



## SUMMARY

- Between 1 January 2007 and 3 March 2016, a total of 52 countries and territories have reported autochthonous (local) transmission or indication of transmission of Zika virus (41 since 1 January 2015). Five of these countries and territories reported a Zika virus outbreak that is now over. In addition, three countries and territories have reported locally acquired infection, probably through sexual transmission.
- Among the 52 countries and territories, Lao People's Democratic Republic is the latest to report autochthonous transmission of Zika virus. France, Italy and the United States of America have reported locally acquired Zika virus infection in the absence of any known mosquito vectors.
- The geographical distribution of Zika virus has steadily widened since the virus was first detected in the Americas in 2015. Autochthonous Zika virus transmission has been reported in 31 countries and territories of this region. Zika virus is likely to be transmitted and detected in other countries within the geographical range of competent mosquito vectors, especially *Aedes aegypti*.
- So far an increase in microcephaly cases and other neonatal malformations has only been reported in Brazil and French Polynesia, although two cases linked to a stay in Brazil were detected in the United States of America and Slovenia.
- During 2015 and 2016, eight countries and territories have reported an increased incidence of Guillain-Barré syndrome (GBS) and/or laboratory confirmation of a Zika virus infection among GBS cases.
- A recently published case control study in French Polynesia provides further evidence of a causal relationship between Zika virus infection and GBS.
- The global prevention and control strategy launched by WHO as a Strategic Response Framework<sup>1</sup> encompasses surveillance, response activities and research, and this situation report is organized under those headings. Following consultation with partners and taking changes in caseload into account, the framework will be updated at the end of March 2016 to reflect epidemiological evidence coming to light and the evolving division of roles and responsibilities for tackling this emergency.

---

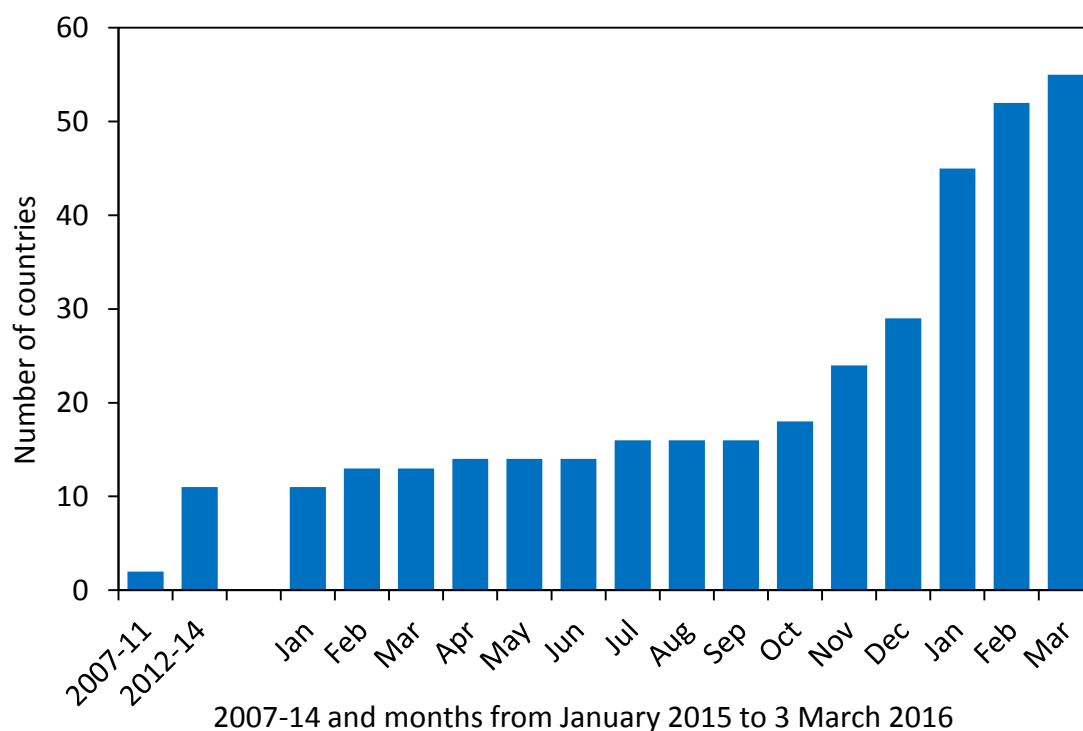
<sup>1</sup> Zika Strategic Response Framework & Joint Operations Plan:  
[http://apps.who.int/iris/bitstream/10665/204420/1/ZikaResponseFramework\\_JanJun16\\_eng.pdf?ua=1](http://apps.who.int/iris/bitstream/10665/204420/1/ZikaResponseFramework_JanJun16_eng.pdf?ua=1)

## I. SURVEILLANCE

### Incidence of Zika virus

- From 1 January 2007 to 3 March 2016, Zika virus transmission was documented in a total of 55 countries and territories (Fig. 1 and Fig. 2). This includes 41 countries and territories that reported autochthonous transmission during 2015 and 2016, six countries with indirect evidence of viral circulation, five countries with reported terminated outbreaks and three countries with a locally acquired infection (probably through sexual contact) in the absence of any known mosquito vectors (United States of America, France and Italy; Table 1). A report of possible sexual transmission of Zika virus in Argentina is under further investigation.

**Figure 1: Cumulative number of countries, territories and areas reporting Zika virus transmission, 2007-2014, and monthly from 1 January 2015 to 3 March 2016.**



- Towards the end of 2014, Brazil detected a cluster of cases of febrile rash in the Northeast Region of the country. The diagnosis of Zika virus infection was confirmed (RT-PCR test for viral RNA<sup>2</sup>) in May 2015. The Brazilian Ministry of Health estimates that there were 0.4-1.3 million cases of Zika virus infection in 2015.<sup>3</sup>
- Recently Zika virus has spread rapidly across the region. By 3 March 2016, 31 countries and territories in the Americas had reported autochthonous transmission of the virus. The reported rate of its spread across South and Central America accelerated from October 2015 onwards (Table 1, Fig. 1)

<sup>2</sup> Reverse transcriptase polymerase chain reaction (RT-PCR).

