Department of Defense
Armed Forces Health Surveillance Branch
Global Zika Virus Surveillance Summary
(8 FEB 2017)

Approved for Public Release

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DEPARTMENT OF DEFENSE (AFHSB)

Global Zika Virus Surveillance Summary #54

8 FEB 2017 (next report 22 FEB 2017)

DoD SURVEILLANCE: Weekly incidence among Military Health System (MHS) beneficiaries has decreased significantly since its peak during the week ending 30 JUL 2016. As of 1300 on 8 FEB, there have been 168 (+1) confirmed Zika virus (ZIKV) disease cases (see table) since the first case was reported during the third week of 2016. One confirmed case is linked to the outbreak in Miami-Dade County, FL. There are four cases in pregnant Service members and two cases in pregnant dependents.

On 7 DEC 2016, AFHSB issued updated detection and reporting guidance that includes delineation of ZIKV virus infection versus ZIKV disease case definitions with reporting information for each. 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.

As of 31 DEC 2016, no vector mosquitoes collected on DoD installations had tested positive for ZIKV.

CASE REPORT: Overall weekly incidence for travel-associated cases in U.S. States and locally acquired cases in Puerto Rico continue to trend downward.

As of 7 FEB, TX has reported six cases of suspected locally transmitted ZIKV disease in Cameron County since it announced its first ZIKV case likely transmitted by a mosquito on 28 NOV 2016. The sixth case is not associated with the first five cases. Cameron County is in southeast TX and borders the Mexican state of Tamaulipas, which reported 97 ZIKV cases in 2016.

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	4,973 (+73)	38,297 (+880)	970 (+26)	119 (+2)
Travel-Associated***	4,752 (+70)	-	-	-
Local Vector Transmission	220 (+3)	-	-	-
Laboratory Exposure	1	-	-	-
Guillain Barré Syndrome (GBS)	13	68 (+1)†	-	-
U.S. Zika Pregnancy Registry Data, as of 24 JAN				
Pregnant Zika Cases	1,394 (+47)	3,071 (+186)		
Infants Born with Birth Defects	38 (+1)	1††		
Pregnancy Losses with Birth Defects	5	1††		

*Zika cases reported to ArboNET as of 1 FEB (U.S. States and Am. Samoa). Zika cases reported by USVI as of 7 FEB; USVI also reported 169 (+26) Zika cases in pregnant women.
**From the Puerto Rico DOH as of 21 JAN; PR DOH is tracking 3,030 (+49) ZIKV cases in pregnant women.
***Includes 41 (+3) sexually transmitted cases.
† Of the 68 (+1) GBS cases, 17 (+1) are classified as evidence of flavivirus infection, but specific virus undetermined.
†† CDC last reported these cases on 29 SEP.

Demographics for all confirmed Zika cases in Military Health System Beneficiaries as of 1300, 8 FEB 2017 (N = 168 confirmed cases)			
Demographic		**N**	**%**
Service *includes MHS beneficiaries from USPHS, NOAA, etc.	Army	71	42.3%
	Air Force	28 (+1)	16.7%
	Navy	23	13.7%
	Marine Corps	13	7.7%
	Coast Guard	31	18.5%
	Other*	2	1.2%
Status **includes Reserve Component	Service Member**	118 (+1)	70.2%
	Dependent	39	23.2%
	Retiree	11	6.5%
Age	0-20	11	6.5%
	21-35	82 (+1)	48.8%
	36-50	50	29.8%
	51+	20	11.9%
	Not Reported	5	3.0%
Gender	Female	66	39.3%
	Male	102 (+1)	60.7%

As of 7 FEB, FL health officials have reported 262 (+5) locally acquired ZIKV infections.

Updated advice for people living in or traveling to Miami-Dade County, FL, and Cameron County, TX, is available from CDC.

CDC has issued Alert Level 2, Practice Enhanced Precautions, travel notices for 60 countries and territories; 49 are in the Western Hemisphere, 10 are in PACOM, and one is in AFRICOM. CDC has posted travel information for 11 countries in Southeast Asia. The countries are: Brunei, Burma (Myanmar), Cambodia, Indonesia, Laos, Malaysia, Maldives, Philippines (57 (+4) cases), Thailand (>680 cases), Timor-Leste (East Timor), and Vietnam (155 cases). 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. On 9 JAN 2017, Angola health officials announced two locally transmitted Zika

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All information has been verified unless noted otherwise.

