

Although great efforts have been made to increase coverage of the first and second doses of the vaccine against measles, rubella and mumps (SRP1 and SRP2), there are still many countries and territories in the Region with suboptimal coverage. Added to this is the occurrence of large outbreaks in different countries outside the Region of the Americas, the continuous importation of cases in countries of the Americas and the occurrence of several massive events that bring together thousands of people. The Pan American Health Organization / World Health Organization (PAHO/WHO) urges Member States to continue with activities to increase and maintain adequate vaccination coverage against measles, rubella and mumps and reiterates that vaccination, epidemiological surveillance and preparing a rapid response to measles and rubella outbreaks constitute the three major strategies to annually monitor and reverify the interruption of endemic transmission of these viruses.

Summary of the situation

After the WHO Region of the Americas was declared measles-free in September 2016, a steady increase in imported measles cases from other WHO Regions and between countries within the Region of the Americas was observed between 2017-2019. The highest regional incidence rate was reported in 2019, with 21.5 cases per million population. The increase in cases was related to measles outbreaks reported in Brazil and the Bolivarian Republic of Venezuela, which contributed to 93% of the cases reported during that period (1).

In 2020, the number of confirmed measles cases decreased by 2.7 times compared to 2019, with outbreaks reported in Argentina and Mexico. This decrease in cases in 2020 was due to social distancing measures forced by the COVID-19 pandemic (1). Between 2020 and 2022, endemic circulation of the measles virus continued in Brazil. In 2021, 730 confirmed cases of measles were reported in the region distributed as follows: Brazil (676), French Guiana (5) and the United States (49). The cases reported in French Guiana had a history of travel to Brazil. In 2022, 167 cases were confirmed, reported in Argentina (2), Brazil (49), Canada (3), Ecuador (1), Paraguay (1), and the United States (118) (2).

The genotypes identified between 2018 to 2022 were D8 and B3 among 100% of the confirmed cases in which genetic sequencing was performed (1); between 2018 and 2020, the proportion of the D8 genotype was higher, with an average of 92,5%, compared to B3 (average of 7,5%). However, the proportion of the B3 genotype increased in 2021 (20.5%) and 2022 (50%) among the samples for which genetic sequencing was performed.

The year 2023 was characterized by being the year with the lowest number of reported measles cases. Notably, during epidemiological week (EW) 1 through EW 42, three countries in the WHO Region of the Americas reported confirmed cases of measles: *Canada* with 8 confirmed cases, *Chile* with 1 confirmed case, and the *United States of America* with 29 confirmed cases.

An update of the epidemiological situation for measles in the countries that have reported confirmed cases in 2023² is presented below.

In **Canada (3)**, between EW 1 and EW 39 of 2023, 8 confirmed imported or related to importation measles cases were reported by the provinces of Ontario (6 cases), New Scotia (1 case), and with no province information (1 case). In 2023, genotyping performed on samples from 7 cases identified the D8 genotype (n=5) and B3 genotype (n=2).

This information is regularly updated by the Public Health Agency of Canada (PHAC), available from:

<https://www.canada.ca/en/public-health/services/diseases/measles/surveillance-measles/measles-rubella-weekly-monitoring-reports.html>

In **Chile (4)**, on 12 August 2023, the IHR National Focal Point of this country reported a confirmed case of measles by serology and PCR. The patient is a 42-year-old Chilean citizen residing in the Metropolitan Region. He has a travel history to Armenia and Georgia (16 and 26 July), aligning with the incubation period. Symptoms began on 7 August with fever and later progressed to include a rash, conjunctivitis and arthralgia.

In the **United States of America (5)**, between 1 January 2023 and 29 September 2023, 29 confirmed measles cases were reported in 16 jurisdictions. Vaccination status was: 19 (66%) were unvaccinated, 5 (17%) were vaccinated, and 5 (17%) had unknown vaccination status. The travel countries of the 16 directly imported cases were: Armenia (1), Ethiopia (2), India (4), Kazakhstan (1), Romania (1), Russia (1), Russia/Turkey (1), Arabia Saudi/Turkey (1), South Africa (1), Tanzania (1), Tanzania/Uganda (1), Yemen (1). The age distribution of the 29 cases was: < 6 months (0), 6-11 months (3), 12-15 months (2), 16 months-4 years (6), 5-19 years (4), 20-49 years (7), 50-59 years (0), ≥ 60 years (0), unknown age (0). The genotypes identified were B3 and D8.

