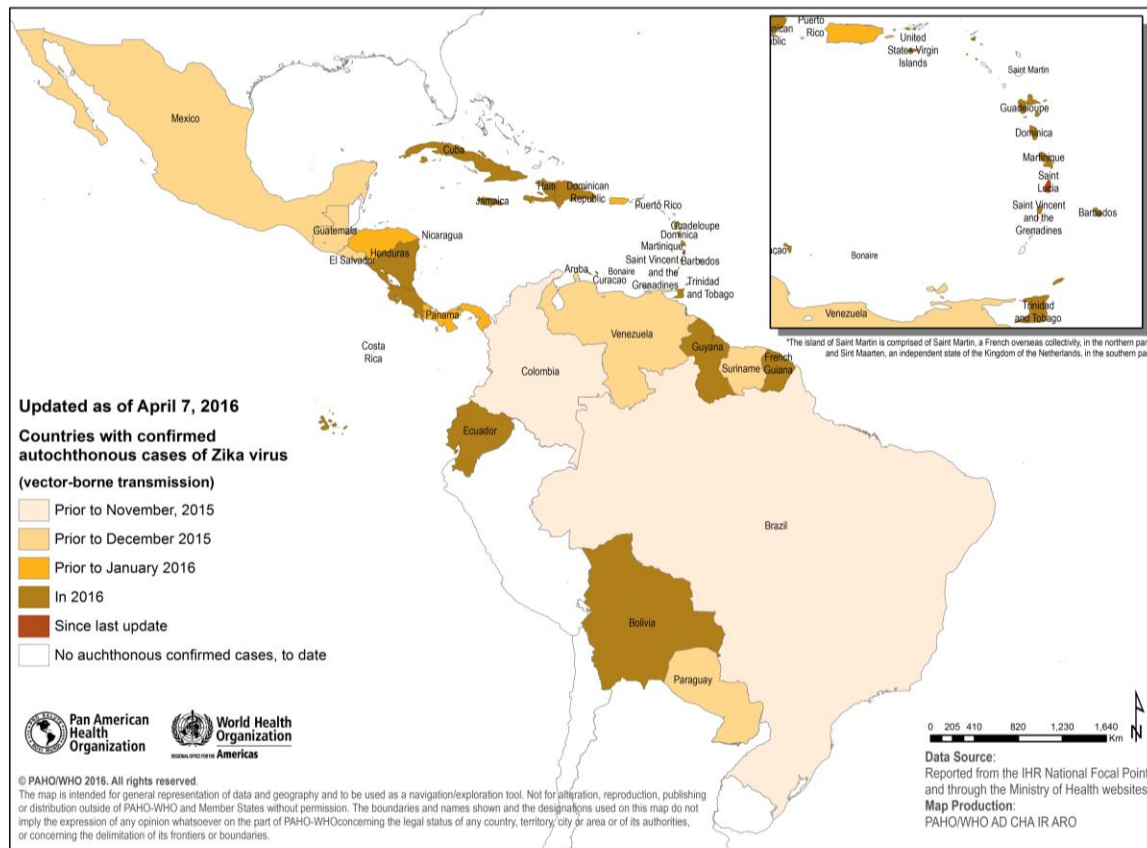


Zika virus – Incidence and trends

Since the last epidemiological update (31 March 2016), one additional country, **Saint Lucia** reported its first autochthonous (locally-acquired) confirmed cases of Zika virus infection on 7 April. This brings the total to 34 countries and territories reporting local, vector-borne transmission of Zika virus in the Region of the Americas since 2015 (**Figure 1**).

