

Situation Summary

In 2018, as of 21 September, a total of 6,629 confirmed cases of measles, including 72 deaths, have been reported in 11 countries of the Region of the Americas: Antigua and Barbuda (1 case), Argentina (11 cases), Brazil (1,735 cases, including 10 deaths), Canada (22 cases), Colombia (85 cases), Ecuador (19 cases), Guatemala (1 case), Mexico (5 cases), Peru (21 cases), the United States of America (124 cases), and the Bolivarian Republic of Venezuela (4,605 cases, including 62 deaths).

Since the 20 August 2018 Epidemiological Update on measles¹, a total of 1,625 additional confirmed measles cases were reported, including 4 deaths in 8 countries of the Region (3 cases in Argentina, 498 cases and 4 new deaths in Brazil, 3 cases in Canada, 25 cases in Colombia, 2 cases in Ecuador, 17 cases in Peru, 17 cases in the United States, and 1,060 cases in Venezuela).

In **Argentina**, between EW 11 and EW 34 of 2018, a total of 11 confirmed measles cases were reported, all among residents of the province of Buenos Aires and the city of Buenos Aires. The ages ranged between 5 months and 26 years (median of 10 months), and 6 of the cases are female. The dates of rash onset were between 11 March and 25 August 2018. All of the cases were laboratory-confirmed by IgM serology and viral genome detection using polymerase chain reaction (PCR) in urine and respiratory samples. Three cases were IgM-negative.

The first three cases were imported (2 cases) or import-related (1 case). The remaining 8 cases were related to a second importation, whose origin has not been identified, and five of these were identified as genotype D8, lineage Mvi/Hulu Langat.MYS/26.11; this genotype is the same as that identified in Venezuela and has been reported in 2018 among confirmed cases in Brazil and Colombia.

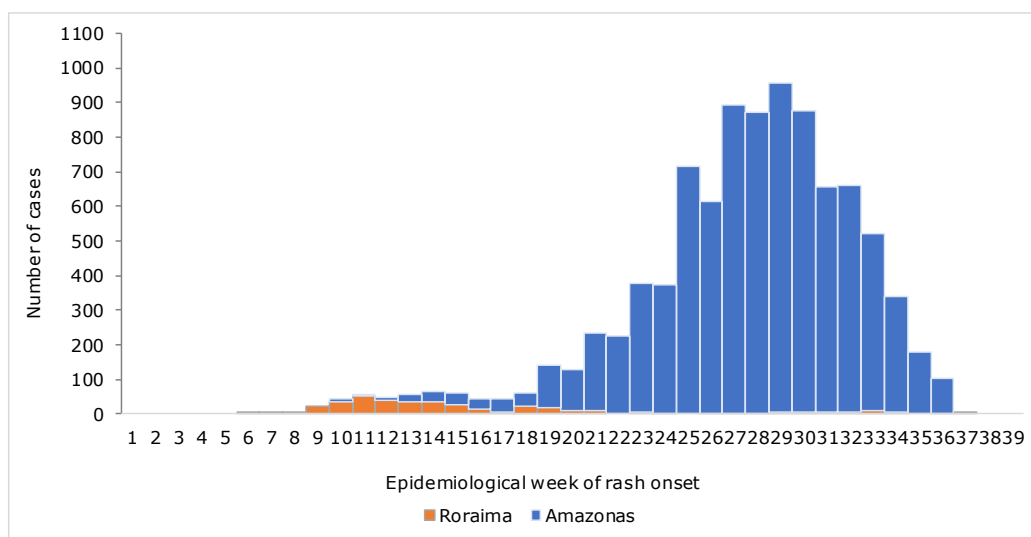
In **Brazil**, the outbreak began in EW 6 of 2018 in the state of Roraima and spread three weeks later to Amazonas (**Figure 1**). Subsequently cases were reported in Pará, Pernambuco, Rio de Janeiro, Rio Grande do Sul, Rondônia, São Paulo, and Sergipe (the states are listed in alphabetical order and not in the order of the occurrence of cases). Genotype D8, with an identical lineage to the cases reported in Venezuela (2017 and 2018), was identified in the states of Amazonas, Rio Grande do Sul, Rio de Janeiro, Rondônia, Roraima, and São Paulo.

