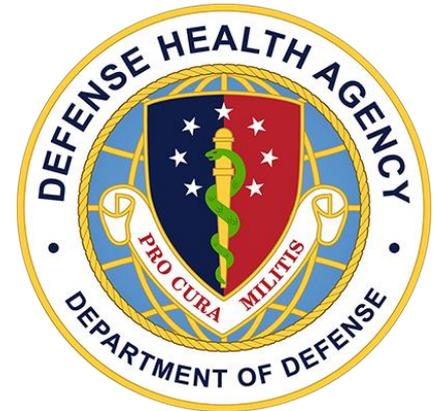


Department of Defense
Armed Forces Health Surveillance Branch
Global Zika Virus Surveillance Summary
(30 NOV 2016)



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DEPARTMENT OF DEFENSE (AFHSB)

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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 30 NOV, there have been 156 confirmed Zika virus (ZIKV) disease cases (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.

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

CASE REPORT: Overall weekly incidence for travel-associated cases in the U.S. States and locally-acquired cases in Puerto Rico are trending downwards.

On 28 NOV, the Texas Department of State Health Services (TX DSHS) and Cameron County Department of Health and Human Services announced the first case of ZIKV disease likely transmitted by a mosquito in TX. [CDC](#) and TX DSHS are supporting Cameron County’s response to the case and to the ongoing risk of Zika in the community. Cameron County is in southeast TX and borders the Mexican state of Tamaulipas, which has reported 51 ZIKV cases in 2016.

Demographics for all confirmed Zika cases in Military Health System Beneficiaries as of 1300, 30 NOV 2016 (N = 156 confirmed cases)			
Demographic		N	%
Service <small>*includes MHS beneficiaries from USPHS, NOAA, etc.</small>	Army	69	44.2%
	Air Force	24	15.4%
	Navy	20	12.8%
	Marine Corps	12	7.7%
	Coast Guard	30	19.2%
	Other*	1	0.6%
Status <small>**includes Reserve Component</small>	Service Member**	110	70.5%
	Dependent	35	22.4%
	Retiree	11	7.1%
Age	0-20	11	7.1%
	21-35	75	48.1%
	36-50	45	28.8%
	51+	17	10.9%
	Not Reported	8	5.1%
Gender	Female	62	39.7%
	Male	94	60.3%

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	4,444 (+189)	34,562 (+492)	808 (+28)	54
Travel-Associated***	4,261 (+146)	-	-	-
Local Vector Transmission	182 (+43)	-	-	-
Laboratory Exposure	1	-	-	-
Guillain Barré Syndrome (GBS)	13	64 (+2)†	-	-

U.S. Zika Pregnancy Registry Data, as of 17 NOV		
Pregnant Zika Cases	1,114 (+27)	2,561 (+110)
Infants Born with Birth Defects	28 (+2)	1††
Pregnancy Losses with Birth Defects	5	1††

*Zika cases reported to ArboNET as of 23 NOV (U.S. States and Am. Samoa). Zika cases reported by USVI as of 29 NOV; USVI also reported 91 (+5) Zika cases in pregnant women.
 **From the Puerto Rico DOH as of 10 NOV; PR DOH is tracking 2,671 (+40) ZIKV cases in pregnant women.
 ***Includes 36 (+1) sexually transmitted cases.
 † Of the 64 (+2) GBS cases, 16 are classified as evidence of flavivirus infection, but specific virus undetermined.
 †† CDC last reported these cases on 29 SEP.

As of 29 NOV, FL health officials reported 240 (+4) locally acquired ZIKV infections. As of 23 NOV, 182 (+43) met the CDC definition of a Zika case. The FL DOH believes ongoing transmission continues in two defined areas of Miami-Dade County: south area of Miami Beach and the Little River neighborhood. On 22 NOV, after 45 days with no new cases, the northern portion of Miami Beach was declared free of ongoing transmission.

Updated advice for people living in or traveling to South Florida is available from [CDC](#). FL DOH continues to investigate additional areas in Miami-Dade County. [FL DOH and CDC](#) said aggressive mosquito control, including aerial spraying targeting adult and larval mosquitoes, most likely contributed to stopping ZIKV transmission in the Wynwood neighborhood.