This information is regularly updated on the United States Centers for Disease Control and Prevention (US CDC) website, available from: <https://www.cdc.gov/measles/cases-outbreaks.html>

Guidance for national authorities

PAHO/WHO recommends remaining alert to the potential appearance of suspected and/or confirmed cases imported from other regions of the world and the occurrence of new outbreaks of varying magnitude in the Region of the Americas. The following risk factors must be taken into account: 1) gaps in the performance of international indicators for integrated measles/rubella surveillance (2); 2) low vaccination coverage of the first and second doses of the measles, mumps, rubella vaccine (MMR1 and MMR2) in many countries and territories in the Region since 2020; 3) active circulation of the virus in other WHO Regions; 4) the migratory flow of vulnerable populations within the WHO Region of the Americas and from other WHO Regions; and 5) the occurrence of mass gathering events in the Region, where people from various parts of the continent congregate.

PAHO/WHO urges Member States to follow the recommendations of the meetings of the Technical Advisory Group (TAG) on Vaccine-Preventable Diseases, available from: <https://www.paho.org/en/technical-advisory-group-vaccine-preventable-diseases> and the regional framework for follow-up and re-verification of the Elimination of Measles, Rubella, and Congenital Rubella Syndrome in the Region of the Americas, available from: <https://iris.paho.org/handle/10665.2/55074>

Among the guidelines and recommendations for countries with measles outbreaks, the following applies:

Vaccination

- Implement vaccination intensification activities to close immunity gaps in high-risk municipalities as soon as possible, mainly in those municipalities that are corridors of migrant population within each country.
- Vaccinate at-risk populations residing in areas where the measles virus is circulating who do not have proof of vaccination or immunity against measles and rubella.
- In health facilities where vaccination activities are carried out, it is essential that health professionals be alert for signs and symptoms of respiratory diseases and offer patients with flu-like symptoms a surgical mask and refer them for medical evaluation according to the local protocols for patients with suspected COVID-19.
- Maintain infection prevention and control measures and respiratory hygiene practices in vaccination services.
- Although there are currently no known medical contraindications to vaccinating a person who has had contact with a COVID-19 case, it is recommended that vaccination be deferred until quarantine has been completed (14 days after last exposure).
- Maintain a stock of measles-rubella (MR) and/or measles, mumps, rubella (MMR) vaccine, and syringes/supplies for prevention and control actions in the event of imported cases.

Epidemiological surveillance

- Enhance epidemiological surveillance in high-risk areas and with epidemiological silence by implementing complementary surveillance measures in the field (for example, active searches).
- Strengthen epidemiological surveillance in border areas to quickly detect and respond to highly suspected measles cases.
- Obtain serum samples, nasopharyngeal swabs and urine samples to perform serological tests for laboratory diagnosis and real-time RT-PCR test to confirm viral RNA and document the genotype associated with the infection.
- In an outbreak situation and if it is not possible to confirm the suspected cases by laboratory, use the confirmed case classifications by clinical criteria (presence of fever, maculopapular rash with at least one of the following symptoms and signs: cough, coryza, and conjunctivitis) and epidemiological link, so as not to delay the implementation of response actions.
- Continue routine surveillance for other vaccine-preventable diseases (VPDs). Maintain supplies for the proper collection and transport of samples. If the laboratory does not have laboratory diagnostic capacity for the specific event, the samples must be sent to the reference laboratory to carry out the analyses that allow for the confirmation or discarding of the event, at the appropriate time and in accordance with what is defined in surveillance program. Countries must guarantee the adequate storage, preservation, and transportation of the samples.

Rapid Response

- Provide a rapid response to imported measles cases to prevent the reestablishment of endemic transmission through the activation of rapid response teams trained for this purpose and by implementing national rapid response protocols. Once the rapid response team is activated, coordination must be ensured between the national, subnational, and local levels, with continuous and fluid communication channels between all levels.

- In an outbreak situation, adequate intra-hospital case management must be established to avoid nosocomial transmission, with an adequate referral flow of patients to isolation rooms (at any level of care) avoiding contact with other patients in waiting rooms. and/or hospitalization rooms for patients hospitalized for other causes.

International travelers

A series of guidance that health authorities can provide to international travelers is presented below. In addition, included is a series of considerations regarding health personnel, individuals, and institutions that are in contact with travelers before and after the trip.

1. Travelers

Prior to departure

PAHO/WHO recommends to all Member States that all travelers over the age of six months¹ who are unable to show proof of vaccination or immunity, **to be fully vaccinated against measles and rubella**, preferably with the MMR (measles, mumps, and rubella) vaccine, **at least two weeks before traveling to areas with documented measles virus circulation**. PAHO/WHO's recommendations regarding advice for travelers are available in the Epidemiological Update published by PAHO/WHO on 27 October 2017 (6).

