



KEY UPDATES

- Countries and territories reporting mosquito-borne Zika virus infections for the first time in the past week:
 - Saint Kitts and Nevis
- Countries in the Western Pacific Region continue to report new cases as seen in Singapore, Philippines, Malaysia and Viet Nam. Thailand, in the South-East Asia Region, has also recently reported Zika cases. It is not clear whether the apparent recent increase in the number of reported Zika cases is due to an actual increase in incidence or whether this is the result of enhanced surveillance, testing or awareness.
- The sequencing results from two Zika virus cases reported in Malaysia indicate that both are from the “Asian” lineage but are from slightly different strains. The first imported case is similar to the virus that was circulating in French Polynesia in 2013, i.e., a post-2007 “Asian” strain. The second locally acquired case is reported to be similar to a previously circulating Southeast Asian strain of the “Asian” lineage.
- Further sequencing analysis in Singapore indicates that in addition to the locally-acquired cases which were caused by viruses from older strains of the “Asian” lineage, an imported case with travel history to Brazil was found to be caused by a virus similar to the strain of the “Asian” lineage currently circulating in the Americas.
- Countries and territories reporting microcephaly and other central nervous system (CNS) malformations potentially associated with Zika virus infection for the first time in the past week:
 - Guatemala
- Countries and territories reporting Guillain-Barré syndrome (GBS) cases associated with Zika virus infection for the first time in the past week:
 - Ecuador
- The 2016 Summer Paralympic Games closed in Rio de Janeiro, Brazil on 18 September. WHO assesses the individual risk of Zika virus infection in travellers returning from the Paralympic Games as low, albeit not zero. To date, WHO has not received any official notification of Zika cases associated with this event. In accordance with WHO guidance, men and women returning should adopt safer sex practices or consider abstinence for at least six months upon return and apply insect repellent for at least three weeks upon return to reduce the risk of onward transmission.

ANALYSIS

- Overall, the global risk assessment has not changed.
- There are two major lineages of Zika virus: the “African” lineage and the “Asian” lineage. The “African” lineage has only been reported in Africa and was most recently identified through sequencing analysis of the seven confirmed Zika cases reported in Guinea-Bissau. The “Asian” lineage consists of strains that have been reported from Asia, the Western Pacific Region, the Region of the Americas and Cabo Verde.
- The “Asian” lineage viruses initially indicated by sequencing analysis of the viruses isolated from cases in Singapore likely evolved from the strain that was previously circulating in Southeast Asia and thus do not appear to be the result of imported virus from South America. As expected, the sequencing analysis from the imported case with travel history to Brazil indicates that this case is the result of a virus that is similar to those currently circulating in the Region of the Americas.
- To date, neurological complications have been linked only to post-2007 strains of the “Asian” lineage. These post-2007 strains have been isolated from French Polynesia since 2013, the Region of the Americas from 2015 onwards and from Cabo Verde in 2016. While there have not previously been reports of neurologic complications associated with Zika cases in Southeast Asia, continued vigilance is warranted, because the exact relationship between the evolution of the virus and its effect on neurologic complications has not been clarified. The absence of proof of neurologic complications should not be assumed to indicate proof of absence; there have not been sufficient numbers of investigated Zika cases in either Southeast Asia or Africa to definitively rule out the possibility of microcephaly or other congenital malformations, or Guillain-Barré syndrome, in these settings.

SITUATION

- 73 countries and territories (Fig. 1, Table 1) have reported evidence of mosquito-borne Zika virus transmission since 2007 (71 with reports from 2015):
 - 56 with a reported outbreak from 2015 onwards (Fig. 2, Table 1).
 - Five with having possible endemic transmission or evidence of local mosquito-borne Zika infections in 2016.
 - 12 with evidence of local mosquito-borne Zika infections in or before 2015, but without documentation of cases in 2016, or with the outbreak terminated.
- Since February 2016, 12 countries have reported evidence of person-to-person transmission of Zika virus (Table 2).
- 21 countries or territories have reported microcephaly and other CNS malformations potentially associated with Zika virus infection or suggestive of congenital infection (Table 3). Four of the 21 countries reported microcephalic babies born from mothers in countries with no endemic Zika virus transmission but who reported recent travel history to Zika-affected countries.

