Department of Defense
Armed Forces Health Surveillance Branch
Global Zika Virus Surveillance Summary
(7 DEC 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 #47

7 DEC 2016 (next report 14 DEC 2016)

DoD SURVEILLANCE: As of 1300 on 30 NOV, there have been 157 (+1) 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. Weekly incidence among Military Health System (MHS) beneficiaries has decreased significantly since its peak during the week ending 30 JUL 2016.

On 7 DEC, 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 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.

Texas health officials announced the first case of ZIKV disease likely transmitted by a mosquito in Cameron County on 28 NOV. No additional cases have since been reported. Cameron County is in southeast TX and borders the Mexican state of Tamaulipas, which has reported 69 (+18) 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	4,496 (+52)	34,825 (+263)	820 (+12)	54
Travel-Associated***	4,310 (+49)	-	-	-
Local Vector Transmission	185 (+3)	-	-	-
Laboratory Exposure	1	-	-	-
Guillain Barré Syndrome (GBS)	13	66 (+2)†	-	-

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

*Zika cases reported to ArboNET as of 30 NOV (U.S. States and Am. Samoa). Zika cases reported by USVI as of 6 DEC; USVI also reported 101 (+10) Zika cases in pregnant women.
**From the Puerto Rico DOH as of 17 NOV; PR DOH is tracking 2,711 (+40) ZIKV cases in pregnant women.
***Includes 36 sexually transmitted cases.
† Of the 66 (+2) GBS cases, 16 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, 7 DEC 2016 (N = 157 confirmed cases)			
Demographic		N	%
Service (*includes MHS beneficiaries from USPHS, NOAA, etc.)	Army	69	43.9%
	Air Force	24	15.3%
	Navy	20	12.7%
	Marine Corps	12	7.6%
	Coast Guard	30	19.1%
	Other*	2 (+1)	1.3%
Status (**includes Reserve Component)	Service Member**	111 (+1)	70.7%
	Dependent	35	22.3%
	Retiree	11	7.0%
Age	0-20	11	7.0%
	21-35	75	47.8%
	36-50	46 (+1)	29.3%
	51+	17	10.8%
	Not Reported	8	5.1%
Gender	Female	62	39.5%
	Male	95 (+1)	60.5%

As of 6 DEC, FL health officials reported 244 (+4) locally acquired ZIKV infections. As of 30 NOV, 184 (+2) met the CDC definition of a Zika case. The FL DOH believes ongoing transmission is currently only taking place in the South Miami Beach area of Miami-Dade County. On 2 DEC, FL announced the end of transmission in the Little River neighborhood.

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): 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 (39 (+6) cases), Thailand (>680 cases), Timor-Leste (East Timor), and Vietnam (103 (+56) 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 456 (+1) cases and one identified cluster as of 7 DEC. 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 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 1 DEC, over the previous four weeks nearly all Caribbean and North, Central, and South American OCONUS countries and territories reported a decreasing trend in Zika cases except for the Iquitos region of Peru. The current trend of the outbreak in Saint Martin and Saint Barthelemy is unclear.

MICROCEPHALY and GUILLAIN-BARRÉ SYNDROME: As of 30 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 30 NOV, 20 (+1, Bolivia) countries and territories in the Western Hemisphere and 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 7 DEC 2016

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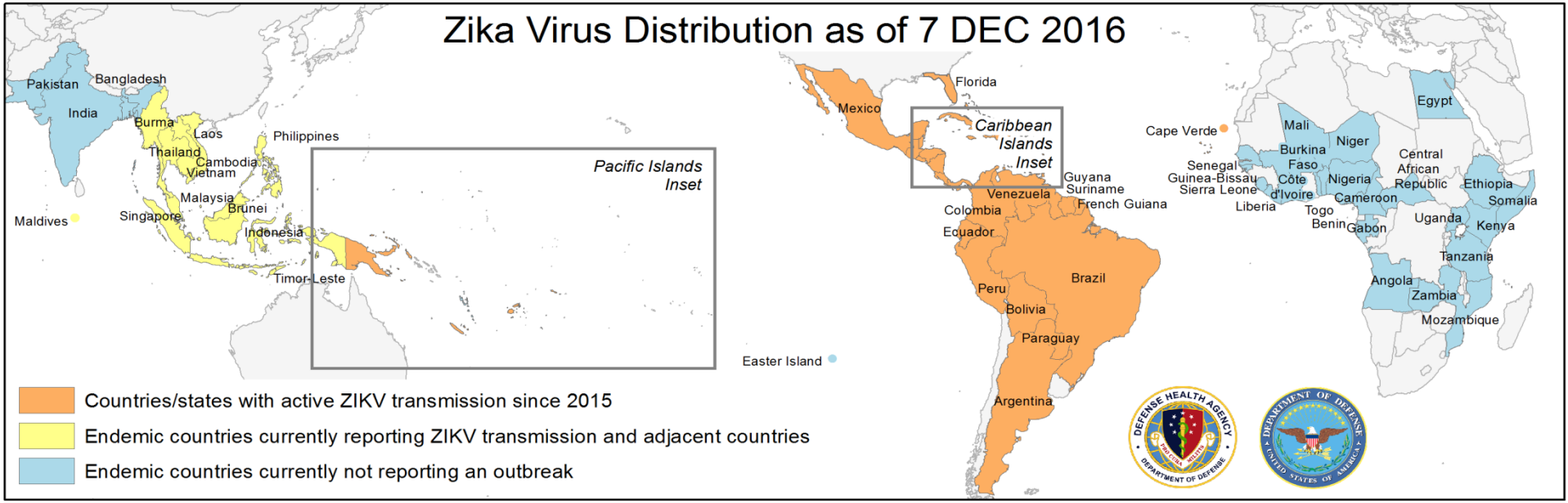

