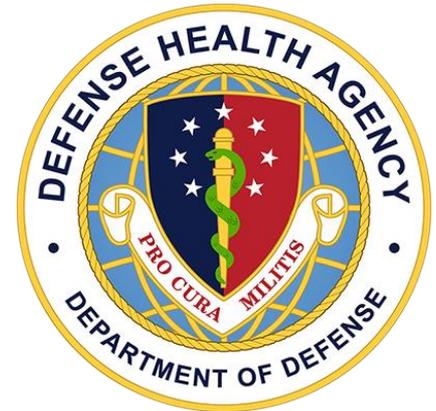


Department of Defense
Armed Forces Health Surveillance Branch
Global Zika Virus Surveillance Summary
(16 NOV 2016)



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DEPARTMENT OF DEFENSE (AFHSB)

Global Zika Virus Surveillance Summary #44

16 NOV 2016 (next report 23 NOV 2016)



DoD SURVEILLANCE: As of 1300 on 16 NOV, there have been 154 (+3) 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 15 NOV, FL health officials reported 225 (+13) locally acquired ZIKV infections. As of 9 NOV, 139 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](#), aggressive mosquito control, including aerial spraying that targeted both adult and larval mosquitoes, most likely contributed to stopping ZIKV transmission in the Wynwood neighborhood. FL DOH is investigating additional areas in Miami-Dade County.

Overall weekly incidence for both the U.S. States and Puerto Rico are trending downwards.

Demographics for all confirmed Zika cases in Military Health System Beneficiaries as of 1300, 16 NOV 2016 (N = 154 confirmed cases)			
Demographic		N	%
Service <small>*includes MHS beneficiaries from USPHS, NOAA, etc.</small>	Army	68 (+1)	44.2%
	Air Force	24	15.6%
	Navy	20 (+1)	13.0%
	Marine Corps	12	7.8%
	Coast Guard	29 (+1)	18.8%
	Other*	1	0.6%
Status <small>**includes Reserve Component</small>	Service Member**	108 (+1)	70.1%
	Dependent	35 (+2)	22.7%
	Retiree	11	7.1%
Age	0-20	11 (+1)	7.1%
	21-35	73 (+1)	47.4%
	36-50	45 (+1)	29.2%
	51+	17	11.0%
	Not Reported	8	5.2%
Gender	Female	61 (+2)	39.6%
	Male	93 (+1)	60.4%

As of 16 NOV, CDC has issued Alert Level 2, Practice Enhanced Precautions, travel notices for 58 [countries and territories](#); 48 are in the Western Hemisphere, nine are in PACOM and one is in AFRICOM. 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 (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. 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	4,175 (+47)	33,455 (+715)	639 (+49)	54 (+7)
Travel-Associated***	4,035 (+47)	-	-	-
Local Vector Transmission	139	-	-	-
Laboratory Exposure	1	-	-	-
Guillain Barré Syndrome (GBS)	13	62 (+3)†	-	-
U.S. Zika Pregnancy Registry Data, as of 3 NOV				
Pregnant Zika Cases	1,057 (+52)	2,357 (+94)		
Infants Born with Birth Defects	26 (+1)	1††		
Pregnancy Losses with Birth Defects	5	1††		

*Zika cases reported to ArboNET as of 9 NOV (U.S. States and Am. Samoa). Zika cases reported by USVI as of 9 NOV; USVI also reported 73 (+6) Zika cases in pregnant women.
 **From the Puerto Rico DOH as of 27 OCT; PR DOH is tracking 2,615 (+99) ZIKV cases in pregnant women.
 ***Includes 34 sexually transmitted cases.
 † Of the 62 (+3) GBS cases, 12 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 (9 NOV 2016).

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CASE REPORT cont'd: On 10 NOV, WHO reported that Monserrat had confirmed local Zika transmission. On 7 NOV, the Pacific archipelago of Palau reported its first locally transmitted case of ZIKV. The Singapore National Environment Agency reports 451 (+2) cases and four (-1) identified clusters as of 16 NOV.

According to [PAHO](#) on 3 NOV, 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 Mexico, Guatemala, Panama, Belize, St. Kitts and Nevis, and Turks and Caicos.

MICROCEPHALY and GUILLAIN-BARRÉ SYNDROME: As of 9 NOV, 26 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 9 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: 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](#). In an early release MMWR article published on 30 SEP, researchers found that the clinical course of ZIKV disease is typically mild in children, as it is in adults.