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CASE REPORT (cont'd): As of 30 NOV, 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. On 29 SEP, the [CDC posted travel information](#) for 11 countries in Southeast Asia. The countries are: Brunei, Burma (Myanmar), Cambodia, Indonesia, Laos, Malaysia, Maldives, Philippines (33 cases), Thailand (>680 cases), Timor-Leste (East Timor), and Vietnam (47 cases). These countries have either reported low level local ZIKV transmission or are adjacent to countries with known ZIKV transmission. Singapore continues to report low-level ZIKV transmission with 455 (+1) cases and one (-2) identified clusters as of 30 NOV. 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.

According to [PAHO](#) on 17 NOV, over the previous four weeks most Caribbean and North, Central, and South American OCONUS countries and territories reported a decreasing trend in Zika cases except for Mexico, Panama, the Iquitos region of Peru, and Turks & Caicos. 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.

MICROCEPHALY and GUILLAIN-BARRÉ SYNDROME: As of 23 NOV, 28 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 23 NOV, 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, Thailand, and Vietnam.

USG RESPONSE: On 16 NOV, CDC released [Updated: Guidance for US Laboratories Testing for Zika Virus Infection](#). 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; WHO made a [similar recommendation](#) on 6 SEP. 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 the event is no longer a PHEIC as defined under the International Health Regulations. WHO had declared the PHEIC on 1 FEB 2016. 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](#). 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 30 NOV, researchers published the first report of the development of glaucoma after ZIKV exposure during gestation in a three-month-old with microcephaly. In an ahead of print in Emerging Infectious Diseases (EID) [article](#), findings from a retrospective study of ZIKV in Cambodia suggest ZIKV is endemic in the country with low prevalence and a low level of impact on public health. Researchers reported in a [22 NOV MMWR article](#) on their follow-up of 13 infants in Brazil with normal head circumference at birth and evidence of a congenital ZIKV infection. The report showed that head growth can slow after birth resulting in a later diagnosis of microcephaly, and that significant neurologic deficits were evident on follow-up. The Walter Reed Army Institute of Research (WRAIR) began [Phase 1 clinical testing](#) of a Zika purified inactivated virus (ZPIV) on 7 NOV; Sanofi-Pasteur received a [\\$43 million development grant from BARDA](#) on 26 SEP to continue development of that vaccine. On 3 NOV, JAMA Pediatrics published a review of the distinctive features of congenital Zika syndrome in infants. In an [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. 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 will take place at three U.S. sites: Peoria, IL, San Diego, CA, and Melbourne, FL. 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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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 30 NOV 2016

