

## Situation Summary

Between epidemiological week (EW) 1 and EW 33 of 2018, a total of 5,004 confirmed measles cases, including 68 deaths, were reported in 11 countries in the Region of the Americas: Antigua and Barbuda (1 case), Argentina (8 cases), Brazil (1,237 cases, including 6 deaths), Canada (19 cases), Colombia (60 cases), Ecuador (17 cases), Guatemala (1 case), Mexico (5 cases), Peru (4 cases), the United States (107 cases), and the Bolivarian Republic of Venezuela (3,545 cases, including 62 deaths).

The following is a summary of the current outbreaks in the Americas.

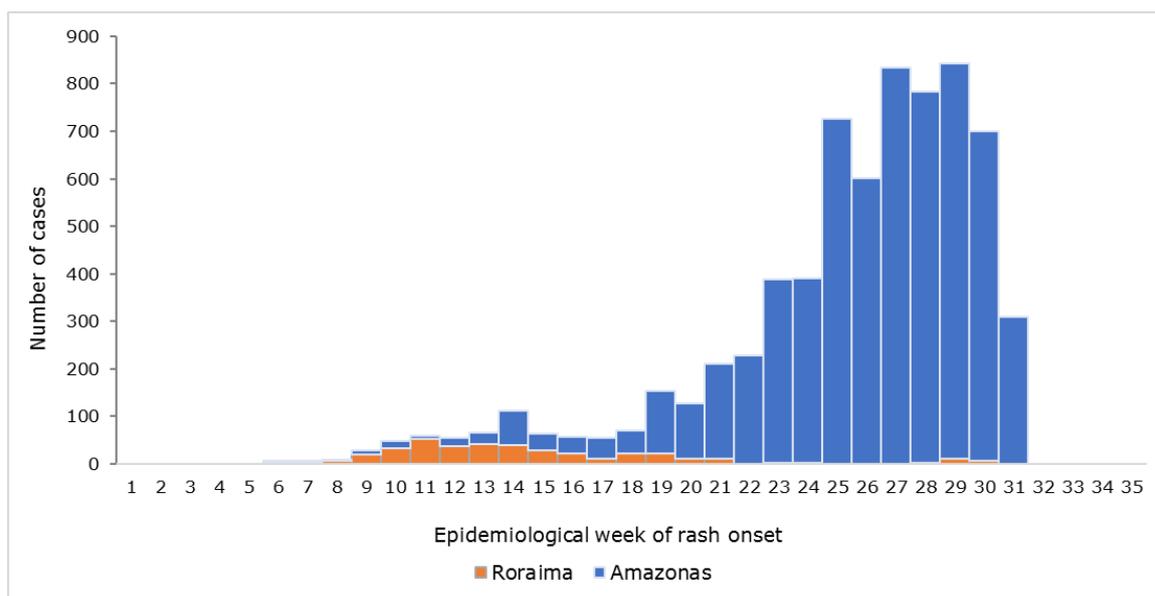
In **Argentina**, between EW 11 and EW 33 of 2018, a total of 8 measles cases were reported, all in residents of the city and province of Buenos Aires. The ages ranged between 5-months and 26-years (median of 9-months old). The dates of rash onset were between 11 March and 13 July. All of the cases presented with clinical signs of measles (fever, rash, cough, and conjunctivitis), and all have fully recovered.

The cases were laboratory-confirmed by IgM serology and viral genome detection by PCR in urine and respiratory samples. The first two cases had travel history outside the Region of the Americas, and the third case (8-month-old female) was a contact of the first case (21-year-old male). The five remaining cases are related to a second importation in which genotype D8 was identified, lineage Mvi/Hulu Langat.MYS/26.11, which is the same as that identified in Venezuela and also has been reported in 2018 among confirmed cases in Colombia and Brazil (see the following sections).

In **Brazil**, the outbreak that began in EW 6 of 2018 in the state of Roraima, has spread to Amazonas (**Figure 1**), and subsequently with cases reported in Rio de Janeiro, Rio Grande do Sul, Rondônia, São Paulo, and Pará (the states are listed in alphabetical order and not in the order of the occurrence of cases). In the seven states, genotype D8, with an identical lineage to the cases reported in Venezuela (2017 and 2018), was identified.

The distribution of confirmed cases in Brazil, by state, is: Amazonas (910 cases), Rio Grande do Sul (13 cases), Rio de Janeiro (14 cases), Rondônia (1 case), Roraima (296 cases), São Paulo (1 case), and Pará (2 cases). Onset of rash among the confirmed cases occurred between 4 February and 3 August 2018.