- 19 countries and territories have reported an increased incidence of GBS and/or laboratory confirmation of a Zika virus infection among GBS cases (Table 4).
- In Guinea-Bissau, the investigation of five reported cases of microcephaly is ongoing.
- Operational updates:
 - The Ministers of Health from the Association of Southeast Asian Nations (ASEAN) member states convened on 19 September 2016. In a joint statement the ministers agreed to enhance their preparedness and response to Zika in the region by:
 - Strengthening in-country disease surveillance and leveraging existing regional risk assessment mechanisms with the technical support of international partners including WHO;
 - Improving information sharing amongst member states for accurate risk assessment through the International Health Regulations (IHR 2005) and other existing reporting mechanisms;
 - Increasing the effectiveness of regional surveillance and responses to Zika virus and other [re]emerging diseases through existing networks including the ASEAN Emergency Operations Centres (ASEAN-EOC) network and ASEAN Plus Three Field Epidemiology Training Network (APT-FETN);
 - Taking appropriate measures to manage risks by intensifying vector control measures, ensuring access to diagnostic testing for Zika virus, strengthening national laboratory networks and communicating risks appropriately;
 - Conducting research and sharing knowledge and best practices with regards to Zika virus through relevant ASEAN-based cooperative mechanisms including APT-FETN, SEAMEO-TROPED and other existing platforms including the Global Health Security Agenda (GHS).
 - In Haiti, PAHO/WHO is working with CDC to define activities and prepare a budget for a family planning (FP) project related to Zika. The planned activities include FP mobile clinics, training on FP and counselling, and supplies and data management for healthcare staff.
 - PAHO/WHO and CDC organized a workshop in Haiti on breeding sites identification, fumigation, and other vector control measures. Two training sessions on the surveillance of Zika and its complications will be held in late September.
 - PAHO/WHO supported a workshop in early September in Peru for health professionals, focused on Zika virus surveillance.
 - WHO/PAHO conducted a technical mission to Brazil for assessment and strengthening of Zika diagnostic capacity of state laboratories.
 - WHO/PAHO carried out a technical mission to Nicaragua to support the Ministry of Health in the review of entomological surveillance actions, prevention and control of Zika virus and other arboviruses, including the evaluation of the resistance of *Aedes aegypti* larvae to insecticides.
 - WHO/PAHO held risk communications workshops for Zika and other health emergencies in Guatemala.
 - WHO/PAHO, CDC and Johns Hopkins University are planning a mission to the Dominican Republic for early October. The objective is to analyse and diagnose the fatal cases with neurological complications possibly associated with Zika virus infections there.

Table 1. Countries and territories reporting mosquito-borne Zika virus transmission

Classification	WHO Regional Office	Country / territory	Total
Category 1: Countries with a reported outbreak from 2015 onwards [#]	AFRO	Cabo Verde; Guinea-Bissau	2
	AMRO/PAHO	Anguilla; Antigua and Barbuda; Argentina; Aruba; Bahamas; Barbados; Belize; Bolivia (Plurinational State of), Bonaire, Sint Eustatius and Saba – Netherlands*; Brazil; British Virgin Islands; Cayman Islands; Colombia; Costa Rica; Cuba; Curaçao; Dominica; Dominican Republic; Ecuador; El Salvador; French Guiana; Grenada; Guadeloupe; Guatemala; Guyana; Haiti; Honduras; Jamaica; Martinique; Mexico; Nicaragua; Panama; Paraguay; Peru; Puerto Rico; Saint Barthélemy; Saint Kitts and Nevis; Saint Lucia; Saint Martin; Saint Vincent and the Grenadines; Sint Maarten; Suriname; Trinidad and Tobago; Turks and Caicos; United States of America; United States Virgin Islands; Venezuela (Bolivarian Republic of)	47
	WPRO	American Samoa; Fiji; Marshall Islands; Micronesia (Federated States of); Samoa; Singapore; Tonga	7
Subtotal			56
Category 2: Countries with possible endemic transmission or evidence of local mosquito-borne Zika infections in 2016	SEARO	Indonesia; Thailand	2
	WPRO	Malaysia***; Philippines; Viet Nam	3
Subtotal			5
Category 3: Countries with evidence of local mosquito-borne Zika infections in or before 2015, but without documentation of cases in 2016, or outbreak terminated	AFRO	Gabon	1
	PAHO/AMRO	ISLA DE PASCUA – Chile**	1
	SEARO	Bangladesh; Maldives	2
	WPRO	Cambodia; Cook Islands**; French Polynesia**; Lao People's Democratic Republic; New Caledonia; Papua New Guinea; Solomon Islands; Vanuatu	8
Subtotal			12
Total			73

