

3 June 2024

The Pan American Health Organization / World Health Organization (PAHO/WHO) recommends that Member States continue with the necessary efforts to achieve and maintain adequate measles and rubella vaccination coverage, ensure timely detection and response to cases, which can generate outbreaks of varying magnitude in the countries of the Region of the Americas. These recommendations are emphasized considering the mass gatherings and sporting events to be held in countries of the Americas, the beginning of the tourism season in the northern hemisphere, and the global increase in measles cases.

Background

According to monthly measles and rubella surveillance data published by the World Health Organization (WHO) in 2024, 178,768 suspected measles cases were reported as of 8 May 2024, in 166 Member States in the six WHO regions, of which 121,413 (68%) were confirmed¹, representing an increase of 94% compared to the same period in 2023 (n= 62,642)². In 2023, 615,336 suspected measles cases were reported in 174 WHO Member States, of which 322,108 (52%) were confirmed¹ (1, 2).

During 2023, the Pan American Health Organization/World Health Organization (PAHO/WHO) warned twice (on 8 February and 20 October) about declining coverage of the first and second doses of measles, mumps, and rubella vaccine (MMR1 and MMR2) and the occurrence of measles cases in countries of the Region of the Americas (3, 4). The latest analysis of vaccination coverage in the Region of the Americas is available in the PAHO/WHO Measles Epidemiological Alert in the Region of the Americas published on 29 January 2024 (5).

Summary of the situation in the Americas Region

In 2024, between epidemiological week (EW) 1 and EW 21, in the Region of the Americas, 7,167 suspected cases of measles were reported, of which 234 cases have been confirmed, 233 by laboratory and one by epidemiological linkage, in seven countries of the region and in the Turks and Caicos Islands (**Figure1**) (6, 7).

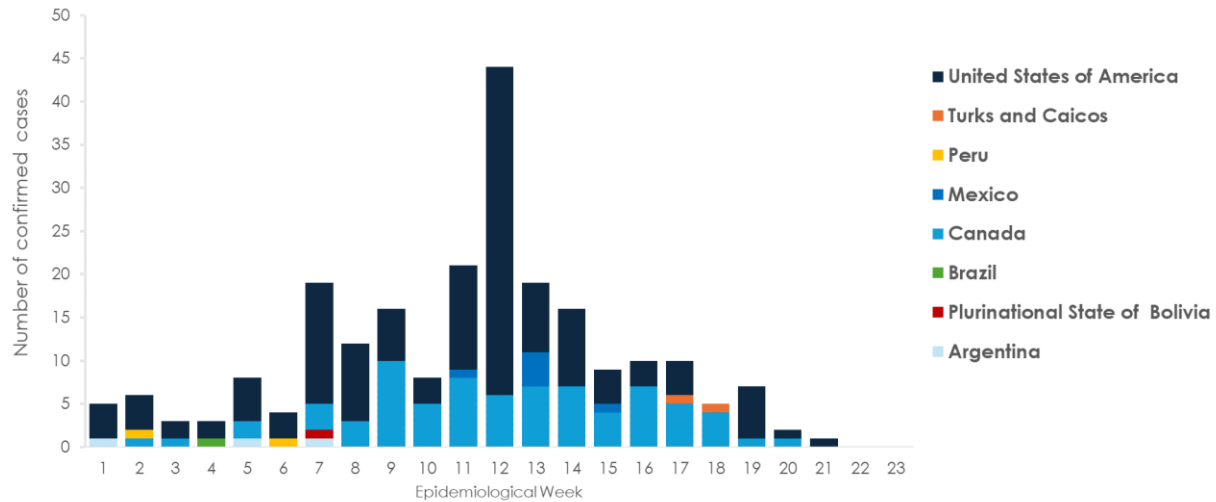
The distribution of confirmed cases by epidemiological week shows an increase in the number of cases starting in EW 7, with the maximum number of cases recorded in EW 12. A descending trend has been observed since EW 13 and has continued until the publication of this alert. According to the information available on the 234 confirmed cases, the age groups

¹ Includes cases confirmed by laboratory, clinical or epidemiological criteria.

² Provisional data based on monthly data reported to WHO headquarters through May 2023.

