Public Health Risk Assessment related to measles: implications for the Americas Region

24 March 2025

Risk assessment elaborated with the data available as of 14 March 2025

Overall risk
Regional
High

Confidence in available information
Regional
High

General Risk Statement

This rapid risk assessment (RRA) aims to assess the current risk to public health in the Americas Region, associated with the increase in measles outbreaks and cases during 2025 in some countries of the Region.

This RRA has been conducted considering the following criteria: (i) the potential risk to human health (including the clinical-epidemiological behavior of the disease, the risk of exposure, the indicators of magnitude and severity) based on the increasing trend of confirmation of cases during 2024 and 2025; (ii) the risk of dissemination, in particular the possible spread to countries with low vaccination coverage, and (iii) the risk to public health in relation to early detection, prevention, and control capacities in countries, especially those with low measles vaccination coverage.

After the elimination of measles in the Americas Region was declared in 2016, in the period from 2017 to 2019 there was an unusual and constant increase in confirmed cases of this disease *(1).* In 2019, the highest regional incidence rate was recorded, namely 21.5 cases per million population *(1).* The increase in reported cases during 2019 was due to large measles outbreaks in Venezuela and Brazil, which led to the reestablishment of endemic measles transmission and the loss of elimination *(2).* Between 2018 and 2023, the Americas Region reported a total of 49,187 confirmed cases of measles in 18 countries as a result of the importation of viruses from other regions of the world and the reestablishment of endemic transmission of the virus in two countries in the region, Venezuela and Brazil *(2).* During that period, the last endemic case of measles in the Americas Region was reported by Brazil in July 2022 *(2, 3).* By 2024, 465 confirmed cases of measles were registered, which were imported or related to importation *(3)*; that same year, the elimination of the endemic disease in the Americas Region was reverified.

In 2025, between epidemiological week (EW) 1 and EW 11 (ending on 15 March), 507 measles cases were confirmed in the Americas Region, showing a 5.5-fold increase compared to the 91 cases of measles reported in the same period in 2024 *(4 -8).* The cases presented during 2025 and as of 14 March, have been reported by four countries: Argentina (n= 11 cases), Canada (n= 173 cases), the United States of America (n= 301 cases, including two deaths[1]), and Mexico (n= 22 cases) *(4-8).*

The public health risk in the Americas Region for measles is considered **High** due to:

- The persistence of the circulation of the virus from imported cases, evidenced in a limited number of outbreaks, but with long chains of transmission due to the increase in the number of secondary cases and the appearance of cases associated with pre-existing outbreaks in new geographical areas in the four countries that register active outbreaks during 2025 *(4-8)*.
- It has not been possible to maintain an optimal level of vaccination coverage (≥95%) in most countries and territories of the Region. According to Measles, Mumps and Rubella (MMR) MMR1 and MMR2 vaccination

[1] One confirmed death and one under investigation.

coverage, reported by 42 countries and territories in the Americas in 2023, only 28.6% of countries achieved coverage greater than 95% for MMR1 and only 16.7% of countries achieved more than 95% coverage for MMR2. Regional coverage was 87% for MMR1 and 76% for MMR2 *(9)*. The coverage of 2024 is in the process of consolidation by the countries of the region *(9)*.

- Increase in the susceptible population[2] due to the persistence of low vaccination coverage related to factors such as the COVID-19 pandemic, increased vaccine hesitancy in some communities and sectors of the population, and limited access to health services particularly for vulnerable populations (migrants, displaced individuals, indigenous individuals, etc.) *(2)*.

The overall risk of this event in the Americas Region, especially in countries with low vaccination coverage, is classified as "High" with a "High" confidence level based on Available information.

The rapid risk assessment will be revised if more epidemiological, clinical or virological information becomes available.

