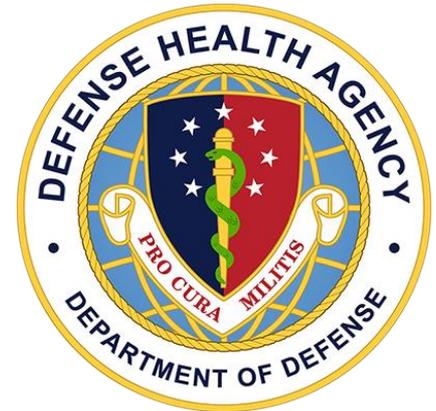


Department of Defense
Armed Forces Health Surveillance Branch
Global Zika Virus Surveillance Summary
(5 OCT 2016)



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DEPARTMENT OF DEFENSE (AFHSB)

Global Zika Virus Surveillance Summary #38

5 OCT 2016 (next report 12 OCT 2016)



DoD SURVEILLANCE: As of 1300 on **5 OCT**, there have been **135 (+7)** 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 **three (+1)** cases in pregnant Service members and one case in a pregnant dependent. One confirmed case is linked to the outbreak in Miami-Dade County, FL.

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 **5 OCT**, [FL health officials have reported 141 \(+32\)](#) ZIKV infections that were likely acquired through local mosquito transmission (as of **28 SEP**, **59 (+16)** met the CDC definition of a Zika case). The FL DOH believes ongoing transmission is only taking place within a defined area of Miami Beach in Miami-Dade County. 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. On 19 AUG, CDC updated its [health advisory](#) for pregnant women, women of reproductive age,

Demographic		N	%
Service	Army	61 (+1)	45.2%
	Air Force	18 (+3)	13.3%
	Navy	17 (+1)	12.6%
	Marine Corps	12 (+3)	8.9%
	Coast Guard	27	20.0%
	Not Reported	0 (-1)	0.0%
Status <small>*includes Reserve Component</small>	Service Member*	95 (+6)	70.4%
	Dependent	31 (+3)	23.0%
	Retiree	9	6.7%
	Not Reported	0 (-2)	0.0%
Age	0-20	8	5.9%
	21-35	65 (+7)	48.1%
	36-50	38	28.1%
	51+	15 (+1)	11.1%
	Not Reported	9 (-1)	6.7%
Gender	Female	54 (+6)	40.0%
	Male	81 (+1)	60.0%

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	3,625 (+267)	24,127 (+1,769)	410 (+45)	47
Travel-Associated	3,535 (+249)	-	-	-
Local Vector Transmission	59 (+16)	-	-	-
Laboratory Exposure	1	-	-	-
Sexual Transmission	30 (+2)	-	-	-
Guillian Barré Syndrome (GBS)	12 (+4)	50 [†]	-	-

Pregnant Zika Cases	808 (+28)	1,490 (+142)
Infants Born with Birth Defects	21 (+1)	1
Pregnancy Losses with Birth Defects	5	1

*Zika cases reported to ArboNET as of 28 SEP (U.S. States and Am. Samoa); USVI cases reported from PAHO as of 29 SEP.
 **From the Puerto Rico DOH as of 15 SEP; PR DOH is tracking 1,977 (+106) ZIKV cases in pregnant women.
 †Of the 50 GBS cases, 11 are classified as evidence of flavivirus infection, but specific virus undetermined.

and others traveling to or living in affected areas.

As of **5 OCT**, [CDC](#), [WHO](#), and ministries of health 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

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Global Zika Virus Surveillance Summary #38

5 OCT 2016



CASE REPORT (con't): areas of [Africa, Asia, and the Pacific Islands](#), where sporadic transmission may continue to occur. The Singapore National Environment Agency, which reported the country's first local ZIKV transmission on 27 AUG, reports **402 (+6)** cases in **one (-7)** identified cluster as of **5 OCT**.

According to PAHO on 22 SEP, over the previous four weeks, all Caribbean and North, Central, and South American OCONUS countries and territories were reporting a decreasing trend in Zika cases, except for Saint Martin, Nicaragua, Costa Rica, and Guatemala.