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cases, including one in a French tourist. According to CDC, increased case reporting from PACOM countries, some of which are endemic for ZIKV, may be the result of increased testing and surveillance or a change in the intensity of virus transmission.

According to PAHO on 26 JAN, nearly all Caribbean and North, Central, and South American OCONUS countries and territories continue to report a stable or decreasing trend in Zika cases except for Belize, Bolivia, Panama, Paraguay, and Peru.

MICROCEPHALY and GUILLAIN-BARRÉ SYNDROME: According to WHO, as of 1 FEB, 29 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 1 FEB, 21 countries and territories 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, Thailand, and Vietnam.

USG RESPONSE: On 22 DEC, FDA issued a warning to providers making them aware of higher than expected false positive results on IgM tests, especially the Zika Detect IgM Capture ELISA, and advising them to wait for confirmatory testing before making patient management decisions. CDC announced on 22 DEC that it was awarding nearly $184 million of the $350 million it received in the Zika Response and Preparedness Appropriations Act of 2016 to states, territories, local jurisdictions, and universities to support the response to ZIKV infection and its associated adverse health outcomes. On 16 NOV, CDC released Updated: Guidance for US Laboratories Testing for Zika Virus Infection. CDC issued ZIKV infection control guidance on 25 OCT. Also on 30 SEP, CDC published an updated ZIKV response plan for CONUS and Hawaii.

GLOBAL RESPONSE: Following the fifth meeting of the Emergency Committee (EC) on ZIKV, microcephaly, and other neurological disorders on 18 NOV, WHO declared that the event no longer meets the criteria for a Public Health Emergency of International Concern (PHEIC). The EC said that ZIKV and its associated consequences remain a significant enduring public health challenge requiring intense action, but is no longer a PHEIC as defined under the International Health Regulations. WHO had declared the PHEIC on 1 FEB 2016. On 25 OCT, WHO issued the first quarterly update to its JUL 2016 Zika Strategic Response Plan. 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: On 3 FEB, researchers published a study in bioRxiv demonstrating that at least four distinct introductions of ZIKV contributed to the FL outbreak and local transmission likely began in spring of 2016, months before the initial detection of the outbreak. On 5 FEB, researchers published a study that evaluated the specificity of the cobas® Zika blood screening test (Roche) and described the first ZIKV positive blood donations in the continental U.S.; screening results indicated donor risk factors should include both travel to affected areas more than four weeks prior to donating as well as sexual exposure. In an ahead of print Emerging Infectious Diseases (EID) article, researchers from the United Kingdom investigated the presence and persistence of ZIKV RNA in the semen of symptomatic patients with confirmed imported ZIKV infections and found detectable ZIKV RNA in the semen of a majority of the cases. Viral clearance times were variable and prolonged in some cases. Socio-economic factors such as lifestyle, housing infrastructure, and good sanitation are likely to prevent large-scale transmission of ZIKV in the U.S. despite importation of the virus and a suitable climate for vectors, according to a research article in the Journal of Medical Entomology on 3 JAN 2017. A PLOS Medicine report on 3 JAN 2017 said a systematic review of published and unpublished research found sufficient evidence to say that ZIKV is a cause of congenital abnormalities and is a trigger of GBS. A study published in PLOS One on 20 DEC describing the prevalence of ZIKV antibodies in mothers from Hawaii who gave birth to babies with and without microcephaly between 2009 and 2012 suggests the presence of ZIKV infections and associated microcephaly in the U.S. as early as 2009. On 21 DEC, Inovio Pharmaceuticals announced its DNA-based Zika vaccine (GLS-5700) generated robust antigen-specific antibody responses in its first multi-center phase I trial. EID posted a case series from Guadeloupe (seven cases) suggesting a causal link between severe thrombocytopenia and ZIKV infection. In an early release EID article, researchers found that ZIKV can replicate and persist in fetal brain and placental tissue for months after maternal infection. On 14 DEC, researchers published a study in JAMA using preliminary data from the U.S. Pregnancy Registry. This study showed that 6% of fetuses or infants had ZIKV-associated birth defects among pregnant women with evidence of recent ZIKV infection who completed pregnancies; no birth defect cases were attributed to maternal exposure solely in the second or third trimester. On 13 DEC, researchers published a cohort study in NEJM characterizing the spectrum of fetal outcomes among ZIKV infected pregnant women in Brazil; adverse fetal outcomes were evident regardless of the trimester of maternal infection (55% of pregnancies had adverse outcomes after maternal infection during the first trimester, 52% after infection during the second trimester, and 29% after infection during the third trimester). In an early release MMWR article published on 9 DEC, researchers studying ZIKV disease among pregnant women in Colombia found the risk of ZIKV related birth defects was highest when maternal infection occurred during the first trimester or early second trimester of pregnancy; evidence also suggests ZIKV related birth defects in Colombia may be significantly underreported. In an 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. A 17 OCT, EID article reported 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.

items in (+xx) represent the change in number from the previous AFHSB summary (25 JAN 2017).