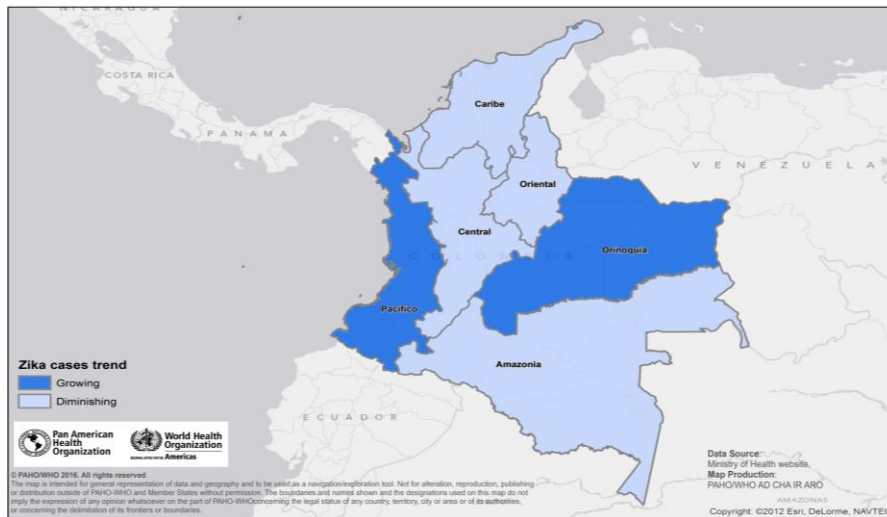
Figure 1. Countries and territories in the Americas with confirmed autochthonous (vector-borne) Zika virus cases, 2015-2016 (as of 7 April 2016)



Regional and national trends reveal important shifts in circulation at sub-national levels. This is illustrated with data from Colombia which show some sub-national areas experiencing an increase in reported Zika cases, while in others, the number of cases are decreasing (**Figure 2**).

Suggested citation: Pan American Health Organization / World Health Organization. Zika Epidemiological Update, 8 April 2016. Washington, D.C.: PAHO/WHO; 2016

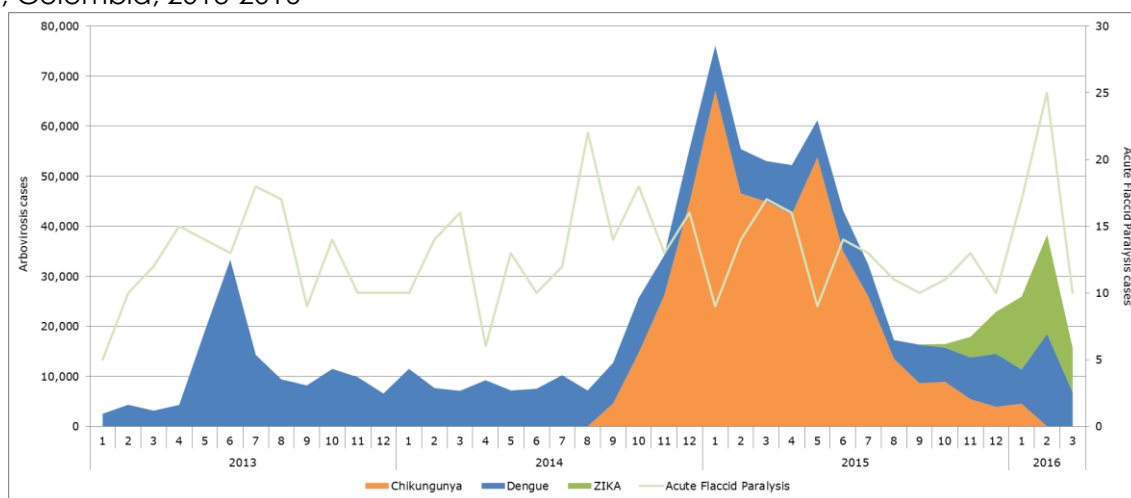
Figure 2. Sub-national variations in trends of suspected Zika virus case reporting, Colombia, as of epidemiological week (EW) 10 of 2016



Trends in reporting of acute flaccid paralysis (AFP), suspected measles /rubella and arboviruses cases (dengue, chikungunya and Zika virus) in Colombia¹