<sup>3</sup> The full report is available in Portuguese at: <http://portalsaude.saude.gov.br/images/pdf/2016/janeiro/22/microcefalia-protocolo-de-vigilancia-e-resposta-v1-3-22jan2016.pdf>

**Table 1. Countries, territories and areas with autochthonous transmission of Zika virus, 2007–2016.\***

Classification <sup>#</sup>	WHO Regional Office	Country/Territory/Area
Reported or indication of autochthonous Zika virus transmission AND Guillain-Barré syndrome <sup>o</sup> AND microcephaly <sup>§</sup> (1)	AMRO/PAHO (1)	Brazil
Reported or indication of autochthonous Zika virus transmission, Guillain-Barré syndrome <sup>o</sup> and no reports of microcephaly cases (7)	AMRO/PAHO (7)	Colombia, El Salvador, Venezuela (Bolivarian Republic of), Martinique, Puerto Rico, Panama, Suriname
Reported or indication of autochthonous Zika virus transmission and no reports of Guillain-Barré syndrome or microcephaly cases (39)	AFRO (2)	Cabo Verde, Gabon
	AMRO/PAHO (23)	Aruba, Barbados, Bonaire, Bolivia (Plurinational State of), Costa Rica, Curaçao, Dominican Republic, Ecuador, French Guiana, Guadeloupe, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Paraguay, Saint Martin, Saint Vincent and the Grenadines, Sint Maarten, Trinidad & Tobago, United States Virgin Islands
	SEARO (3)	Indonesia, Maldives, Thailand
	WPRO (11)	American Samoa, Cambodia, Fiji, Malaysia, Marshall Islands, Philippines, Samoa, Solomon Islands, Tonga, Vanuatu, Lao People's Democratic Republic
Countries/territories/areas with outbreaks terminated (5)	WPRO (4)	Cook Islands, French Polynesia <sup>+</sup> , New Caledonia, YAP - Micronesia (Federated States of)
	AMRO/PAHO (1)	ISLA DE PASCUA - Chile
Locally acquired without vector-borne transmission (3)	AMRO/PAHO (1)	United States of America
	EURO (2)	France, Italy

\* Available information does not permit qualification of the intensity of viral circulation and therefore the risk of infection; the situation is extremely variable according to countries, and this information should be used with caution. For overseas territories/countries/provinces or islands, the affected area rather than the country is reported.

<sup>#</sup> Definitions:

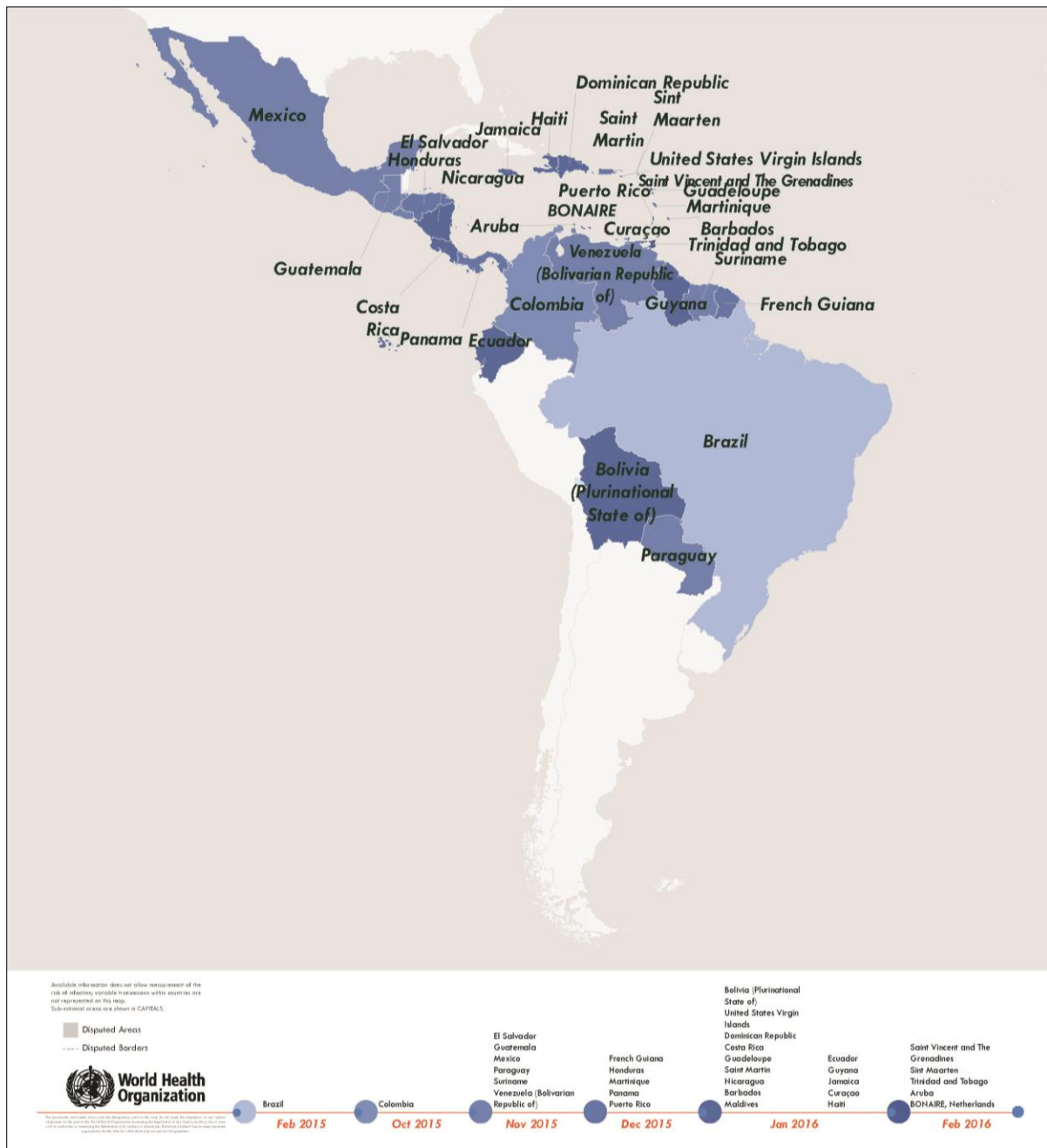
- Reported autochthonous transmission: Formal notification through IHR, of at least one (1) case of autochthonous transmission by the affected Member State or the Member State where the diagnosis has been performed (for travellers). Autochthonous infection is considered to be any infection acquired in the country i.e. among patients with no history of travel during the incubation period or travels exclusively to non-affected areas.
- Indication of viral circulation: Information of at least one Zika biologically confirmed case (by RT-PCR or seroneutralisation) either diagnosed domestically or exported and diagnosed abroad.
- Countries, territories or areas with outbreaks terminated: Countries or territories where the interruption of the viral circulation has been documented through the surveillance data (including syndromic surveillance, laboratory confirmation of suspected cases, etc.) and/or where no suspect case has been reported since 31 December 2014.
- Locally acquired without vector-borne transmission: Autochthonous infection but through another mode of transmission than vector borne (including sexual, blood-borne, or organ transplant) and where vector population is unlikely to allow sustained vector borne transmission.

