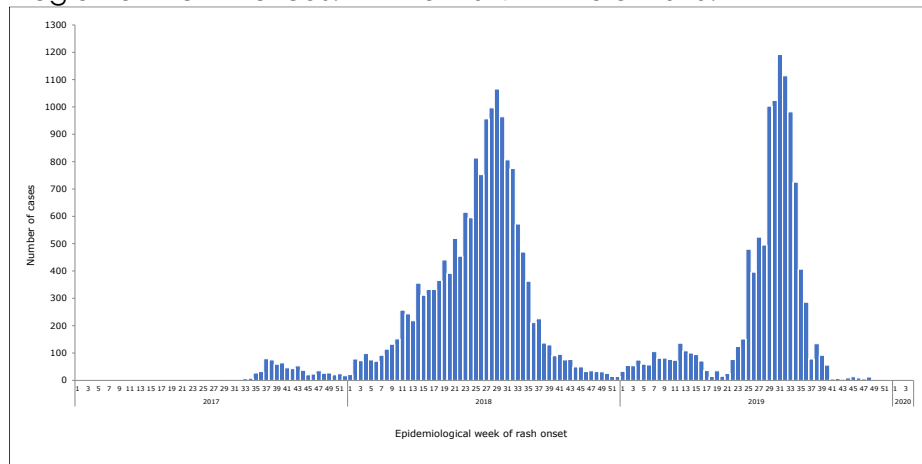


Situation Summary

Between 1 January 2019 and 24 January 2020, a total of 20,430 confirmed cases of measles, including 19 deaths, have been reported in 14 countries and territories of the Region of the Americas¹: Argentina (114 cases), the Bahamas (3 cases), Brazil (18,073 cases, including 15 deaths), Canada (113 cases), Chile (12 cases), Colombia (242 cases, including 1 death), Costa Rica (10 cases), Cuba (1 case), Curaçao (1 case), Mexico (20 cases), Peru (2 cases), the United States of America (1,282 cases), Uruguay (9 cases), and the Bolivarian Republic of Venezuela (548 cases, including 3 deaths) (**Figure 1**). Brazil accounts for 88% of the total confirmed cases reported in the Americas.

Since the PAHO/WHO Epidemiological Update on Measles published on 13 December 2019² and until 24 January 2020, there has been a 29% increase in the total number of confirmed cases of measles reported, with 5 countries reporting additional confirmed cases: Argentina (29 cases), Brazil (3,669 cases), Chile (1 case), Colombia (12 cases), and the United States (6 cases); Argentina and Chile have reported confirmed cases in 2020.

Figure 1. Distribution of confirmed measles cases* by epidemiological week (EW) of rash onset in the Region of the Americas. EW 1 of 2017–EW 3 of 2020.



*Confirmed cases with information available. 2017–EW 3 of 2020 (36,750 cases).

Source: Data provided by the International Health Regulations National Focal Points or published on the websites of Ministries of Health or Health Agencies and reproduced by PAHO/WHO.

¹ The number of cases reported by each country may differ from prior Epidemiological Updates published due to the continuous review and data adjustment process carried out by each country.

² PAHO/WHO. Epidemiological Update: Measles. 13 December 2019, Washington, D.C.: PAHO/WHO; 2019. Available at: <https://bit.ly/2Eem1pc>

Suggested citation: Pan American Health Organization / World Health Organization. Epidemiological Update: Measles. 24 January 2020, Washington, D.C.: PAHO/WHO; 2020

The following is a summary of the epidemiological situation of measles for countries/territories that have updated their confirmed cases since the 13 December 2019² PAHO/WHO Epidemiological Update on Measles.