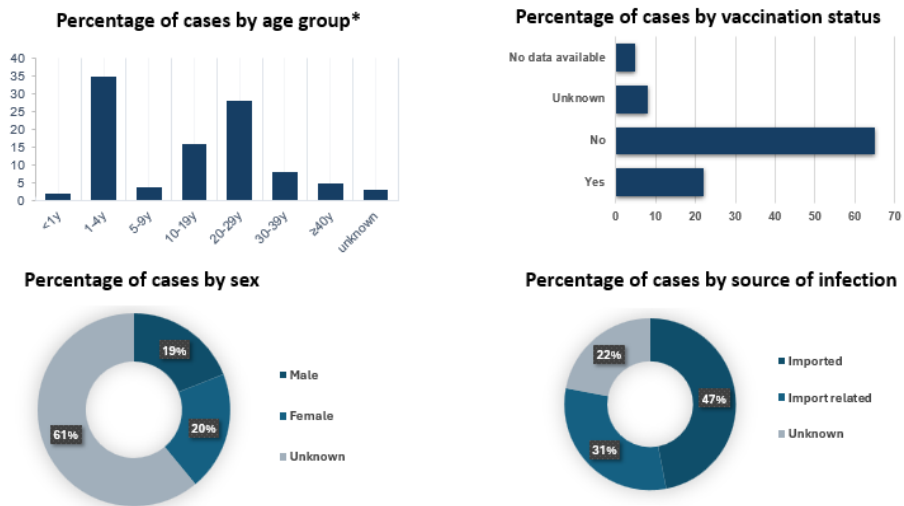
with the highest proportion of cases are those aged 1-4 years and 20-29 years, with 35% and 28%, respectively. Regarding vaccination history, 65% of the cases were not vaccinated and for 13% this information was unknown or absent (**Figure 2**) (8).

Figure 1. Confirmed measles cases by epidemiological week in the Region of the Americas, 2024



Source: Adapted from Pan American Health Organization / World Health Organization. Integrated Surveillance Information System (ISIS) for polio, measles, rubella, and congenital rubella syndrome. Washington, D.C.: PAHO/WHO; 2024 [Cited 29 May 2024]. Unpublished.

Figure 2. Percentage distribution of confirmed measles cases by age group, sex, vaccination status, and source of infection in the Region of the Americas, 2024.



*United States age group: <5a, 5a-19a and 20a and over.

Source: Adapted from Pan American Health Organization / World Health Organization. Integrated Surveillance Information System (ISIS) for polio, measles, rubella, and congenital rubella syndrome. Washington, D.C.: PAHO/WHO; 2024 [Cited May 29, 2024]. Unpublished.

The following is an update of the measles epidemiological situation in the countries and territories that have reported confirmed cases in 2024.

In **Argentina**, between EW 1 and EW 21 of 2024, the National Ministry of Health reported three laboratory-confirmed cases of measles. The first case corresponds to a 19-month-old unvaccinated child, resident of the city of Salta, with no history of travel, in whom the source of infection was not identified. The D8 genotype, MVs/Patan.IND/16.19 lineage, which is currently circulating in several European countries such as Germany, Austria and the United Kingdom, was detected (9). In EW 6, an imported case was detected in the Autonomous City of Buenos Aires in a 6-year-old unvaccinated child, resident of Barcelona, Spain. In the follow-up of contacts, a case of measles was confirmed in the 13-month-old brother. In both cases the B3 genotype circulating in France and Portugal was detected (9). Both had a favorable clinical course and no additional cases have been detected (10 - 13).

In **Bolivia**, on 29 February 2024, the Ministry of Health and Sports confirmed a case of measles in the city of Bermejo, Tarija. The case is a 7-year-old female with onset of fever on 13 February and onset of exanthema on 15 February. No other symptoms were reported. Following consultation at the local health center, three samples were taken: the first serum sample for serology on 19 February and the second serum and nasopharyngeal swab on 23 February. The samples were sent to the National Reference Laboratory of the National Center for Tropical Diseases (CENETROP per its acronym in Spanish) where the infection was confirmed by positive IgM and IgG for measles. The case had no history of MMR vaccination and had recently traveled to the interior of the country to the city of El Alto in the department of La Paz. The case presented favorable clinical evolution. To date, no source of infection has been identified and no secondary cases have been detected (14, 15).