<sup>o</sup> Guillain-Barré syndrome: Countries reporting an increase in the incidence of Guillain-Barré syndrome or at least one case of Guillain-Barré syndrome with documentation of previous Zika infection in the country or territory.

<sup>§</sup> Countries reporting an increase in the incidence of microcephaly and/or at least one case of microcephaly with documentation of previous Zika infection.

<sup>+</sup> French Polynesia also reported an increase in the incidence of Guillain-Barré syndrome and microcephaly. The outbreak is terminated.

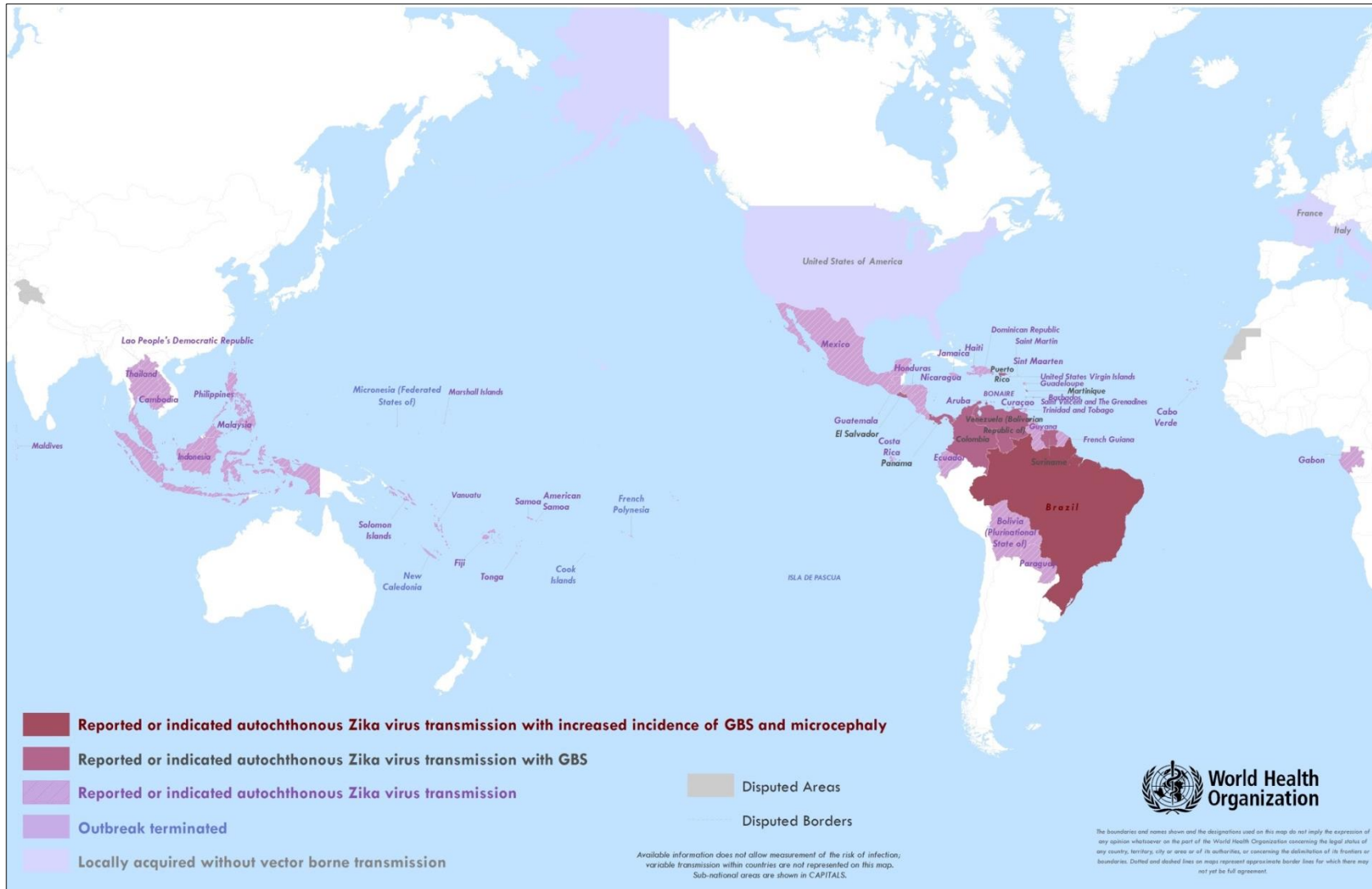
Figure 2: Timeline of autochthonous transmission of Zika virus in the Americas, 2015-2016.<sup>4</sup>



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. Countries where sexual transmission occurred are not represented in this map.