Before the introduction of Zika virus to the Region of the Americas, outbreaks of dengue and chikungunya had been registered in **Colombia**. Compared to 2013, Colombia experienced a large outbreak of dengue which started in August 2014 and peaked in April 2015. An outbreak of Chikungunya (55,000 cases) also began at the same time in 2014 mirroring the dengue epidemic curve (65,000 cases). With the introduction of Zika virus in August 2015, the trends of both arboviruses (dengue and chikungunya) started increasing simultaneously. Comparing the dynamics of dengue, chikungunya, and Zika virus with the monthly reported cases of acute flaccid paralysis (AFP), a temporal correlation is observed between an increase in APF cases and the start of the Zika virus outbreak (**Figure 3**).

Figure 3. Reported cases of chikungunya, dengue, Zika virus and acute flaccid paralysis (AFP) by month, Colombia, 2013-2016



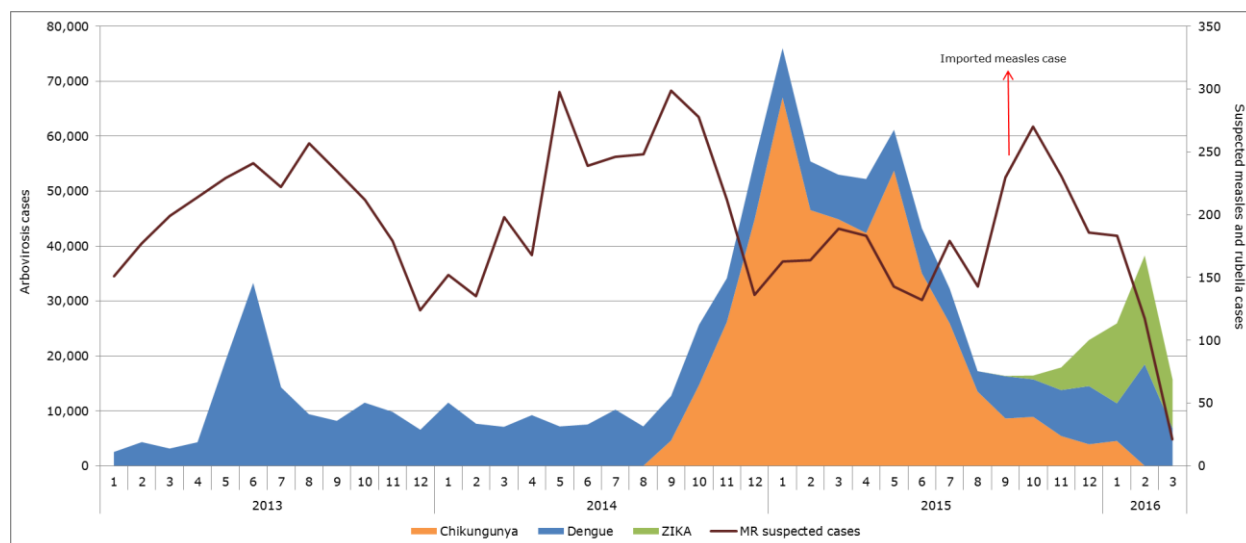
Source: Surveillance reports to PAHO/WHO from Colombia Ministry of Health

¹ Surveillance of acute flaccid paralysis (AFP) is conducted only in children under 15 years old and reported weekly to the Pan American Health Organization/ World Health Organization.

In September 2015, when an imported measles case was confirmed in Colombia, surveillance activities for the disease were enhanced. Following this importation, an excess of suspected measles and rubella cases were identified from September through November 2015 (**Figure 4**). This peak coincides with the increase in notification of Zika virus cases in Colombia. Of note, there have been peaks of suspected measles-rubella cases in the months of September of 2013 and 2014. According to routine case investigation procedures, both measles and rubella were ruled out in all these cases. In addition, dengue was also ruled out in few reported cases.

These observations highlight the need for having strong surveillance systems for measles-rubella and polio (eliminated diseases) and underscore the importance of integrated analysis of different surveillance systems to better understand the emergence of Zika virus.

