

Situation Summary

Between 1 January and 31 October 2019, a total of 11,487 confirmed cases of measles, including 15 deaths, have been reported in 14 countries and territories of the Region of the Americas: Argentina (38 cases), the Bahamas (2 cases¹), Brazil (9,304 cases), Canada (112 cases), Chile (10 cases), Colombia (212 cases), Costa Rica (10 cases), Cuba (1 case), Curaçao (1 case), Mexico (16 cases)², Peru (2 cases), the United States of America (1,250 cases), Uruguay (9 cases), and the Bolivarian Republic of Venezuela (520 cases).

Since the PAHO/WHO Epidemiological Update on Measles published on 25 September 2019³, there has been a 76% increase in the total number of confirmed cases of measles reported, with 8 countries reporting additional confirmed cases: Argentina (26 cases), the Bahamas (1 case), Brazil (4,828 cases), Canada (1 case), Chile (2 cases), Colombia (9 cases), the United States (9 cases), and Venezuela (71 cases).

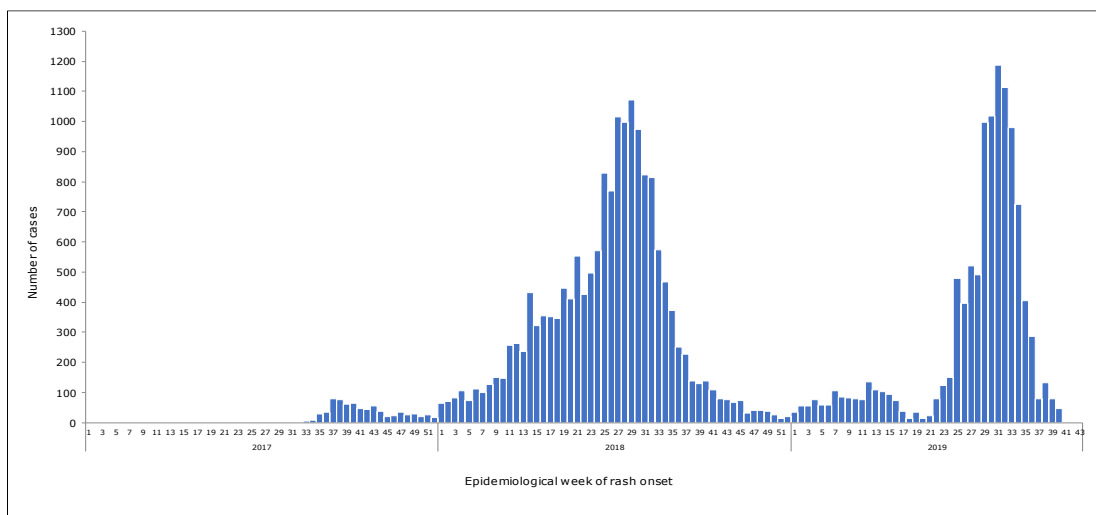
In 2018, the highest proportion of confirmed cases in the Region of the Americas were reported in Brazil and Venezuela, while in 2019, the majority of confirmed cases have been reported from Brazil (81%) and the United States (11%) (**Figure 1**).

¹ In the Bahamas, between EW 1 and EW 43 of 2019, a total of 2 cases of measles have been reported. Information regarding the first case, which was imported, was published in the 18 April 2019 PAHO/WHO Epidemiological Update on Measles. The second case is a 10-year-old male, brother of the first imported case, who had no history of vaccination and whose rash onset was on 24 February 2019. The genotype and lineage identified for the first case was D8, MVs/NormansCay.BHS/7.19.

² The previous data provided by the Mexico Secretariat of Health for the 25 September 2019 PAHO/WHO Epidemiological Update on Measles had included 17 cases, one has since been reclassified.

