

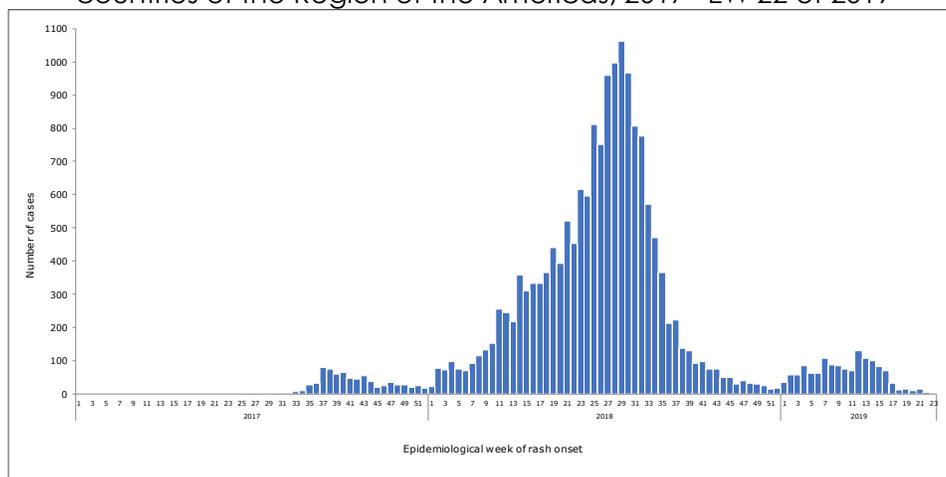
Situation Summary

Between 1 January and 18 June of 2019, a total of 1,722 cases of measles have been reported in 13 countries of the Region of the Americas: Argentina (5 cases), the Bahamas (1 case), Brazil (122 cases), Canada (65 cases), Chile (4 cases), Colombia (125 cases), Costa Rica (10 cases), Cuba (1 case), the United States of America (1,044 cases), Mexico (2 cases), Peru (2 cases), Uruguay (9 cases) and the Bolivarian Republic of Venezuela (332 cases). No fatal cases have been reported in the same period.

Since the prior PAHO/WHO Epidemiological Update on Measles published on 17 May¹, 7 countries have reported additional confirmed cases of measles: Argentina (1 case), Brazil (49 cases), Canada (20 cases), Colombia (16 cases), Cuba (1 case), the United States of America (205 cases), and the Bolivarian Republic of Venezuela (129 cases).

In 2019, three countries (Brazil, Colombia and Venezuela) continue to report cases associated with the genotype D8 lineage MVi/HuluLangat.MYS/26.11, which circulation had been detected for the first time in Venezuela in 2017. While in 2018 the highest proportion of cases in the Region of the Americas was reported in Brazil and Venezuela, in 2019, the highest proportion is observed in the United States, the Bolivarian Republic of Venezuela, Colombia and Brazil. (**Figure 1**).

Figure 1. Distribution of confirmed measles cases* by epidemiological week of rash onset in countries of the Region of the Americas, 2017 –EW 22 of 2019



* Information available on cases by epidemiological week of rash onset (1,722 cases)

Source: Data provided by the IHR National Focal Points and reproduced by PAHO/WHO.

¹ PAHO/WHO. Epidemiological Update: Measles. 17 May 2019, Washington, D.C.: PAHO/WHO; 2019. Available at: <https://bit.ly/2Flg4rv>

The following is the measles epidemiological situation for countries that have reported additional confirmed cases since the prior PAHO/WHO Epidemiological Update on Measles published on 17 May 2019.

In **Argentina**, between EW 1 and EW 22 of 2019, 5 confirmed measles cases have been reported, of which 3 were imported, one was import-related, and in one case the probable site of infection is under investigation. The information about the first four cases was published in the PAHO/WHO Epidemiological Update on Measles published on 18 April 2019.

The last confirmed import-related case had rash onset on 25 May 2019 and corresponds to a 30-year-old male, with a travel history to the state of São Paulo, Brazil, between 4 May and 9 May 2019. Additionally, during the transmissibility period, the case travelled to the city of Carmelo, Department of Colonia, Uruguay, by ship. The genotype identified for this case was D8 and the lineage identification is in process.

In **Brazil**, between EW 1 of 2018 and EW 22 of 2019, 19,612 suspected measles cases (18,428 in 2018 and 1,184 in 2019) have been reported, of which 10,448 were confirmed (10,326 in 2018 and 122 in 2019), including 12 deaths (all of them in 2018).