Figure 4. Reported cases of chikungunya, dengue, Zika virus, and suspected measles and rubella, by month, Colombia, 2013-2016



Source: Surveillance reports to PAHO from Colombia Ministry of Health

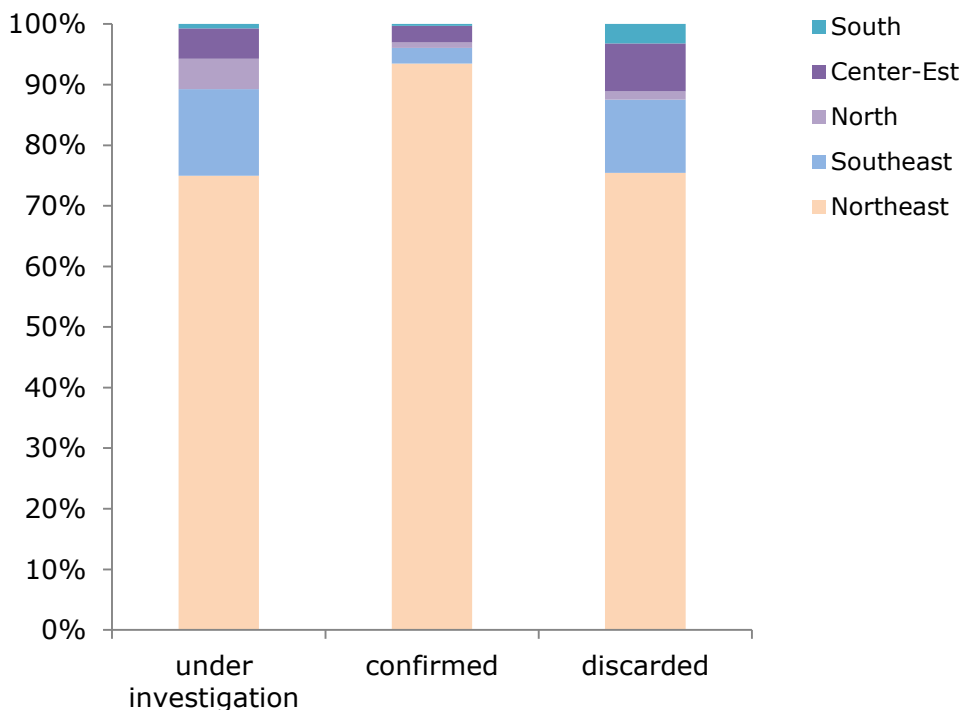
Reported increase of Congenital syndrome associated with Zika virus infection

Brazil

According to the Ministry of Health of Brazil, between 22 October 2015 and 2 April 2016, a total of 6,906 suspected cases of microcephaly or other nervous system malformation among newborns in 1,307 municipalities have been reported. Of these, 1,046 were confirmed cases of microcephaly and/or other central nervous system (CNS) malformations with evidence suggestive of congenital infection. Out of the total reported cases, 1,814 cases were discarded as being due to non-infectious causes or not fitting the case definition, and 4,046 remain under investigation.

The confirmed cases are distributed in 23 out of 27 Federal Units, with the Northeast region continuing to report the majority of the cases with 75% (3,034) of suspected cases and 93% (978) of confirmed cases. The Southeast region is reporting 14% (578 cases) of suspected and 2.5% (27 cases) of confirmed cases of microcephaly in Brazil (**Figure 5**).