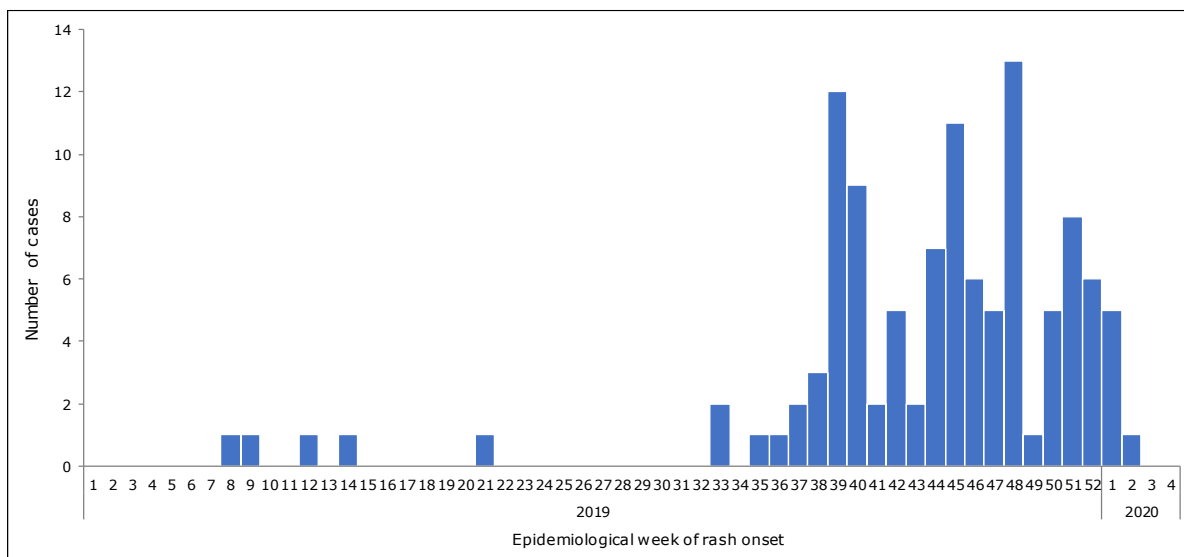
In **Argentina**, between epidemiological week (EW) 1 of 2019 and EW 2 of 2020, a total of 114 confirmed cases of measles were reported, of which 112 were detected in Argentina and 2 in Spain³. Of the 112 cases detected in Argentina, 7 were imported or import-related and 105 have no travel history or epidemiological link with imported cases. Of these cases with no travel history or epidemiological link with imported cases, 21 are residents of the city of Buenos Aires and 84 are residents of Buenos Aires Province.

Among the 105 confirmed cases detected in Argentina, 19 (18%) were vaccinated (8 with two or more doses, 10 with one dose, and 1 with a zero dose) and 57 (54%) were unvaccinated (13 cases were not vaccinated due to their age, 13 cases were 6 to 11 months old without the indicated zero dose, and 31 children and adults were unvaccinated despite the indicated vaccine schedule); the remaining 29 cases (28%) had no information regarding vaccination status.

The three age groups with the highest incidence rates are all among children aged less than 5 years: among under 1-year-olds (3.78 cases per 100,000 population); 1-year-olds (1.2 cases per 100,000 population); and 2 to 4-year-olds (0.58 cases per 100,000 population).

Genotype D8, lineage MVs/Gir Somnath.IND/42.16, has been identified in this outbreak. Onset of rash for the most recent confirmed case was 7 January 2020.

Figure 2. Confirmed measles cases by epidemiological week (EW) of rash onset. Argentina. EW 1 of 2019 to EW 2 of 2020.



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

³ Two cases were confirmed in Spain and had travel history to Buenos Aires during the period of exposure.

In **Brazil**⁴, between EW 1 of 2019 and EW 50 of 2019, a total of 64,190 suspected cases of measles have been reported, of which 18,073⁵ have been confirmed, including 15 deaths, 35,262 were discarded, and 10,855 remain under investigation (**Figure 3**). The cumulative incidence rate is 9.3 cases per 100,000 population.

From 2018 until the beginning of 2019, the predominant circulating genotype was D8, lineage MVi/HuluLangat.MYS/26.11, due to the outbreak that began in Roraima related to the Venezuelan population migration. However, since the occurrence of an outbreak on a cruise ship in São Paulo State (EW 8 of 2019), the circulation of three different lineages of genotype D8 have been detected: MVs/FrankfurtMain.DEU/17.11, MVi/Delhi.IND/01.14/06, and MVs/Gir Somnath.IND/42.16.