³ PAHO/WHO. Epidemiological Update: Measles. 25 September 2019, Washington, D.C.: PAHO/WHO; 2019. Available at: <https://bit.ly/2Wwku6h>

Figure 1. Distribution of confirmed measles cases* by epidemiological week of rash onset in the Region of the Americas. 2017–EW 43 of 2019.



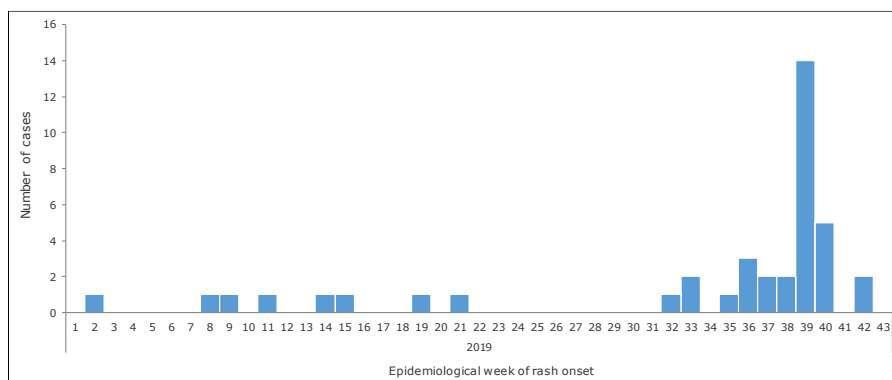
*Confirmed cases with information available. 2017–EW 43 of 2019 (28,058 cases).

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.

The following is a summary of the epidemiological situation of measles for countries/territories that have reported confirmed cases in the past 4 weeks⁴ (21 September to 31 October).

In **Argentina**, between epidemiological week (EW) 1 and EW 43 of 2019, a total of 38 confirmed cases of measles were reported, of which 7 were imported or import-related, 29 cases do not have travel history or epidemiological link with the imported cases, and 2 cases have Argentina or Europe as the probable site of infection but were reported in Spain. Of the 29 cases with no travel history or epidemiological link with imported cases, all are either residents of the city of Buenos Aires (14 cases) or of the province of Buenos Aires (15 cases); 19 of the cases are related to two transmission chains. The highest incidence rates by age group are in children under 1-year-old, followed by the 35 to 44-year-old age group. Genotype D8 was identified in all confirmed cases and lineage MVs/Gir Somnath.IND/42.16 was identified in 17 cases; the lineage identification of the rest of the samples are pending.

Figure 2. Confirmed measles cases by epidemiological week of rash onset. Argentina. EW 1 to EW 43 of 2019.



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

⁴ With the exception of the case in the Bahamas that had rash onset on 24 February 2019.

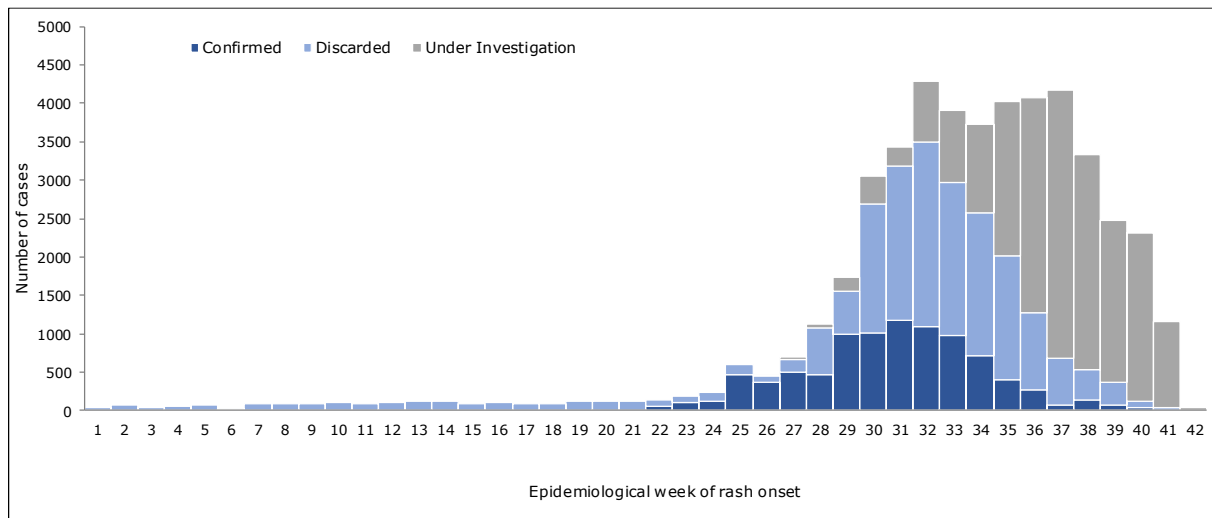
In **Brazil**⁵, between EW 1 of 2018 and EW 42 of 2019, a total of 54,795 suspected cases of measles have been reported, of which 19,634 have been confirmed (10,330 in 2018 and 9,304⁶ in 2019), including 12 deaths in 2018 and 14 deaths in 2019 (**Figure 3**).