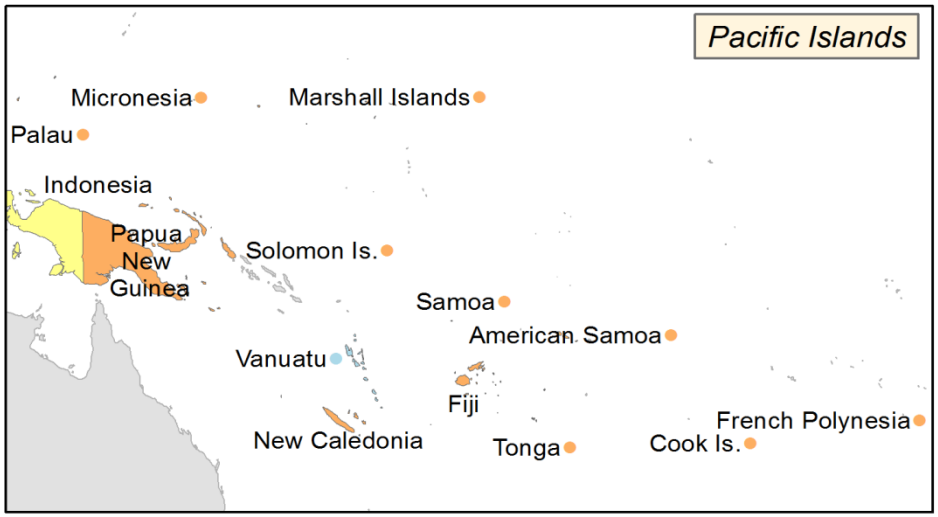

** Countries with a small footprint are given a marker by their label to denote current or previous Zika presence. Source: CDC.*

