

### Situation Summary

In 2018, as of 23 October, a total of 8,091 confirmed measles cases, including 85 deaths, have been reported in 11 countries of the Region of the Americas: Antigua and Barbuda (1 case), Argentina (14 cases), Brazil (2,192 cases, including 12 deaths), Canada (25 cases), Colombia (129 cases), Ecuador (19 cases), Guatemala (1 case), Mexico (5 cases), Peru (38 cases), the United States of America (142 cases), and the Bolivarian Republic of Venezuela (5,525 cases, including 73 deaths).

Since the 21 September 2018 Epidemiological Update on Measles<sup>1</sup>, an additional 1,462 confirmed measles cases were reported, including 13 deaths, in 7 countries of the Region (3 cases in Argentina, 457 cases and 2 deaths in Brazil, 3 cases in Canada, 44 cases in Colombia, 17 cases in Peru, 18 cases in the United States, and 920 cases and 11 deaths in Venezuela).

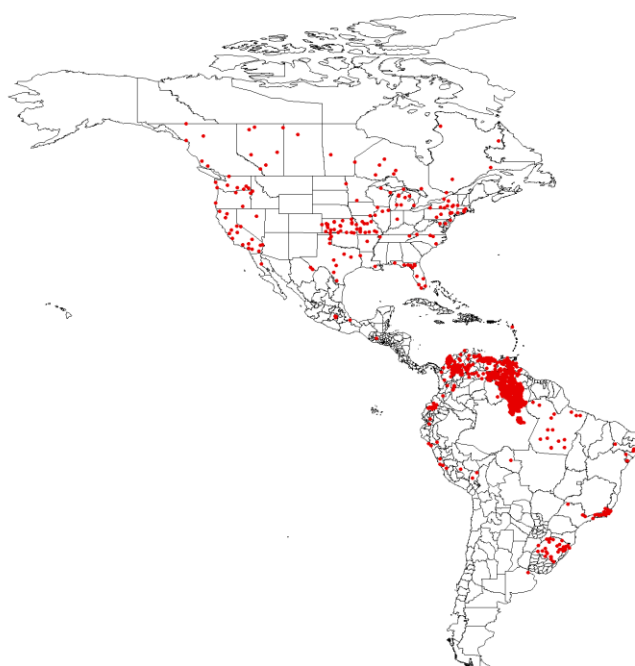
The genotype D8, lineage MVi/HuluLangat.MYS/26.11, which was initially identified among cases in Venezuela, has since been reported among confirmed cases in Argentina, Brazil, Colombia, Ecuador, and Peru (the countries are listed in alphabetical order and not by the outbreak dates of onset).

**Figure 1** shows the cumulative incidence rate of measles in countries that reported confirmed cases in South America in 2018.

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<sup>1</sup> PAHO/WHO. Epidemiological Update: Measles. 21 September 2018, Washington, D.C.: PAHO/WHO; 2018. Available at: <https://bit.ly/2EGwVr6>

**Figure 1.** Distribution of confirmed measles cases by sub-national level, The Americas 2018



**Source:** PAHO/WHO's Immunization Unit. Data as of epidemiological week (EW) 41 of 2018.

The following is an update of the situation in countries with ongoing outbreaks.

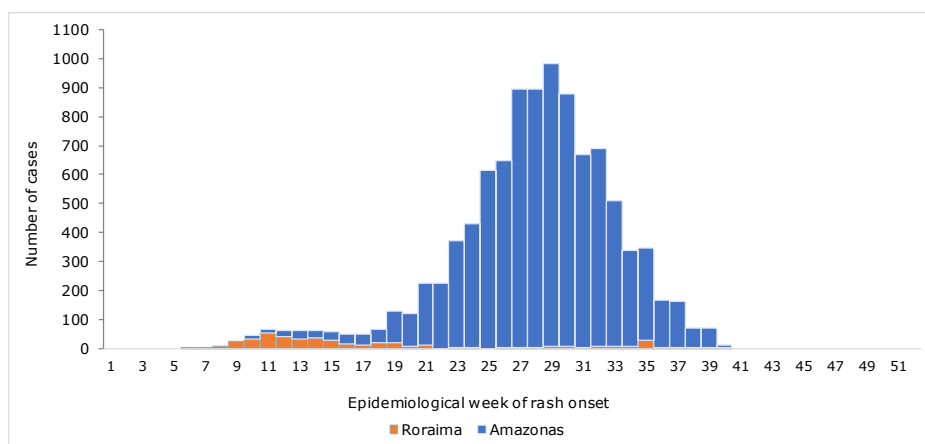
In **Argentina**, between epidemiological week (EW) 11 and EW 38 of 2018, a total of 14 confirmed measles cases were reported, all among residents of the province of Buenos Aires and the city of Buenos Aires. Ages ranged from 5 months to 26 years (median 7 months), and 7 of the cases are female. The dates of rash onset were between 11 March and 21 September 2018. All of the cases were laboratory-confirmed by 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 11 confirmed cases were related to a second importation, whose origin has not been identified, and 9 of these were identified as genotype D8, lineage Mvi/Hulu Langat.MYS/26.11.