Between 2018 and EW 42 of 2019, the cumulative national incidence rate is 10.1 cases per 100,000 population (5.3 cases per 100,000 population in 2018 and 4.8 cases per 100,000 population in 2019).

Between EW 30 to EW 42 of 2019, 20 federal units have reported confirmed cases: Alagoas (1 case), Bahía (19 cases), Ceará (5 cases), the Federal District (3 cases), Espírito Santo (2 cases), Goiás (4 cases), Maranhão (4 cases), Mato Grosso do Sul (2 cases), Minas Gerais (45 cases), Pará (8 cases), Paraíba (16 cases), Paraná (157 cases), Pernambuco (56 cases, 1 death), Piauí (3 cases), Rio de Janeiro (67 cases), Rio Grande do Norte (4 cases), Rio Grande do Sul (17 cases), Santa Catarina (25 cases), São Paulo (6,389 cases, 13 deaths), and Sergipe (2 cases). In Brazil, the genotype identified was D8 and the lineages were MVs/FrankfurtMain.DEU/17.11, MVi/HuluLangat.MYS/26.11, MVi/Delhi.IND/01.14/06, and MVs/Gir Somnath.IND/42.16.

As of this update, the most recent confirmed case in Brazil had rash onset in EW 42 of 2019 and was reported in Pernambuco State.

Figure 3. Reported cases of measles by epidemiological week of rash onset. Brazil. EW 1 to EW 42 of 2019.



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

⁵ 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.

⁶ Of the 9,304 confirmed cases in 2019, 80.7% were confirmed by laboratory criteria and 19.3% were confirmed by clinical-epidemiological criteria.

Table 1. Distribution of confirmed measles cases in the 10 states with the greatest proportion of cases. Bahia, Minas Gerais, Pará, Paraíba, Pernambuco, Rio de Janeiro, Rio Grande do Sul, Santa Catarina, and São Paulo states, Brazil. EW 1 to EW 42 of 2019.

Federal Units	Number of confirmed cases in 2018	Number of confirmed cases in 2019	Rash onset of most recent confirmed case (EW)	Cumulative incidence rate* in 2019	% Routine vaccine coverage (MMR second dose) **
Bahía	3	19	SE 40	17.77	60.33
Minas Gerais	0	45	SE 40	8.14	87.17
Pará	79	8	SE 37	0.42	60.02
Paraíba	0	16	SE 37	1.52	70.88
Paraná	0	157	SE 41	3.88	92.07
Pernambuco	4	56	SE 42	2.05	77.02
Rio de Janeiro	20	67	SE 41	0.66	48.71
Rio Grande do Sul	46	17	SE 39	0.89	85.18
Santa Catarina	0	25	SE 41	1.76	90.67
São Paulo	3	6,389	SE 41	17.77	76.53