**Figure 1.** Reported measles cases by EW of rash onset. Amazonas and Roraima states, Brazil, EW 1 to EW 31 of 2018.



**Source:** Data published by the Brazil Ministry of Health and reproduced by PAHO/WHO.

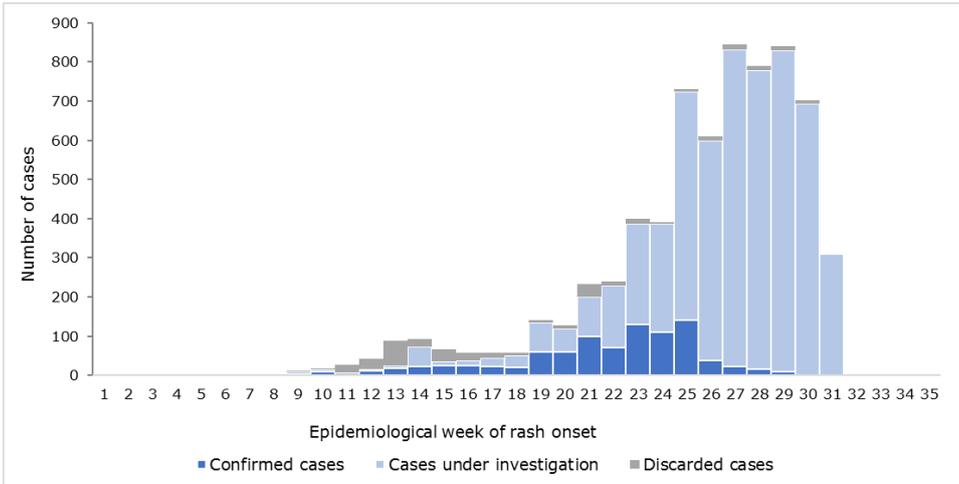
The following is a brief summary of the ongoing outbreaks in the states of Amazonas and Roraima.

*In the state of Amazonas*, the outbreak that began in EW 9 of 2018 is ongoing and as of EW 31, 6,880 cases were reported, 910 of which were confirmed, including 2 deaths, 340 were discarded, and 5,630 remain under investigation. Since EW 19 of 2018, the number of suspected cases increased substantially, with a weekly average of 678 cases reported between EW 25 and EW 31 of 2018 (**Figure 2**). Although 38 of the 62 municipalities have reported cases, there are only two municipalities with confirmed cases so far, Manaus and Manacapuru.

The cumulative incidence rate of confirmed cases at the state level is 25.3 per 100,000 population, with a higher rate observed in children under 1-year-old (286.4 per 100,000 population), followed by children between 1 to 4-years-old (52.5 per 100,000 population).

The last confirmed case had rash onset in EW 29 of 2018, and the last reported case had rash onset in EW 31. However, 82% (5,630) of the cases have not yet been tested. It is likely that the number of confirmed cases will continue to increase, in Manaus as well in other municipalities of the state. Other states in Brazil have reported measles cases exported from Manaus.

**Figure 2.** Reported measles cases by EW of rash onset. State of Amazonas, Brazil, EW 1 to EW 31 of 2018.



**Source:** Data published by the Brazil Ministry of Health and reproduced by PAHO/WHO.

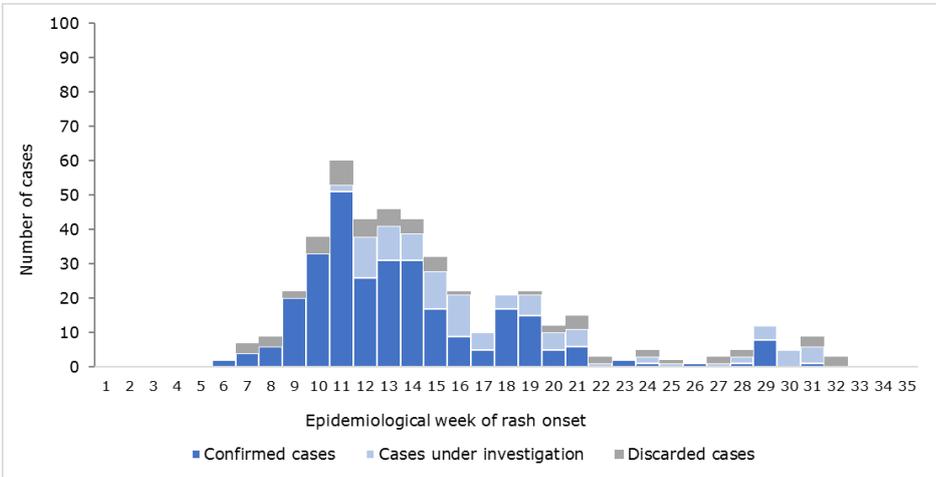
In the state of Roraima, the outbreak that started in EW 6 of 2018 is ongoing and, up to EW 32 of 2018, 458 cases were reported of which 296 were confirmed, including 4 deaths, 61 were discarded, and 101 remain under investigation. The average number of cases reported weekly has declined substantially in the past 6 weeks, from an average of 41 cases per week (between EW 9 and EW 15) to 3 cases per week (between EW 25 and EW 31) (**Figure 3**).