Since 2018 to EW 22 of 2019, the cumulative incidence rate at the national level is 5 cases per 100,000 population (4.95 cases per 100,000 population in 2018 and 0.04 cases per 100,000 population in 2019). Among confirmed cases with available information, 5,715 were female (54.8%). The highest cumulative incidence rate by age group among confirmed cases was reported among 15 to 29-year-olds in the state of Amazonas, with 4,526 cases (46%).

In 2019, 7 federal units have reported confirmed cases: Amazonas (4 cases), Minas Gerais (4 cases), Pará (52 cases), Rio de Janeiro (7 cases), Roraima (1 case), Santa Catarina (3 cases), and, São Paulo (51 cases).

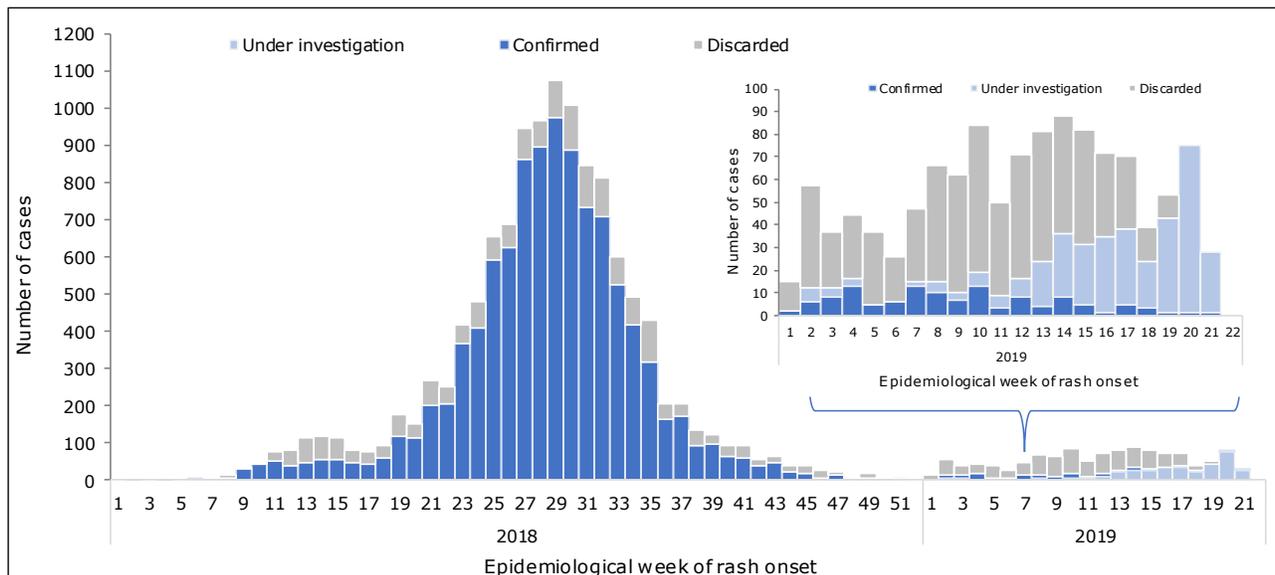
During 2018 and 2019, in the states of Amazonas, Roraima, and Pará, the genotype identified was D8, lineage MVi/HuluLangat.MYS/26.11, similar to that circulating in Venezuela and other countries in the Region. However, a different D8 genotype lineage was identified in the states of São Paulo, Santa Catarina, Rio de Janeiro, and for a recent outbreak reported on a cruise ship in Brazil, as described in the 18 April 2019 Epidemiological Update on Measles². In addition, 2 cases imported from Europe were reported in the states of São Paulo (genotype D8, lineage MVs/GirSomnath. IND/42.16) and Minas Gerais (genotype D8, lineage MVs/Frankfurt Main.DEU/17.11.).

The most recently confirmed case in Brazil had rash onset on 21 May (EW 21) 2019 and was reported in São Paulo State.

The most recent confirmed case imported from Venezuela had rash onset in EW 06 of 2019 and was reported in Roraima State.

² PAHO/WHO. Epidemiological Update: Measles. 18 April 2019, Washington, D.C.: PAHO/WHO; 2019 Available at: <https://bit.ly/2Fn8MUh>

Figure 2. Reported cases of measles by epidemiological week of rash onset. States of Amazonas, Roraima and Pará, Brazil, EW 1 of 2018 to EW 22 of 2019.