*Cases per 100,000 population

**pni.datasus.gov.br; Partial data updated on 30 October 2019; data subject to change.

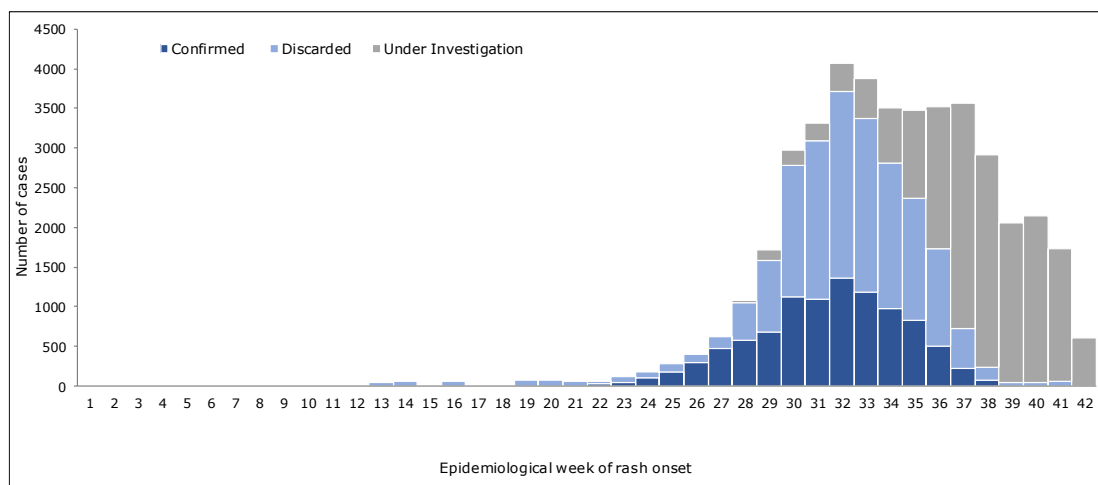
Source: Data published by the Brazil Ministry of Health and reproduced by PAHO/WHO.

The epidemiological situation in the state of São Paulo is described below.

In the *state of São Paulo*, between 27 July and 19 October 2019 (EW 30 to EW 42), a total of 37,575 suspected cases were reported, of which 6,389 were confirmed, accounting for 94% of the confirmed cases reported nationally. Furthermore, 32.9% (206 of 625) of the municipalities in the state of São Paulo have reported at least one confirmed case, with São Paulo Municipality reporting 52.7% of the confirmed cases within the state.

The most recent confirmed case had rash onset in EW 41 of 2019 and the most recent cases under investigation had rash onset in EW 42 of 2019. Viral genotype D8 has been identified.

Figure 4. Reported cases of measles by epidemiological week of rash onset. São Paulo State, Brazil. EW 1 to EW 42 of 2019.



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

In São Paulo, the age group with the highest cumulative incidence rate among confirmed cases is the 6 to 11-month-olds (638.9 cases per 100,000 population) (**Table 2**).

Table 2. Distribution of confirmed cases and age-specific incidence rates by age group. São Paulo State, Brazil. EW 1 to EW 43 of 2019*.

Age group	Number of cases	%	Incidence rate**
< 6 months	337	3.5	90.8
6 to 11 months	1,514	15.5	638.9
1 to 4 years	1,416	14.5	62.7
5 to 9 years	239	2.4	8.3
10 to 14 years	175	1.8	6.5
15 to 19 years	1,136	11.6	37.9
20 to 24 years	1,407	14.4	40.3
25 to 29 years	1,620	16.6	45.4
30 to 34 years	857	9.2	23.9
35 to 39 years	409	4.2	11.0
40 to 59 years	567	5.8	4.8
> 60 years	51	0.5	0.8
Total	9,768	100.0	22.0

*Available data as of 22 October 2019.