In **Brazil**, on 9 January 2024, the Ministry of Health received information on a suspected case of measles in Rio Grande do Sul. The case corresponds to a 3-year-old male with no history of vaccination from Pakistan, who entered the country on 26 December 2023 through Guarulhos/São Paulo airport; with a same day connection at Porto Alegre/Rio Grande do Sul airport. On 27 December 2023, travel continued by bus from Porto Alegre to Rio Grande, the clinical picture with nonspecific symptoms of measles onset; due to worsening, the case sought assistance at the Emergency Care Unit on 2 January 2024, where he was isolated. The case was transferred to the hospital and admitted, remaining in isolation while there. On 4 January he developed a rash and Koplik's spots, which are characteristic of a measles case, were identified. The case was laboratory confirmed through serological tests performed at the Central Public Health Laboratory of Rio Grande do Sul (LACEN, per its acronym in Portuguese) and molecular biology tests (rRT-PCR and sequencing) performed at the Fiocruz Reference Laboratory in Rio de Janeiro, which confirmed measles, genotype B3. The case evolved favorably; to date, no secondary suspected cases of measles were identified. The last endemic case of measles in the country was reported in June 2022 (16, 17).

In **Canada**, 77 laboratory-confirmed measles cases were reported between EW 1 and EW 20 of 2024, including one fatal case. Of the confirmed cases, 26 were imported, 44 were import-related, and 7 were of unknown origin. Sixty-eight percent of cases were reported in the province of Quebec (n= 51), followed by the province of Ontario (n= 23). By age, 60% of cases were over 18 years of age, followed by 30% of cases in the under-five age group (n= 23). The fatal case reported was a child under five years of age, with no history of vaccination,

residing in the province of Ontario. B3 and D8 genotypes were identified in 52 and 13 of the confirmed cases, respectively (18, 19, 20).

In the **United States of America** between EW 1 and EW 18 of 2024, 142 confirmed measles cases were identified in 21 Jurisdictions including the New York City, and the states of: Arizona, California, Florida, Georgia, Illinois, Indiana, Louisiana, Maryland, Michigan, Minnesota, Missouri, New Jersey, New York, Ohio, Pennsylvania, Vermont, Virginia, Washington, West Virginia, and Wisconsin. Ten outbreaks have been reported³, 68% of the cases (n= 97) reported are associated with these outbreaks. By age, 44% of the cases are in the under-five year age group (n= 63), followed by the 20-year and older age group with 32% of the cases (n= 46). Regarding the vaccination history of the confirmed cases, 82% of the cases had no known vaccination history or had not been vaccinated, 13% had received one dose of measles, rubella and mumps (MMR) vaccine and 5% had received two doses of MMR. Fifty-five percent of cases were hospitalized (n= 78) for isolation or management of complications. Measles virus genotype B3 was identified in 24 (22%) cases and measles virus genotype D8 in 85 (78%) of confirmed cases (7, 21).

In **Mexico**, between EW 1 and EW 18 of 2024, six cases of measles have been confirmed: five by laboratory and one by epidemiological link. Of the total number of reported cases, one has been classified as imported, four are related to importation, and one is in the process of classifying the source of infection. The first case reported in 2024 was a 4-year-old male who arrived in Mexico City on 14 March from London and developed rash on the same date during the flight. The case was detected by the health authority at Mexico City International Airport and was confirmed on 30 March by the Institute of Epidemiological Diagnosis and Reference (InDRE per its acronym in Spanish). Four additional cases were identified in relation to this case: three adults and a 6-month-old child who were in contact with the index case during the flight and at the airport in Mexico. For these cases, sequencing and genotyping studies identified the D8 genotype with MVs/Patan.IND/16.19 lineage. The sixth case corresponds to an 11-year-old boy, resident of Mexico City, who presented with onset of symptoms on 10 April, with no history of vaccination and no history of travel outside the area of residence (22).

In **Peru**, as of EW 18 of 2024, two confirmed cases of measles have been reported. The first case is a 21-year-old male, resident of the district of Surco, Lima, with no evidence of vaccination against measles, with a history of travel to several European countries, who presented onset of symptoms on 2 January. The case was confirmed by the National Reference Laboratory on 27 January by serology positive for measles IgM in samples collected on 12 and 26 January. The second case corresponds to a 10-month-old girl who had no history of vaccination due to her age, no history of travel, is a resident of the district of Surco, Lima, presented symptoms on 4 February and onset of rash on 7 February. This case was confirmed on 14 February by the National Reference Laboratory (23).