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

Amazonas: between 6 February 2018 and 5 June of 2019, 11,464 suspected cases have been reported, including 6 deaths. Of the total suspected cases, 9,807 cases were confirmed (4 cases in 2019), and 1,657 were discarded. The most recent confirmed case had rash onset on EW 5 of 2019 and the most recent case under investigation had rash onset in EW 13 of 2019.

Minas Gerais: between 1 January and 5 June of 2019, 93 suspected cases have been reported. Of these, 4 were confirmed, 82 were discarded and 7 remain under investigation. The most recent confirmed case had rash onset in EW 10 of 2019 and the most recent case under investigation in EW 17 of 2019. For 2 of the 4 confirmed cases, was identified the genotype D8, lineage MVs/Frankfurt Main.DEU/17.11.

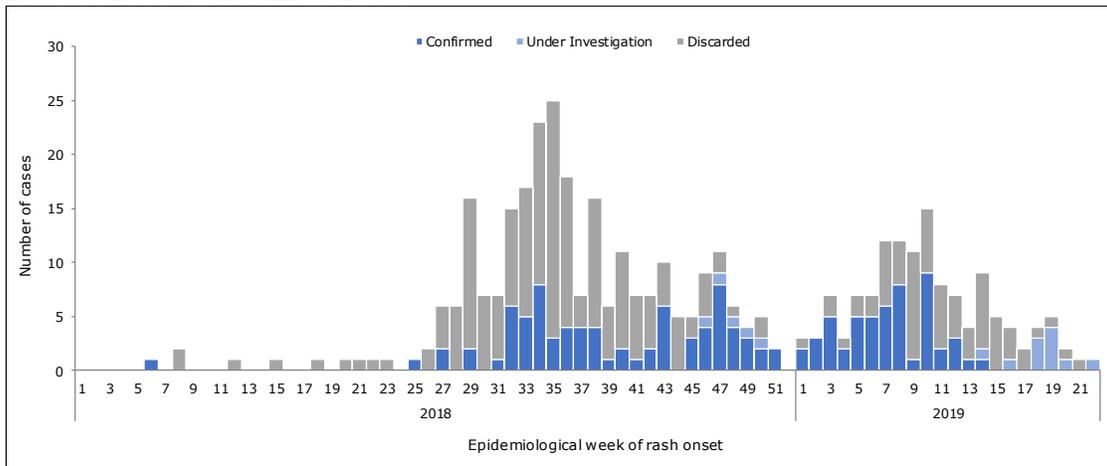
Pará: between 4 February 2018 and 5 June of 2019, 407 suspected cases have been reported, 135 of which were confirmed (83³ with rash onset in 2018 and 52 in 2019), 261 cases were discarded and 11 remain under investigation. No deaths have been reported in 2019. The most recent confirmed case had rash onset in EW 14 and the most recent cases under investigation in EW 22 of 2019.

Among cases with available information, 30% (120) of suspected cases and 32% (42) of confirmed cases have been reported by the municipality of Santarém. The cumulative incidence rate in the state is 1.55 cases per 100,000 population.

The highest cumulative incidence rate for confirmed cases by age group is among children under 1-year-old (6.5 cases per 100,000 population) followed by 1 to 4-year-olds (1.7 cases per 100,000 population), 15 to 19-year-olds (1.5 cases per 100,000 population), 20 to 29-year-olds (0.6 cases per 100,000 population) and 5 to 9-year-olds (0.5 cases per 100,000 population).

³ According to previous data provided by the national authorities of the Brazil Ministry of Health, the PAHO/WHO Epidemiological Update published on 17 May 2019 reported 104 cases with rash onset in 2018 in Pará State.

Figure 3. Reported cases of measles by epidemiological week of rash onset. State of Pará, Brazil, EW 1 of 2018 to EW 22 of 2019.