Between EW 6 and EW 37 there were 1,735 confirmed cases, including 10 deaths, reported in the states of: Amazonas (1,358 cases, 4 deaths), Pará (13 cases, 2 deaths),

¹ PAHO/WHO. Epidemiological Update: Measles. 20 August 2018, Washington, D.C.: PAHO/WHO; 2018. Available at: <https://bit.ly/2Buqbe6>

Pernambuco (4 cases), Rio Grande do Sul (24 cases), Rio de Janeiro (18 cases), Rondônia (2 cases), Roraima (310 cases, 4 deaths), São Paulo (2 cases), and Sergipe (4 cases).

Figure 1. Reported measles cases (confirmed and under investigation) by EW of rash onset. Amazonas and Roraima states, Brazil, EW 1 to EW 36 of 2018.



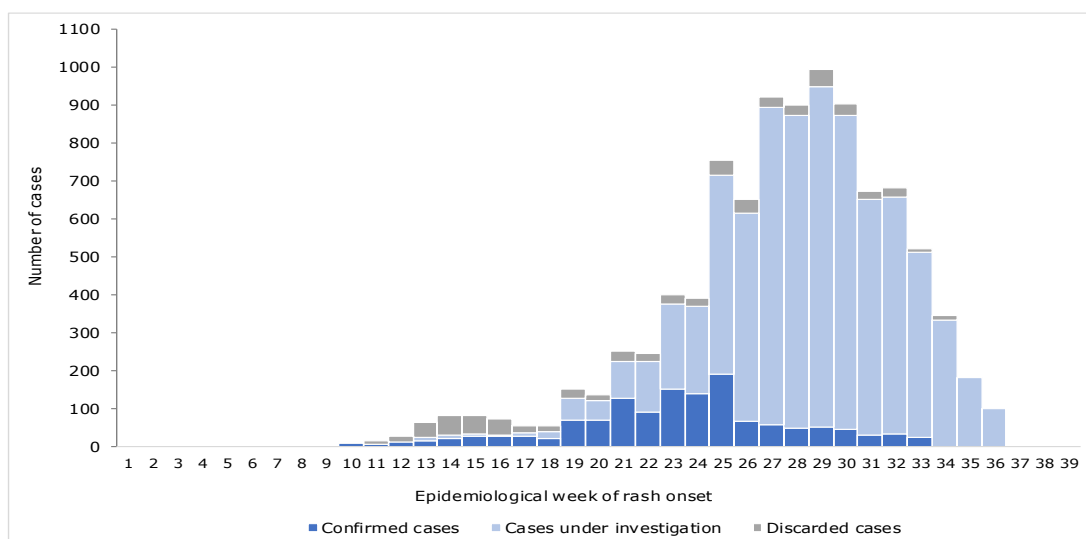
Source: Data published by the Brazil Ministry of Health and reproduced by PAHO/WHO.

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 37, 9,657 suspected cases, including 4 deaths, have been reported. Of the suspected cases, 1,358 were confirmed, 642 were discarded, and 7,657 remain under investigation. Of the 62 municipalities in the state, 14 have reported confirmed cases. However, 90% the cases are concentrated in the municipalities of Manaus and Manacapuru.

The rash onset date for the last confirmed case was in EW 33 of 2018. In the past four weeks (EW 33 to EW 36 of 2018), an average of 300 suspected cases have been reported per week. (**Figure 2**)

Figure 2. Reported measles cases by EW of rash onset. State of Amazonas, Brazil, EW 1 to EW 36 of 2018.



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

The incidence rate of confirmed cases at the state level is 37.8 per 100,000 population, with the highest incidence rate reported among children under 1-year-old (428.3 per 100,000 population), followed by children aged 1 to 4-years-old (76.1 per 100,000 population).