Additionally, two cases of measles were reported in the **Turks and Caicos** Islands during EW 20 of 2024 and confirmed by the Caribbean Public Health Agency (CARPHA) laboratory. These cases are the first cases of measles reported in the Turks and Caicos Islands since 1991. The first case is a 6-year-old male, a resident of the island of Providenciales, with no history of measles vaccination and no history of travel, who presented with onset of symptoms on 29

³ Outbreaks: defined as 3 or more related cases

April. The second case is a 21-year-old male, with no history of vaccination and no history of travel, resident of Providenciales Island, with onset of symptoms on 18 April. These two cases are related by epidemiological link and, as of the date of this publication, the source of infection has not been identified and no secondary cases have been detected (24).

Guidance to Member States

PAHO/WHO recommends that Member States continue their efforts to increase and maintain adequate vaccination coverage against measles, rubella, and mumps and reiterates that vaccination, epidemiological surveillance, and preparedness for rapid response to measles and rubella outbreaks are the three major strategies for interrupting endemic transmission of these viruses.

There are several risk factors that could favor the spread of measles or rubella virus from an imported case, among them are: 1) gaps in the performance of measles/rubella integrated surveillance indicators (25); 2) low coverage of the first and second doses of measles, rubella, and mumps vaccine (MMR1 and MMR2) in most countries and territories in the Region of the Americas; 3) active circulation of the virus in several countries in other regions of the world; 4) a significant increase in the movement of people within the Region of the Americas and from other regions of the world; 5) the occurrence of mass gatherings, including sporting events to be held in the Region between June and July 2024⁴, which bring together people from various parts of the continent and from other regions where measles is endemically circulating; and 6) the increase in cases of dengue in the Region that could mask potential cases of measles or rubella, due to the similarity of the clinical manifestations of these diseases.

Considering the aforementioned risk factors and the current regional context, some recommendations related to vaccination, surveillance and response are offered below (26, 27):

Vaccination

- a) Implement vaccination intensification activities to close coverage gaps, with priority given to high-risk municipalities, mainly in those considered tourist sites or where there is a high transit of people.
- b) Consider the possibility of offering travelers or persons in transit through the country, the missing vaccine doses according to the age of the person and the appropriate vaccination schedule, either through medical brigades or fixed vaccination posts.

Surveillance

- a) Strengthen epidemiological surveillance in areas considered as high-risk, border areas and areas with epidemiological silence through the implementation of active searches in health services and in the community.
- b) Implement active laboratory screening of serum samples collected for dengue or arboviral disease surveillance to detect measles and rubella cases that may have gone undetected. Following the guidance on measles and rubella testing in the Region of the Americas laboratory network is encouraged (28).

⁴ International Cricket Council (ICC) Men's T20 World Cup and Copa America USA 2024.

- c) Obtain serum, nasopharyngeal swab and urine specimens (28) in any suspected measles or rubella case for laboratory confirmation by serologic and molecular real-time RT-PCR testing as well as genomic sequencing to document the genotype associated with the infection. If the laboratory does not have the capacity to diagnose measles and rubella, it is recommended that specimens be referred to the appropriate reference laboratory for testing to confirm or rule out the case, in a timely manner and as defined in the surveillance system. Member States are encouraged to ensure proper storage, preservation, and transport of samples in accordance with international recommendations for the transport of infectious substances (29).

Rapid response

- a) Review and adjust -if necessary- operational preparedness and rapid response plans; and strengthen the capacity of health systems mainly in the risk areas mentioned in section a) vaccination.
- b) Initiate a timely response to imported cases of measles or rubella, including activation of trained rapid response teams and implementation of national rapid response protocols (30, 31).
- c) Establish adequate in-hospital case management to avoid nosocomial transmission, mainly in outbreak situations, maintaining an adequate referral flow of patients in isolation wards (at any level of care), avoiding contact with other patients in waiting rooms and/or hospital wards of patients hospitalized for other causes.

Mass gatherings and international travelers

The following is a set of guidelines that health authorities can implement in the context of mass gatherings and international travelers.

- **In relation to travelers**

- Before travel

- PAHO/WHO recommends to Member States that any traveler 6 months of age⁵ and older who cannot show proof of vaccination or immunity be advised to receive **a dose of measles and rubella vaccine**, preferably MMR, **at least two weeks before traveling to areas where measles transmission has been documented**. PAHO/WHO recommendations regarding advice for travelers are available in the PAHO/WHO Epidemiological Update on measles published 27 October 2017 (32).