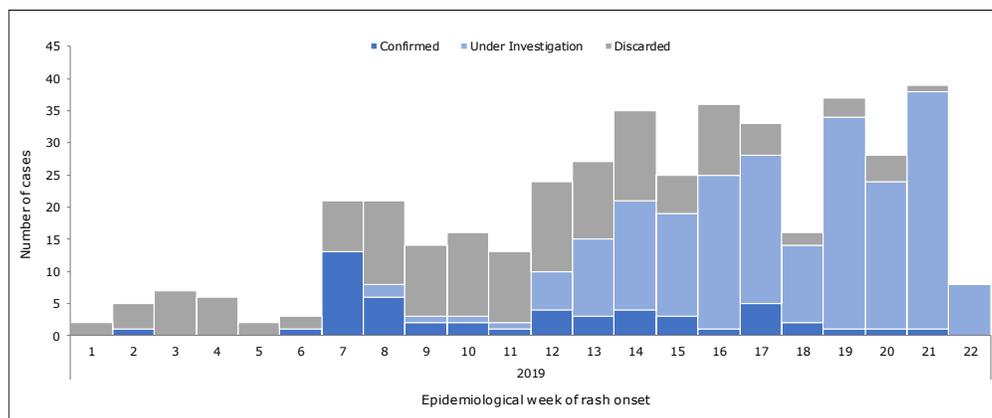
Source: Data published by the Brazilian Ministry of Health and reproduced by PAHO/WHO.

Rio de Janeiro: between 1 January and 5 June of 2019, 36 suspected cases have been reported, of these, 7 were confirmed, 15 discarded, and 14 remain under investigation. The most recent confirmed case had rash onset in EW 19 of 2019, and the most recent cases under investigation in EW 20 of 2019.

Roraima: between 4 February 2018 and 5 June of 2019, 610 suspected cases have been reported, including 4 deaths. Of the total suspected cases, 362 were confirmed (1 case in 2019), 245 were discarded, and 3 remain under investigation. The most recent confirmed case had rash onset on 6 February 2019 (EW 6) and the most recent case under investigation in EW 20 of 2019.

São Paulo: between 1 January and 5 June of 2019, 418 suspected cases have been reported, of these, 51 were confirmed, 151 were discarded, and 216 remain under investigation. The most recent confirmed case had rash onset in EW 21 of 2019 and the most recent cases under investigation in EW 22 of 2019. For one chain of transmission, was identified the genotype D8, lineage MVs/Gir Somnath. IND/42.16.

Figure 4. Reported cases of measles by epidemiological week of rash onset. State of São Paulo, Brazil, EW 1 of 2018 to EW 22 of 2019.

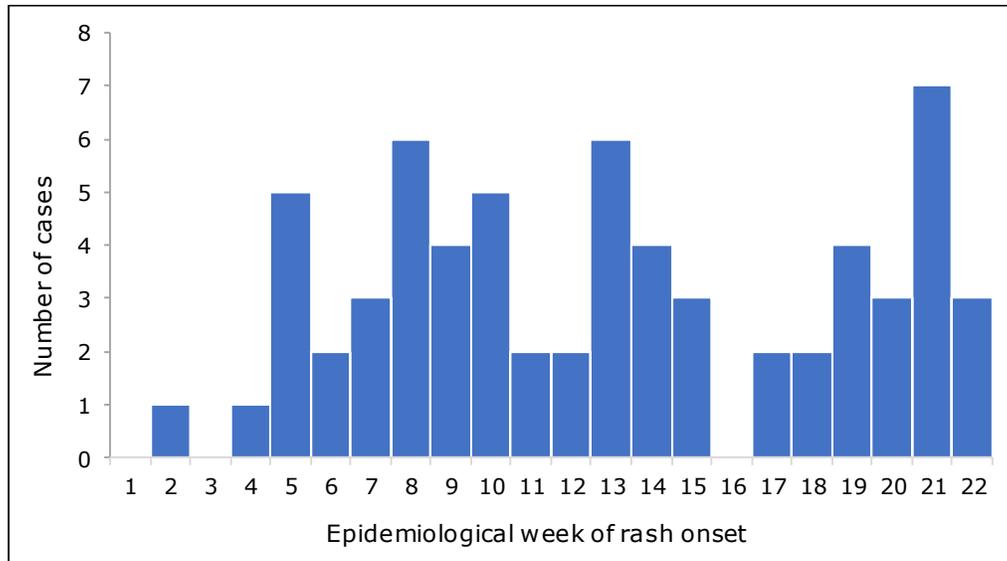


Source: Data published by the Brazilian Ministry of Health and reproduced by PAHO/WHO.

In **Canada**, between EW 1 and EW 22 of 2019, there were 65 confirmed measles cases reported in the provinces of Quebec, British Columbia, Ontario, Alberta, New Brunswick and the Northwest Territories. For 51 of the 65 confirmed cases, the genotype was identified, corresponding to B3 (15 cases) and D8 (36 cases).