In **Brazil**, the outbreak began in EW 6 of 2018 in the state of Roraima and spread to Amazonas State three weeks later (**Figure 2**). Subsequently, cases were reported in 7 states: 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), and most recently in the Federal District. Genotype D8 was identified, with an identical lineage to the cases reported in Venezuela (2017 and 2018), in the states of Amazonas, Rio Grande do Sul, Rio de Janeiro, Pernambuco, Rondônia, Roraima, and São Paulo.

Between EW 6 and EW 40 of 2018, there were 2,192 confirmed cases, including 12 deaths, reported in the states of: Amazonas (1,776 cases, 6 deaths), Pará (17 cases, 2 deaths), Pernambuco (4 cases), Rio Grande do Sul (37 cases), Rio de Janeiro (18 cases), Rondônia (2 cases), Roraima (330 cases, 4 deaths), São Paulo (3 cases), and Sergipe (4 cases). In addition, one confirmed case was reported in the Federal District.

**Figure 2.** Reported measles cases (confirmed and under investigation) by EW of rash onset. Amazonas and Roraima states, Brazil, EW 1 to EW 40 of 2018



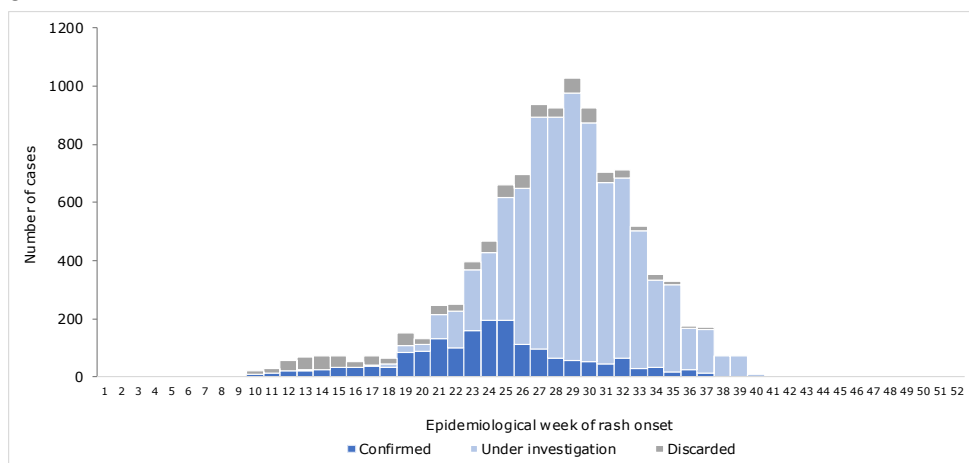
**Source:** Data published by the Brazil Ministry of Health and reproduced by PAHO/WHO.

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 40, 10,413 suspected cases, including 6 deaths, have been reported. Of the total suspected cases, 1,776 were confirmed, 836 were discarded, and 7,801 remain under investigation. Of 62 municipalities in the state, 30 have reported confirmed cases. However, 81% the cases are concentrated in the municipalities of Manaus and Manacapuru.*

The most recent confirmed case had rash onset in EW 37 of 2018 and the most recent case under investigation had rash onset in EW 40 of 2018. Since EW 30 of 2018, a decreasing trend in the epidemic case curve has been observed (**Figure 3**), with a weekly average of 120 suspected cases reported during the last 4 weeks (EW 37 to EW 40 of 2018). The majority of new confirmed cases in the last 8 weeks (EW 33 to EW 40 of 2018) were recorded in the municipalities of Manaus, Nhamundá, Borba, Careiro, Coari, Iranduba, Itacoatiara, Manacapuru, Maués, Parintins, Presidente Figueiredo, and Tefé.

