



Centers for Disease Control and Prevention



# Update on the current status of the Zika virus epidemic

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March 20, 2019

# Zika virus transmission and clinical manifestations

- RNA flavivirus related to dengue, yellow fever, Japanese encephalitis, and West Nile viruses
- Transmitted to humans primarily by *Aedes aegypti* mosquitoes
- Typically causes asymptomatic infection or mild dengue-like illness
- Recent outbreaks identified new modes of transmission and clinical manifestations



*Aedes aegypti*

# Zika virus epidemiology

- First isolated from a monkey in Uganda in 1947
- Before 2007, only sporadic human disease cases reported from Africa and southeast Asia
- In 2007, first outbreak reported on Yap Island, Federated States of Micronesia
- From 2013–2015, >30,000 suspected cases reported from French Polynesia and other Pacific islands

# Zika virus in the Americas

- In 2015, the first locally acquired cases in the Americas were reported in Brazil
- By end of 2017, local mosquito-borne transmission had been reported in 48 countries or territories in the Americas
- Only countries in Americas without reported local transmission are Bermuda, Canada, Chile, and Uruguay

# Zika virus in the United States

- From 2007–2014, 14 Zika virus disease cases identified in US travelers
- Following introduction and spread in the Americas, cases among US travelers increased substantially
- In 2016, large outbreaks in three US territories (Puerto Rico, US Virgin Islands, and American Samoa)
- In 2016, limited local mosquito-borne transmission identified in two states (Florida and Texas)

# Zika virus surveillance in the United States

- Zika virus disease and Zika virus infection without disease became nationally notifiable conditions in 2016
- Cases and infections reported to CDC's ArboNET system by all state and territorial health departments
- Use standardized case definitions with clinical, epidemiologic, and laboratory criteria
- Congenital and non-congenital infections reported separately
- Confirmed and probable cases included in surveillance reports, MMWR tables, and CDC webpages

# Zika virus (ZIKV) disease case definitions

## Confirmed case

- Clinically compatible illness with laboratory evidence of:
  - ZIKV by culture, viral antigen or viral RNA; OR
  - ZIKV IgM antibody with positive ZIKV neutralizing antibodies and negative neutralizing antibodies against dengue or other flaviviruses endemic to the region where exposure occurred.

## Probable case

- Clinically compatible illness with laboratory evidence of:
  - ZIKV IgM antibody with positive ZIKV and dengue virus neutralizing antibodies; OR
  - ZIKV IgM antibody with negative dengue virus IgM antibody and no neutralizing antibody testing performed