Information is updated periodically by the Public Health Agency of Canada, available at: <https://bit.ly/2KRkSIS>

Figure 5. Confirmed measles cases by epidemiological week of rash onset. Canada. EW 1 to EW 22 of 2019.



Source: Data published by the Public Health Agency of Canada and reproduced by PAHO/WHO.

In **Colombia**, between EW 10 of 2018 and EW 22 of 2019, there were 9,507 suspected measles cases reported (7,020 in 2018 and 2,487 in 2019), of which 333 were confirmed (208⁴ with rash onset date in 2018 and 125 in 2019), no deaths have been reported. Genotyping performed on samples for 87 cases indicated genotype D8, lineage MVi/HuluLangat.MYS/26.11, similar to that circulating in Venezuela and other countries in the Region.

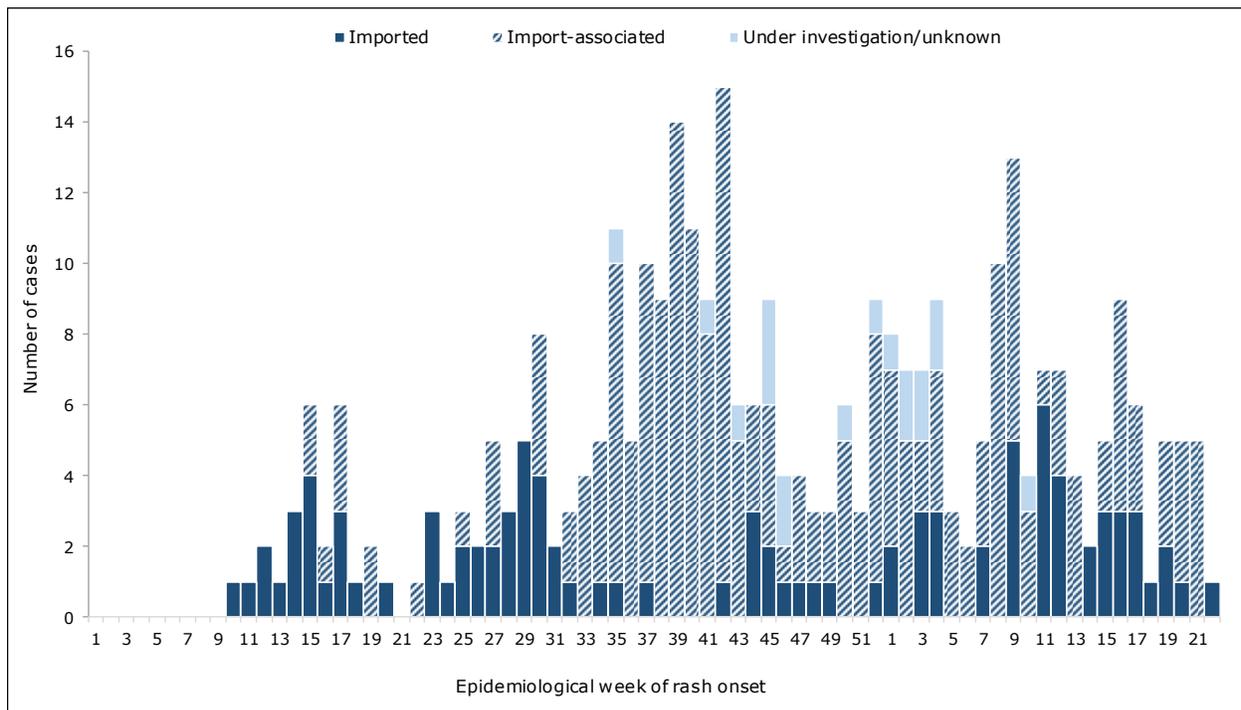
In 2019, confirmed cases have been reported in the departments of Atlántico, César, Córdoba, Cundinamarca, La Guajira, Norte de Santander, and the Districts of Barranquilla and Bogotá.

In the last four weeks (EW 19 – EW 22) 15 cases were confirmed in the Department of La Guajira (3 imported from Venezuela and 12 import-related cases), and one case has been reported by the District of Bogotá in the epidemiological week 19, imported from Europe.

The most recent confirmed imported case had rash onset on 26 May 2019, and the most recent suspected case under investigation had rash onset on 13 June 2019.