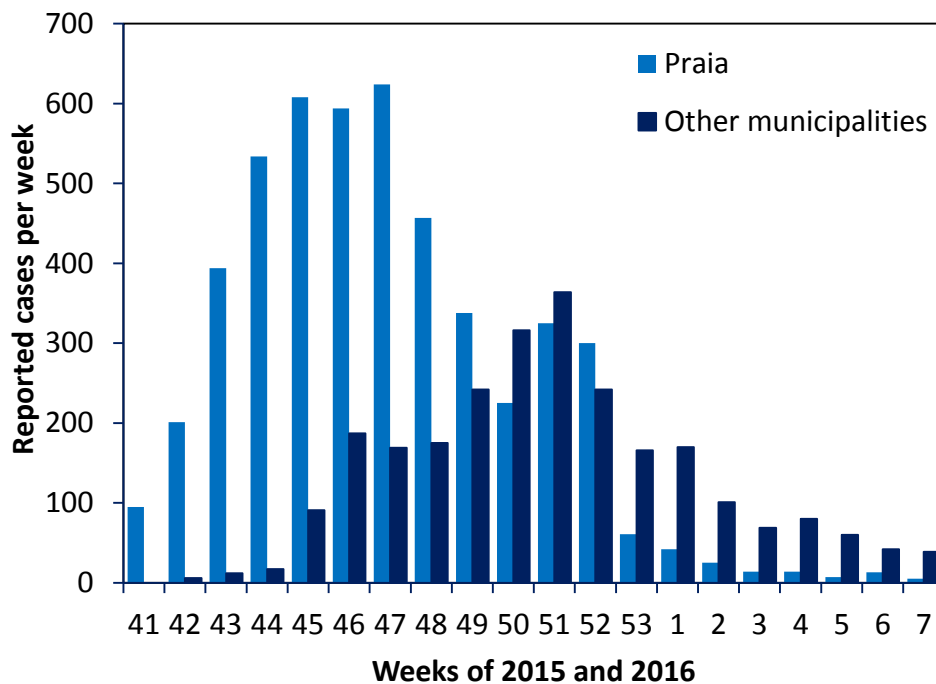
<sup>4</sup> <http://www.who.int/emergencies/zika-virus/situation-report/en/>

**Figure 3. Countries, territories and areas reporting Zika virus, microcephaly and Guillain-Barré syndrome, 2007-2016. These reports do not exclude the possibility that Zika virus is present in other countries, notably in Africa and Asia.**



- From 1 October 2015 to 20 February 2016, Colombia reported 42 706 suspected cases of Zika virus. The number of laboratory confirmed cases is 1612.<sup>5</sup>
- From 2007, locally acquired Zika cases have been reported in 15 countries and territories in the Western Pacific Region. Four Pacific Island countries and areas (American Samoa, Marshall Islands, Samoa and Tonga) have reported Zika infections in 2016. Nauru has declared Zika virus as a national emergency of concern for purposes of preparedness, but to date no Zika virus cases have been reported.
- From 1 October 2015 to 7 February 2016, Cabo Verde (African region), reported 7325 suspected cases of Zika virus disease although only two cases have been confirmed by RT-PCR. The outbreak peaked during the week of 22 November 2015 and has been in decline since then; 44 cases were reported in the week up to 21 February 2016. The number of suspected cases of Zika virus disease reported each week in Praia (light blue) and other municipalities (dark blue) of Cabo Verde (Fig. 4). The outbreak appears to have begun in Praia and then spread to other municipalities. Preliminary information, subject to confirmation, indicates that this outbreak has been caused by an African strain of Zika virus. No neurological abnormalities have been reported.

**Figure 4: Suspected cases of Zika virus in Cabo Verde, 2015-2016**



Source: Cabo Verde Ministry of Health Epidemiological Bulletin (21 February 2016).

<sup>5</sup> Full report available at: <http://www.ins.gov.co/boletin-epidemiologico/Boletin%20Epidemiologico/2016%20Boletin%20epidemiologico%20semana%207.pdf>

