reporting GBS [†]
Total	167,472	514,107	2,183	19 Countries/Territories

Country/Territory	Confirmed	Suspected	Microcephaly Cases*	Reporting GBS [†]	Country/Territory	Confirmed	Suspected	Microcephaly Cases*	Reporting GBS [†]
Anguilla	5	37			Guyana	6	0		
Antigua & Barbuda	14	393			Haiti	5	2,955	1	Yes
Argentina	26	1,821			Honduras	285	31,719	1	Yes
Aruba	28	614			Jamaica	122	6,449		Yes
Bahamas	16	0			Martinique	12	36,590	12	Yes
Barbados	30	609			Mexico	5,204	0		Yes
Belize	49	537			Nicaragua	2,014	0		
Bolivia	128	597			Panama	443	1,881	5	Yes
Bonaire, St. Eustatius, Saba	85	0			Paraguay	12	546	2	
Brazil	109,596	200,465	2,063	Yes	Peru	122	0		
British Virgin Islands	38	51			Puerto Rico	31,464	0	3	Yes
Cayman Islands	29	201			Saint Barthelemy	61	820		
Colombia	8,826	95,898	54	Yes	Saint Kitts & Nevis	16	437		No
Costa Rica	1,317	2,392	1	Yes	Saint Lucia	50	822		
Cuba	3	0			Saint Martin	200	2,670		
Curaçao	322	0			Saint Vincent & the Grenadines	38	156		
Dominica	79	1,150			Sint Maarten	62	0		
Dominican Republic	328	4,884	10	Yes	Suriname	723	2,749	1	Yes
Ecuador	805	2,709		Yes	Trinidad and Tobago	643	0		
El Salvador	51	11,283	4	Yes	Turks & Caicos	12	115		
French Guiana	483	9,940	10	Yes	U.S. Virgin Islands	575	153		
Grenada	100	313	1	Yes	Venezuela	2,200	58,591		Yes
Guadeloupe	379	30,775		Yes					
Guatemala	466	2,785	15	Yes					

* Number of microcephaly and/or CNS malformation cases suggestive of congenital infections or potentially associated with ZIKV infection

† Reported increase in GBS cases associated with the introduction of ZIKV and/or GBS case(s) linked to ZIKV infection

‡ Excludes the U.S.; this data can be found elsewhere in this report.

All data was obtained from PAHO, Ministries of Health, and Departments of Health unless otherwise noted.

For questions or comments, please contact: dha.ncr.health-surv.list.afhs-ib-alert-response@mail.mil

Approved for Public Release