[#]The wording has been revised in recognition of the fact that a country that has had a first outbreak since 2015 and in which that outbreak has since terminated, may again report a new outbreak or cases which would qualify the country to be re-included in category 1.

*This includes confirmed Zika virus cases reported in BONAIRE – Netherlands, SINT EUSTATIUS and SABA – Netherlands.

***Malaysia moved from category 3 to category 2 because locally-acquired Zika virus infections without evidence of an outbreak were reported in September 2016.

**These countries and territories have not reported Zika virus cases in 2015 or 2016.

Category 1: Countries with a reported outbreak from 2015 onwards[#]

- A laboratory confirmed, autochthonous, mosquito-borne case of Zika virus infection in an area where there is no evidence of circulation of the virus in the past (prior 2015), whether it is detected and reported by the country itself or by another state party diagnosing returning travellers **OR**
- A laboratory confirmed, autochthonous, mosquito-borne case of Zika virus infection in an area where transmission has been previously interrupted. The assumption is that the size of the susceptible population has built up to a sufficient level to allow transmission again; the size of the outbreak will be a function of the size of the susceptible population **OR**
- An increase of the incidence of laboratory confirmed, autochthonous, mosquito-borne Zika virus infection in areas where there is on-going transmission, above two standard deviations of the baseline rate, or doubling the number of cases over a 4-week period. Clusters of febrile illnesses, in particular when epidemiologically-linked to a confirmed case, should be microbiologically investigated.

Category 2: Countries with possible endemic transmission or evidence of local mosquito-borne Zika infections in 2016 with the reporting period beginning in 2007

- Countries or territories that have reported an outbreak with consistent presence of laboratory confirmed, autochthonous, mosquito-borne cases of Zika virus infection 12 months after the outbreak **OR**
- Countries or territories where Zika virus has been circulating for several years with consistent presence of laboratory confirmed, autochthonous, mosquito-borne cases of Zika virus infection or evidence of local mosquito-borne Zika infections in 2016. Reports can be from the country or territory where infection occurred, or from a third party where the case is first recorded according to the International Health Regulations (IHR 2005). Countries with evidence of infection prior to 2007 are listed in <http://www.who.int/bulletin/volumes/94/9/16-171082.pdf>

Category 3: Countries with evidence of local mosquito-borne Zika infections in or before 2015, but without documentation of cases in 2016, or outbreak terminated with the reporting period beginning in 2007

- Absence of confirmed cases over a 3-month period in a specific geographical area with climatic conditions suitable for year-round arbovirus transmission, or over a 12-month period in an area with seasonal vector activity.