## Incidence of microcephaly

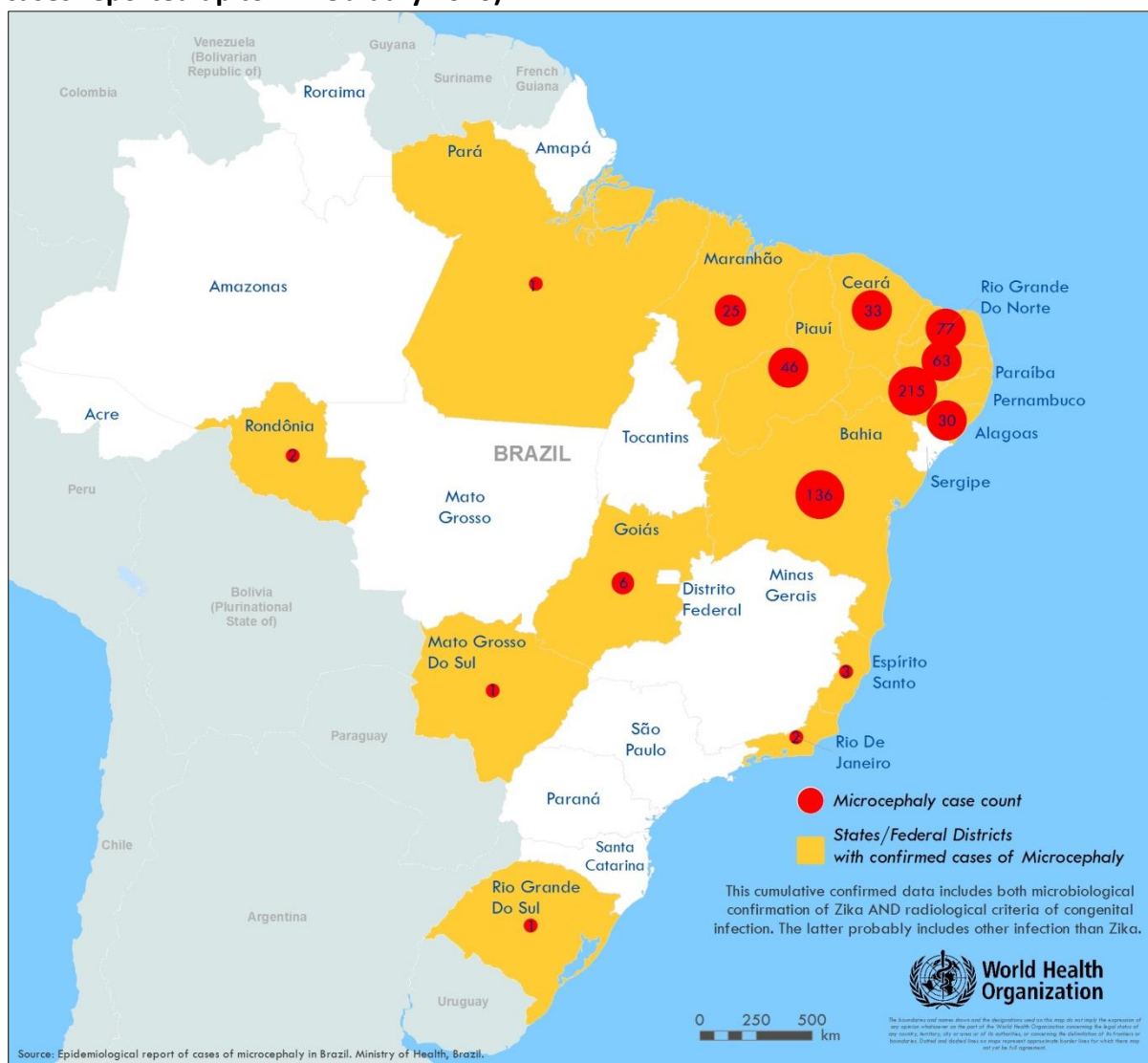
- Between 22 October 2015 and 27 February 2016 a total of 5909 cases of microcephaly and/or central nervous system (CNS) malformation were reported by Brazil including 139 deaths. This contrasts with the period from 2001 to 2014, when an average of 163 microcephaly cases was recorded nationwide per year.
- The reported increase in microcephaly incidence in Brazil is concentrated in the Northeast Region (Fig. 5).
- Of the 5909 suspected cases of microcephaly reported in Brazil, investigations have been concluded for 1687 cases. Among these cases, 1046 were discarded (i.e. not fulfilling the operational case definition of microcephaly and/or CNS malformation associated with congenital infection), 641 were confirmed and 4222 remain under investigation (Table 2).<sup>6, 7</sup>
- Among the 5909 suspected cases of microcephaly and/or CNS malformation reported in Brazil, 139 child deaths occurred after birth or during pregnancy (including miscarriage or stillbirth); 31 of these were confirmed as having microcephaly and/or CNS malformation potentially linked to congenital Zika virus infection, 96 remain under investigation and 12 were discarded.
- An outbreak of Zika virus in French Polynesia was followed by an increase in the number of CNS malformations in children born between March 2014 and May 2015. A total of 19 cases were reported including eight microcephaly cases compared to the national average of 0-2 cases per year.
- Zika virus is not yet proven to be a cause of the increased incidence of microcephaly in Brazil. However, given the temporal and geographical associations between Zika virus infections and microcephaly, the repeated discovery of virus in fetal brain tissue, and in the absence of a compelling alternative hypothesis, a causal role for Zika virus is a strong possibility that is under active investigation.

---

<sup>6</sup> <http://portalsaude.saude.gov.br/images/pdf/2016/marco/01/coes-microcefalia-informe-epid15-se08-2016-01mar2016.pdf>

<sup>7</sup> <http://portalsaude.saude.gov.br/index.php/cidadao/principal/agencia-saude/22396-saude-investiga-4-222-casos-suspeitos-de-microcefalia-no-pais>

**Figure 5: Distribution of cumulative confirmed cases of microcephaly in Brazil (641 cases reported up to 27 February 2016).<sup>8</sup>**



**Table 2. Countries, territories and areas reporting microcephaly cases potentially associated with Zika virus infection.**

Reporting country	Number of reported microcephaly cases potentially related to a Zika virus infection	Probable location of infection
French Polynesia	8	French Polynesia
Brazil	641	Brazil
Hawaii (United States of America) <sup>9</sup>	1	Brazil
Slovenia <sup>10</sup>	1	Brazil

<sup>8</sup> <http://portalsaude.saude.gov.br/index.php/cidadao/principal/agencia-saude/22295-casos-suspeitos-chegam-a-4-107-em-todo-o-pais>

<sup>9</sup> <http://governor.hawaii.gov/newsroom/doh-news-release-hawaii-department-of-health-receives-confirmation-of-zika-infection-in-baby-born-with-microcephaly/>

<sup>10</sup> <http://www.nejm.org/doi/pdf/10.1056/NEJMoa1600651>



## Incidence of Guillain-Barré syndrome (GBS)

- In the context of Zika virus circulation nine countries or territories have reported increased GBS incidence and/or laboratory confirmation of a Zika virus infection among GBS cases (Table 3, Fig. 3).