Cases have been reported in 12 of the 15 municipalities in the state. Of the reported cases, 91% are from the municipalities of Amajari, Boa Vista, and Pacaraima, and 94% of the confirmed cases are from the same municipalities.

The cumulative incidence rate of confirmed cases at the state level is 66.7 per 100,000 population, with a higher incidence rate reported among children under 1-year-old (604.1 per 100,000 population), followed by children between 1 to 4-years-old (189.9 per 100,000 population), and children between 5 to 9-years-old (103.1 per 100,000 population).

The last confirmed case had rash onset in EW 31 and the last reported cases under investigation had onset in EW 32.

**Figure 3.** Reported measles cases by EW of rash onset. State of Roraima. Brazil. EW 1 to EW 32 of 2018.



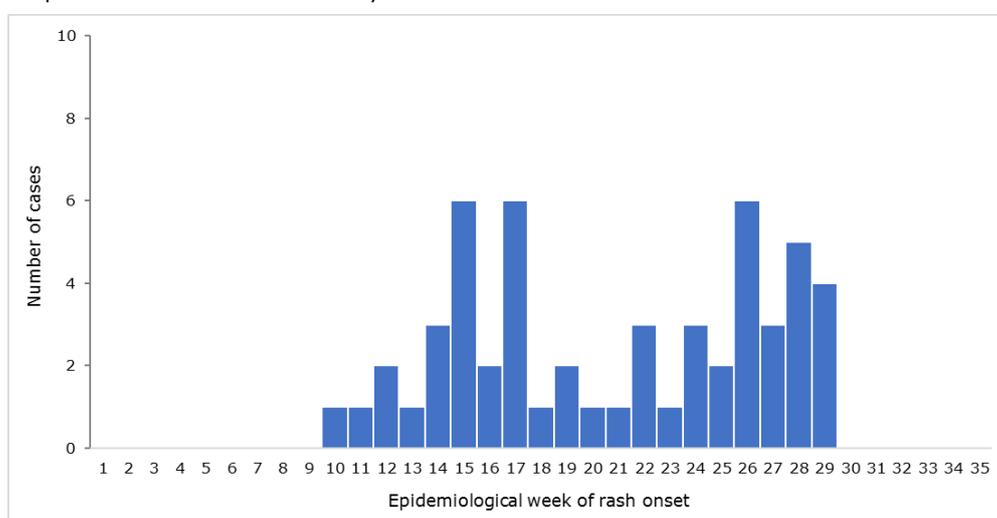
**Source:** Data published by the Brazil Ministry of Health and reproduced by PAHO/WHO.

In **Colombia**, between EW 11 and EW 31 of 2018, there were 60 confirmed measles cases reported (**Figure 4**). Ages ranged between 4-months to 35-years-old (median of 3-years-old). Seventeen of the total cases were female. Rash onset was between 8 March and 2 August of 2018. Of the 60 cases, 38 were imported from Venezuela, 20 cases were import-related, and 2 had an unknown source of infection. No deaths have been reported.

The cases were reported in the departments of: Antioquia, Arauca, Bolívar, Cauca, Cesar, La Guajira, Magdalena, Norte de Santander, Risaralda, Sucre, and the districts of Barranquilla, Bogota, Cartagena, and Santa Marta.

Laboratory testing of all cases was conducted by the National Health Institute and cases were confirmed by the detection of anti-measles IgM antibodies in serum and by reverse transcription polymerase chain reaction (RT-PCR) in pharyngeal swabs and urine samples. The genotyping from 22 cases indicated genotype D8, lineage MVi/Hulu Langat.MYS/26.11, identical to the one identified in Venezuela.