Until EW 50 of 2019, 23 federal units have had active outbreaks: Alagoas, Amapá, Amazonas, Bahía, Ceará, Espírito Santo, the Federal District, Goiás, Maranhão, Mato Grosso do Sul, Minas Gerais, Pará, Paraíba, Paraná, Pernambuco, Piauí, Rio de Janeiro, Rio Grande do Norte, Rio Grande do Sul, Roraima, Santa Catarina, São Paulo, and Sergipe.

The federal units with the most recently reported confirmed measles cases (between EW 39 and EW 50 of 2019) are provided in **Table 1**.

Table 1. Federal units reporting confirmed cases between EW 39 and EW 50 of 2019 in Brazil.

Federal Unit	Confirmed cases between EW 39 - 50 of 2019	Incidence rate* per 100,000 population	EW of rash onset of the last confirmed case reported
Rio de Janeiro	195	1.86	50
Pernambuco	38	1.12	50
Paraná	463	10.08	49
Santa Catarina	157	6.44	49
Pará	41	1.62	49
Sergipe	3	0.48	49
Bahía	33	0.63	49
São Paulo	1,667	5.55	48
Rio Grande do Sul	33	1.39	46
Minas Gerais	44	0.75	48
Alagoas	22	0.93	44
Paraíba	11	0.73	42
Maranhão	2	3.96	40
Federal District	1	0.04	39

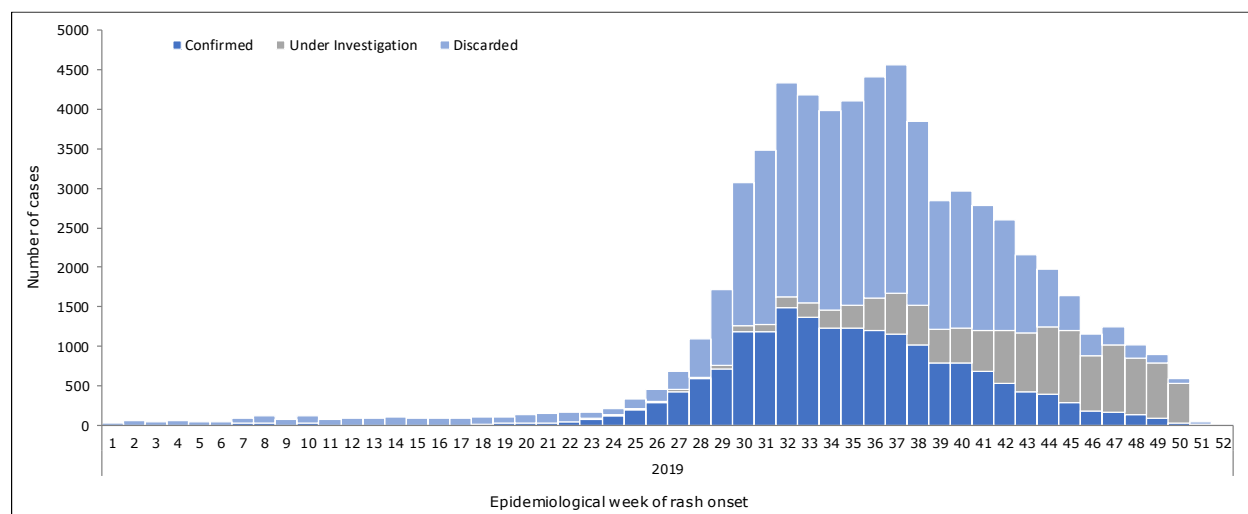
*The incidence rates were calculated considering the population of the municipalities of residence of the confirmed cases.

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

⁴ The data provided in this PAHO/WHO Epidemiological Update may differ from previous PAHO/WHO Epidemiological Updates, due to adjustments made by the national authorities of the Brazil Ministry of Health.

⁵ Of the 18,073 confirmed cases, 13,707 were confirmed by laboratory criteria and 4,366 were confirmed by clinical-epidemiological criteria.

Figure 3. Reported cases of measles by epidemiological week (EW) of rash onset. Brazil. EW 1 to EW 50 of 2019.



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

The highest incidence rate for confirmed cases by age group is among children aged less than 1-year-old, which is 5 times higher than the incidence rate for 1 to 4-year-olds and 37 times higher than the incidence rate for 5 to 9-year-olds (**Table 2**).