- Infants who receive the MMR vaccine before their first birthday must be revaccinated according to their country's vaccination schedule. Infants under the age of six months should not be vaccinated.
- Travelers who are not up to date on their vaccinations are at higher risk of contracting either disease when in close contact with travelers from countries where the viruses still circulate.
- Exceptions to this recommendation include persons with medical contraindications to the measles and rubella vaccine.
- Persons considered immune to measles and rubella, are those who can present:
 - Laboratory confirmation of rubella and measles immunity (a positive serological test for the measles and rubella-specific IgG antibodies).
 - Written documentation of having received two doses of measles and rubella vaccine.

It is recommended that health authorities inform travelers prior to their departure of measles signs and symptoms, including:

- Fever,
- Rash,
- Cough, coryza (runny nose), or conjunctivitis (red eyes),
- Joint pain,
- Lymphadenopathy (swollen glands).

During the trip

- Travelers should be recommended that if they suspect to have measles or rubella, they should:
 - Seek immediately professional health care

¹ The dose of MMR or MR vaccine administered in children 6 to 11 months of age does not replace the first dose of the recommended schedule at 12 months of age.

- Avoid close contact with other people for seven days following onset of rash
- Remain at the site of their current residence (e.g., hotel or home, etc.) except to seek professional health care, or as advised by a health professional
- Avoid travel and visit to public places

Upon returning

- If travelers suspect they have measles or rubella, they should seek immediately professional health care.
- If travelers develop any of the above mentioned symptoms, they should inform their physician of their travel history.

2. Clinicians and health care providers

PAHO/WHO recommends to:

- Promote the practice of requesting proof of immunity to measles and rubella in the health care sector (medical, administrative and security personnel).
- Since international travelers may seek medical attention at private health care facilities, sensitize private sector health workers on the need for immediate notification of any measles or rubella cases in order to ensure a timely response by national public health authorities.
- Continue to remind health care workers to always ask patients for their travel history.

3. Persons and institutions in contact with travelers, before and/or after their trip

- Advise personnel in the tourism and transportation sectors (i.e., hotels, airport, taxis, and other) to be fully immunized against measles and rubella, and make the necessary regulatory and operational arrangements to promote vaccination.
- Conduct public awareness campaigns on the symptoms of measles and rubella, so that all travelers can recognize the symptoms and seek immediate medical care if need be. Information should be distributed at airports, ports, bus stations, travel agencies, airlines, etc.

4. Contact tracing of confirmed measles cases

- Conduct contact tracing activities according to national guidelines for contacts identified and present in the **national territory**, in accordance with the country's guidelines.
- Consider the **international implications** that **contact tracing** may present and consider the following scenarios and operational aspects while conducting these activities:
 - a. *A case is identified by national authorities in a third party* and national authorities are requested to locate contacts whose residence is most likely within their country. National authorities are urged to use all available coordination mechanisms to locate these persons. The information available for this action could be limited and efforts should be rational and based on existing resources. Health services should be alerted of the possible or actual presence of contacts in order to detect suspected cases.
 - b. *A case is identified locally*, and, depending on the timing of the natural history of the diseases at detection:
 - *Current case*: national authorities should obtain information about the possible location of contacts abroad and inform the relevant national authorities accordingly.

- *Retrospectively identified case*: According to the travel history of the case, national authorities should inform relevant national authorities as this occurrence might constitute the first signal of measles virus circulation, or of an outbreak, in the other country or countries concerned.
- c. Conduct active institutional and community searches to quickly identify cases among those contacts that have not been identified during the outbreak investigation, following the route of the case(s).

Operational remarks

- If no international conveyances are involved (e.g. aircrafts, cruise ships, trains) as a possible setting for exposure to a case(s), national authorities should contact their counterpart(s) of other countries through the IHR National Focal Point (NFP) network or other bilateral or multilateral programmatic mechanisms, with copy to the WHO IHR Contact Point for the Americas (ihr@paho.org). The assistance of the WHO IHR Contact Point for the Americas can be requested to facilitate international contact tracing related communications.
- If international conveyances are involved (e.g. aircrafts, cruise ships, trains) as a possible setting for exposure to a case(s), national port authorities or whoever may be acting for the latter should activate existing mechanisms to obtain relevant information from carriers (e.g. airlines) to locate travelers, or establish such mechanisms if absent. For subsequent communication between national authorities see the preceding paragraph.

Channels to disseminate these recommendations

PAHO/WHO recommends that national authorities consider disseminating these recommendations outlined in this document through:

- Public awareness campaigns to promote and enhance travelers' health seeking behavior on the benefits of vaccination for measles, signs and symptoms of measles, and to promote and enhance travelers' health seeking behavior prior to travel and upon return. In addition to travel medicine services or clinics, airports, ports, bus and train stations, airlines operating in the country, should be utilized.
- Travel agencies and other tourism related agencies, and diplomatic corps, so that travelers can take necessary actions prior to travel.
- Reiteration of the content of existing national guidelines to clinicians and health care providers and timely dissemination of any newly developed procedure in relation to travelers as/if applicable.

References

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