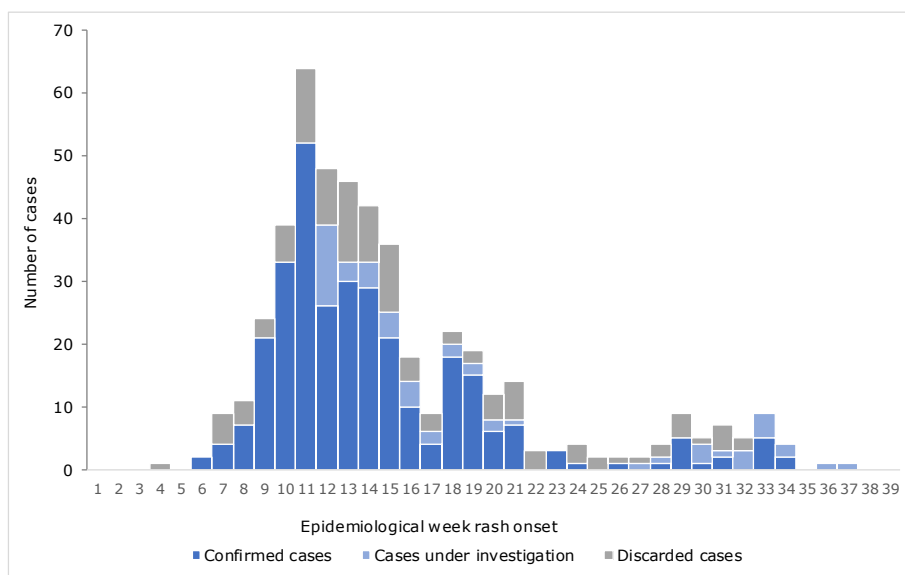
In the state of Roraima, the outbreak that started in EW 6 of 2018 is ongoing; however, there has been a decrease in the weekly number of suspected and confirmed cases since EW 19 of 2018 (**Figure 3**). As of EW 38 of 2018, 481 cases, including 4 deaths, have been reported; of these, 310 were confirmed, 117 were discarded, and 54 remain under investigation. The average number of cases reported weekly has decreased in the past 4 weeks, from an average of 41 cases per week (between EW 9 and EW 15) to 2 cases per week (between EW 34 and EW 37) (**Figure 3**).

Of the 15 municipalities in the state, 12 continue to report cases, though 86% of the total reported cases and 88% of the confirmed cases are from the municipalities of Amajari, Boa Vista, and Pacaraima.

The incidence rate of confirmed cases at the state level is 69.8 per 100,000 population, with the highest incidence rate reported among children under 1-year-old (663.6 per 100,000 population), followed by children aged 1 to 4-years-old (205.1 per 100,000 population).

The most recent confirmed case had rash onset in EW 34 and the most recent cases under investigation had rash onset in EW 37 (**Figure 3**).

Figure 3. Reported measles cases by EW of rash onset. State of Roraima, Brazil. EW 1 to EW 37 of 2018.