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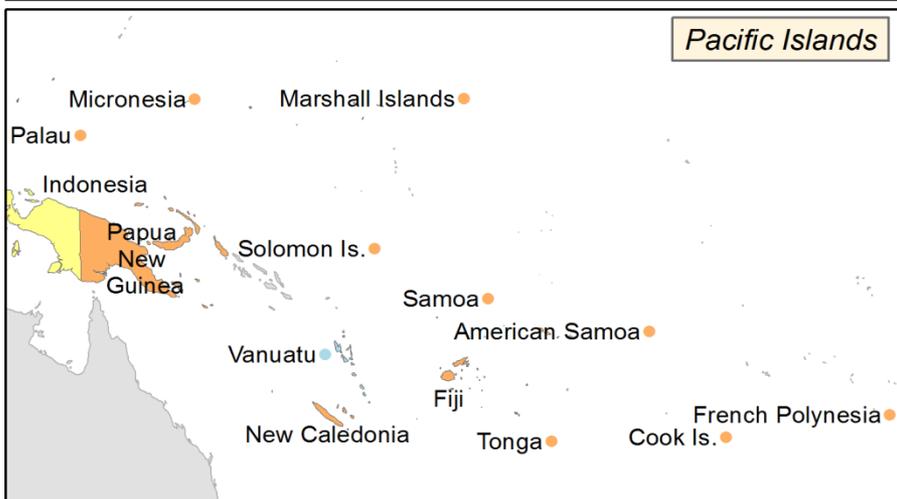
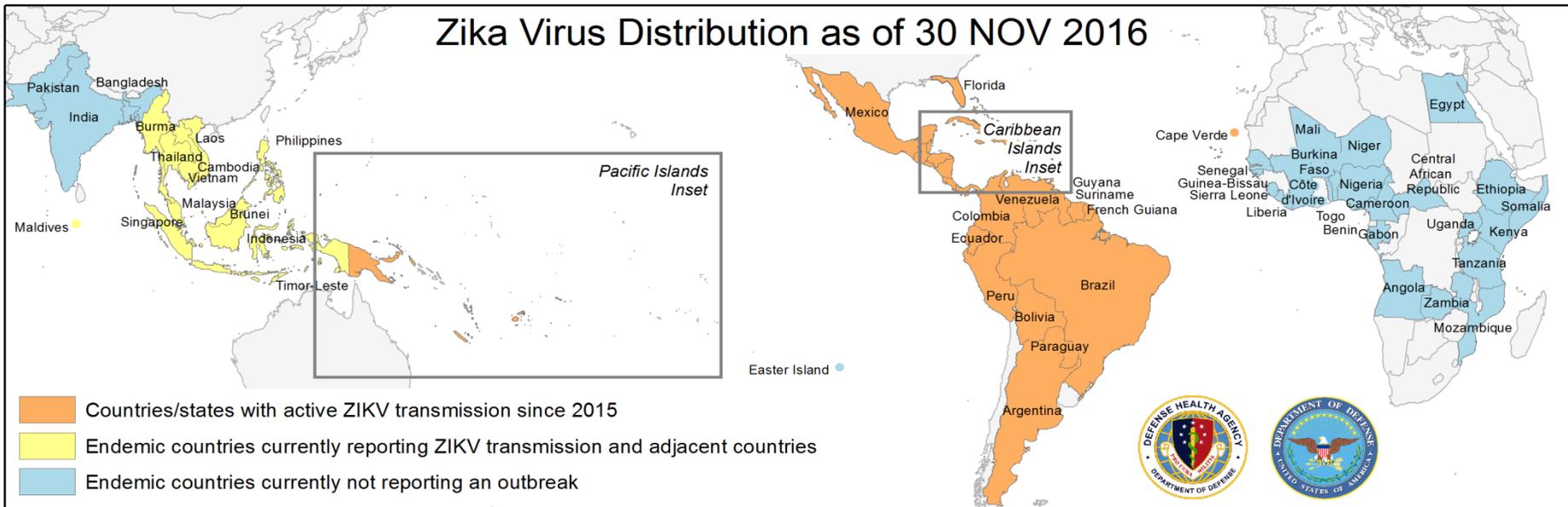
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Zika Virus Distribution as of 30 NOV 2016