Figure 5. Cases of microcephaly reported in sub-national region of Brazil by classification, EW 2 to 13 of 2016



Source: Brazil Ministry of Health

There have been 227 deaths (including miscarriages or stillbirths) reported cases of microcephaly and/or CNS malformation, of which 51 were confirmed as suggestive of congenital infection. [See full report.](#)

First trimester likely higher risk for pregnant women

Preliminary results of a case-control study in Paraíba conducted by the United States Centers for Disease Control and Prevention (U.S. CDC), the Brazil Ministry of Health and the Paraíba Government shows that mothers who were infected with Zika virus in the first trimester of pregnancy were more likely to give birth to babies with microcephaly. The research featured the work of eight teams who investigated the proportion of infants born with microcephaly associated with Zika virus and the risk of Zika virus infection in 56 state municipalities. The study included 165 mothers who had babies with microcephaly and 446 controls (mothers with babies without microcephaly in the same areas). No association between microcephaly and products such as insecticides was reported. Final results are still pending with the authors continuing to analyze results of blood samples collected from mothers and babies in Paraíba. [See full report.](#)

Panama

On April 7, Panama reported two confirmed cases (RT-PCR) of congenital syndrome associated with Zika virus. The first case was a stillborn who presented other malformations and the second case is alive with no other malformations. Both cases were laboratory confirmed at the Gorgas Memorial Institute.

Martinique

On 31 March, the Institut De Veille Sanitaire (INVS) reported that since the emergence of Zika virus in Martinique in December 2015, Zika virus was laboratory confirmed in 106 pregnant women. Of those, two microcephaly cases and one other fetal malformation was detected during ultrasound. As reported on 24 March, the France Ministry of Health confirmed the first case of microcephaly related to Zika by ultra sound at 22 weeks of gestation in Martinique. Zika virus was detected in the amniotic fluid and fetal blood by PCR. The mother's serology in blood samples was positive for Zika virus in January and February 2016. [See full report](#).

Colombia

On April 2, the Colombia reported that between EW 1 and 12 of 2016, 34 cases of microcephaly for all causes² have been reported in the country. Eight cases were under investigation for Zika virus, from which one was discarded and seven continue to be under investigation. Of the remaining 26 cases, 20 are under preliminary studies and six are pending biological sample collection.

The seven cases of microcephaly under investigation for Zika virus are geographically distributed in the following departments: Santander (4), Cauca (1), Guaviare (1), and North of Santander (1). [See full report](#).

Guillain-Barré syndrome (GBS) and other neurological disorders

Since the last epidemiological update (31 March), no new countries or territories have reported an increase in cases of Guillain-Barré syndrome (GBS) with at least one case laboratory confirmed for Zika virus nor reported Zika virus-associated cases of GBS.

To date, seven countries in the Region have reported an increase in cases of Guillain-Barré syndrome (GBS) with at least one case laboratory confirmed for Zika virus. Five other countries and territories have not recorded increase but identified Zika virus-associated cases of GBS (**Table 1**).

Table 1. Countries and territories in the Americas with GBS in the context of Zika virus circulation (as of 6 April 2016)