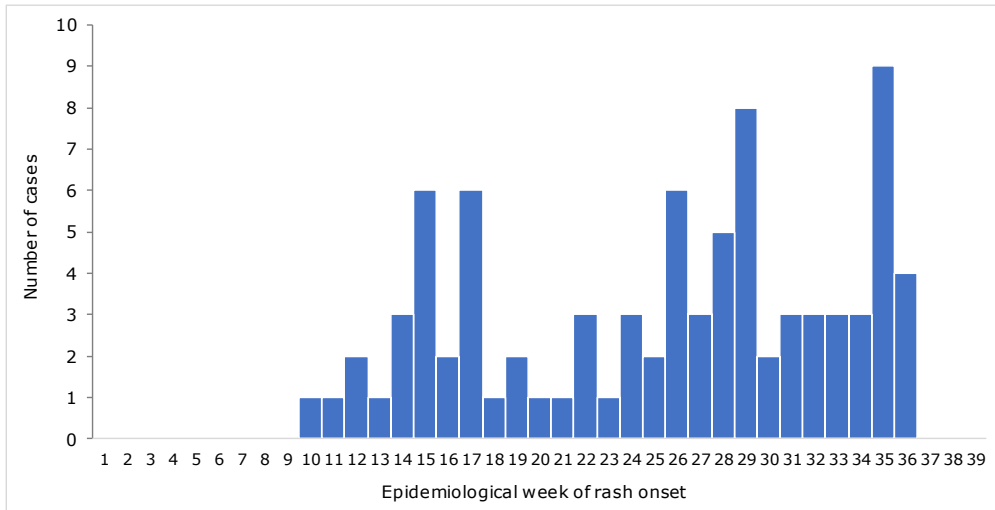
Source: Data published by the Brazil Ministry of Health and reproduced by PAHO/WHO.

In **Colombia**, between EW 11 and EW 38 of 2018, there were 85 confirmed measles cases reported (**Figure 4**). Ages ranged between 3 months and 35 years (median of 2 years), and 29 of the cases are female. Rash onset was between 8 March and 6 September of 2018. Of the 85 confirmed cases, 44 were imported, 40 cases were import-related (17 cases with secondary transmission among persons coming from Venezuela and 23 related to imported cases among Colombians), and 1 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 in the districts of Barranquilla, Bogotá, Cartagena, and Santa Marta.

Laboratory confirmation for all of the cases was conducted by the National Health Institute, and cases were confirmed through the detection of anti-measles IgM antibodies in serum and by reverse transcription PCR (RT-PCR) in pharyngeal swab and urine samples. Genotyping from 22 cases indicated genotype D8, lineage MVi/Hulu Langat.MYS/26.11, identical to that which was identified in Venezuela.

Figure 4. Confirmed cases of measles by EW of rash onset. Colombia, EW 10 to EW 36 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 33 of 2018, there were 19 confirmed measles cases reported, with ages ranging from 4 months and 44 years (median of 2 years) and 14 of the cases are male. Dates of rash onset were between 28 March and 2 July 2018. Of the total confirmed cases, 12 were imported and 7 were import-related.

The cases were reported in Quito (12 cases), Cuenca (1 case), Riobamba (1 case), and Tulcán² (5 cases). Six of the cases correspond to the same chain of transmission in the southern sector of the city of Quito.

Laboratory confirmation of the cases was carried out by the National Reference Laboratory (INSPI, Quito and Guayaquil) through serological and molecular testing. Genotyping is in progress.

In **Peru**, between EW 8 and EW 35 of 2018, there were 21 confirmed cases of measles reported, with ages ranging from 6 months to 47 years (median of 1 year) and 16 of the cases are male. Dates of rash onset were between 24 February and 29 August of 2018. Three of the cases were imported (2 from Venezuela and 1 from the Philippines), and the probable place of infection for the remaining cases is: Callao (11), Puno (2), La Libertad (1), Cusco (1), Ica (1), and Lima (2).

Laboratory confirmation for all cases was conducted at the National Reference Laboratory through serology, and 12 cases were also confirmed by RT-PCR. The genotype