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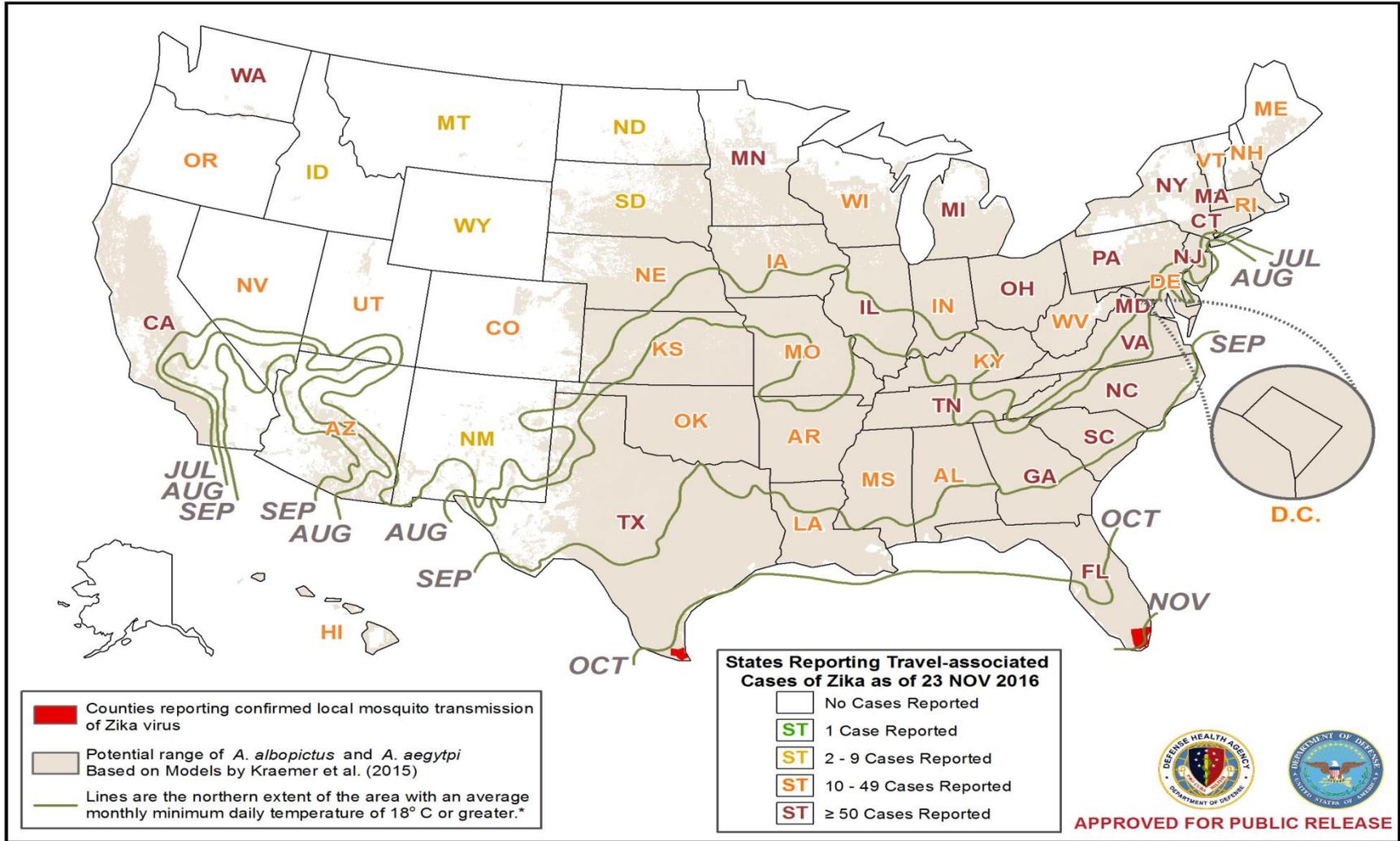
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Overlap of States Reporting Imported Zika Cases with the Estimated Range of Mosquito Vectors and Transmission Suitability

30 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.

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Western Hemisphere Countries[‡] and Territories with Autochthonous Transmission of Zika Virus: 1 JAN 2015 – 23 NOV 2016

	Confirmed	Suspected	Microcephaly Cases*	Reporting GBS [†]
Total	173,300	517,169	2,300	19 Countries/Territories

Country/Territory	Confirmed	Suspected	Microcephaly Cases*	Reporting GBS [†]	Country/Territory	Confirmed	Suspected	Microcephaly Cases*	Reporting GBS [†]
Anguilla	7	44			Guyana	6	0		
Antigua & Barbuda	14	393			Haiti	5	2,955	1	Yes
Argentina	26	1,821	1		Honduras	298	31,863	1	Yes
Aruba	28	614			Jamaica	186	7,052		Yes
Bahamas	21	0			Martinique	12	36,680	14	Yes
Barbados	37	653			Mexico	6,642	0		Yes
Belize	49	537			Montserrat	2	0		
Bolivia	129	718	3		Nicaragua	2,044	0		
Bonaire, St. Eustatius, Saba	85	0			Panama	517	2,089	5	Yes
Brazil	109,596	200,465	2,159	Yes	Paraguay	12	583	2	
British Virgin Islands	38	51			Peru	145	0		
Cayman Islands	29	201			Puerto Rico	34,562	0	5	Yes
Colombia	8,826	96,546	60	Yes	Saint Barthelemy	61	900		
Costa Rica	1,453	2,618	1	Yes	Saint Kitts & Nevis	26	532		No
Cuba	3	0			Saint Lucia	50	822		
Curaçao	820	0			Saint Martin	200	2,825		
Dominica	79	1,150			Saint Vincent & the Grenadines	38	156		
Dominican Republic	327	4,893	10	Yes	Sint Maarten	62	168		
Ecuador	812	2,722		Yes	Suriname	723	2,755	2	Yes
El Salvador	51	11,353	4	Yes	Trinidad and Tobago	643	0	1	
French Guiana	483	9,700	14	Yes	Turks & Caicos	12	115		
Grenada	108	314	1	Yes	U.S. Virgin Islands	808	104		
Guadeloupe	379	30,845	1	Yes	Venezuela	2,380	59,147		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.
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