# ArboNET reporting criteria for viremic blood donors

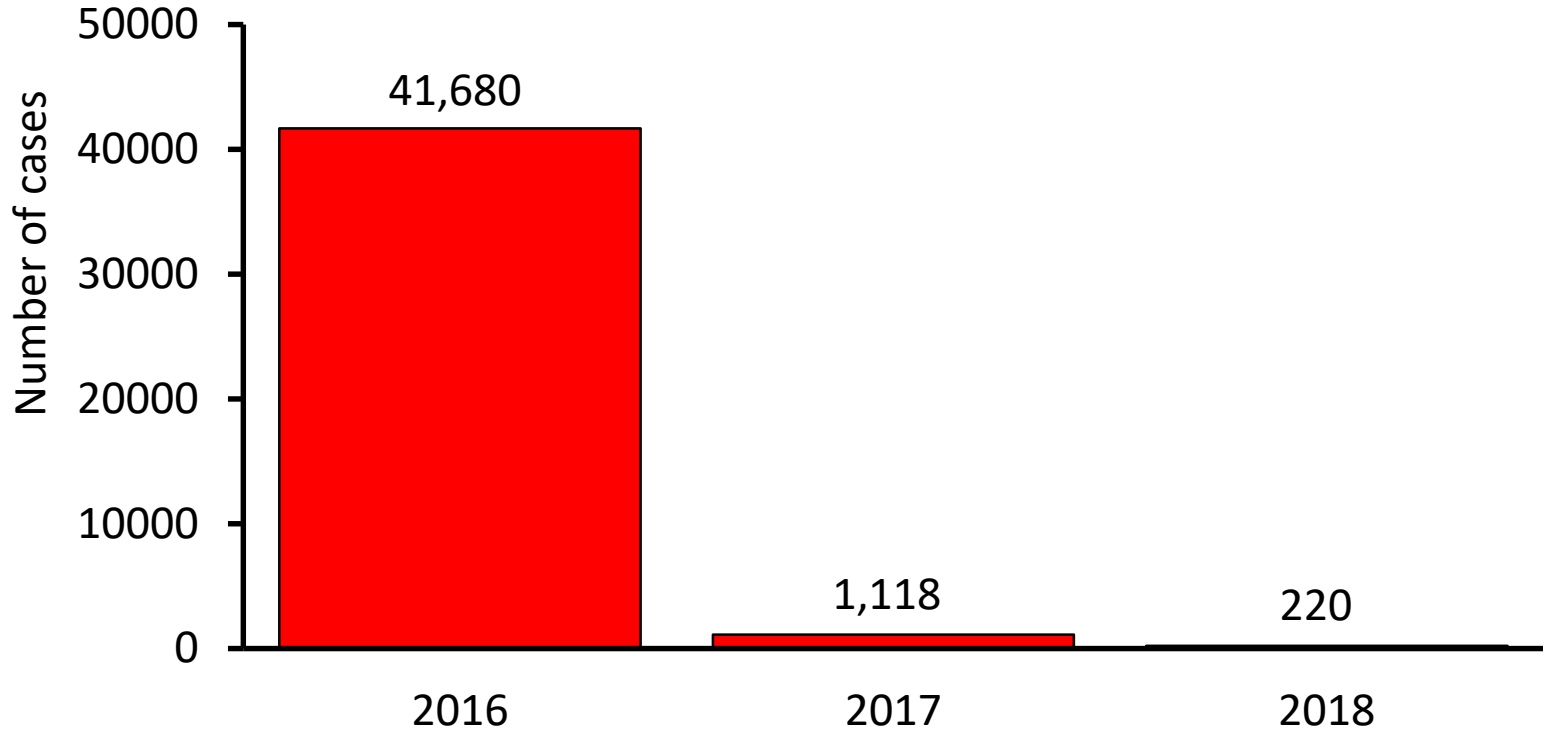
- Initial reactive individual (ID) NAT or minipool (MP) NAT result with:
  - Repeat Zika virus RNA by the same or alternate NAT assay on the same or a follow-up sample; OR
  - Zika virus IgM antibody test with Zika virus neutralizing antibodies in the same or a follow-up sample; OR
  - Zika virus or viral antigen in any specimen



**Zika virus disease cases reported to ArboNET —  
United States, 2016–2018**



# Confirmed and probable Zika virus disease cases, by year — U.S. states and territories, 2016–2018



## Zika virus disease cases, by place of residence and year — U.S. states and territories, 2016–2018 (as of Mar 6, 2019)\*

	<b>2016</b> <b>(N=41,680)</b>	<b>2017</b> <b>(N=1,118)</b>	<b>2018</b> <b>(N=220)</b>
Territories	36,512 (88%)	666 (60%)	148 (67%)
States	5,168 (12%)	452 (40%)	72 (33%)

\*Includes confirmed and probable travel-associated and locally acquired cases.  
Excludes congenital disease cases.

## Zika virus disease cases, by type of exposure and year — U.S. territories, 2016–2018 (as of Mar 6, 2019)

Territories	2016 (N=36,512)	2017 (N=666)	2018 (N=148)
Locally acquired*	36,367 (99%)	665 (99%)	147 (99%)
Travelers	145 (<1%)	1 (<1%)	1 (1%)

\*Presumed local mosquito-borne transmission in Puerto Rico (N=36,014; 97%), US Virgin Islands (N=1,034; 3%), and American Samoa (N=131; <1%).

## Zika virus disease cases, by type of exposure and year — U.S. states, 2016–2018 (as of Mar 6, 2019)

States	(N=5,168)	(N=452)	(N=72)
Locally acquired*	224 (4%)	7 (1%)	0 (0%)
Travelers	4,897 (95%)	437 (97%)	72 (100%)
Other routes†	47 (1%)	8 (2%)	0 (0%)

\*Presumed local mosquito-borne transmission in Florida (N=220; 95%) and Texas (N=11; 5%).

†Includes sexual transmission (N=52), laboratory transmission (N=2), and unknown route (N=1).