Figure 1. Cumulative number of countries and territories by WHO region¹ reporting mosquito-borne Zika virus transmission for the first time in years (2007–2014), and monthly from 1 January 2015 to 21 September 2016

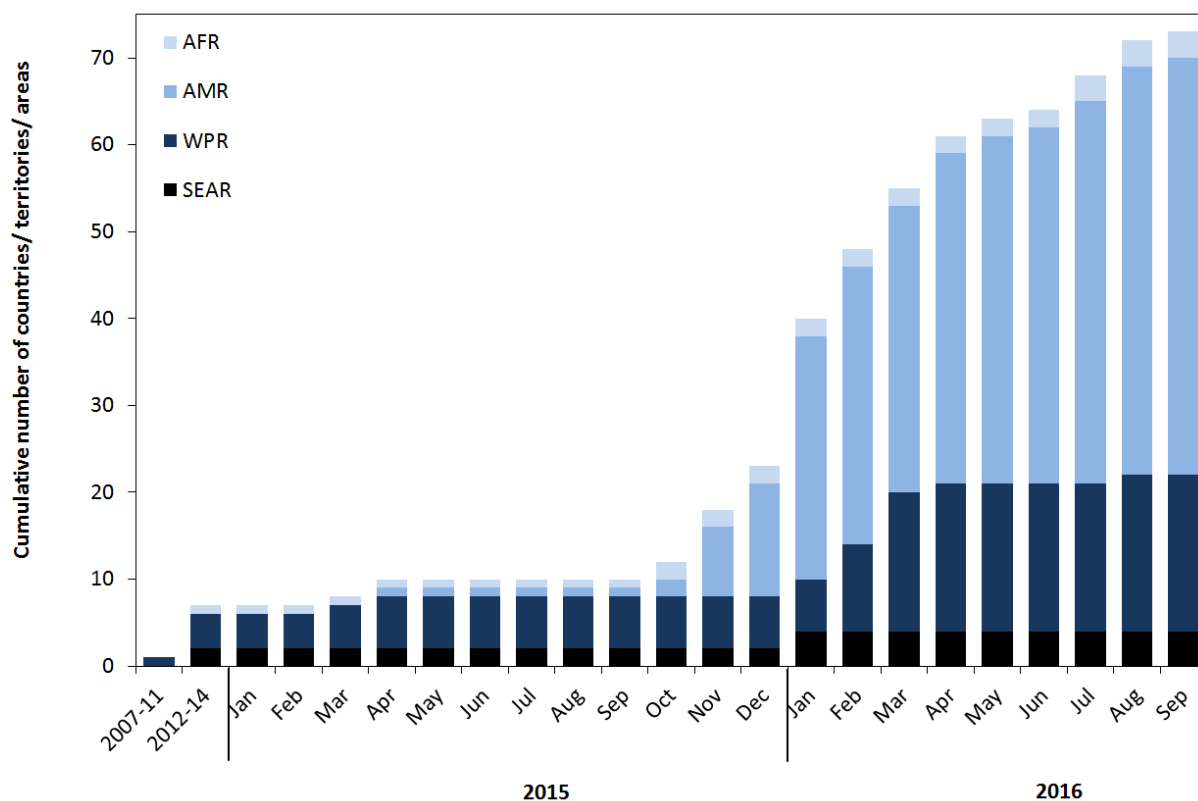
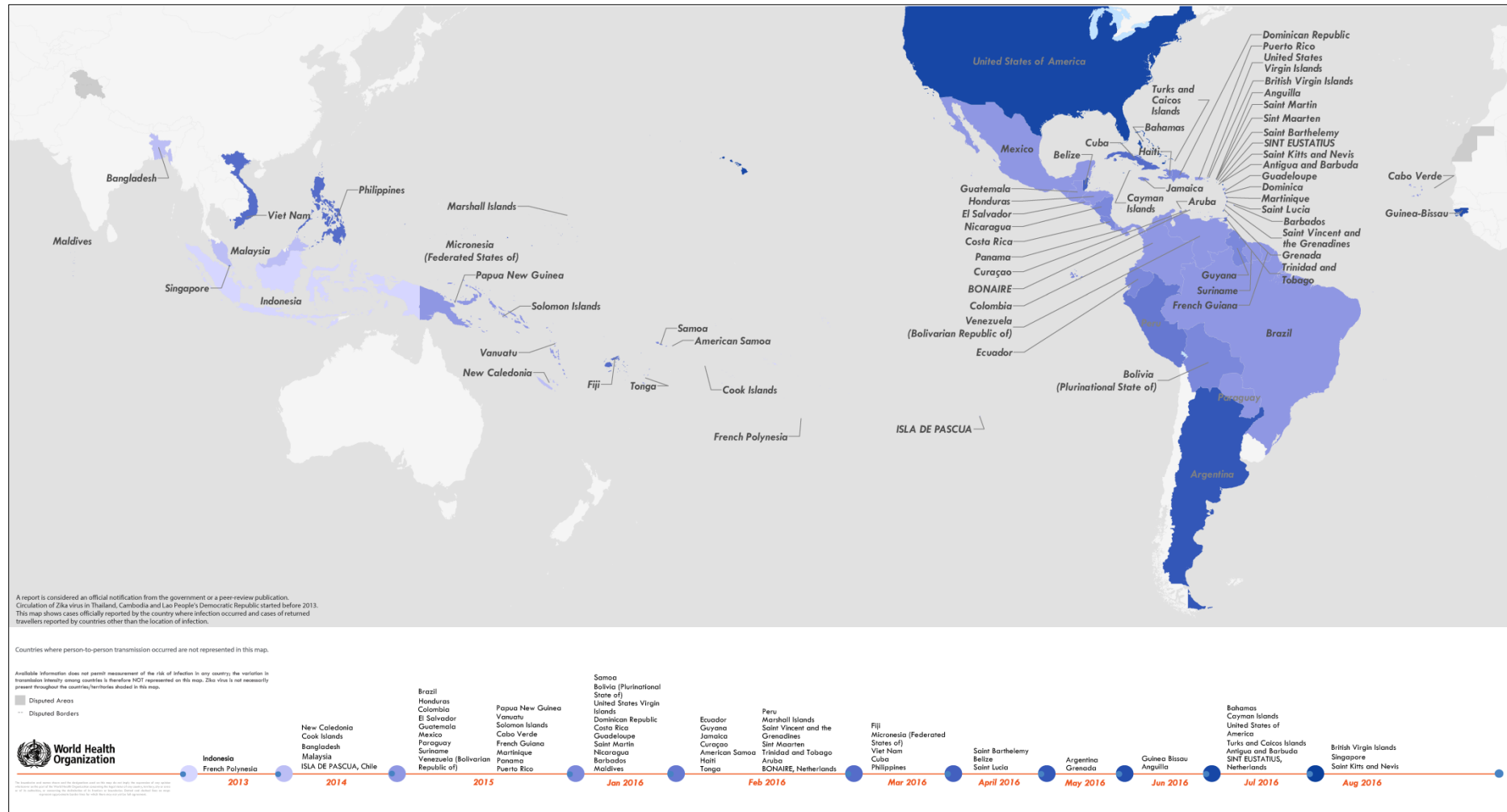