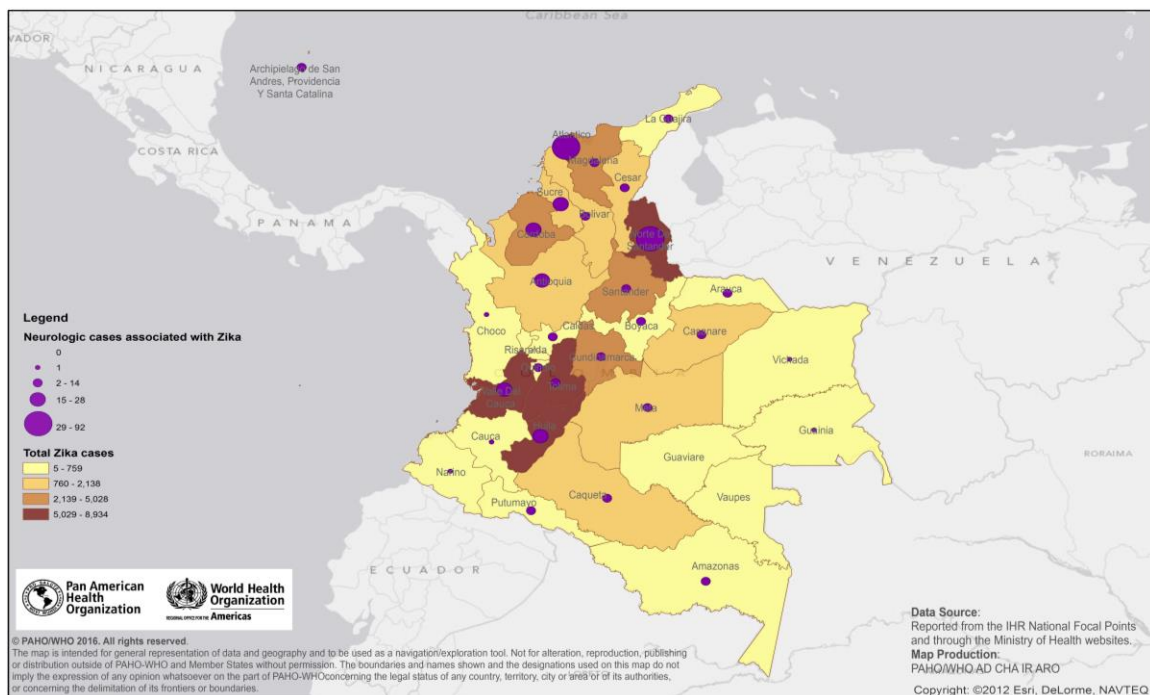
Increase in GBS plus Zika virus lab confirmation in at least one case of GBS	Zika virus lab confirmation in at least one case of GBS
Brazil	French Guiana
Colombia	Haiti
Dominican Republic	Panama
El Salvador	Puerto Rico
Honduras	Martinique
Suriname	
Venezuela	

² The difference between the cumulative reported cases in EW 12 (34) and 11 (50) is due to the number of discarded cases by further investigation using the national guidelines.

Increase of GBS and other neurological disorders in Colombia

During the period of enhanced surveillance for neurological syndrome from December 2015 up to EW 12 of 2016, Colombia detected 401 cases of neurological syndrome with history of Zika virus symptoms including 270 cases of GBS and other similar neurological conditions such as ascending polyneuropathy. Of these, 55.9% were male (224 cases) and the highest number of cases were in the age group >65 years (48 cases) followed by 35-39 years (41 cases). A large number of cases of neurological syndrome are reported from Norte Santander with the highest number of GBS cases (78 cases), and the highest number of Zika virus cases in the country, followed by Barranquilla, Atlantico, and Antioquia (**Figure 6**). The geographic distribution of cases of neurological syndrome by Departments suggests there is a spatial association with states also reporting high number of Zika virus cases.

Figure 6. Departments with reported Zika virus cases and neurological syndrome, Colombia, December 2015 to 26 March 2016



Source: Colombia Ministry of Health

Novel Findings

Clinical Manifestations of Zika Virus Infection, Rio de Janeiro, Brazil, 2015

A recent study published by the U.S. CDC in *Emerging Infectious Diseases*, reviewed signs and symptoms in a convenience sample of confirmed Zika cases seen in an acute care clinic in Rio de Janeiro, Brazil. The authors found rash to be, by far, the most common symptom for which patients sought care (98%). Fever was found in just 67% of patients (at least at the time of presentation). The authors contrasted their findings to those noted in a similar case series from Puerto Rico, where fever was almost as frequent as rash (77% rash versus 73% fever). [See full report.](#)

Congenital cerebral malformations and dysfunction in fetuses and newborns following the 2013 to 2014 Zika virus epidemic in French Polynesia

A recent report in Eurosurveillance describes the investigation of an unusual increase in congenital cerebral malformations and dysfunction in fetuses and newborns in French Polynesia, following an epidemic of Zika virus, from October 2013 to March 2014. A retrospective review identified 19 cases, including eight with major brain lesions and severe microcephaly, six with severe cerebral lesions without microcephaly and five with brainstem dysfunction without visible malformations. The authors suggest that research should clarify the role of potential teratogenicity of Zika virus in the non-microcephalic congenital abnormalities, extra-cerebral malformations, and brainstem dysfunction. [See full report](#).