## Travel location for Zika virus disease cases — U.S. states and territories, 2018 (as of Mar 6, 2019)

<b>Region</b>	<b>(N=73)</b>	
Americas		
Caribbean	27	(37%)
North America	15	(20%)
Central America	7	(10%)
South America	4	(6%)
Asia/Western Pacific	12	(16%)
Unknown	8	(11%)

## Zika virus disease cases, by state or territory of residence — U.S. states and territories, 2016–2018 (as of Mar 6, 2019)

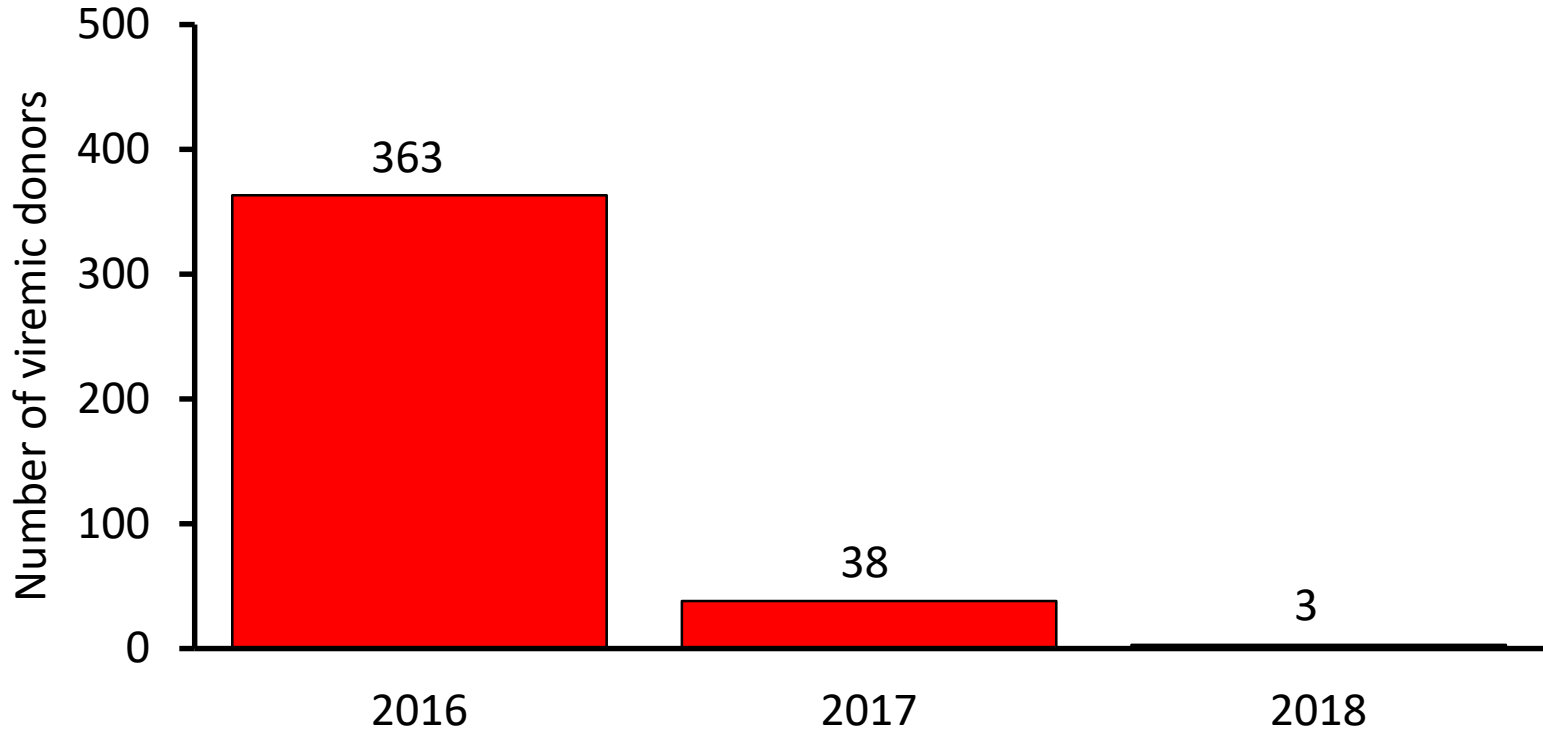
	2016 (N=41,680)	2017 (N=1,118)	2018 (N=220)	Population [millions]
Puerto Rico	35,395 (85%)	620 (56%)	146 (66%)	3.66
Florida	1,107 (3%)	110 (10%)	13 (6%)	18.80
New York	1,002 (2%)	64 (6%)	8 (4%)	19.54
US Virgin Islands	986 (2%)	46 (4%)	2 (1%)	0.10
California	421 (1%)	49 (4%)	26 (12%)	39.56
Texas	312 (1%)	54 (5%)	3 (1%)	28.70
New Jersey	180 (<1%)	12 (1%)	4 (2%)	9.03
<b>Totals</b>	<b>39,403 (95%)</b>	<b>955 (85%)</b>	<b>202 (92%)</b>	<b>119.40</b>