**Figure 3.** Reported measles cases by EW of rash onset. Amazonas State, Brazil, EW 1 to EW 40 of 2018



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

Since the 21 September 2018 Epidemiological Update on Measles, the incidence rate of confirmed cases at the state level has increased from 37.8 to 49.5 cases per 100,000

population; likewise, there was an increase in incidence rates among children under 1-year-old and among children aged 1 to 4-years-old, increasing from 428.3 to 554.7 cases per 100,000 population and from 76.1 to 100.6 cases per 100,000 population, respectively.

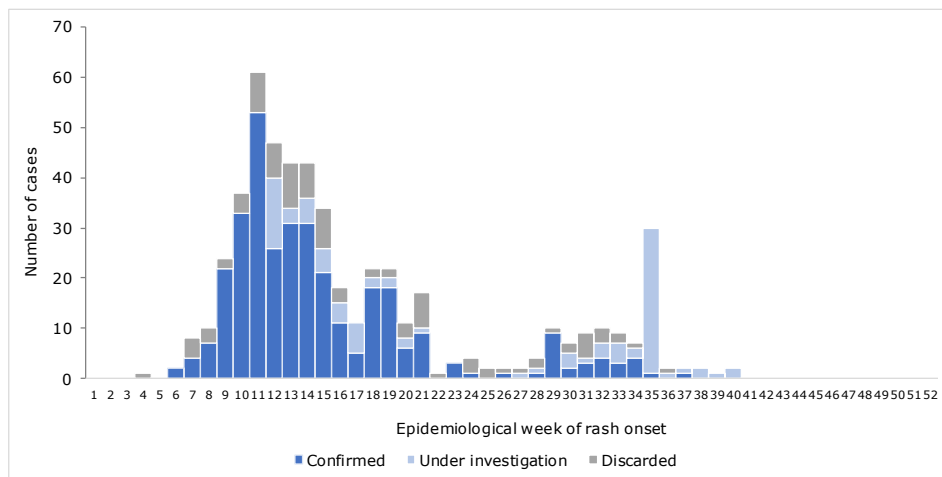
In the state of Roraima, the outbreak started in EW 6 of 2018. While there was a decrease in the weekly number of suspected and confirmed cases as of EW 19 of 2018, an increase has been observed between EW 29 and EW 35 of 2018 (**Figure 4**), mainly in the municipalities of Boa Vista and Amajari. As of EW 40 of 2018, a total of 520 cases, including 4 deaths, have been reported in the state; of these, 330 were confirmed, 95 were discarded, and 95 remain under investigation. The weekly average number of cases reported during the last 4 weeks (EW 37 to EW 40 of 2018) remains at 2, which is the lowest weekly average since the beginning of the outbreak.

Thirteen of the 15 municipalities in the state have reported suspected cases, though 87% of suspected cases and 88% of confirmed cases have been reported from three municipalities: Amajari, Boa Vista, and Pacaraima. New cases reported in the last 8 weeks were reported in the municipalities of Boa Vista and Amajari.

In Roraima State, there has been an increase in the incidence rate, similar to that which has been observed in Amazonas though at a smaller proportion. The current incidence rate in Roraima State is 74.4 cases per 100,000 population. Among children under 1-year-old, the incidence rate has increased to 713.1 cases per 100,000 and to 227.9 cases per 100,000 population among children aged 1 to 4-years-old.

The most recent confirmed case had rash onset in EW 37 and the most recent cases under investigation had rash onset in EW 40.