⁴ According to previous data provided by the national authorities of the Colombia Ministry of Health, the PAHO/WHO Epidemiological Update published on 17 May 2019 reported 209 cases with rash onset in 2018, one case was reclassified.

Figure 6. Confirmed measles cases by EW of rash onset. Colombia, EW 10 of 2018 to EW 22 of 2019.



Source: Data provided by the Colombia International Health Regulations National Focal Point and reproduced by PAHO/WHO.

Cuba has reported one imported measles case confirmed by laboratory. The case is a 31-year-old female, resident of Australia, with a travel history to the city of Bogotá and the Island of San Andrés, Colombia. The case had no history of vaccination and rash onset was on 20 May 2019. The genotype identified in this case was D8.

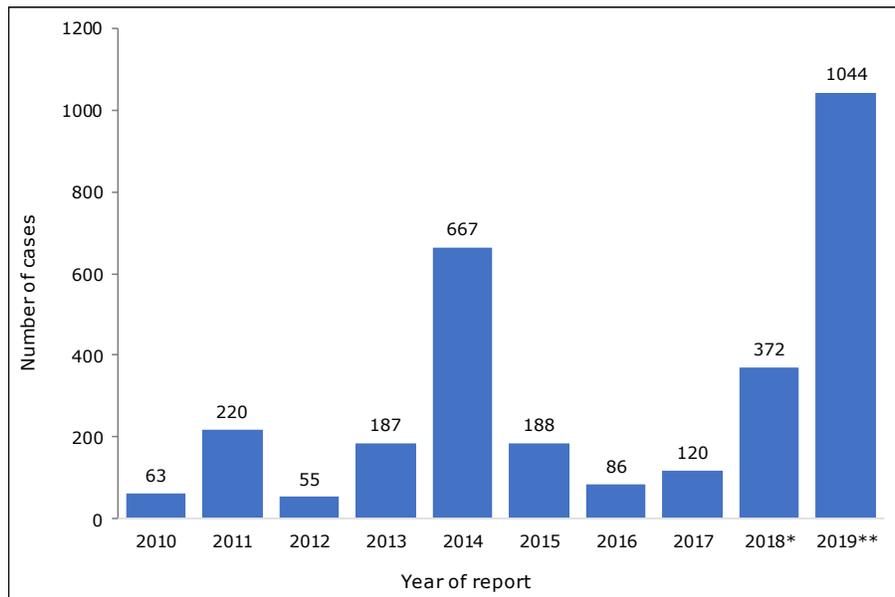
In the **United States**, between 1 January and 13 June 2019, 1,044⁵ measles cases have been confirmed in 28 states: Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois, Indiana, Idaho, Iowa, Kentucky, Maine, Maryland, Massachusetts, Michigan, Missouri, New Mexico, Nevada, New Hampshire, New Jersey, New York, Oklahoma, Oregon, Pennsylvania, Tennessee, Texas, Virginia, and Washington.

Currently, measles outbreaks are ongoing⁶ in 4 states: California (Butte County), New York (New York City and Rockland County), Pennsylvania, and Washington. These outbreaks are related with travelers with a travel history to other countries, including Israel, Ukraine and the Philippines. The majority of cases were unvaccinated.

⁵ Preliminary number of cases as of 10 May 2019. Subject to change.

⁶ Defined as 3 or more related cases.

Figure 7. Reported measles cases by year of report. United States, 2010-2019 (until 13 June).



*Cases until 29 December 2018. Case count is preliminary and subject to change.
 **Cases as of 13 June 2019. Case count is preliminary and subject to change.
 Data are updated every week.

Source: Data published by the United States Centers for Disease Control and Prevention and reproduced by PAHO/WHO.

Information is regularly updated in the Centers for Disease Control and Prevention (CDC) website, available at: <https://bit.ly/2iMFK71>.

In **Venezuela**, the outbreak that began in 2017 remains ongoing. Between EW 26 of 2017 and EW 23 of 2019, 9,923 suspected cases (1,307 in 2017; 7,790 in 2018 and 826 in 2019), including 6,729 confirmed measles cases (727 in 2017, 5,670 in 2018 and 332 in 2019). According to recent information, the cases reported in 2018 were confirmed according by laboratory (2,201), clinical diagnosis (2,662) and epidemiological link (807). In 2019, cases were confirmed by laboratory (162), clinical diagnosis (119) and epidemiological link (52). There have been 79 deaths reported, 2 in 2017 (in Bolívar) and 77 in 2018 (37 in Delta Amacuro, 27 in Amazonas, 9 in Miranda, 3 in Capital District, and 1 in Bolívar)⁷.