MICROCEPHALY: As of **1 OCT**, Brazil (**1,949 (+38)**), Cape Verde (11), Costa Rica (1), Colombia (**42 (+1)**), Dominican Republic (**10 (+7)**), El Salvador (4), French Guiana (3), French Polynesia (8), Guatemala (17), Haiti (1), Honduras (1), the Marshall Islands (1), Martinique (12), Panama (5), Paraguay (2), Puerto Rico (1), and Suriname (1) have reported cases of microcephaly and other fetal malformations potentially associated with ZIKV infection or suggestive of a congenital infection. The U.S. (**26 (+1)**), Canada (1), Spain (2), and Slovenia (1) have reported travel-associated microcephaly cases. A case-control study of Brazilian newborns, published in the OCT issue of Lancet Infectious Diseases, describes a strong relationship between ZIKV and congenital neurologic abnormalities.

GUILLAIN-BARRÉ SYNDROME: As of **29 SEP**, 18 countries in the Western Hemisphere as well as French Polynesia have reported Guillain-Barré syndrome (GBS) cases that may be associated with the introduction of ZIKV. There have been **12 (+4)** GBS cases linked to ZIKV reported in the continental U.S. and 50 cases (2 deaths) in Puerto Rico, 11 of which are classified as evidence of flavivirus infection, but specific virus undetermined. A letter posted by the New England Journal of Medicine on 31 AUG described the strong association between the incidence of ZIKV disease and GBS in seven countries, but the authors said more research is needed to establish a causal relationship between ZIKV infection and GBS.

USG RESPONSE: On 29 SEP, President Obama signed a bill providing \$1.1 billion to combat ZIKV in the U.S. and abroad. 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 13 SEP, CDC published a summary of [Zika cases in the U.S.](#) between JAN and JUL 2016 and preliminary findings from an [investigation of ZIKV infection in a Utah patient](#) with no known risk factors. CDC says it remains unclear how the Utah patient, who had close contact (i.e. kissing and touching) with an index patient with a very high viral load, became infected, but family contacts should be aware that blood and body fluids of severely ill patients may be infectious. [CDC said on 30 AUG](#) that children with evidence of congenital Zika virus infection who have normal initial hearing screening tests should receive regular follow-up based on research in Brazil.

GLOBAL RESPONSE: On 3 OCT, WHO published updated information for [travelers and health authorities](#). 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: HHS's Biomedical Advanced Research and Development Authority (BARDA) issued grants to [Moderna Therapeutics](#) and [Takeda Vaccines](#) for research and development of ZIKV vaccines. On 4 AUG, researchers from the Walter Reed Army Institute of Research (WRAIR) and Harvard University [published](#) a preclinical study in Science demonstrating the efficacy of a Zika purified inactivated virus (ZPIV) vaccine in rhesus monkeys. Results indicated complete protection from ZIKV with no detectable virus in blood, urine, or secretions; Phase 1 clinical testing of the vaccine, co-developed with Sanofi-Pasteur, which received a [\\$43 million development grant from BARDA](#) on 26 SEP, is expected to begin later this year. 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.

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All information has been verified unless noted otherwise. Additional sources include: Singapore, Brazil, and Colombia MOH

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Global Zika Virus Surveillance Summary #38