Table 2. Confirmed measles cases and deaths, age-specific incidence rates, and proportion of cases by age group. Brazil. EW 1 to EW 50 of 2019.

Age group	Number of cases	Number of deaths	Incidence rate* per 100,000 population	Proportion (%) of cases
< 1 year	3,191	6	107.6	18.6
1 to 4 years	2,454	2	20.7	14.3
5 to 9 years	429	0	2.9	2.5
10 to 14 years	292	0	1.9	1.7
15 to 19 years	2,025	0	12.6	11.8
20 to 29 years	5,353	2	15.6	31.2
≥30 years	3,397	5	2.9	19.8
Total	17,158	15	8.1	100.0

*The incidence rates were calculated considering the population of the municipalities of residence of the confirmed cases.

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

In **Chile**, between EW 1 of 2019 and EW 3 of 2020, a total of 12 confirmed measles cases have been reported (11 in 2019 and 1 in 2020).

Of the 11 confirmed cases in 2019, 5 were imported and 6 were import-related; 4 were vaccinated, 3 were unvaccinated, and 4 had no proof of vaccination history. Genotype D8 was identified.

The confirmed case reported in 2020 is an imported case from Brazil. The case is a 22-year-old female Brazilian national with a history of receiving two doses of the measles, mumps, rubella (MMR) vaccine. Symptom onset was on 14 January 2020. A total of 180 contacts have been identified and are under follow up. Genotype D8 was identified and the lineage is pending.

In **Colombia**⁶, between EW 10 of 2018 and EW 52 of 2019, a total of 11,598 suspected cases of measles were reported (7,185 in 2018 and 4,413 in 2019), of which 450 were confirmed (208 with rash onset in 2018 and 242 in 2019), including one death (**Figure 4**). A total of 65⁷ transmission chains have been identified for 346 confirmed cases, while 104 isolated cases did not generate secondary cases.

Genotyping performed on samples for 119 cases identified genotype D8, of which 91 were lineage Mvi/Hulu Langat.MYS/26.11⁸ and 2 were lineage MVs/Gir Somnath.IND/42.16⁹.

The highest incidence rate among the Colombian population is among children aged less than 1 year, which was 5.9 cases per 100,000 population in 2018 and 5.0 cases per 100,000 population in 2019.

As of EW 52 of 2019, the departments of Atlántico, César, Córdoba, Cundinamarca, La Guajira, Norte de Santander, and Sucre, and the districts of Barranquilla, Bogotá, and Cartagena have reported 242 confirmed cases.

Between EW 47 and EW 52 of 2019, a total of 12 confirmed cases were reported, including 11 import-related cases in César and one case reported in Norte de Santander for which the source of infection remains under investigation.

The most recent confirmed case (imported) had rash onset in EW 42 of 2019 (17 October), and the most recent suspected case had rash onset in EW 52 of 2019 (28 December).