All information has been verified unless noted otherwise. Additional sources include: AFP, Manila Standard Today Online, Indo-Asian News Service and Outbreak News Today.

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Emergency Use Authorization Zika Testing at DoD Laboratories

*Plaque-reduction neutralization test (PRNT)

As of 8 FEB 2017

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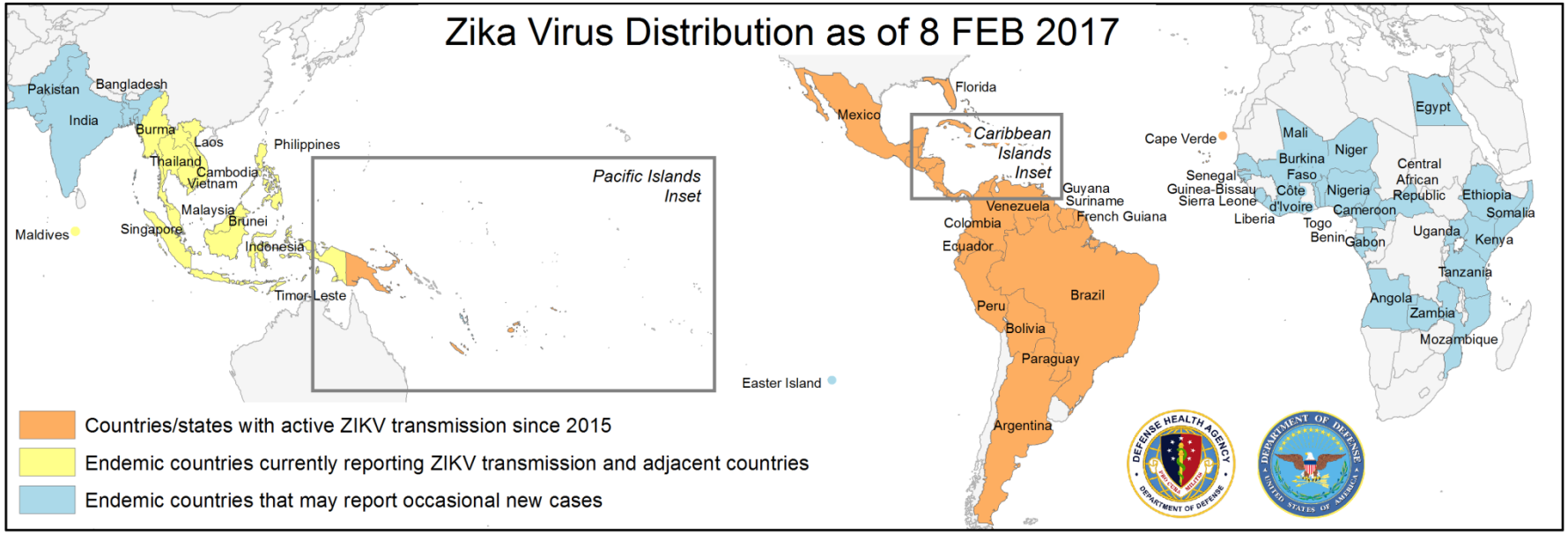