**Zika viremic blood donors reported to ArboNET —  
United States, 2016–2018**





## Zika viremic blood donors, by year — U.S. states and territories, 2016–2018



## Zika viremic blood donors, by place of residence and year — U.S. states and territories, 2016–2018 (as of Mar 6, 2019)

	<b>2016 (N=363)</b>	<b>2017 (N=38)</b>	<b>2018 (N=3)</b>
Territories	325 (90%)	6 (16%)	0 (0%)
States	38 (10%)	32 (84%)	3 (100%)

# Travel location for Zika viremic blood donors — U.S. states and territories, 2018 (as of Mar 6, 2019)

<u>Region</u>	<u>(N=3)</u>	
Americas		
Caribbean	1	(33%)
North America	2	(67%)
Central America	0	(10%)
South America	0	(6%)
<u>Asia/Western Pacific</u>	0	(16%)

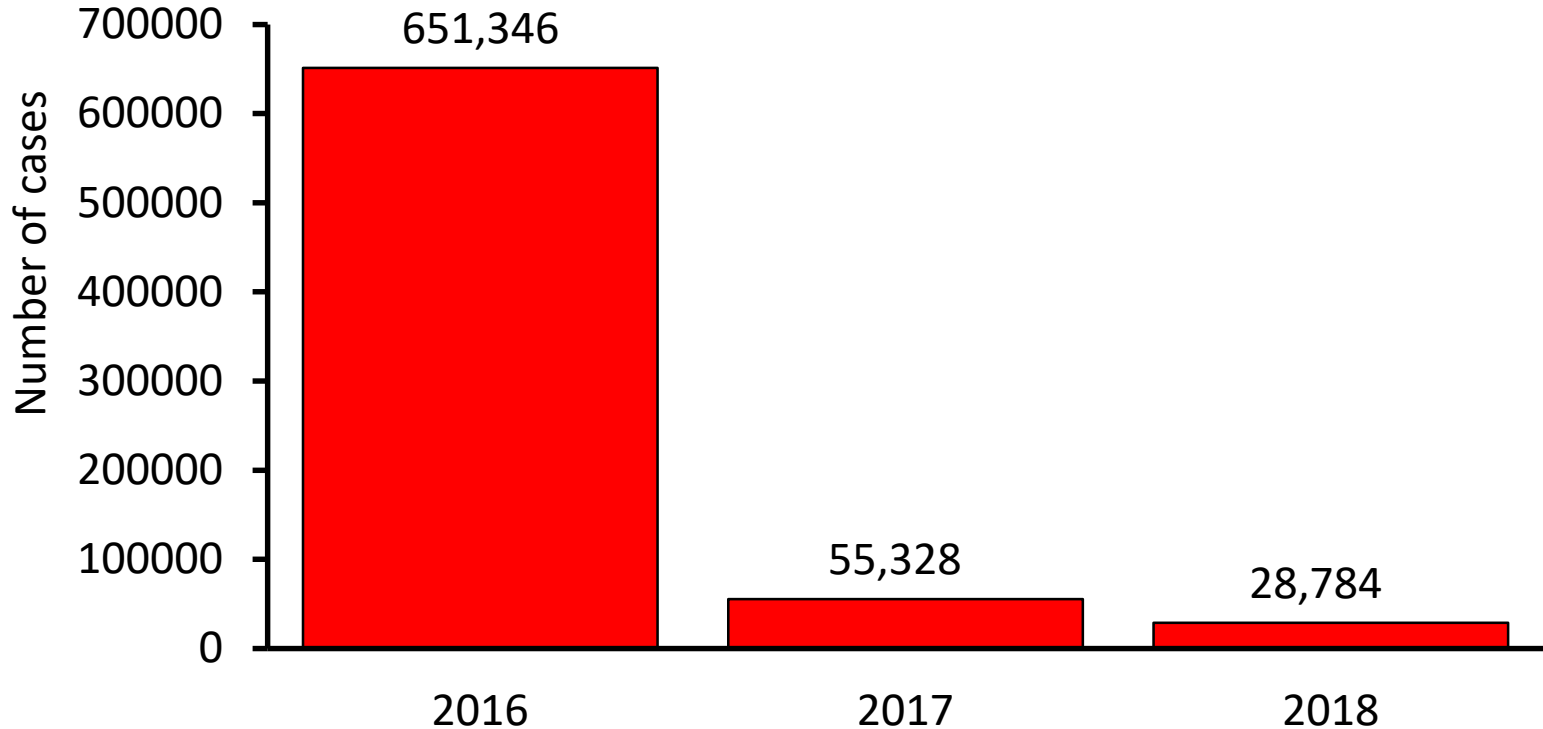
## Zika viremic blood donors, by state or territory of residence — U.S. states and territories, 2016–2018 (as of Mar 6, 2019)