Criteria		Evaluation		Risk	Rationale
		Likelihood	Consequences		
Potential risk to human health	**Regional**	Highly Likely	Moderate	High	• Measles is the most contagious disease globally and can cause serious illness, complications and even death. The disease is more severe in infants and adults, who are at increased risk of complications, including death *(3, 10, 11).* • The greatest risk is severe infection and superinfection, which can occur especially in immunocompromised patients who have recovered from measles months after infection *(3, 10,11).* • Despite the fact that there is a safe and cost-effective vaccine, it is estimated that in 2023 there were 107,500 deaths from measles worldwide, mostly children under five years of age who were not vaccinated or who had not received a complete vaccination schedule. Most measles deaths are due to complications related to the disease. These complications can include: blindness, encephalitis, severe diarrhea, ear infections, and severe respiratory problems, such as pneumonia *(10).* • In 2025, in the outbreaks currently registered in the United States, as of the date of this publication, two deaths have been recorded, one confirmed and one under investigation *(7).* • Vaccine hesitancy in some communities complicates efforts, hampering the effectiveness of the targeted response to outbreaks *(3).* During 2025, the occurrence of outbreaks and cases has been observed in communities with low vaccination coverage and vaccine hesitancy *(4).* • There is no specific antiviral treatment for measles *(3).* • In populations with high levels of malnutrition and lack of adequate health care, measles can have a case-fatality rate of up to 10% *(4).* The indigenous population and children under 5 years of age have shown greater vulnerability to this disease in the Americas Region *(12).*

[2] Any non-immune person (unvaccinated who has not previously had the disease or vaccinated but has not developed immunity)

Criteria		Evaluation		Risk	Rationale
		Likelihood	Consequences		
Risk of the event spreading	**Regional**	Highly Likely	Moderate	High	• Measles is a highly contagious viral disease that is transmitted through the air and through droplets. It can easily infect those who are not immune. When outbreaks occur in areas with high population density and inadequate vaccination coverage, the disease is very likely to spread rapidly *(3).* Secondary attack rates among susceptible family contacts of 75% to 90% have been reported. Given the high efficiency of measles transmission, outbreaks have been reported in populations where only 3% to 7% of individuals were susceptible *(1).* • Increase in the susceptible populations as a result of *low* vaccination coverage in general during the last few years, for all immunobiologics (***See Figures 1 -2***). • In the Americas Region, in 2025 there is a 5.5-fold increase in the number of cases compared to the cases reported in the same period in 2024. While most cases are imported or import-related, the source of infection is unknown in the outbreaks in the United States *(4-8).* • Although an improvement has been achieved in measles-rubella surveillance indicators, there are still countries that do not meet the minimum notification rate of two suspected cases per 100,000 population, in addition to other indicators, in a homogeneous way. This could delay detection, notification, confirmation, and rapid response actions *(13-15).* • Difficulty in maintaining adequate levels of vaccination in the migrant population and other at-risk populations within the Region. • Given that, globally, several countries in Europe, Central Asia, and Africa have areas of circulation of the virus, the identification of imported cases from these areas is expected. Intense migration from areas where the disease is endemic to areas where it is not could increase the risk of new outbreaks and cases. • The COVID-19 pandemic caused setbacks in surveillance and immunization efforts. The suspension of immunization services and declining immunization rates around the world left millions of children vulnerable to preventable diseases such as measles. Global coverage levels of the second dose of measles vaccines are even lower. Global gaps in vaccination coverage have created a pathway for the measles epidemic to spread globally. To alleviate this situation, since 2021, a total of 16 countries in the Region have conducted follow-up vaccination campaigns. Nine countries achieved vaccination coverage equal to or greater than 90%, reaching 41.5 million children aged 1 to 12 years. Significant efforts have also been made to improve epidemiological surveillance, with a sustained increase in the regional notification rate over the past four years: 2021: 1.4 cases per 100,000 population; 2022: 2.3 cases per 100,000 population; 2023: 2.4 cases per 100,000 population; and 2024: 2.8 cases per 100,000 population *(13-15).*
Risk of insufficient prevention and control capacity with available resources	**Regional**	Highly Likely	Moderate	High	• Vaccine hesitancy is a major problem in some populations. False information could encourage vaccine refusal, which could delay the implementation of outbreak response vaccination activities. • The occurrence of simultaneous outbreaks of arboviruses with fever and rash in some countries of the Region can make it difficult to detect cases in a timely manner, especially in areas where health personnel are not trained to make an adequate differential diagnosis. • The capacity of health services is overstretched due to the impact of concurrent public health emergencies. • Frequent turnover of health personnel, which creates gaps in knowledge and skills to respond quickly to measles and rubella outbreaks.