**Cases per 100,000 population

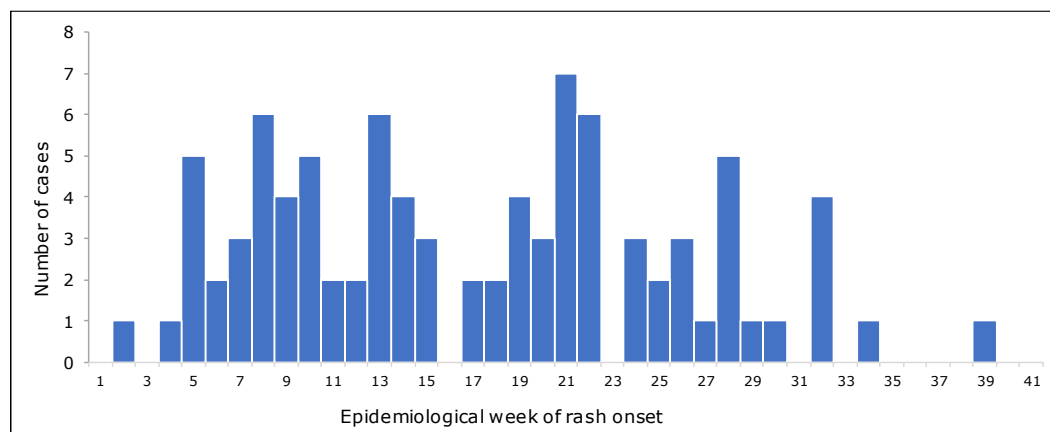
Source: Data provided by the Brazil International Health Regulations National Focal Point and reproduced by PAHO/WHO.

In 2019, 14 deaths were reported in Brazil, 1 in the state of Pernambuco and 13 in São Paulo State. Of these, 53.8% were male, 62% presented with an at-risk condition or comorbidity and one had vaccination history. Out of the total of deaths, 46% correspond to children under 1-year-old.

In **Canada**, between EW 1 and EW 41 of 2019, a total of 112 confirmed cases of measles have been reported in the provinces of Alberta, British Columbia, Manitoba, New Brunswick, Ontario, Quebec, Saskatchewan, and the Northwest Territories. Of the total confirmed cases, 72 were genotyped, for which genotype B3 (19 cases) and genotype D8 (53 cases) were identified, similar to those circulating globally.

The Public Health Agency of Canada (PHAC) periodically updates this information, available at: <https://bit.ly/2N5N2Ap>.

Figure 5. Confirmed cases of measles by epidemiological week of rash onset. Canada. EW 1 to EW 41 of 2019.



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

In **Chile**, between EW 45 of 2018 and EW 43 of 2019, a total of 33 confirmed cases of measles were reported (23 in 2018 and 10 in 2019); of these, 11 were imported and 22 were import-related. Information on the first eight cases was shared in the 25 September 2019 Epidemiological Update on Measles.

Following is a description of the last 2 confirmed cases.

Case 9 corresponds to a 29-year-old male resident of the Metropolitan Region, with history of contact with a confirmed case that had travelled to Brazil. Rash onset on 18 September 2019 and vaccination history was not verifiable.

Case 10 corresponds to a 33-year-old female resident of the commune of Rancagua, O'Higgins Region, with history of direct contact with case 9. Rash onset on 1 October 2019; she has a record of being vaccinated.

In **Colombia**⁷, between EW 10 of 2018 and EW 42 of 2019, a total of 11,066 suspected cases of measles were reported (7,184 in 2018 and 3,882 in 2019), of which 420 were confirmed (208⁸ with rash onset in 2018 and 212 in 2019), including one death⁹.

Genotyping performed on samples for 119 cases identified genotype D8, 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 Sucre, and in the districts of Barranquilla, Bogotá, and Cartagena.

⁷ 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.