**Figure 4.** Reported measles cases by EW of rash onset. Roraima State, Brazil, EW 1 to EW 40 of 2018.



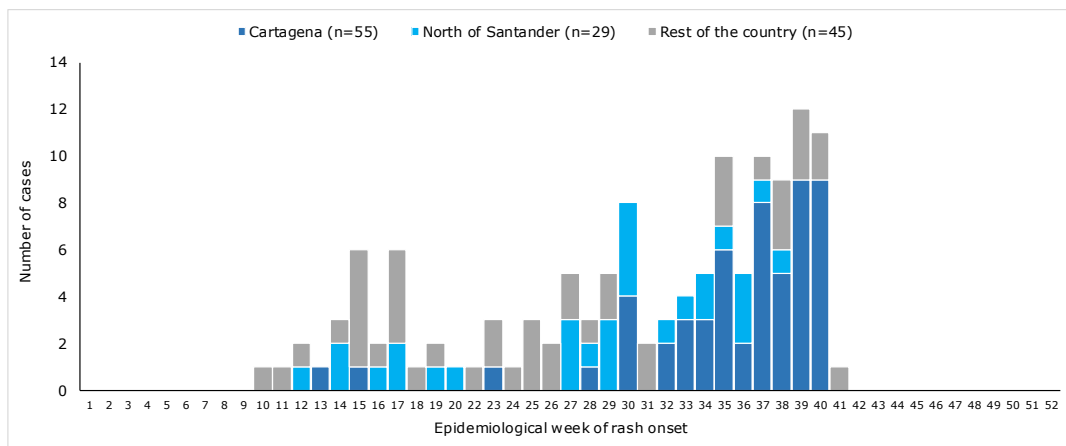
**Source:** Data published by the Brazil Ministry of Health and reproduced by PAHO/WHO.

In **Colombia**, between EW 11 and EW 42 of 2018, there were 129 confirmed measles cases reported (**Figure 5**). Ages ranged from 2 months to 49 years (median 1 year), and 54 of the cases are female. Rash onset was between 8 March and 7 October 2018. Of the 129 confirmed cases, 45 were imported, 75 were import-related (25 cases of secondary transmission among persons coming from Venezuela and 50 related to imported cases among Colombians), and 9 with the source under investigation. No deaths have been reported.

The cases were reported in the departments of Antioquia, Arauca, Atlántico, Bolívar, Cauca, Cesar, La Guajira, Magdalena, Norte de Santander, Risaralda, Sucre, and in the districts of Barranquilla, Bogotá, Cartagena, and Santa Marta. Cartagena District and Norte de Santander Department account for 65% of the total confirmed cases. The highest incidence rates have been reported from the following federal entities: Cartagena (4.1 cases per 100,000 population), Bolívar (0.8 cases per 100,000 population), and Barranquilla (0.4 cases per population). With regards to age groups, the highest incidence rates among import-related cases or cases of secondary transmission among Colombians have been observed in children under 1-year-old (3.63 cases per 100,000 population) followed by children aged 1 to 4-years-old (0.31 cases per 100,000 population).

Laboratory confirmation of all cases was conducted by the National Institute of Health 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.

**Figure 5.** Confirmed cases of measles by EW of rash onset. Colombia, EW 10 to EW 42 of 2018.



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

In **Ecuador**, since the 21 September 2018 Epidemiological Update on Measles, no new measles cases have been confirmed. Between EW 13 and EW 33 of 2018, 19 confirmed measles cases were reported. Genotyping performed on samples of 16 cases, identified genotype D8, lineage MVi/HuluLangat.MYS/26.11.

In **Peru**, between EW 8 and EW 42 of 2018, there were 38 confirmed cases of measles reported, with ages ranging from 4 months to 51 years (median 18 months) and 23 of the cases are male. Dates of rash onset were between 24 February and 10 October 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: Amazonas (1), Callao (17), Cusco (2), Ica (1), La Libertad (3), Lima (7), Piura (2), and Puno (2).

Laboratory confirmation of all cases was conducted at the National Reference Laboratory through serology, and 24 cases were also confirmed by RT-PCR. The genotype for the first 2 cases was D8 originating from India, whereas the genotype identified in 7 other cases was D8, similar to that of which was identified in Venezuela.

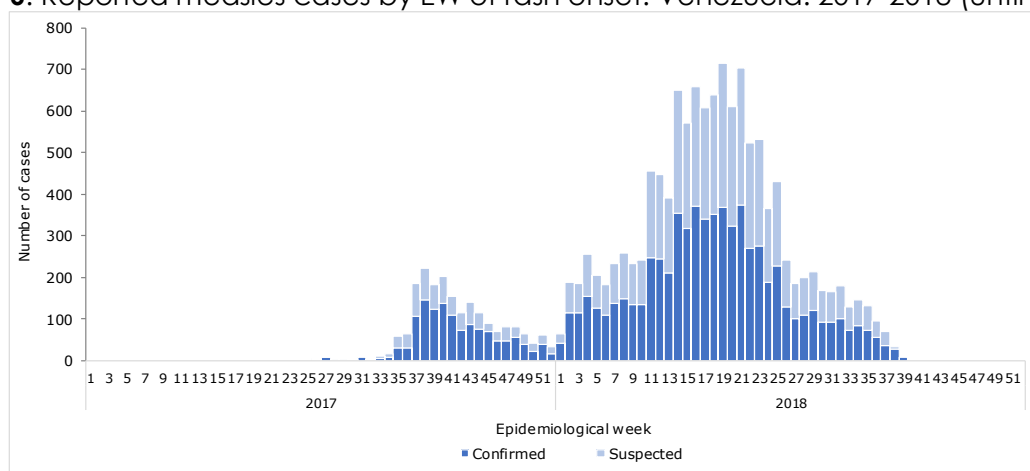
In the **United States of America**, 142 confirmed measles cases were reported between 1 January and 6 October 2018 in 25 states and the District of Columbia. The information is