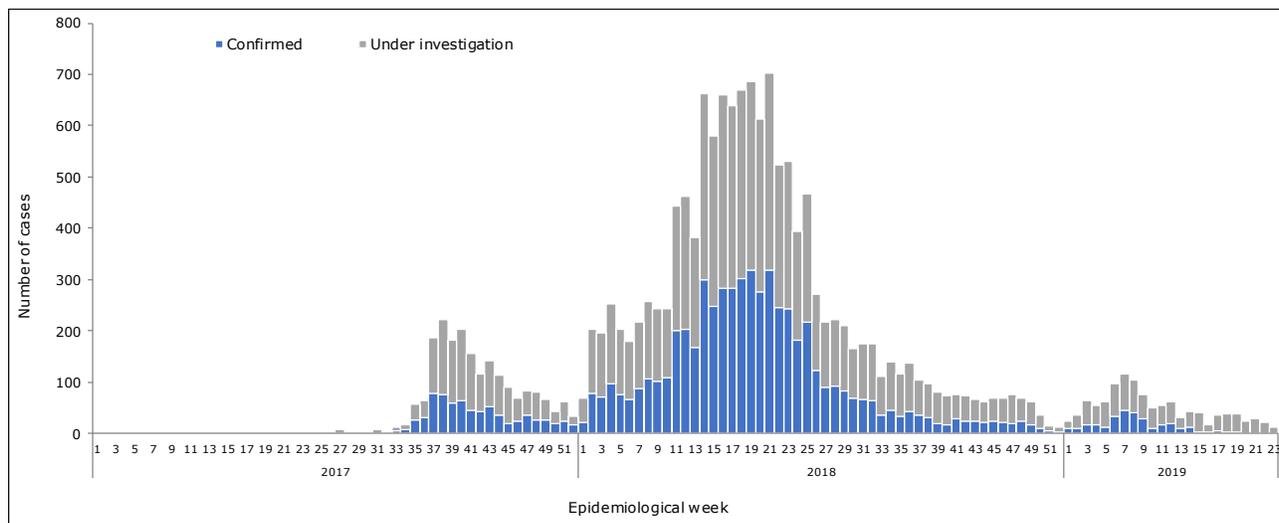
The most recent laboratory-confirmed case had rash onset on 11 May 2019, from the Mara Municipality, Parroquia La Sierrita, State of Zulia.

The average incidence rate in the country during 2017-2019 is 21 cases per 100,000 population and the highest incidence rates are reported in Delta Amacuro (214 cases per 100,000 population), Capital District (127 cases per 100,000 population), Amazonas (78 cases per 100,000 population), Vargas (46 cases per 100,000 population), Bolívar (55 cases per 100,000 population), and Miranda (38 cases per 100,000 population).

⁷ Note: The data in this analysis reflects the current case numbers; however, there may be some delays in the reporting and completeness of the information. The data is also subject to change as the information for each case is updated and validated.

Confirmed cases with dates of onset of rash between EW 1 and EW 23 of 2019 were reported from Anzoátegui (147), Zulia (143), Carabobo (16), Monagas (7), Capital District (7), Miranda (3), Cojedes (2), Sucre (2), Yaracuy (2), Amazonas (1), Aragua (1) and Bolívar (1).

Figure 8. Reported measles cases, by epidemiological week of rash onset. Venezuela, 2017-2019 (until EW 23).



Source: Data from the Ministry of People's Power for Health of Venezuela and reproduced by PAHO/WHO.

Measles in indigenous communities

In **Brazil**, a total of 183 suspected cases have been reported among indigenous populations, of which 145 were confirmed in Roraima State and 2 (both fatal) in Pará State. The majority of confirmed cases in Roraima State are from the Auaris Indigenous Health District, which borders Venezuela.