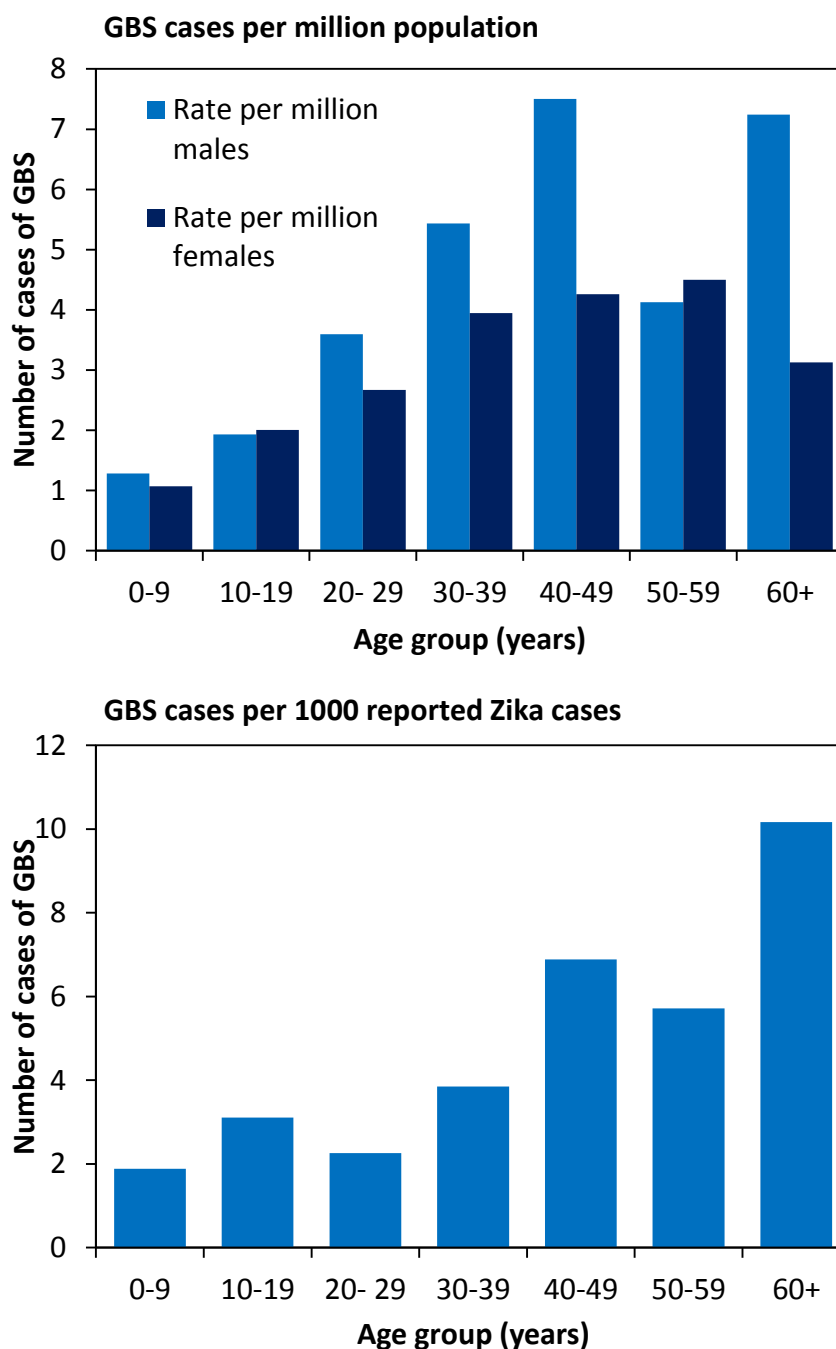
**Table 3. Countries, territories or areas reporting GBS potentially related to Zika virus infection.**

Reported increase in incidence of GBS cases, with no GBS cases biologically documented of Zika virus infection	Reported increase in incidence of GBS cases, with at least one GBS case confirmed with previous Zika virus infection	No increase in GBS incidence reported but at least one GBS case confirmed with previous Zika virus infection
El Salvador	French Polynesia	Martinique
Colombia	Suriname	Puerto Rico
	Brazil	Panama
	Venezuela (Bolivarian Republic of)	

- Between October 2013 and April 2014, French Polynesia experienced the first Zika virus outbreak ever recorded in the country. During the outbreak, 42 patients were admitted to hospital with GBS. This represents a 20-fold increase in incidence of GBS in French Polynesia compared with the previous four years. Of the 42 patients, 16 (38%) required admission to an intensive care unit and 12 (29%) received mechanical ventilation. No deaths were reported. The majority of these cases (88%) reported symptomatic Zika virus infection in the days that preceded the onset of neurological symptoms. A recently published formal analysis of these data (case-control study) showed a strong association between Zika infection and GBS.<sup>11</sup> This study is the first large observational study to compare exposure to Zika virus among people with and without GBS and provides important information about the causal role of Zika infection.
- In 2015 in the state of Bahia in Brazil, 42 GBS cases were reported, among which 26 (62%) had a history of symptoms consistent with Zika virus infection. A total of 1708 cases of GBS were registered nationwide, representing a 19% increase from the previous year (1439 cases of GBS in 2014), though not all states reported an increase in incidence.
- In Colombia, 201 GBS cases with a history of suspected Zika virus infection were reported in the nine weeks to 14 February 2016. Most of the cases are from Norte de Santander and Barranquilla – areas where many of the Zika virus cases have been registered. However, more cases have been reported among males than females, the reported incidence per capita is higher in adults than in children (Fig. 6 top), and the incidence of GBS per reported Zika infection apparently increases with age (Fig. 6 bottom). To date, none of the cases of GBS have been laboratory confirmed for Zika virus infection, or other possible causes, and the patterns of infection and disease by age and sex need confirmation.

<sup>11</sup> Cao-Lormeau *et al* Published Online February 29, 2016 [http://dx.doi.org/10.1016/S0140-6736\(16\)00562-6](http://dx.doi.org/10.1016/S0140-6736(16)00562-6)

Figure 6: Cases of GBS in Colombia as of 14 February 2016.



Population figures are based on estimates from the United Nations Department of Economic and Social Affairs.<sup>12</sup> Source: Colombia Ministry of Health (Boletín epidemiológico semanal: Semana epidemiológica número 07 de 2016 (14 feb. al 20 feb)).