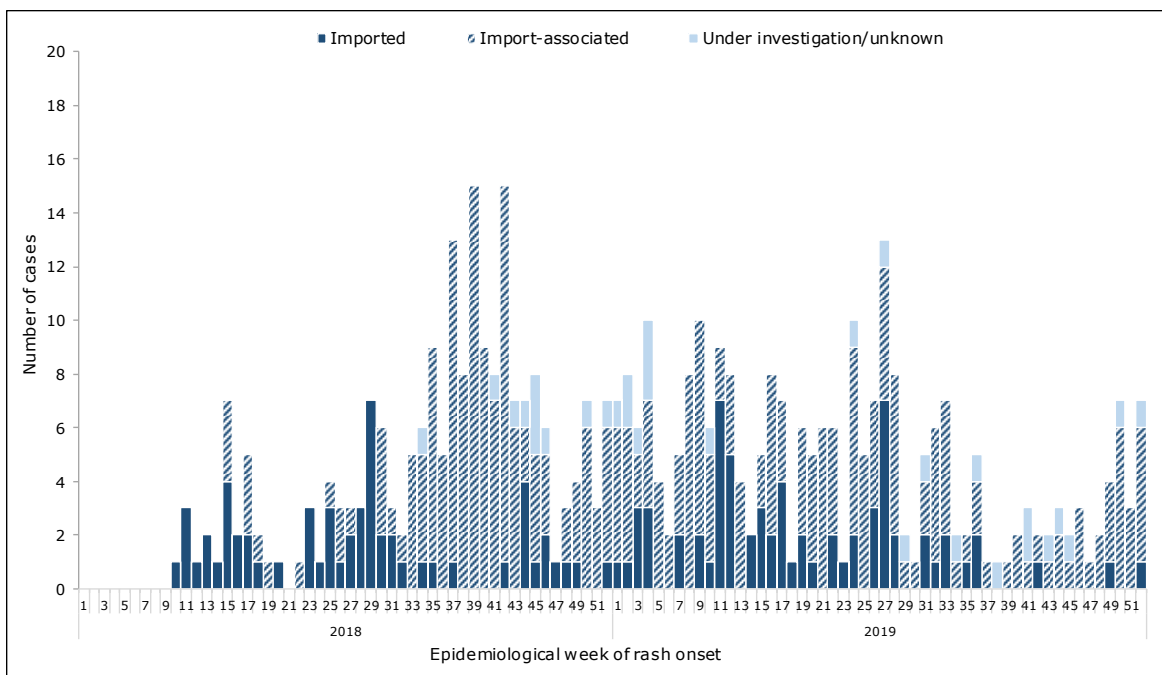
⁶ The data provided in this PAHO/WHO Epidemiological Update may differ from previous PAHO/WHO Epidemiological Updates, due to adjustments made by the national authorities of the Colombia Ministry of Health.

⁷ An epidemiological link was established between two previously reported chains of transmission; thus, the transmission chains were regrouped, and the number changed from 66 to 65.

⁸ For genotype D8, lineage Mvi/Hulu Langat.MYS/26.11, 43 are cases imported from Venezuela, 43 are import-related cases, 4 cases are with the source of infection under investigation, and one case is with an unknown source of infection.

⁹ For genotype D8, lineage MVs/Gir Somnath.IND/42.16, one case is imported from Europe and one case is imported from São Paulo, Brazil.

Figure 4. Confirmed cases of measles by epidemiological week (EW) of rash onset. Colombia. EW 1 of 2018 to EW 52 of 2019.



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

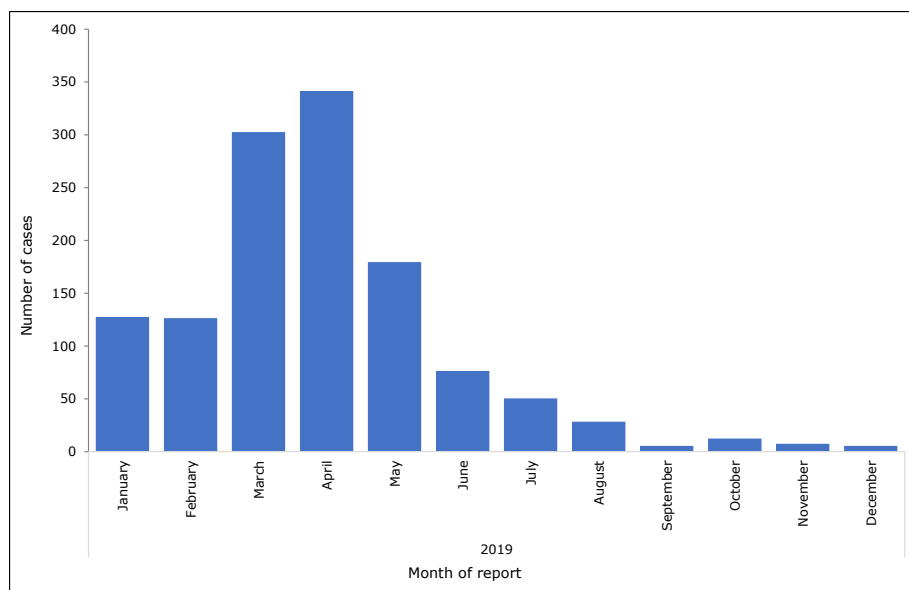
In the **United States**, between 1 January and 31 December 2019, a total of 1,282¹⁰ confirmed cases of measles were reported in 31 states: Alaska, Arizona, California, Colorado, Connecticut, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kentucky, Maine, Maryland, Massachusetts, Michigan, Missouri, New Mexico, Nevada, New Hampshire, New Jersey, New York, Ohio, Oklahoma, Oregon, Pennsylvania, Tennessee, Texas, Virginia, and Washington.