² 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>

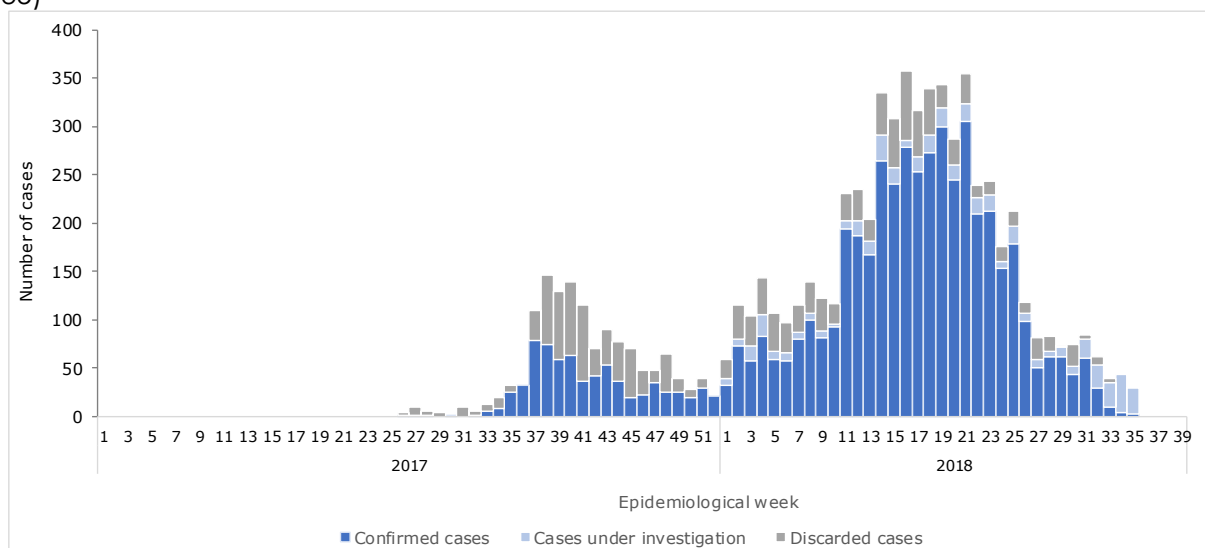
for the first 2 cases was D8 originating from India, whereas the genotype among the imported cases was D8 similar to that of which was identified in Venezuela.

In the **United States of America**, 124 confirmed measles cases were reported between 1 January and 11 August of 2018 in 22 states and the District of Columbia. 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 measles outbreak is ongoing with active transmission in all states and the Capital District. Since the confirmation of the first measles case in EW 26 of 2017 up to EW 35 of 2018, a total of 7,370 suspected cases, including 5,332 confirmed measles cases (727 in 2017 and 4,605 in 2018), have been reported (**Figure 5**). The cases were confirmed by laboratory (1,466), clinical diagnosis (1,976), and epidemiological link (1,163).

The national incidence rate is 14.5 per 100,000 population, and the states with the highest incidence rates are Delta Amacuro (208.8 per 100,000 population), the Capital District (125.0 per 100,000 population), and Amazonas (77.3 per 100,000 population). A total of 64 deaths were reported, 2 in 2017 and 62 in 2018 (34 in Delta Amacuro, 19 in Amazonas, 6 in Miranda, and 3 in the Capital District).

Figure 5. Reported measles cases by EW of rash onset. Venezuela. 2017-2018 (up to EW 35)



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

Measles in indigenous communities

In **Brazil**, in the state of Roraima, a total of 157 suspected cases have been reported among indigenous populations, of which 127 were confirmed. The majority of cases are 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 35 of 2018, there have been 486 confirmed measles cases, including 48 deaths. The cases are reported among the indigenous populations in Amazonas (161

cases, of which 135 were in Sanema, 24 in Yanomami³, and 2 in Yekuana ethnic groups), Delta Amacuro (307 cases, all in the Warao ethnic group), and Monagas (18 cases, all in the Warao ethnic group). Of the 48 deaths, 29 were in Delta Amacuro (all in the Warao ethnic group) and 19 in Amazonas (all in the Sanema ethnic group).

Advice to national authorities

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

- 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

³ According to previous data provided by national authorities, between EW 11 and EW 27 of 2018, there were 126 confirmed (by laboratory and/or epidemiological link) cases reported, including 53 deaths, in the Yanomami municipality of Alto Orinoco, Amazonas State in Venezuela.

travelers are available in the 27 October 2017 PAHO/ WHO Epidemiological Update on Measles.⁴

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. 18. 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>

⁴ 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>