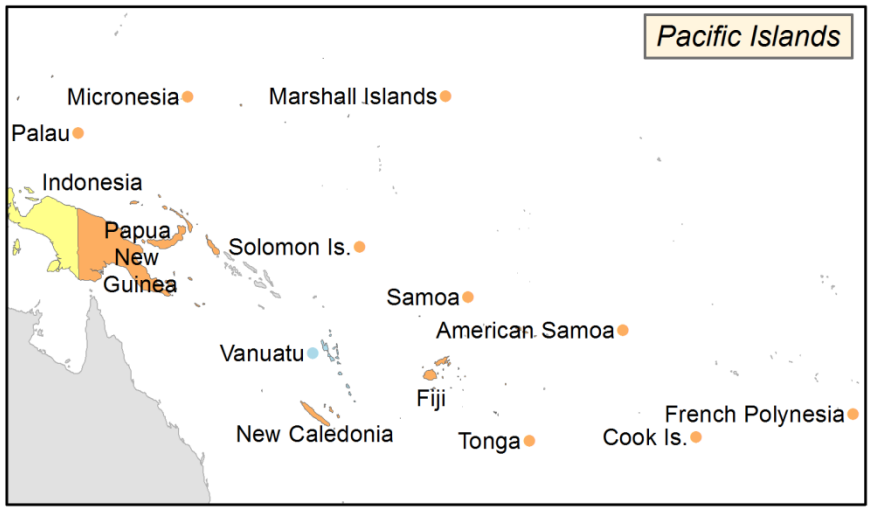

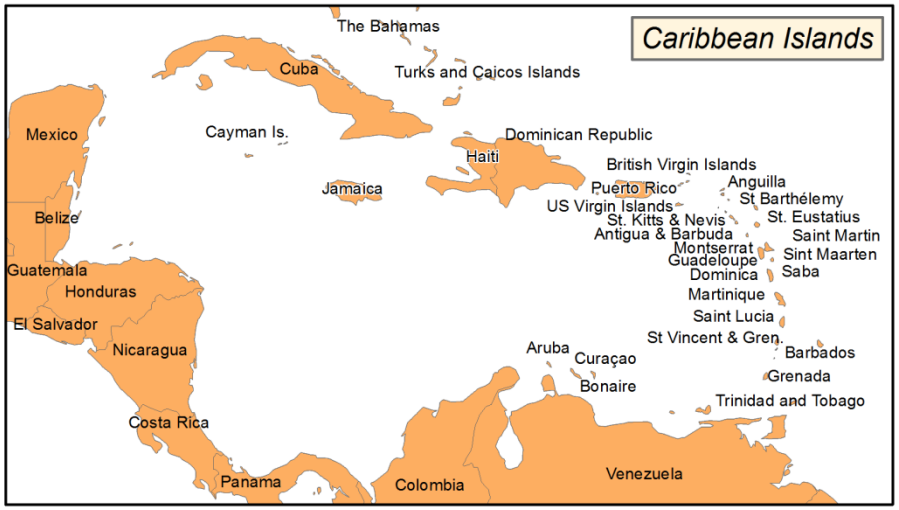

** Countries with a small footprint are given a marker by their label to denote current or previous Zika presence. Source: CDC.*