**Figure 4.** Reported measles cases by EW of rash onset. Colombia, EW 10 to EW 30 of 2018.



**Source:** Data provided by the Colombia International Health Regulations (IHR) National Focal Point (NFP) and reproduced by PAHO/WHO.

In **Ecuador**, between EW 13 and EW 27 of 2018, there were 17 confirmed measles cases reported, 9 of which were imported and 8 were import-related. The cases were reported in Quito (12 cases), Cuenca (1 case), Riobamba (1 case), and Tulcán (3 cases)<sup>1</sup>, with onset of rash between 28 March and 2 July of 2018. Six of the cases correspond to the same chain of transmission in the southern sector of the city of Quito. Of the total cases, 5 are female, ages ranged between 4-months-old and 44-years-old, and 13 of the cases are Venezuelan nationality (one is a resident of Ecuador who was exposed to the virus by relatives who recently arrived in Ecuador, and another who contracted the disease within 4 weeks of their stay in Ecuador).

Laboratory confirmation of the cases was carried out by the National Reference Laboratory (INSPI, Quito and Guayaquil) through serological tests for anti-measles IgM antibodies and molecular tests using polymerase chain reaction (PCR). Genotyping is in progress.

<sup>1</sup> Tulcán is the capital of the district of Carchi, in which 1 of the cases was reported in the 8 June 2018 PAHO/WHO Epidemiological Update on measles, available at: <https://bit.ly/2sSrHzo>

In **Peru**, between EW 8 and EW 33 of 2018, there were 4 confirmed cases of measles. Of these, 2 are cases with unconfirmed sources of infection among Peruvian residents without travel history, and 2 are imported from Venezuela.

The 4 confirmed cases are male, with ages ranging from 1 to 44-years-old and rash onset between 24 February and 13 July 2018. The isolated genotype for the first 2 cases is D8 coming from India; the genotype for the other 2 cases remains under investigation.

The third case is a male child aged 1-year-and-1-month-old, with rash onset on 27 June. The case traveled to Peru from Venezuela, via Colombia and Ecuador. On 22 June, in Ecuador, the child had received the first dose of the measles-mumps-rubella (MMR) vaccine, and subsequently arrived in Peru (Lima) on 24 June. The laboratory results of the case were positive by viral isolation and PCR by the Peru National Institute of Health.

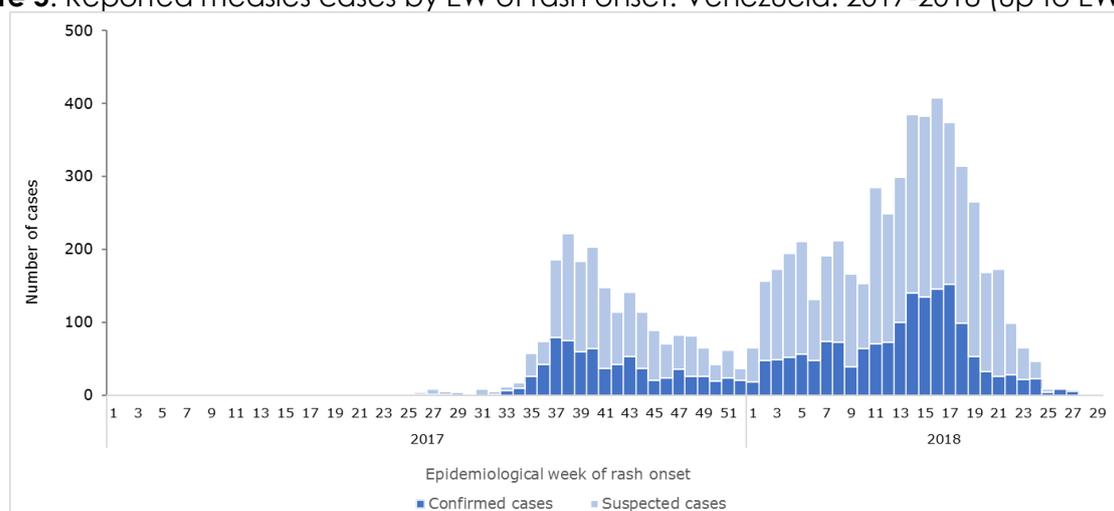
The vaccine-associated case reported in the Epidemiological Alert of 20 July 2018,<sup>2</sup> has been reclassified as confirmed case.