- El Salvador recorded 118 GBS cases from 1 December 2015 to 8 January 2016, including five deaths, while the annual average number of GBS cases is 169. To date, none of those reported GBS cases have been laboratory confirmed for Zika virus infection or other causes.
- On 29 January 2016, Suriname reported an increased incidence of GBS: 10 GBS cases reported in 2015 and three GBS cases were reported during the first three weeks of

<sup>12</sup> United Nations Department of Economic and Social Affairs: <http://esa.un.org/unpd/wpp/Excel-Data/population.htm>

2016, while Suriname registers on average approximately four cases GBS per year. For two of the GBS cases reported in 2015 a Zika virus infection was laboratory confirmed by RT-PCR.

- Venezuela (Bolivarian Republic of) has also reported an increased incidence of GBS. From 1 January to 31 January 2016, 252 cases of GBS suspected to be related to Zika virus were reported. The largest number of cases (66) was reported from six municipalities of Zulia state, mostly concentrated in the Maracaibo municipality. Zika virus was confirmed in a three of the GBS cases by RT-PCR.
- GBS cases with laboratory confirmed Zika virus infections were reported from Martinique (two cases), Puerto Rico (one case) and Panama (one case).
- As with microcephaly, Zika virus is not yet proven to be the cause of the increased GBS incidence in Brazil, Colombia, El Salvador, Suriname or Venezuela (Bolivarian Republic of), though strongly suspected given the recent findings in French Polynesia. Confounding factors include the contemporary circulation of dengue and chikungunya in the Americas, which are transmitted by the same species of mosquito. Further investigations are needed to identify the potential role of other factors (including infections) known to be associated, or potentially associated, with GBS.

## II. RESPONSE

- The principal activities being undertaken jointly by WHO and international, regional and national partners in response to this public health emergency are laid out in Table 4.
- WHO and partners are working together to develop and maintain the Joint Operations Plan that combines activities within the six main areas of work; coordination, surveillance, care, vector control, risk communication and community engagement, and research at the global, regional and country level.
- A workshop with Global Outbreak Alert and Response Network (GOARN) technical partners was held in Washington, D.C. on 2 March 2016. Partners agreed upon deployment procedures for the Zika response, including requests for assistance for the three to six month operating period and a regional laboratory platform for country capacity including technology transfer, material and supplies, training, and support for specific investigations and projects was developed.
- WHO and partners are appealing for the sum of US\$ 56 million for an inter-agency, international response to the spread of Zika virus disease and subsequent spikes in cases of microcephaly and neurological disorders. The request represents the consolidated requirements of 23 partner organizations to address this emergency over the next six months. US\$ 25 million is required to fund the WHO and PAHO emergency response and US\$ 31 million to fund partners' activities. Approximately 45 donors attended a meeting to discuss the Strategic Response Framework. Donors are reviewing stated needs and requirements.

- On 18 February 2016 the World Bank Group announced that it had made US\$ 150 million immediately available to support countries in Latin America and the Caribbean affected by the Zika virus outbreak. This amount follows the WHO declaration of a Public Health Emergency of International Concern (PHEIC) on 1 February 2016 for the recent cluster of microcephaly cases and other neurological disorders reported in the Americas amid the growing Zika virus outbreak. The World Bank Group has engaged with governments across the region, including sending technical experts to affected countries. If additional financing is needed, the World Bank Group stands ready to increase its support. These initial estimates assume that the most significant health risks are for pregnant women.
- WHO has developed new advice and information on Zika case definitions; prevention of sexual transmission of Zika virus; blood safety; identification and case management of Guillain-Barré syndrome; breast feeding in the context of Zika; Pregnancy management in the context of Zika virus; psychosocial support for pregnant women and for families with microcephaly and other neurological complications in the context of Zika virus; and case definition, and assessment of infants with microcephaly in the context of Zika.<sup>13</sup>
- These materials are being transformed into many formats to support risk communication, community engagement and for the use of key stakeholders including health workers.

---

<sup>13</sup> See resources listed at Annex 1

**Table 4. Strategic Response Framework and Joint Operational Response Plan: response activities.**

<p>Public health risk communication and community engagement activities</p>	<ul style="list-style-type: none"> <li>▪ Activate networks of social science experts to advise on community engagement.</li> <li>▪ Coordinate and collaborate with partners on risk communication messaging and community engagement for Zika.</li> <li>▪ Develop communication and knowledge packs and associated training on Zika and all related and evolving issues for communication experts.</li> <li>▪ Engage communities to communicate risks associated with Zika virus disease and promote vector control, personal protection measures, reduce anxiety, address stigma, and dispel rumours and cultural misperceptions.</li> <li>▪ Disseminate material on Zika and potentially associated complications for key audience such as women of reproductive age, pregnant women, health workers, clinicians, and travel and transport sector stakeholders.</li> <li>▪ Conduct social science research to understand perceptions, attitudes, expectations and behaviours regarding fertility decisions, contraception, abortion, pregnancy care, and care of infants with microcephaly and persons with GBS.</li> <li>▪ Support countries to monitor impact of risk communications.</li> </ul>
<p>Vector control and personal protection against mosquitoes</p>	<ul style="list-style-type: none"> <li>▪ Regularly update and disseminate guidelines/recommendations on emergency <i>Aedes</i> mosquito control and surveillance.</li> <li>▪ Support insecticide resistance monitoring activities.</li> <li>▪ Support countries in vector surveillance and control, including provision of equipment, insecticides, personal protection equipment (PPE) and training.</li> </ul>
<p>Care for those affected and advice for their carers</p>	<ul style="list-style-type: none"> <li>▪ Assess and support existing capacity and needs for health system strengthening, particularly around antenatal, birth and postnatal care, neurological and mental health services, and contraception and safe abortion.</li> <li>▪ Map access barriers limiting women’s capacity to protect themselves against unintended pregnancy.</li> <li>▪ Develop guidance for: families affected by microcephaly, GBS or other neurological conditions; women suspected or confirmed to have Zika virus infection, including women wanting to get pregnant, pregnant women, and women who are breastfeeding; health workers on Zika virus health care, blood transfusion services, tools for triage of suspected Zika virus, chikungunya and dengue cases; and for health services management following a Zika virus outbreak.</li> <li>▪ Provide technical support to countries on health service delivery refinements and national level planning to support anticipated increases in service needs.</li> <li>▪ Procure and provide equipment and supplies for prioritized countries and territories to prepare their healthcare facilities in provision of specialized care for complications of Zika virus.</li> </ul>