Table 2. Countries reporting non mosquito-borne Zika virus transmission since February 2016

Classification	WHO Regional Office	Country / territory	Total
Countries with evidence of person-to-person transmission of Zika virus, other than mosquito-borne transmission	AMRO/PAHO	Argentina, Canada, Chile, Peru, United States of America	5
	EURO	France, Germany, Italy, Netherlands, Portugal, Spain	6
	WPRO	New Zealand	1
Total			12

¹ <http://www.who.int/about/regions/en/>

Figure 2. Global spread of Zika virus from 2013 to 2016 according to the first report of a locally-acquired infection



A report is considered an official notification from the Ministry of Health or a peer-reviewed publication. According to these criteria some countries have been added to the timeline. Circulation of Zika virus in Thailand, Cambodia and Lao People's Democratic Republic started before 2013. This map shows cases officially reported by the country where infection occurred or cases of returned travellers reported by countries other than the location of infection. Countries where person-to-person transmission occurred are not represented in this map. Available information does not permit measurement of the risk of infection in any country; the variation in transmission intensity among countries is therefore NOT represented on this map. Zika virus is not necessarily present throughout the countries/territories shaded in this map.

Table 3. Countries and territories reporting microcephaly and/or CNS malformation cases potentially associated with Zika virus infection

Reporting country or territory	Number of microcephaly and/or CNS malformation cases suggestive of congenital Zika infections or potentially associated with a Zika virus infection	Probable location of infection
Brazil	1911 ²	Brazil
Cabo Verde	9	Cabo Verde
Canada	1	Undetermined
Costa Rica	1	Costa Rica
Colombia	40 ³	Colombia
Dominican Republic	3	Dominican Republic
El Salvador	4	El Salvador
French Guiana	3 ⁴	French Guiana
French Polynesia	8	French Polynesia
Guatemala	17 ⁵	Guatemala
Haiti	1	Haiti
Honduras	1	Honduras
Marshall Islands	1	Marshall Islands
Martinique	12 ⁵	Martinique
Panama	5	Panama
Paraguay	2 ⁶	Paraguay
Puerto Rico	1	Puerto Rico
Slovenia	1 ⁷	Brazil
Spain	2	Colombia, Venezuela (Bolivarian Republic of)
Suriname	1	Suriname
United States of America	23 ⁸	Undetermined**

**The probable locations of three of the infections were Brazil (1 case), Haiti (1 case) and Mexico, Belize or Guatemala (1 case).

Table 4. Countries and territories reporting Guillain-Barré syndrome (GBS) potentially associated with Zika virus infection

Classification	Country / territory
Reported increase in incidence of GBS cases, with at least one GBS case with confirmed Zika virus infection	Brazil, Colombia, Dominican Republic, El Salvador*, French Guiana, French Polynesia, Honduras, Jamaica, Martinique, Suriname**, Venezuela (Bolivarian Republic of)
No increase in GBS incidence reported, but at least one GBS case with confirmed Zika virus infection	Costa Rica, Ecuador, Grenada ⁹ , Guadeloupe ¹⁰ , Guatemala, Haiti, Panama, Puerto Rico

*GBS cases with previous history of Zika virus infection were reported by the International Health Regulations (2005) National Focal Point in United States of America.

**One case living in continental Netherlands was diagnosed in mid-January 2016 and reported by the Netherlands.

² <http://portalsaude.saude.gov.br/images/pdf/2016/setembro/15/Informe-Epidemiol--gico-n---43--SE-36-2016--13set2016.pdf>

³ <http://www.ins.gov.co/boletin-epidemiologico/Boletn%20Epidemiologico/2016%20Boletin%20epidemiologico%20semana%2035.pdf>

⁴ <http://invs.santepubliquefrance.fr/Publications-et-outils/Points-epidemiologiques/Tous-les-numeros/Antilles-Guyane/2016/Situation-epidemiologique-du-virus-Zika-aux-Antilles-Guyane.-Point-au-15-septembre-2016>

⁵ <http://www.mspas.gob.gt/index.php/en/mspas/noticias/1239-comunicado-ante-la-epidemia-del-virus-zika.html?tmpl=component&print=1&layout=default&page=>

⁶ <http://www.mspbs.gov.py/v3/paraguay-reporta-sus-dos-primeros-casos-de-microcefalia-asociados-al-zika/>

⁷ <http://www.nejm.org/doi/pdf/10.1056/NEJMoa1600651>

⁸ <http://www.cdc.gov/zika/geo/pregnancy-outcomes.html>

⁹ http://health.gov.gd/index.php?option=com_content&view=article&id=434:nine-confirmed-zika-cases-in-grenada&catid=83:latest-news&Itemid=932&lang=en

¹⁰ <http://www.invs.sante.fr/Publications-et-outils/Points-epidemiologiques/Tous-les-numeros/Antilles-Guyane/2016/Situation-epidemiologique-du-virus-Zika-aux-Antilles-Guyane.-Point-au-23-juin-2016>