GLOBAL RESPONSE: WHO will convene the fifth meeting of the Emergency Committee on Zika virus, microcephaly, and other neurological disorders on 18 NOV. Following the fourth meeting of the [Emergency Committee](#) 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. 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: A study in the [MMWR on 11 NOV](#) suggests women (≥ 20) were more likely than men to be a confirmed Zika case in Puerto Rico (61% vs. 39%), even when accounting for pregnancy. 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 [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 a 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. 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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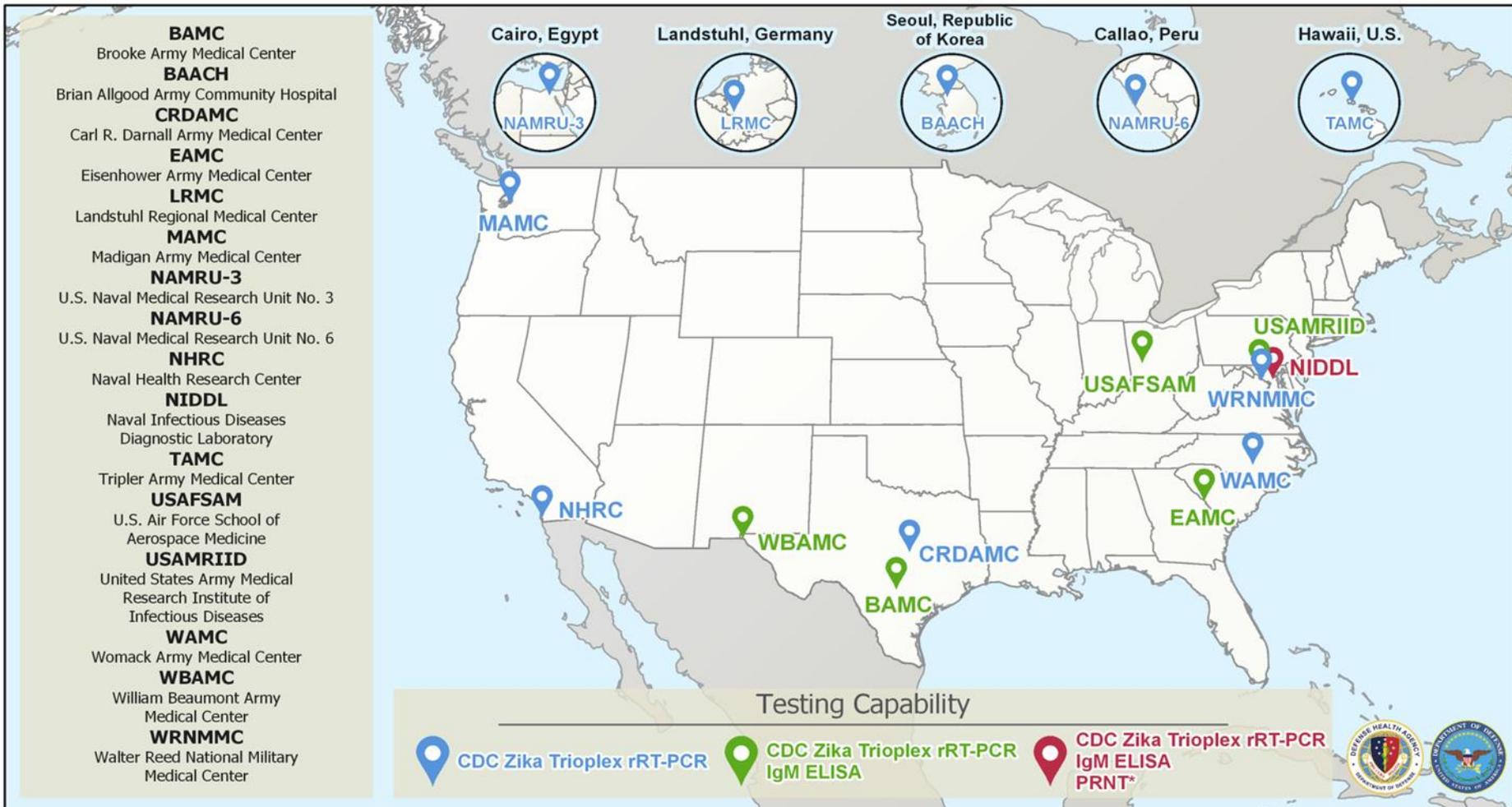
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Emergency Use Authorization Zika Testing at DoD Laboratories