- It is recommended that health authorities inform the traveler before departure about the signs and symptoms of measles, which include:

- Fever,
 - Exanthema,
 - Cough, coryza (runny nose) or conjunctivitis (red eyes),
 - Joint pain,
 - Lymphadenopathy (swollen lymph nodes).

⁵ The dose of MMR or MR vaccine administered to children 6 to 11 months of age does not replace the first dose of the recommended scheme at 12 months of age.

During travel

Recommend to travelers that if during their trip they present symptoms that make them suspect that they have contracted measles or rubella, they should do the following:

- Seek immediate attention from a health care professional.
- Avoid close contact with others for seven days from the onset of the rash.
- Remain in the place where you are staying (e.g., hotel or home, etc.), except to go to the doctor, or as recommended by the health care professional.
- Avoid traveling and visiting public places.

Following the return from travel

- If travelers suspect that they have contracted measles or rubella upon return, they should contact their health care service.
- If a traveler presents any of the above symptoms, reporting their travel history to their physician is recommended.

- **Regarding physicians and other health professionals**

PAHO/WHO recommends:

- Promote the practice of requesting proof of measles and rubella immunization/vaccination in the health care sector (medical, administrative, and security personnel).
- Sensitize private sector health care workers on the need for immediate reporting of any measles or rubella case, to ensure a timely response by national public health authorities according to the standards of the national surveillance and response system.
- Continue to remind healthcare personnel of the need to ask about patients' travel history.

- **Identification and contact tracing of confirmed measles cases**

- Carry out activities for the identification and follow-up of contacts identified and present in the **national territory**, in accordance with the country's guidelines and directives.
- Take into account the **international implications** that may arise in the **follow-up of contacts**, and consider the following scenarios and operational aspects in the development of these activities:
 - a. When a case is identified by the national authorities of another Member State and the national authorities are requested to locate the contact(s) whose most likely place of residence is their country. National authorities are urged to use all available coordination mechanisms to locate these persons. The information available for this action may be limited and efforts should be rational and based on existing resources. Health services should be alerted to the possibility of such contacts so that they can be vigilant in detecting suspected cases.

- b. When a case is identified locally and depending on when detection occurs in the natural history of the disease, it may require:
 - *Current case*: National authorities should obtain information on the possible location of contacts abroad and inform the relevant national authorities of the country where the contact is presumed to be located accordingly.
 - *Retrospectively identified case*: according to the travel history of the case, the national authorities should inform the corresponding national authorities as this situation could be the first sign of virus circulation, or an outbreak, in the other country/countries concerned.
- c. Conduct active institutional and community searches in order to rapidly detect cases among those contacts that have not been identified in the outbreak investigation, following the travel route of the case(s).

Operational remarks

- If there is no involvement of international means of transport (e.g., planes, cruise ships, trains) in the possible exposure scenarios for a case/s, national authorities should communicate with their counterpart/s in the other countries through the relevant International Health Regulations (IHR) National Focal Point (NFP) or through other existing bilateral and multilateral programmatic mechanisms, with a copy to the WHO Regional IHR Contact Point. As needed, national authorities may request the support of the WHO Regional IHR Contact Point for the Americas to facilitate communications related to international contact tracing.
- If international means of transport (e.g., aircraft, cruise ships, trains) are involved as a possible scenario in exposure to a case(s), the national port health authorities or whoever may be acting for such authorities should activate existing mechanisms to obtain relevant information from companies (e.g., airlines) in order to locate travelers or establish such mechanisms in case they are absent. For further communication between national authorities see above.

Channels for the dissemination of guidelines

PAHO/WHO recommends that national authorities consider disseminating the guidelines in this document through:

- Public awareness campaigns to promote and improve the health of travelers before and after their trip so that they acquire responsible behaviors in relation to vaccination against measles and know the signs and symptoms of measles. For this activity, it is also recommended to take into account health care services or clinics for travelers, airports, ports, train and bus stations, airlines operating in the country, among others.
- Travel agencies, tourism-related entities and diplomatic corps should also be aware of and disseminate the necessary recommendations that a traveler should take into account prior to travel.
- Communication to physicians and other health workers of the contents of existing national surveillance guidelines, as well as timely dissemination of any new protocols that the country develops in relation to travelers.

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