Background information

Hazard assessment

Measles
Measles is a highly contagious acute viral disease caused by the measles virus, which belongs to the genus *Morbillivirus* within the Paramyxoviridae family *(1, 2).* Humans are the only natural host of the virus. Sequential analyses of viral genes have shown that there are 24 genotypes of the measles virus globally *(1).* Detection of a specific viral genotype is useful for monitoring transmission and identifying the likely source of an outbreak. Vaccination protects against all genotypes *(1).* The measles virus spreads easily when an infected person breathes, coughs, or sneezes, and infects susceptible individuals of any age. It can lead to severe illness, complications or death and remains one of the leading causes of mortality in young children globally *(1-3).* The measles virus is transmitted by air or by droplets from the nose, mouth, or throat of an infected person, which come into contact with the mucous membranes of the upper respiratory tract or conjunctiva, either through close personal contact or contact with secretions from the respiratory tract. The virus can remain active and contagious in the air or on surfaces for up to two hours. For this reason, it is highly infectious, and a person infected with measles can infect up to 18 individuals in a susceptible population. The virus can be transmitted from four days before the onset of the rash (i.e., one to two days before the onset of fever) and up to four days after. Secondary attack rates among susceptible family contacts of 75% to 90% have been reported. Given the high efficiency of measles transmission, outbreaks have been reported in populations where only 3% to 7% of individuals were susceptible *(1-3).* The virus first infects the respiratory tract before spreading to other organs. The incubation period is 7 to 21 days from exposure to the onset of rash with a mean of 14 days *(1-3).* Measles can be a serious illness. The first symptoms of measles are fever (up to 40 °C), malaise, conjunctivitis, cough and rhinorrhea (coryza), followed by a rash with raised and flat areas (maculopapular rash). The rash usually appears 14 days after exposure to the virus and spreads from the head to the trunk and lower extremities. No specific antiviral treatment is available, and most individuals recover within two to three weeks. In populations with high levels of malnutrition and lack of adequate health care, measles can have a case-fatality rate of up to 10% *(1-3).* The disease is more severe in infants[3] and adults[4] than in children[5]. Complications may result from viral replication or an added bacterial infection, and include otitis media, pneumonia, laryngotracheobronchitis (croup), diarrhoea, encephalitis, and blindness. Post-infectious encephalitis can occur in about 1 in 1,000 reported cases of measles. There may be about 2 or 3 deaths for every 1,000 reported cases of measles. In malnourished children and immunocompromised individuals, such as those living with HIV, those affected by cancer, or those treated with immunosuppressants, as well as in pregnant women; measles can also lead to serious complications *(1-3).* In these countries, where malnutrition, especially vitamin A deficiency, and exposure to other infectious diseases, the measles case fatality rate is usually 3-6%, but can be as high as 30%, especially among displaced or isolated populations. In developed countries, death from measles is rare and the case fatality rate is usually 0.01-0.1%.

[3] Children between 1 and 23 months of age.

[4] Individuals between 19 and 44 years old.

[5] Individuals between 2 and 12 years of old.

Measles infection during pregnancy is associated with an increased risk of complications, such as miscarriages, premature births, low birth weight, and maternal death *(10, 16)*.

Since many diseases are accompanied by fever, rash, and various nonspecific symptoms, it is important to consider the differential diagnosis of measles. Laboratory tests are necessary for definitive diagnosis, as other infections can be confused with measles, such as rubella virus, parvovirus B19, human herpes virus 6 and 7, dengue virus, Zika, chikungunya, and *Streptococcus* pyogenes *infections (1, 17, 18).* Laboratory confirmation of measles is based on the detection of measles virus IgM antibodies by enzyme-linked immunosorbent assay (ELISA), or the detection of measles virus RNA by reverse transcriptase polymerase chain reaction (RT-PCR) in respiratory swabs (pharyngeal, nasal, or nasopharyngeal) or urine *(17, 18).*

Measles can be prevented through immunization. Administration of one dose of the vaccine at 12–15 months of age produces immunity in 93% of children; revaccination with a second dose increases immunity levels and causes them to reach 97%. In countries with low vaccination coverage, epidemics generally occur every two or three years and usually last two or three months, although the duration varies according to the size of the population, population density and the population's immunity status. In countries with relatively high vaccination coverage, there are generally periods of five to seven years during which few cases occur. However, if the number of susceptible individuals increases sufficiently to maintain widespread transmission, explosive epidemics may occur *(1-3).*

Exposure Assessment

Measles is one of six immunopreventable diseases that has been eliminated from the Americas Region *(3).* Most PAHO/WHO Member States introduced the measles, mumps, and rubella (MMR) vaccine between 1980 and the early 2000s. By 2002, endemic measles transmission in the Americas was over.