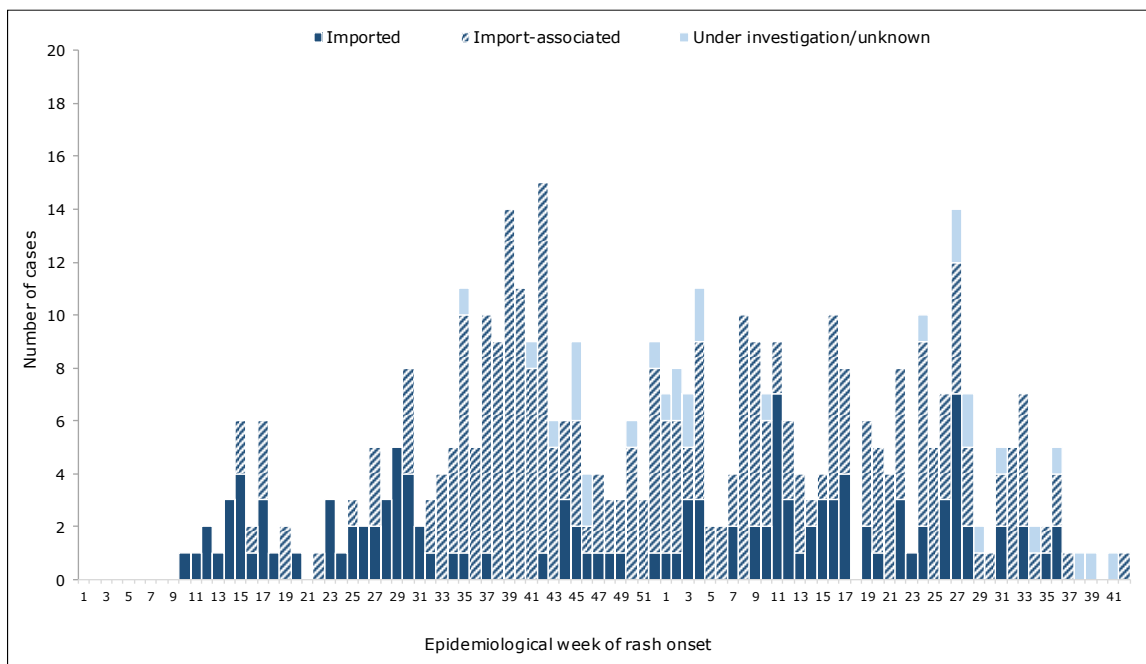
⁸ According to previous data provided by the national authorities of the Colombia Ministry of Health, the PAHO/WHO Epidemiological Update published on 17 May 2019 reported 209 cases with rash onset in 2018; however, one case was reclassified.

⁹ Information pertaining to the reported death was published in the 7 August 2019 PAHO/WHO Epidemiological Update on Measles, available at: <https://bit.ly/2KBYyB5>

In the past four weeks (EW 39 – EW 42), a total of 3 confirmed cases were reported in the department of Norte de Santander.

The most recent confirmed case (imported) had rash onset on 17 October 2019, and the most recent suspected case under investigation had rash onset on 22 October 2019.

Figure 6. Confirmed cases of measles by epidemiological week of rash onset. Colombia, EW 10 of 2018 to EW 42 of 2019.