In **Venezuela**, between EW 1 and EW 52 of 2018, there were 513 confirmed measles cases among indigenous populations in Amazonas⁸ (149 cases, of which 132 were in the Sanema, 16 in Yanomami⁹, and 1 in Baniva ethnic groups); Bolivar (1 case in the Pemón ethnic group), the Capital District (1 case in the Wayú ethnic group), Delta Amacuro (331 cases, all in the Warao ethnic group); Monagas (22 cases, of which 20 were in Warao, 1 in Shaima, and 1 in Eñepa ethnic groups); and Zulia (9 cases in the Wayú ethnic group). Additionally, 62 deaths were reported, of which 35 were in Delta Amacuro (all in the Warao ethnic group) and 27 were in Amazonas (26 in Sanema and 1 in Yanomami ethnic groups).

⁸ The difference with respect to that reported in previous Epidemiological Updates is due to the retrospective adjustments made by the national authorities based on the review, consolidation, and investigation of cases in indigenous populations.

⁹ According to previous data provided by national authorities, between EW 11 and EW 27 of 2018, there were 126 confirmed cases, including 53 deaths, in the Yanomami Municipality of Alto Orinoco, Amazonas State in Venezuela.

Advice to national authorities

Given the continued imported cases of measles from other regions and the ongoing outbreaks in countries of the Region of the Americas, the Pan American Health Organization / World Health Organization (PAHO/WHO) reinforces the recommendations made on February 2015 to all Member States to:

- Vaccinate to **maintain homogenous coverage of 95%** with the first and second doses of the measles, mumps and rubella (MMR)vaccine in all municipalities.
- **Vaccinate at-risk populations** (without proof of vaccination or immunity against measles and rubella), such as healthcare workers, persons working in tourism and transportation (hotels, airports, border crossings, mass urban transportation, and others), and international travelers.
- **Maintain a stock of the** measles-rubella (MR) and/or measles-mumps-rubella (MMR), **vaccines and syringes/supplies** for prevention and control actions of imported cases in each country of the Region.
- **Identify migratory flows**, either external (arrival of foreigners or people from the same country who perform temporary activities in countries with ongoing outbreaks) or internal (displaced populations) within each country, including indigenous populations and other vulnerable populations, to facilitate the access to vaccination services according to the national scheme.
- Implement a **plan to immunize migrant populations** in high traffic border areas, prioritizing those considered at-risk, including both migrants and local residents, in these municipalities.
- **Increase vaccination coverage** in order to increase population immunity.
- **Strengthen epidemiological surveillance** of measles to achieve timely detection of all suspected cases in public, private and social security healthcare facilities for risk containment through timely public health actions and ensure that samples are received by laboratories within 5 days of collection and that laboratory results are available in a timely manner.
- Strengthen **epidemiological surveillance in border areas** to rapidly detect and respond to highly suspected cases of measles.
- Provide a **rapid response** to imported measles cases to avoid the re-establishment of endemic transmission, through the activation of rapid response teams trained for this purpose and by implementing national rapid response protocols when there are imported cases. 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).
- During outbreaks, **establish adequate hospital case management to avoid nosocomial transmission**, with appropriate referral of patients to isolation rooms (for any level of care) and avoiding contact with other patients in waiting rooms and/or other hospital rooms.

Additionally, PAHO/WHO recommends that Member States should advise all travelers aged 6 months¹⁰ and older who cannot show proof of vaccination or immunity, **receive the measles and rubella vaccine**, preferably the triple viral vaccine (MMR), **at least two weeks prior travelling 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 Measles¹¹.

¹⁰ The dose of the MMR or MR vaccine given to children aged 6 to 11 months does not replace the first dose of the recommended schedule at 12 months of age.

¹¹ Information available in the Epidemiological Update on Measles of 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 Points (NFP) Report to PAHO/WHO received by email.
2. **Brazil** International Health Regulations (IHR) National Focal Points (NFP) Report to PAHO/WHO received by email.
3. **Canada.** Public Health Agency of Canada. Measles & Rubella Weekly Monitoring Report. Week 21 of 2019 (19 to 1 June 2019). Available at: <https://bit.ly/2lj4r5f>
4. **Colombia.** International Health Regulations (IHR) National Focal Points (NFP) Report to PAHO/WHO received by email.
5. **Cuba** International Health Regulations (IHR) National Focal Points (NFP) Report to PAHO/WHO received by email.
6. **United States** Centers for Disease Control and Prevention. Measles, cases and outbreaks. Available at: <https://bit.ly/2iMFK71>
7. **Venezuela** International Health Regulations (IHR) National Focal Points (NFP) Report to PAHO/WHO received by email.

Related link:

- PAHO/WHO – Vaccine-Preventable Diseases. Available at: <https://bit.ly/2Ksx97m>