In the **United States of America**, reported 107 confirmed measles cases between 1 January and 14 July of 2018, in 21 states and the District of Columbia. In 2018 there have been 8 outbreaks with three or more cases. The information is updated periodically on the U.S. Centers for Disease Control and Prevention (CDC) website, available at: <https://bit.ly/2iMFK71>.

In **Venezuela**, the outbreak is ongoing with measles cases reported in all states and the Capital District. Since the confirmation of the first measles case in EW 26 of 2017 up to EW 29 of 2018, a total of 4,272 confirmed measles cases were reported, including 62 deaths; of the total laboratory-confirmed cases, 727 were in 2017 and 3,545 were in 2018 (up to EW 29 of 2018) (**Figure 5**).

The highest incidence of cases is reported in Delta Amacuro with a rate of 66.5 per 100,000 population, followed by the Capital District with 47.0 per 100,000 population, Vargas with 12.4 per 100,000 population, and Miranda 8.4 per 100,000 population. Of the 62 deaths reported, 53 are from the state of Delta Amacuro, 7 from Miranda, and 2 from the Capital District.

**Figure 5.** Reported measles cases by EW of rash onset. Venezuela. 2017-2018 (up to EW 29)



**Source:** Venezuela Ministry of Popular Power for Health data and reproduced by PAHO/WHO

<sup>2</sup> PAHO/WHO. Epidemiological Update: Measles. 20 July 2018, Washington, D.C.: PAHO/WHO; 2018. Available at: <https://bit.ly/2zY9fMf>

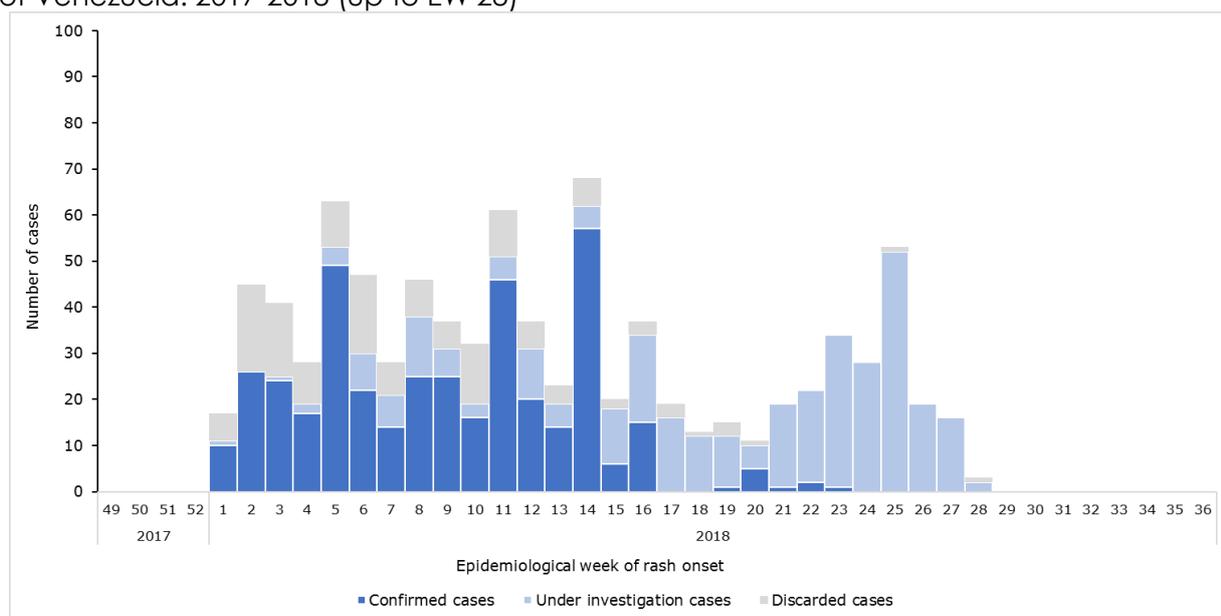
## Measles in indigenous communities

In **Brazil**, as of EW 34 of 2018, there were 156 cases reported among indigenous populations in the state of Roraima<sup>3</sup>, of which 127 were confirmed. The majority of the cases from the Auaris Indigenous Health District which borders Venezuela. In addition, the state of Amazonas reported 15 suspected cases among indigenous populations, of which 2 were discarded and 13 are under investigation.