updated periodically on the U.S. Centers for Disease Control and Prevention (CDC) website, available at: <https://bit.ly/2iMFK71>.

In **Venezuela**, since confirmation of the first measles case in EW 26 of 2017 until EW 40 of 2018, a total of 7,524 suspected cases, including 6,252 confirmed measles cases (727 in 2017 and 5,525 in 2018), have been reported (**Figure 6**). The cases in 2018 were confirmed by laboratory (1,826), clinical diagnosis (3,181), and epidemiological link (518).

The national incidence rate is 17.4 per 100,000 population, and the states with the highest incidence rates are Delta Amacuro (204.4 per 100,000 population), the Capital District (124.9 per 100,000 population), and Amazonas (85.6 per 100,000 population). A total of 75 deaths were reported, 2 in 2017 in Bolivar and 73 in 2018 (37 in Delta Amacuro, 27 in Amazonas, 6 in Miranda, and 3 in the Capital District).

**Figure 6.** Reported measles cases by EW of rash onset. Venezuela. 2017-2018 (until EW 40)



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

Health authorities in Venezuela have implemented a series of vaccination strategies aimed at interrupting the circulation of the virus, including indiscriminate vaccination of children aged 6 months to 15 years with the measles-rubella (MR) vaccine, and selective vaccination of contacts of suspected and confirmed cases up to 39 years old.

## Measles in indigenous communities

In **Brazil**, in Roraima State, a total of 158 suspected cases have been reported among indigenous populations, of which 143 were confirmed. The majority of cases are from the Auaris Indigenous Health District which borders Venezuela. In addition, Amazonas State 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. As of EW 40 of 2018, there have been 516 confirmed measles cases, including 67 deaths, among indigenous populations in Amazonas (170 cases, of which 135 were in Sanema, 24 in Yanomami<sup>2</sup>, 3 in Yekuana, 3 in Baniva, 3 in Piapoco, 1 in Chaima, and 1 in Yeral ethnic groups), Delta Amacuro (324 cases, all in the Warao ethnic group), and Monagas (22 cases of which 20 were in Warao, 1 in Chaima, and 1 in Eñepa ethnic groups). Of the 67

<sup>2</sup> 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.

deaths, 37 were in Delta Amacuro (all in the Warao ethnic group) and 27 in Amazonas (all in the Sanema ethnic group). Additional deaths in the indigenous communities are currently under investigation.

## 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 MR and/or MMR **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 collection and that laboratory results are available in a period of no more than 4 days.
- 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).
- **Identify** migratory flows from abroad (arrival of foreign persons) and internal flows (movements of population groups), including indigenous populations, 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 outbreaks, **establish adequate hospital case management** to avoid nosocomial transmission, with appropriate referral of patients to isolation rooms for any level of care (avoiding contact with other patients in waiting rooms and/or hospitalization settings).

Additionally, PAHO/WHO recommends that Member States advise all travelers aged 6 months<sup>3</sup> 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 before traveling to areas where measles transmission has been documented**. The

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<sup>3</sup> The MMR or MR dose administered to children between 6 and 11 months old does not replace the recommended first dose at 12 months old.



recommendations of PAHO/WHO in relation to advice for travelers are available in the 27 October 2017 PAHO/WHO Epidemiological Update on Measles<sup>4</sup>.

## 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 International Health Regulations (IHR) National Focal Point (NFP) Report to PAHO/WHO received by email.
6. Peru International Health Regulations (IHR) National Focal Point (NFP) Report to PAHO/WHO received by email.
7. Venezuela International Health Regulations (IHR) National Focal Point (NFP) Report to PAHO/WHO received by email.

## Related links:

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

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<sup>4</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>