	2016 (N=363)	2017 (N=38)	2018 (N=3)	Population [millions]
Puerto Rico	325 (90%)	6 (16%)	0 (0%)	3.66
Florida	23 (6%)	5 (13%)	2 (67%)	18.80
California	4 (1%)	4 (11%)	0 (0%)	39.56
Texas	4 (1%)	2 (5%)	0 (0%)	28.70
New York	2 (<1%)	1 (3%)	0 (0%)	19.54
New Jersey	0 (0%)	0 (0%)	0 (0%)	9.03
US Virgin Islands	0 (0%)	0 (0%)	0 (0%)	0.10
<b>Totals</b>	<b>358 (99%)</b>	<b>18 (47%)</b>	<b>2 (67%)</b>	<b>119.40</b>

# **Zika virus disease cases reported to PAHO — Americas, 2016–2018**



# Suspected and confirmed Zika virus disease cases, by year — Americas, 2016–2018



## Zika virus disease cases, by year and case status — Americas, 2016–2018\*

Type	2016 (N=651,346)	2017 (N=55,328)	2018 (N=28,784)
Confirmed†	199,331 (31%)	19,784 (36%)	3,569 (12%)
Suspected‡	452,015 (69%)	35,544 (64%)	25,215 (88%)

\*Excludes imported cases

†For some countries, “confirmed” includes cases with clinical findings and epidemiologic link

‡Clinically compatible illness with no laboratory testing

## Suspected and confirmed Zika virus disease cases, by year and region — Americas, 2016–2018

Region	2016 (N=651,346)	2017 (N=55,328)	2018 (N=28,784)	
Brazil	273,904	31,754	19,020	(66%)
South America*	160,070	12,546	3,992	(14%)
Central America	56,359	6,260	3,855	(13%)
Caribbean	152,281	1,501	1,057	(4%)
North America	8,732	3,267	860	(3%)

\*Excludes Brazil



## Confirmed Zika virus disease cases, by region — Americas, 2018

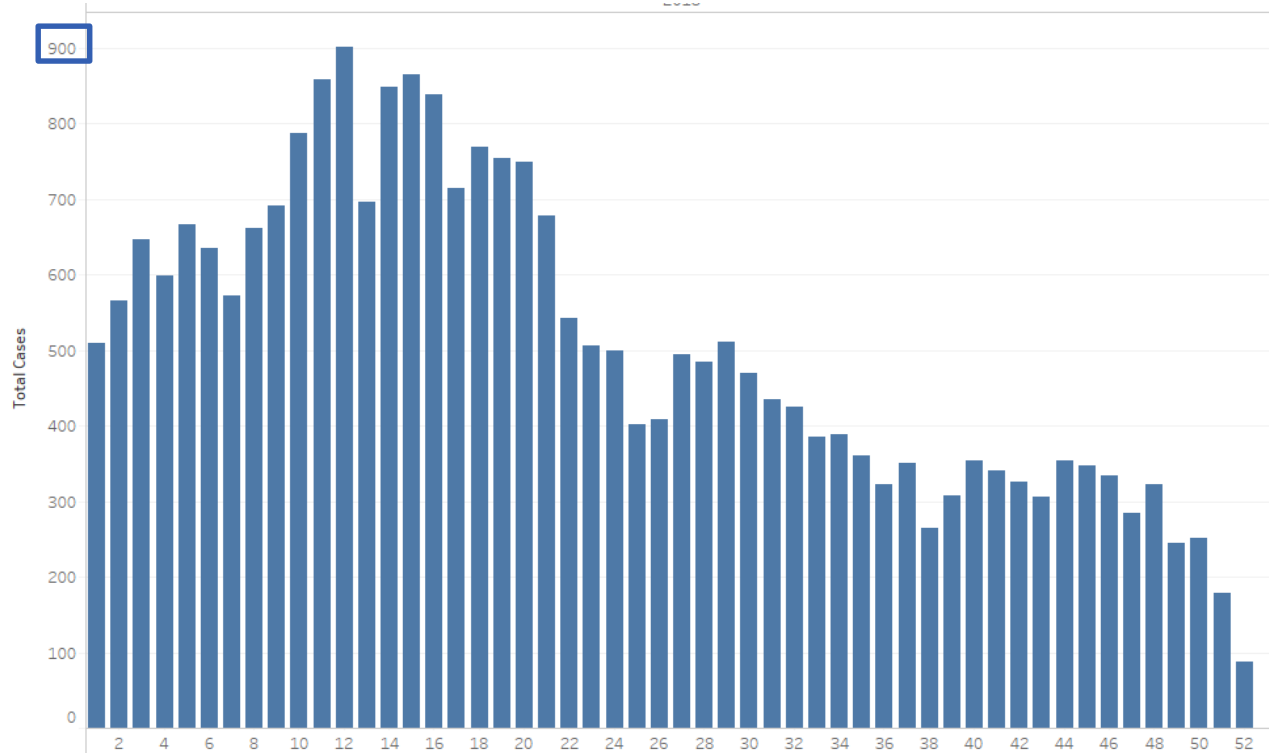
Region	Confirmed	Total	(% confirmed)
Brazil	1,379	19,020	(7%)
South America*	1,138	3,992	(29%)
North America	860	860	(100%)
Central America	189	3,855	(5%)
Caribbean	3	1,057	(<1%)
<b>All</b>	<b>3,582</b>	<b>28,784</b>	<b>(12%)</b>