In **Venezuela**, cases in indigenous communities have been detected since EW 1 of 2018, and as of EW 28 of 2018, there were 396 confirmed measles cases in the indigenous populations of Anzoátegui (14 cases), Apure (23 cases), Bolívar (41 cases), Delta Amacuro (271 cases, all of the Warao ethnicity), Monagas (46 cases), and Zulia (1 case). In addition, there are 334 suspected cases under investigation. The distribution of suspected and confirmed cases by rash onset date in the various indigenous groups across the 6 states of Venezuela is presented in **Figure 6**.

Furthermore, between EW 11 and EW 27 of 2018, there were 126 confirmed cases reported (by laboratory and/or epidemiological link), including 53 deaths, in the Yanomami municipality of Alto Orinoco, Amazonas State in Venezuela.

**Figure 6.** Reported measles cases by EW of rash onset in indigenous populations in 6 states<sup>4</sup> of Venezuela. 2017-2018 (up to EW 28)



**Source:** Venezuela Ministry of Popular Power for Health data and reproduced by PAHO/WHO

## Advice to national authorities

In light of continuous reports of imported measles cases from other regions and ongoing outbreaks in the Americas, the Pan American Health Organization / World Health Organization (PAHO / WHO) urges all Member States to:

<sup>3</sup> Corrigendum: This data pertains to the state of Roraima. Note that the initial publication of the English version of the 20 August 2018 Epidemiological Update on Measles incorrectly indicated the state of Amazonas instead of Roraima.

<sup>4</sup> Anzoátegui, Apure, Bolívar, Delta Amacuro, Monagas, and Zulia

- Vaccinate to **maintain homogeneous coverage of 95%** with the first and second doses of the measles, mumps, rubella (MMR) vaccine in all municipalities.
- **Vaccinate at-risk populations** (without proof of vaccination or immunity against measles and rubella), such as healthcare workers, people working in tourism and transportation (hotels and catering, airports, taxi drivers, and others) and international travelers.
- **Maintain** a reserve of measles-rubella (MR) vaccines and syringes for control of imported cases in each country of the Region.
- **Strengthen epidemiological surveillance** of measles to achieve timely detection of all suspected cases of measles in public and private healthcare facilities and ensure that samples are received by laboratories within 5 days of being taken.
- Provide a **rapid response** to imported measles cases through the activation of rapid response teams to avoid the re-establishment of endemic transmission. Once a rapid response team has been activated, continued coordination between the national and local levels must be ensured, with permanent and fluid communication channels between all levels (national, sub-national, and local).
- **Identify** migratory flows from abroad (arrival of foreign persons) and internal flows (movements of population groups) in each country, to facilitate access to vaccination services, according to the national scheme.
- Increase vaccination coverage and strengthen epidemiological surveillance in border areas, in order to increase population immunity and rapidly detect/respond to suspected measles cases.
- During outbreak, **establish adequate intra-hospital cases management** to avoid nosocomial transmission, with an adequate flow of patients to isolation rooms (avoiding contact with other patients in waiting rooms and/or hospitalization settings).

Additionally, PAHO/WHO recommends that Member States advise that all travelers aged 6-months and older who cannot show proof of vaccination or immunity, **receive the measles and rubella vaccine**, preferably the triple viral vaccine (measles, mumps and rubella - MMR), **at least two weeks before traveling to areas where measles transmission has been documented**. The recommendations of PAHO/WHO in relation to advice for travelers are available in the 27 October 2017 PAHO/ WHO Epidemiological Update on Measles.<sup>5</sup>

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<sup>5</sup> Pan American Health Organization / World Health Organization. Epidemiological Update: Measles. 27 October 2017, Washington, D.C.: PAHO/WHO; 2017. Available at: <https://bit.ly/2l3gCsi>

## Sources of Information

1. Argentina International Health Regulations (IHR) National Focal Point (NFP) Report to PAHO/WHO received by email.
2. Brazil Ministry of Health. Measles situation in Brazil – 2018. Report No. 14. Available at: <https://bit.ly/2NXyd1g>
3. Brazil International Health Regulations (IHR) National Focal Point (NFP) Report to PAHO/WHO received by email.
4. Colombia International Health Regulations (IHR) National Focal Point (NFP) Report to PAHO/WHO received by email.
5. Ecuador IHR National Focal Point (NFP) Report to PAHO/WHO received by email.
6. Peru IHR National Focal Point (NFP) Report to PAHO/WHO received by email.
7. Venezuela IHR National Focal Point (NFP) Report to PAHO/WHO received by email.

## Related links:

- PAHO/WHO. Vaccine-Preventable Diseases: <http://bit.ly/2G8pQwi>