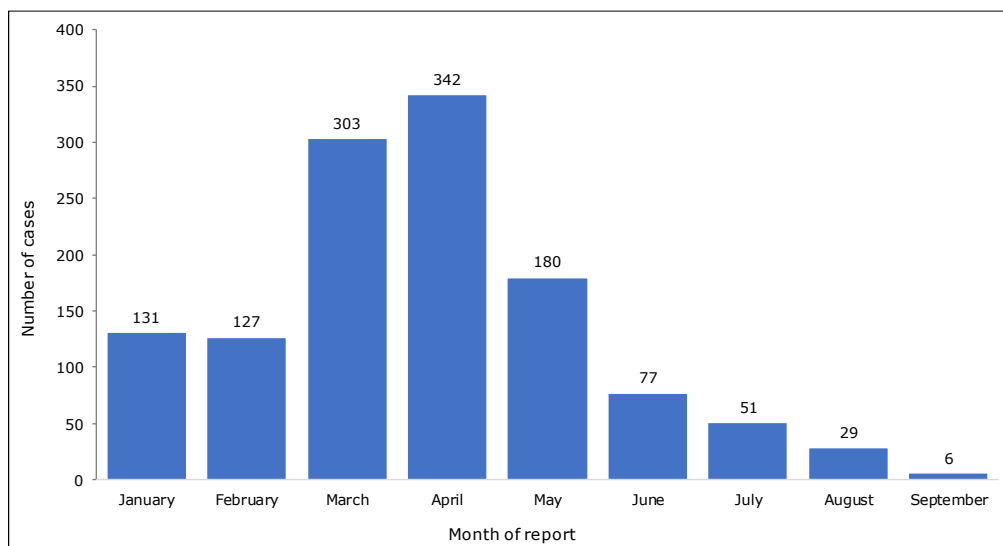
Source: Data provided by the Colombia International Health Regulations National Focal Point and reproduced by PAHO/WHO.

In the **United States**, between 1 January and 3 October 2019, a total of 1,250¹⁰ 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.

Currently, there is one ongoing measles outbreak in New York State, which are not related to the Rockland County outbreak. Recent outbreaks have been linked to travelers that visited other countries, such as Israel, Ukraine, and the Philippines. The majority of cases have been unvaccinated.

¹⁰ Preliminary number of cases as of 3 October 2019; data subject to change.

Figure 7. Confirmed cases of measles by month of report. United States, January to September 2019*



*Cases as of 3 October 2019. The case count is preliminary and subject to change. Data are updated weekly.

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

This information is regularly updated on the United States 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 43 of 2019, a total of 10,759 suspected cases (1,307 in 2017, 8,005 in 2018¹¹, and 1,447 in 2019) were reported, of which 7,026 were confirmed (727 in 2017, 5,779 in 2018, and 520 in 2019). In 2019, no deaths have been reported, whereas during 2017-2018, 81 deaths were reported: 2 in 2017 (in Bolívar) and 79 in 2018 (37 in Delta Amacuro, 27 in Amazonas, 9 in Miranda, 4 in the Capital District, 1 in Bolívar, and 1 in Vargas)¹².

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 21.9 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), Amazonas (85 cases per 100,000 population).

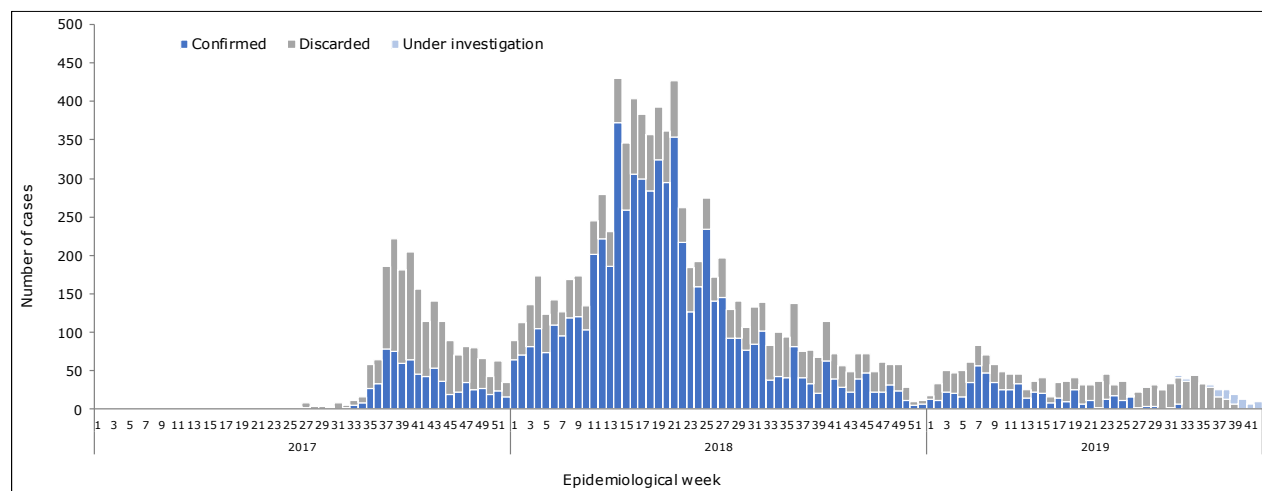
Confirmed cases with dates of rash onset between EW 1 and EW 42 of 2019 were reported from Zulia (327 cases), Anzoátegui (145 cases), Carabobo (17 cases), Monagas (9 cases), the