\*Excludes Brazil

## Suspected and confirmed Zika virus disease cases reported from PAHO for selected countries — Americas, 2018

<b>Country</b>	<b>Total</b>	<b>Confirmed (%)</b>	<b>Population</b>
Brazil	19,020	1,379 (7%)	210,868,000
Guatemala	2,300	106 (5%)	17,245,000
Bolivia	1,736	486 (28%)	10,890,000
Peru	984	--	32,552,000
Cuba	873	--	11,489,000
Mexico	860	860 (100%)	130,759,000
Colombia	857	607 (71%)	49,465,000
Costa Rica	431	--	4,953,000
El Salvador	388	--	6,345,000
Honduras	350	0	9,417,000
Venezuela	209	--	32,381,000
Nicaragua	177	0	6,285,000

# Suspected and confirmed Zika virus disease cases reported by PAHO, by week — Americas, 2018



# Confirmed Zika virus disease cases reported from Mexico in 2018 (as of Jan 14, 2019)

<b>State</b>	<b>N=860</b>	
Sonora	349	(40%)
Jalisco	198	(23%)
Sinaloa	125	(14%)
Baja California Sur	60	(7%)
Nayarit	28	(3%)
Yucatan	26	(3%)
Mexico	21	(2%)
Morelos	10	(1%)



# **Zika virus disease outbreak in India, 2018**



# Zika virus disease in India

- Small number of cases previously reported by Indian Ministry of Health and Family Welfare (MOHFW)
  - Gujarat state (2016–2018)
  - Tamil Nadu state (2017)
- Retrospective recognition of past case in Rajasthan state
  - Zika virus testing on samples that were negative for Crimean Congo hemorrhagic fever in 2016\*

\*Yadav et al, 2019. Infection, Genetics and Evolution

# Zika virus disease outbreak in Rajasthan and Madhya Pradesh states — India, 2018

- Rajasthan state
  - First case identified with onset in Sept 2018
  - 159 cases reported during Sept–Oct
  - Focus in capital city, Jaipur
- Madhya Pradesh state
  - 130 cases reported mainly during Nov
- MOHFW reports both outbreaks have subsided



# Zika virus epidemiology in the Americas

- Large outbreaks in the Americas peaked in 2016 with substantially decreased activity in 2017
- Lower levels of transmission continued in focal areas of some countries in 2018 (e.g., Mexico)
- US territories had markedly decreased incidence in 2017 and 2018 but sporadic infections still reported
- Incidence and disease risk among US travelers has followed epidemiology of outbreaks in the Americas



For more information, contact CDC  
1-800-CDC-INFO (232-4636)  
TTY: 1-888-232-6348 [www.cdc.gov](http://www.cdc.gov)

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