5 OCT 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 5 OCT

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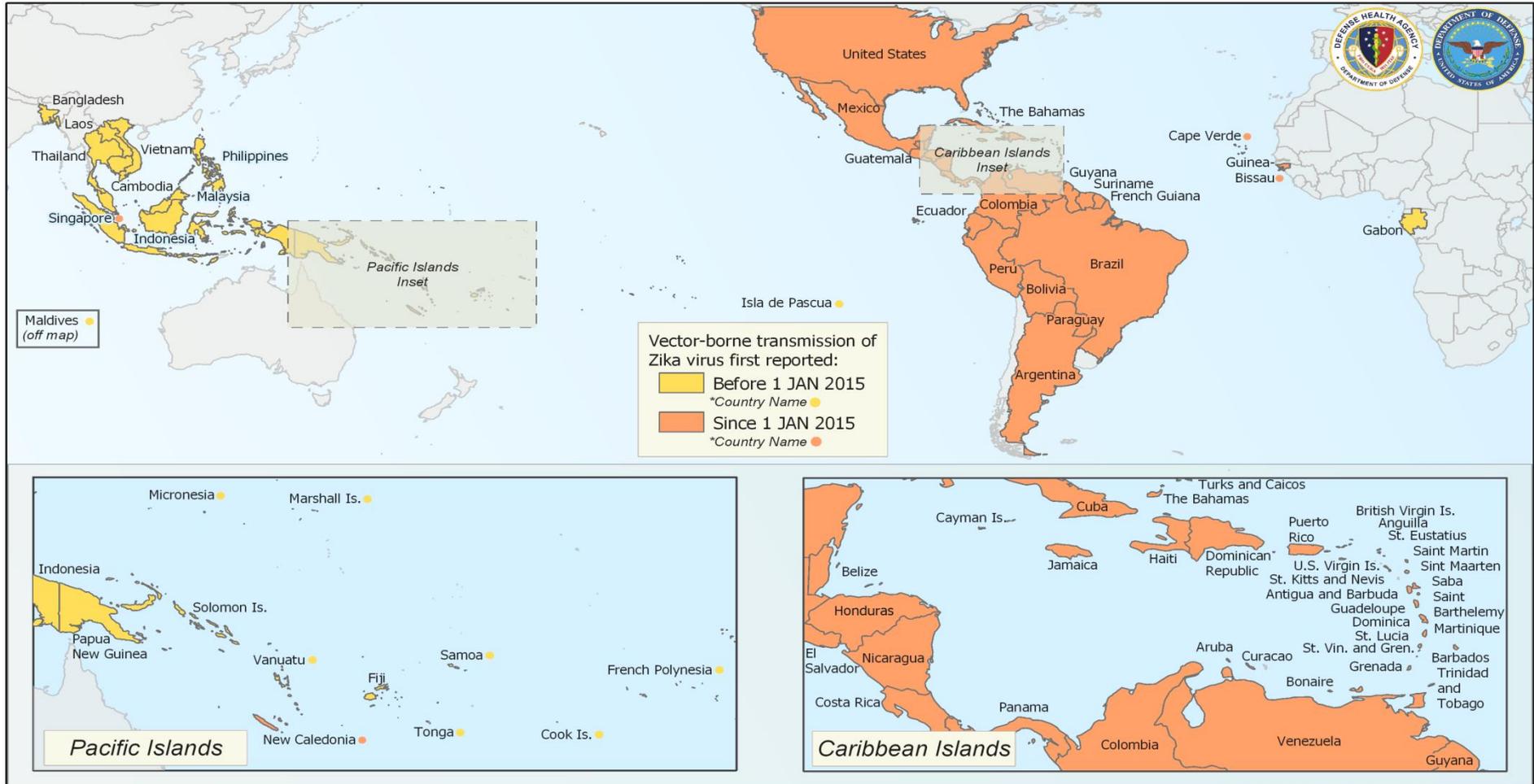
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5 OCT 2016