### III. RESEARCH

- Public health research is critical for establishing the causal link between Zika virus infection in pregnant women and microcephaly in their babies and for understanding the pathogenesis of Zika virus infection. Technical assistance is being coordinated with various partner agencies globally and in affected countries to identify and answer critical questions (Table 5).
- The Emergency Use Assessment and Listing for Zika diagnostic tests was activated, and a call for submission has been published.<sup>14</sup>
- A meeting on defining the public health research agenda as held by PAHO in Washington, D.C. from 1 to 2 March 2016. The meeting served as the first opportunity for global research partners to exchange information and present current knowledge on the global and regional situation of Zika, and the current laboratory platforms and need for supporting surveillance. The meeting set priorities to bridge gaps in knowledge on Zika virus in serology, laboratory methods, characterization of the disease, vector control methods, and other gaps.
- A global consultation on research related to Zika virus infection will be held from 7 to 9 March 2016 to assess the research landscapes and plan for additional research.

**Table 5. Strategic Response Framework and Joint Operational Response Plan: research objectives and activities.**

Public health research	Investigate reported increase in incidence of microcephaly and neurological syndromes and their possible association with Zika virus infection.	<ul style="list-style-type: none"> <li>▪ Conduct research studies to assess link between Zika virus and microcephaly.</li> <li>▪ Conduct research to assess potential sexual transmission and mother-to-child transmission.</li> <li>▪ Research women’s and health workers’ perceptions of pregnancy risk and consequent decisions on contraceptive use, safe abortion and post abortion care in context of Zika virus.</li> </ul>
Research and development	Fast-track research and development of new products including diagnostics, vaccines and therapeutics.	<ul style="list-style-type: none"> <li>▪ Identify research gaps and prioritize needs for products.</li> <li>▪ Support the conduct of research related to Zika virus diagnostics, therapeutics, vaccines and novel vector control approaches</li> <li>▪ Convene research actors and stakeholders.</li> <li>▪ Coordinate introduction of products after assessment and evaluation.</li> <li>▪ Coordinate supportive research activities including regulatory support and data sharing mechanisms.</li> </ul>

<sup>14</sup> [http://www.who.int/diagnostics\\_laboratory/eual-zika-virus/160211invitation\\_to\\_mx\\_of\\_Zika\\_virus\\_diagnostics\\_v2.pdf?ua=1](http://www.who.int/diagnostics_laboratory/eual-zika-virus/160211invitation_to_mx_of_Zika_virus_diagnostics_v2.pdf?ua=1)

## Annex 1: Additional information

### Zika Virus

- Zika virus disease is caused by a virus transmitted by *Aedes* mosquitoes. Other transmission modes are still under investigation.
- People with Zika virus disease usually have a mild fever, skin rash (exanthema), and conjunctivitis. These symptoms normally last for 2-7 days.
- At present there is no specific treatment or vaccine currently available. The best form of prevention is protection against mosquito bites.
- Zika virus is known to circulate in Africa, the Americas, Asia, and the Pacific region. Zika virus had only been known to cause sporadic infections in humans until 2007, when an outbreak in Micronesia infected 31 people.

### Microcephaly

- Microcephaly is an uncommon condition where a baby's head circumference is less than expected based on the average for their age and sex. The condition is usually a result of the failure of the brain to develop properly, and can be caused by genetic or environmental factors such as exposure to toxicins, radiation, or infection during development in the womb. Microcephaly can be present as an isolated condition or may be associated with other symptoms such as convulsions, developmental delays, or feeding difficulties.

### Guillain-Barré syndrome

- Guillain-Barré syndrome in its typical form is an acute illness of the nerves that produces a lower, bilateral, and symmetrical sensorimotor development deficit. In many cases there is a history of infection prior to the development of the Guillain-Barré syndrome. The annual incidence of GBS is estimated to be between 0.4 and 4.0 cases per 100,000 inhabitants per year. In North America and Europe GBS is more common in adults and increases steadily with age. Several studies indicate that men tend to be more affected than women.

### Resources from WHO

- Zika virus [www.who.int/mediacentre/factsheets/zika](http://www.who.int/mediacentre/factsheets/zika)
- Microcephaly [www.who.int/emergencies/zika-virus/microcephaly/en/](http://www.who.int/emergencies/zika-virus/microcephaly/en/)
- Guillain-Barré syndrome [www.who.int/mediacentre/factsheets/guillain-barre-syndrome/en/](http://www.who.int/mediacentre/factsheets/guillain-barre-syndrome/en/)
- Infants with microcephaly [www.who.int/csr/resources/publications/zika/assessment-infants/en/](http://www.who.int/csr/resources/publications/zika/assessment-infants/en/)
- Guillain-Barré syndrome [www.who.int/csr/resources/publications/zika/guillain-barre-syndrome/en/](http://www.who.int/csr/resources/publications/zika/guillain-barre-syndrome/en/)
- Breastfeeding [www.who.int/csr/resources/publications/zika/breastfeeding/en/](http://www.who.int/csr/resources/publications/zika/breastfeeding/en/)
- Sexual transmission <http://who.int/csr/resources/publications/zika/sexual-transmission-prevention/en/>
- Vector control <http://www.who.int/emergencies/zika-virus/articles/mosquito-control/en/>
- Blood safety <http://who.int/csr/resources/publications/zika/safe-blood/en/index.html>