The highest number of reported cases occurred in April 2019, while in September and December the lowest numbers were reported (6 cases per month) (**Figure 5**). The majority of cases are among persons who were unvaccinated for measles.

This information is regularly updated on the United States Centers for Disease Control and Prevention (CDC) website, available at: <https://bit.ly/2Nzal4C>

¹⁰ Preliminary number of cases as of 31 December 2019; data subject to change.

Figure 5. Confirmed cases of measles by month of report. United States, January to December 2019*



*Cases as of 31 December 2019. The case count is preliminary and subject to change.

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

In **Venezuela**, between EW 26 of 2017 and EW 52 of 2019, a total of 11,310 suspected cases were reported (1,307 in 2017, 8,005 in 2018, and 1,998 in 2019), (**Figure 6**) of which 7,054 were confirmed (727 in 2017, 5,779 in 2018, and 548 in 2019), including 84 deaths: 81 deaths in 2017-2018, of which 2 were in 2017 in Bolívar, 75 were in 2018 (33 in Delta Amacuro, 27 in Amazonas, 9 in Miranda, 4 in the Capital District, 1 in Bolívar, and 1 in Vargas), and 3 were in 2019 (in Zulia).¹¹

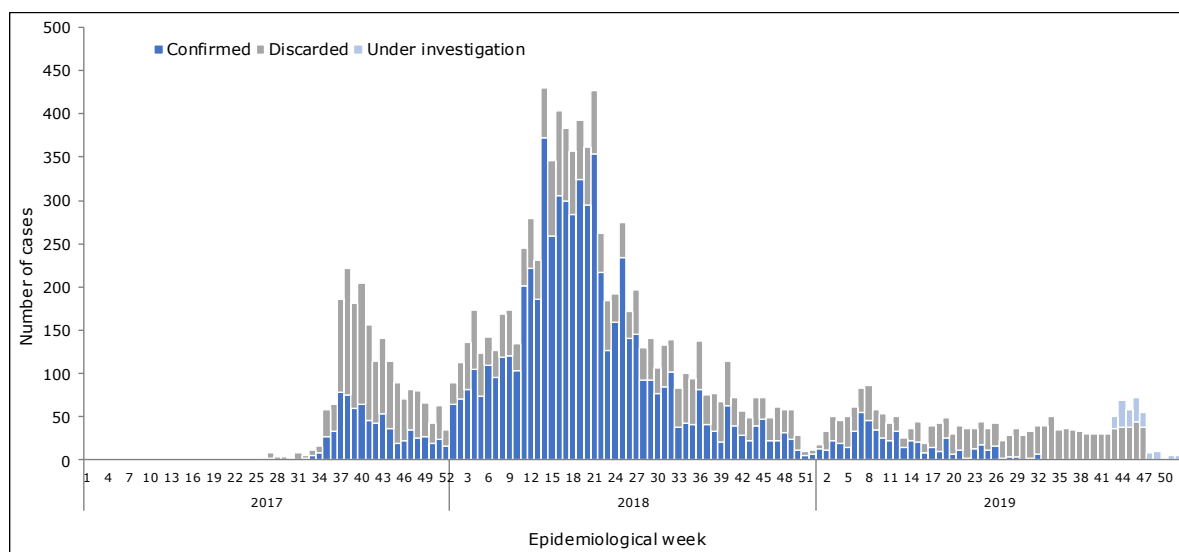
The most recent laboratory-confirmed case had rash onset on 11 August 2019, from Guajira Municipality, Alta Guajira Parish, Zulia State.

The average national incidence rate during 2017-2019 is 22.2 cases per 100,000 population. The highest incidence rates have been reported in Delta Amacuro (215 cases per 100,000 population), the Capital District (127 cases per 100,000 population), and Amazonas (85 cases per 100,000 population).

Confirmed cases with dates of rash onset between EW 1 and EW 52 of 2019 were reported from Zulia (364 cases), Anzoátegui (144 cases), Carabobo (17 cases), Monagas (2 cases), the Capital District (7 cases), Miranda (4 cases), Nueva Esparta (2 cases), Cojedes (2 cases), Yaracuy (2 cases), Amazonas (1 case), Aragua (1 case), Bolívar (1), and Sucre (1 case).