- 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 16 NOV 2016

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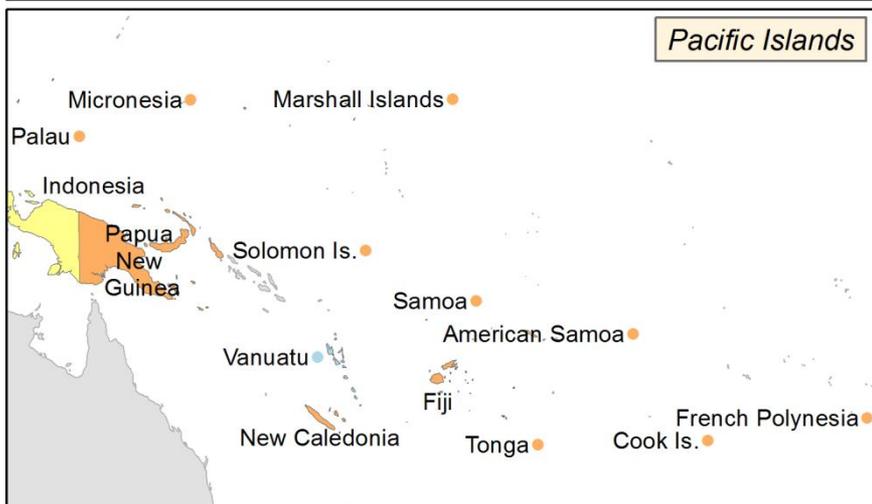
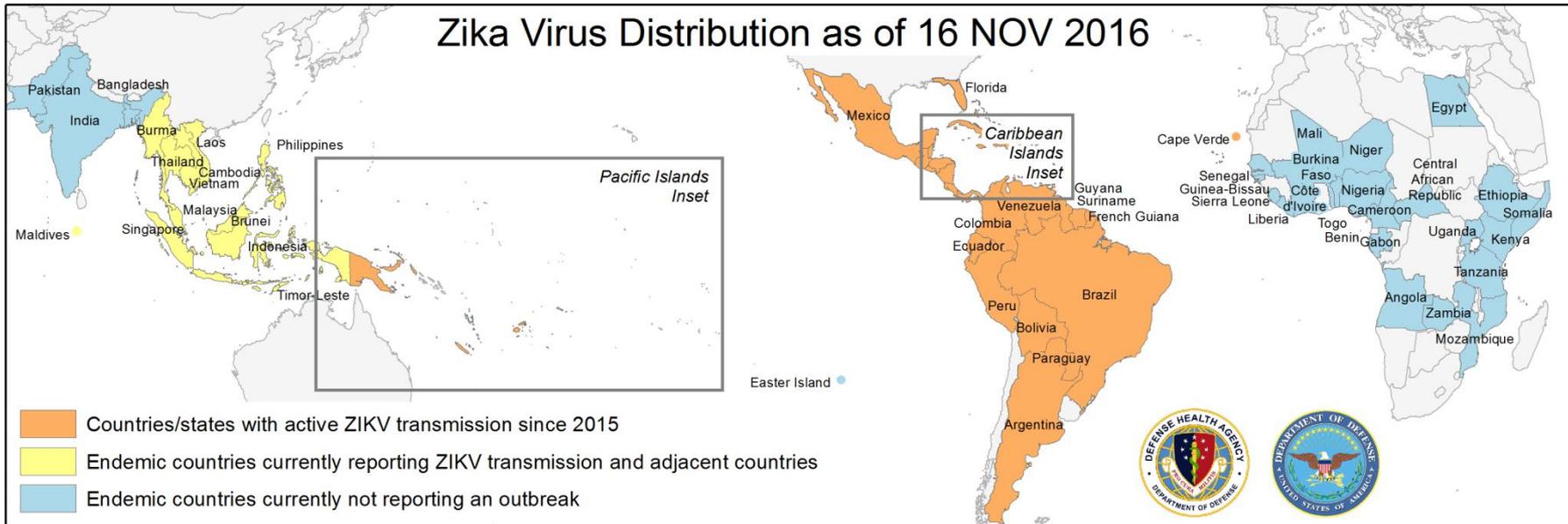
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Zika Virus Distribution as of 16 NOV 2016