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

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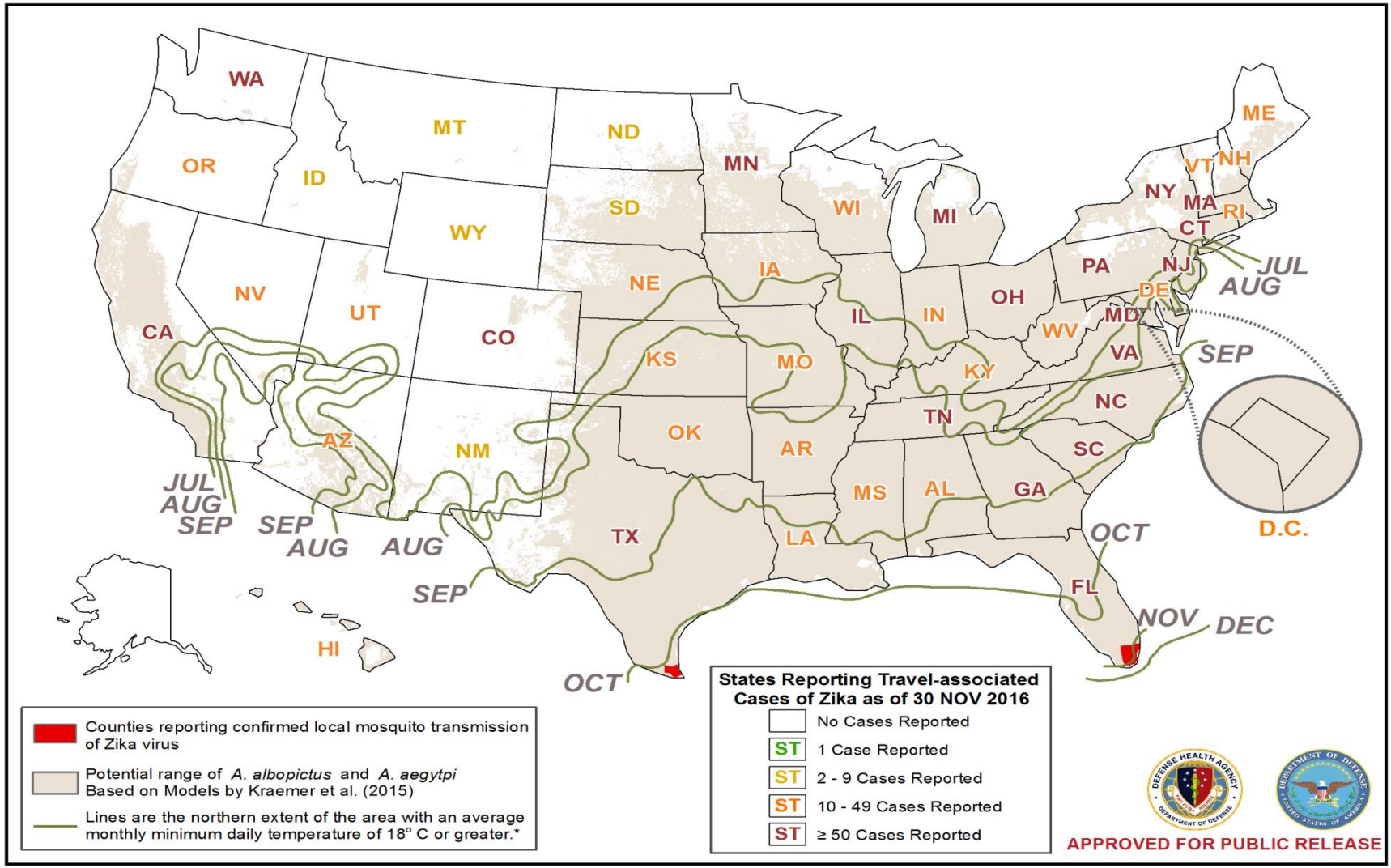

This version of the map shows that after JUL the northern extent begins to move southward.

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 – 30 NOV 2016

	Confirmed	Suspected	Microcephaly Cases*	Reporting GBS†
Total	173,785	517,608	2,352	20 Countries/Territories

Country/Territory	Confirmed	Suspected	Microcephaly Cases*	Reporting GBS†
Anguilla	8	53		
Antigua & Barbuda	14	465		
Argentina	26	1,821	1	
Aruba	28	614		
Bahamas	21	0		
Barbados	37	653		
Belize	49	537		
Bolivia	140	718	9	Yes
Bonaire, St. Eustatius, Saba	85	0		
Brazil	109,596	200,465	2,189	Yes
British Virgin Islands	38	51		
Cayman Islands	29	201		
Colombia	8,826	96,692	60	Yes
Costa Rica	1,453	2,618	2	Yes
Cuba	3	0		
Curaçao	820	0		
Dominica	79	1,150		
Dominican Republic	327	4,898	22	Yes
Ecuador	833	2,668		Yes
El Salvador	51	11,363	4	Yes
French Guiana	483	9,700	14	Yes
Grenada	109	314	1	Yes
Guadeloupe	379	30,845	1	Yes
Guatemala	466	2,785	15	Yes

Country/Territory	Confirmed	Suspected	Microcephaly Cases*	Reporting GBS†
Guyana	6	0		
Haiti	5	2,955	1	Yes
Honduras	298	31,863	2	Yes
Jamaica	186	7,052		Yes
Martinique	12	36,680	14	Yes
Mexico	6,764	0		Yes
Montserrat	2	0		
Nicaragua	2,045	0		
Panama	544	2,168	5	Yes
Paraguay	12	583	2	
Peru	171	0		
Puerto Rico	34,825	0	7	Yes
Saint Barthelemy	61	930		
Saint Kitts & Nevis	26	532		No
Saint Lucia	50	822		
Saint Martin	200	2,950		
Saint Vincent & the Grenadines	38	156		
Sint Maarten	62	168		
Suriname	723	2,755	2	Yes
Trinidad and Tobago	643	0	1	
Turks & Caicos	12	115		
U.S. Virgin Islands	820	121		
Venezuela	2,380	59,147		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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