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

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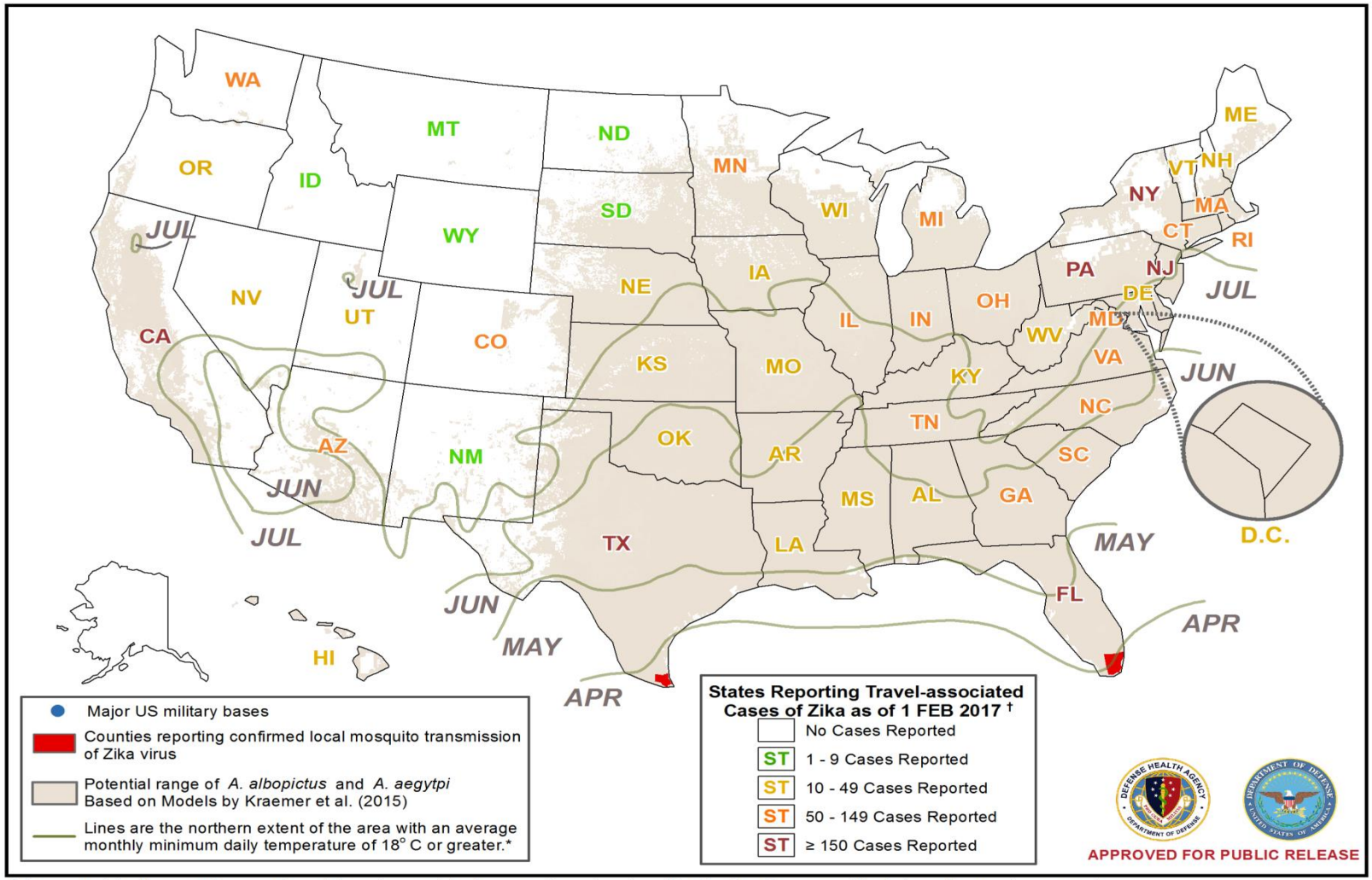

†To account for the growing number of travel-associated cases, the color classification has been modified since the previous report.

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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Western Hemisphere Countries‡ and Territories with Autochthonous Transmission of Zika Virus: 1 JAN 2015 – 2 FEB 2017

	Confirmed	Suspected	Microcephaly Cases*	Reporting GBS†
Total	202,008	542,458	2,588	20 Countries/Territories

Country/Territory	Confirmed	Suspected	Microcephaly Cases*	Reporting GBS†
Anguilla	19	27		
Antigua & Barbuda	14	465		
Argentina	26	1,821	2	
Aruba	28	676		
Bahamas	25	0		
Barbados	46	699		
Belize	73	816		
Bolivia	192	837	14	Yes
Bonaire, St. Eustatius, Saba	85	0		
Brazil	130,701	215,319	2,366	Yes
British Virgin Islands	52	74		
Cayman Islands	31	217		
Colombia	9,799	97,031	86	Yes
Costa Rica	1,701	5,962	2	Yes
Cuba	187	0		
Curaçao	820	0		
Dominica	79	1,150		
Dominican Republic	333	4,908	22	Yes
Ecuador	896	2,777		
El Salvador	51	11,466	4	Yes
French Guiana	483	10,205	16	Yes
Grenada	111	316	1	Yes
Guadeloupe	382	30,845	13	Yes
Guatemala	788	3,373	15	Yes

Country/Territory	Confirmed	Suspected	Microcephaly Cases*	Reporting GBS†
Guyana	37	0		
Haiti	5	2,955	1	Yes
Honduras	298	32,047	2	Yes
Jamaica	203	7,371		Yes
Martinique	15	36,680	19	Yes
Mexico	7,634	0		Yes
Montserrat	5	18		
Nicaragua	2,059	0	2	
Panama	786	2,957	5	Yes
Paraguay	14	571	2	
Peru	399	1,958		
Puerto Rico	38,297	0	11	Yes
Saint Barthelemy	61	993		
Saint Kitts & Nevis	33	549		
Saint Lucia	50	822		
Saint Martin	200	3,185		Yes
Saint Vincent & the Grenadines	83	508		
Sint Maarten	143	367		
Suriname	723	2,760	4	Yes
Trinidad and Tobago	643	0	1	
Turks & Caicos	25	175		
U.S. Virgin Islands	960	55		
Venezuela	2,413	59,503		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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