Zika Virus Distribution

1 JAN 2007 - 05 OCT 2016



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

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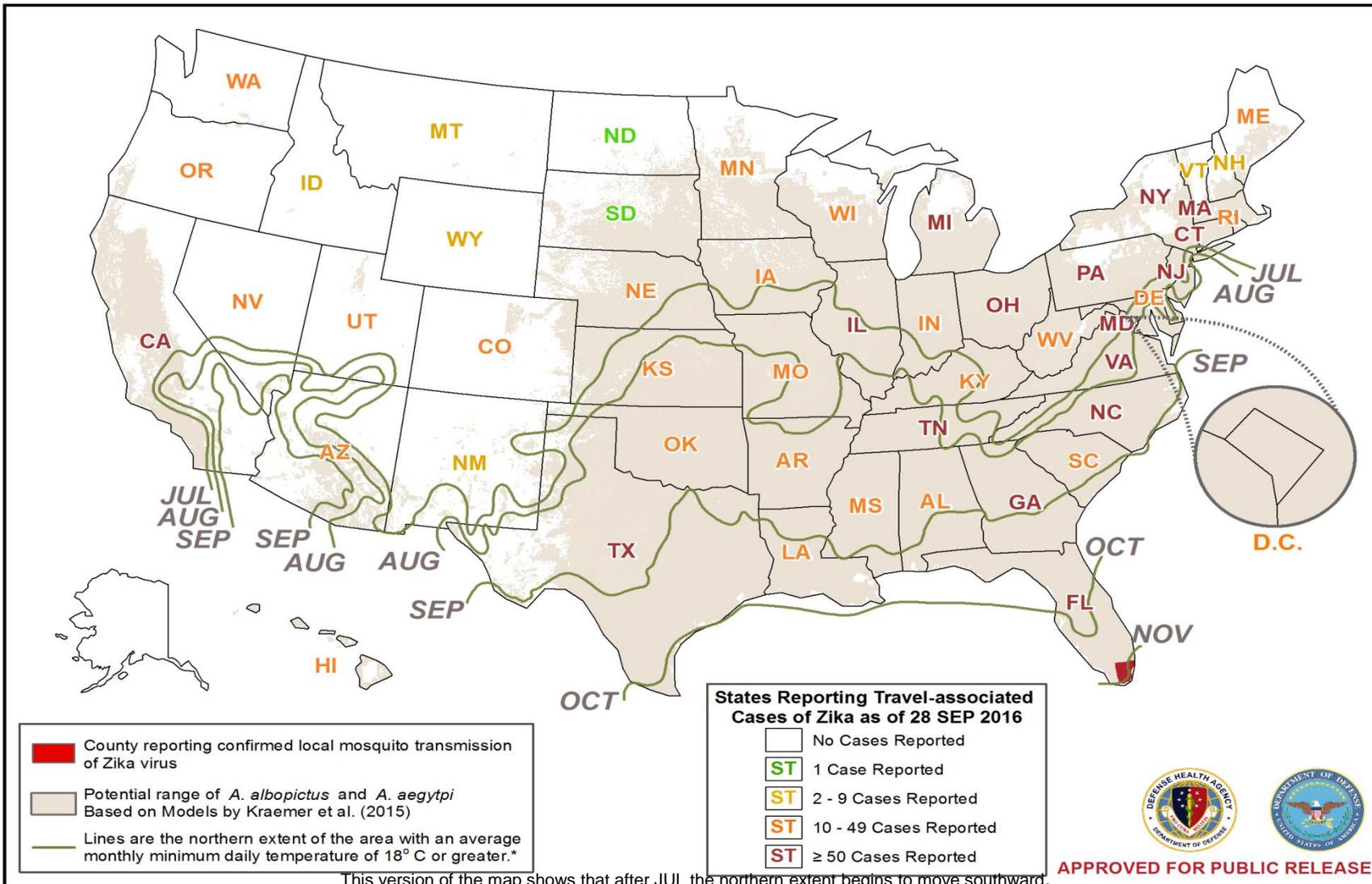
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DEPARTMENT OF DEFENSE (AFHSB)

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

5 OCT 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.

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5 OCT 2016



Western Hemisphere Countries[‡] and Territories with Autochthonous Transmission of Zika Virus: 01 JAN 2015 – 1 OCT 2016

	Confirmed	Suspected	Microcephaly Cases*	Reporting GBS [†]
Total	144,641	503,545	2,049	18 Countries/Territories

Country/Territory	Confirmed	Suspected	Microcephaly Cases*	Reporting GBS [†]
Anguilla	5	29		
Antigua & Barbuda	9	14		
Argentina	26	1,804		
Aruba	26	0		
Bahamas	15	0		
Barbados	20	592		
Belize	5	0		
Bolivia	126	0		
Bonaire, St. Eustatius, Saba	45	0		
Brazil	101,851	196,976	1,949	Yes
British Virgin Islands	5	0		
Cayman Islands	9	0		
Colombia	8,826	95,129	42	Yes
Costa Rica	1,151	2,199	1	Yes
Cuba	3	0		
Curaçao	322	0		
Dominica	68	1,085		
Dominican Republic	318	5,164	10	Yes
Ecuador	784	2,765		Yes
El Salvador	51	11,203	4	Yes
French Guiana	483	9,740	3	Yes
Grenada	74	319		Yes
Guadeloupe	379	30,130		Yes
Guatemala	442	2,535	17	Yes

Country/Territory	Confirmed	Suspected	Microcephaly Cases*	Reporting GBS [†]
Guyana	6	0		
Haiti	5	2,955	1	Yes
Honduras	269	31,530	1	Yes
Jamaica	91	5,747		Yes
Martinique	12	36,260	12	Yes
Mexico	3,268	0		
Nicaragua	1,944	0		
Panama	353	1,628	5	Yes
Paraguay	12	525	2	
Peru	106	0		
Puerto Rico	19,967	0	1	Yes
Saint Barthelemy	61	725		
Saint Kitts & Nevis	3	0		No
Saint Lucia	38	790		
Saint Martin	200	2,350		
Saint Vincent & the Grenadines	38	156		
Sint Maarten	47	0		
Suriname	723	2,725	1	Yes
Trinidad and Tobago	412	0		
Turks & Caicos	2	0		
U.S. Virgin Islands	410	753		
Venezuela	1,631	57,717		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.

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