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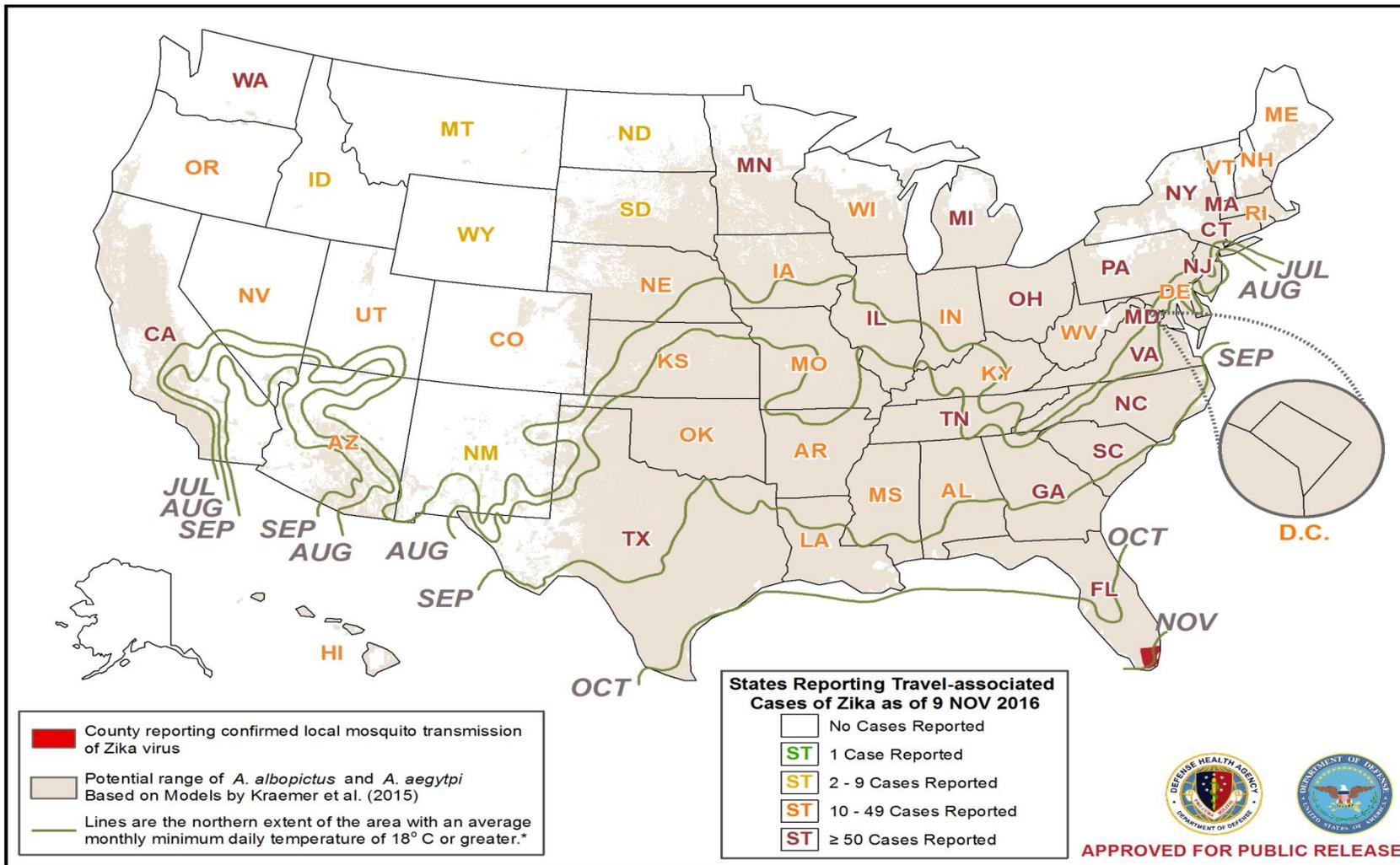
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Overlap of States Reporting Imported Zika Cases with Estimated Range of Mosquito Vectors and Transmission Suitability

16 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 – 10 NOV 2016

	Confirmed	Suspected	Microcephaly Cases*	Reporting GBS [†]
Total	170,627	515,258	2,234	19 Countries/Territories

Country/Territory	Confirmed	Suspected	Microcephaly Cases*	Reporting GBS [†]
Anguilla	5	38		
Antigua & Barbuda	14	393		
Argentina	26	1,821		
Aruba	28	614		
Bahamas	16	0		
Barbados	30	625		
Belize	49	537		
Bolivia	129	718	3	
Bonaire, St. Eustatius, Saba	85	0		
Brazil	109,596	200,465	2,106	Yes
British Virgin Islands	38	51		
Cayman Islands	29	201		
Colombia	8,826	96,259	58	Yes
Costa Rica	1,375	2,518	1	Yes
Cuba	3	0		
Curaçao	322	0		
Dominica	79	1,150		
Dominican Republic	328	4,884	10	Yes
Ecuador	806	2,722		Yes
El Salvador	51	11,321	4	Yes
French Guiana	483	9,940	10	Yes
Grenada	108	314	1	Yes
Guadeloupe	379	30,775		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	285	31,719	1	Yes
Jamaica	122	6,449		Yes
Martinique	12	36,590	12	Yes
Mexico	6,094	0		Yes
Montserrat	2	0		
Nicaragua	2,033	0		
Panama	508	2,000	5	Yes
Paraguay	12	546	2	
Peru	124	0		
Puerto Rico	33,455	0	3	Yes
Saint Barthelemy	61	820		
Saint Kitts & Nevis	26	516		No
Saint Lucia	50	822		
Saint Martin	200	2,670		
Saint Vincent & the Grenadines	38	156		
Sint Maarten	62	168		
Suriname	723	2,751	1	Yes
Trinidad and Tobago	643	0	1	
Turks & Caicos	12	115		
U.S. Virgin Islands	639	92		
Venezuela	2,244	58,758		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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