¹¹ According to the previous data provided by the authorities of the Ministry of People's Power for Health of Venezuela, in the Epidemiological Update published by PAHO / WHO on 18 June 2019, 7,790 suspected cases had rash onset in 2018 and 5,670 cases were confirmed for the same year; in addition, 79 deaths were reported (2 in 2017 and 77 in 2018). The current figures for 2018 (8,005 suspected cases, 5,779 confirmed cases, and 79 deaths) were updated by the health authorities of the Ministry of People's Power for Health of Venezuela, according to information recently received with new records found in the federal units.

¹² 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.

Capital District (7 cases), Miranda (4 cases), Nueva Esparta (3 cases), Cojedes (2 cases), Yaracuy (2 cases), Amazonas (1), Aragua (1 case), Bolívar (1), and Sucre (1 case).

Figure 8. Reported cases of measles by epidemiological week of rash onset. Venezuela. 2017-2019 (until EW 43).



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

Measles in indigenous communities

In **Colombia**, between EW 10 of 2018 and EW 42 of 2019, a total of 95 confirmed cases of measles were reported among indigenous populations (4 in 2018 and 91 in 2019), 93 cases were among the Wayuu ethnic group in La Guajira Department, 1 among the Zenu ethnic group in Córdoba Department, and 1 among the Barasano ethnic group in the Norte de Santander Department.

The epidemiological situation on measles among indigenous populations in Brazil and Venezuela had no changes since the PAHO/WHO Epidemiological Update on Measles published on 25 September 2019.

In **Brazil**, in 2018 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 2019, there have been no suspected cases of measles reported in indigenous communities.

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 Amazonas¹³ (162 cases, of which 135 were in the Sanema, 24 in the Yanomami¹⁴, 2 in the Yekuana, and 1 in the Baniva ethnic

¹³ 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.

¹⁴ 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.

groups); Bolivar (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).

In 2019, between EW 1 and EW 43, a total of 86 cases of measles have been reported among indigenous communities, all in Zulia State, in the following ethnic groups: Añu (24 cases), Putumayo (2 cases), Wayu (58 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 months¹⁵ 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 Measles¹⁶.

¹⁵ 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.

¹⁶ 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. **Bahamas** International Health Regulations (IHR) National Focal Point (NFP) report received by PAHO/WHO via email.
3. **Brazil** International Health Regulations (IHR) National Focal Point (NFP) report received by PAHO/WHO via email.
4. **Brazil** Ministry of Health. Measles. Situation Monitoring in Brazil – 2019. Epidemiological Weeks 30 to 42 of 2019. Available at: <https://bit.ly/366l7YG>
5. **Canada** Public Health Agency of Canada (PHAC). Measles and Rubella Weekly Monitoring Reports. Week 41 of 2019 (6-12 September 2019). Available at: <https://bit.ly/2lj4r5f>
6. **Chile** International Health Regulations (IHR) National Focal Point (NFP) report received by PAHO/WHO via email.
7. **Colombia** International Health Regulations (IHR) National Focal Point (NFP) report received by PAHO/WHO via email.
8. **United States** Centers for Disease Control and Prevention. Measles cases and outbreaks. Available at: <https://bit.ly/2iMFK71>
9. **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>