¹¹ The data in this analysis reflects the current case numbers; however, there may be delays in the reporting and completeness of the information. The data are subject to change as the information for each case is updated and validated.

Figure 6. Reported cases of measles by epidemiological week (EW) of rash onset. Venezuela. 2017-2019



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

Measles in indigenous communities

In **Brazil**, in 2018, a total of 183 suspected cases were 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 were from the Auaris Indigenous Health District, which borders Venezuela.

In 2019, there were no confirmed cases of measles reported among indigenous communities.

In **Colombia**, between EW 10 of 2018 and EW 52 of 2019, a total of 112 confirmed cases of measles were reported among indigenous populations (4 in 2018 and 108 in 2019), of which 93 were among the Wayuu ethnic group in La Guajira Department, one among the Zenú ethnic group in Córdoba Department, one among the Barasano ethnic group in Norte de Santander Department, and 17 among the Arhuaco ethnic group in César.

In **Venezuela**, between EW 1 and EW 52 of 2018, there were 541 confirmed cases of measles reported among indigenous populations in the states of Amazonas¹² (162 cases, of which 135 were in the Sanema, 24 in the Yanomami, 2 in the Yekuana, and 1 in the Baniva ethnic groups); Bolívar (14 cases, of which 9 were in the Kariña and 5 in the Pemón ethnic groups); the Capital District (1 case in the Wayú ethnic group); Delta Amacuro (332 cases, all in the Warao ethnic group); Monagas (22 cases, of which 20 were in the Warao, 1 in the Shaima, and 1 in the 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 the Sanema and 1 in the Yanomami ethnic groups).

¹² 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.

In 2019, between EW 1 and EW 52, a total of 139 cases of measles were reported among indigenous communities, all in Zulia State, in the following ethnic groups: Añu (50 cases), Putumayo (2 cases), Wayu (85 cases), and Yukpa (2 cases).

Advice to national authorities

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

Vaccination

- 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 vaccine stock** of the measles-rubella (MR) and/or MMR vaccine **and syringes/supplies** for prevention and control actions of imported cases.
- **Identify migratory flows**, both external (arrival of foreigners or persons from the same country who visit countries with ongoing outbreaks) and internal (displaced populations) within each country, including indigenous populations and other vulnerable populations, in order to facilitate 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.

Epidemiological surveillance

- **Strengthen epidemiological surveillance** for measles to achieve timely detection of all suspected cases in public, private, and social security healthcare facilities in order to contain the risk 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.
- **During an outbreak** and when it is not possible to confirm the suspected cases by laboratory, **classifications of a confirmed case may be based on clinical criteria (fever, rash, cough, coryza and conjunctivitis) and epidemiological link**, in order to not delay the response actions.
- Strengthen **epidemiological surveillance in border areas** to rapidly detect and respond to highly suspected cases of measles.

Rapid response

- 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 advise all travelers aged 6 months¹³ and older who cannot show proof of vaccination or immunity to **receive the measles and rubella vaccine**, preferably the triple viral vaccine (MMR), **at least two weeks prior traveling to areas where measles transmission has been documented**. PAHO/WHO recommendations regarding advice for travelers are available in the 27 October 2017 PAHO/WHO Epidemiological Update on Measles¹⁴.

¹³ 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.

¹⁴ 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 Point (NFP) report received by PAHO/WHO via email.
2. **Brazil** International Health Regulations (IHR) National Focal Point (NFP) report received by PAHO/WHO via email.
3. **Brazil**, São Paulo State Secretariat of Health, “Prof. Alexandre Vranjac” Epidemiological Surveillance Center, Epidemiological Bulletin Vol I N° 16 año 2019. Available at: <https://bit.ly/2rlp8cq>
4. **Chile** International Health Regulations (IHR) National Focal Point (NFP) report received by PAHO/WHO via email.
5. **Colombia** International Health Regulations (IHR) National Focal Point (NFP) report received by PAHO/WHO via 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 Point (NFP) report received by PAHO/WHO via email.

Related link:

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