After the elimination of measles in the Americas Region was declared in 2016[6], between 2017 and 2019 there was an unusual and constant increase in confirmed cases of this disease *(1).* In 2019, the highest regional incidence rate since the elimination was recorded, namely 21.5 cases per one million population *(1).* The increase in reported cases during 2019 was due to large measles outbreaks in Venezuela and Brazil, where endemic measles transmission was reintroduced *(1).* Between 2018 and 2023, the Region reported a total of 49,187 confirmed cases of measles in 18 countries *(2).* During that period, the last endemic case of measles in the Americas Region was reported by Brazil in July 2022 *(2).* In November 2024, the elimination of measles in the Region was reverified.

In 2024, between EW 1 and EW 52, in the Americas Region, 17,887 suspected cases of measles were reported, of which 465 cases have been confirmed in Argentina (n= 14), Bermuda (n= 2), the Plurinational State of Bolivia (n= 3), Brazil (n= 5), Canada (n= 146), Mexico (n= 7), Peru (n= 2), Turks and Caicos (n= 2), and the United States (n= 284). According to the information available on confirmed cases, the age groups with the highest proportion of cases correspond to the 10-19 age group (27%), the 1–4-year-old group (25%), and the 20-29 age group (23%). Regarding the history of vaccination, 63% of the cases were not vaccinated and in 18% this information was unknown or absent *(4).*

Regarding the situation in 2025, following is a detailed situation summary for of the countries that have registered cases and/or outbreaks as of EW 11 of 2025 in the Americas Region.

[6] Measles elimination is defined as the interruption of measles transmission in a defined geographic area that has lasted at least 12 months and is verified after it has been maintained for at least 36 months *(2).*

Table 1. Summary of Measles cases reported up to March 2025 (as of EW 11)

Americas Region	
In 2025, between epidemiological week (EW) 1 and EW 11, in the Americas Region, 507 cases have been confirmed, including one death, in Argentina (n= 11), Canada (n= 173), the United States of America (n= 301, including two deaths[1]), and Mexico (n= 22). This total represents a 5.5-fold increase compared to the 91 measles cases reported in the same period in 2024 *(4-8).*	
Country / Territories	**Context**
Argentina	In Argentina, between EW 1 and EW 10 of 2025, a total of 11 cases of measles have been confirmed, of these, two are imported cases, seven are contacts related to the imported cases and two cases are considered community transmission because no direct contact with the confirmed cases could be identified. Seven cases correspond to residents of the Autonomous City of Buenos Aires (CABA per its acronym in Spanish) and four to residents of the Province of Buenos Aires. The first case was reported on 31 January 2025, in a six-year-old female, who arrived in the country on 22 January from Russia with stopovers in Vietnam, the United Arab Emirates, and Brazil. The minor had a favorable evolution and was treated on an outpatient basis. The second case, sister to the 20-month index case, was reported on 3 February 2025. The case developed fever on 29 January and rash on 3 February. Neither of the two minors had a history of measles vaccination. The tests confirmed the presence of the virus in both, by detection of the viral genome by rRT-PCR. Subsequently, between 14 February and 13 March, nine cases were confirmed, aged between 8 months and 40 years, who had no history of travel. Five of the seven resident cases of CABA live in condominium buildings. Only one case required hospitalization for pneumonia, the other cases were managed on an outpatient basis and are evolving favorably. Eight of the cases were confirmed at the National Reference Laboratory of the INEI-ANLIS "Carlos G. Malbrán" with identification of the B3 genotype *(5).*
Canada	In Canada, between EW 1 and EW 10 of 2025, 173 confirmed cases of measles were reported. Of the laboratory-confirmed cases, 166 were related to a previously diagnosed case and seven were imported. Eighty-one percent of cases were reported in the province of Ontario (n= 140), followed by 15% in the province of Quebec (n= 26), 3% in the province of Manitoba (n= 5), and 1% in the province of British Columbia (n= 2). Forty one percent of cases were between 5 and 19 years old, followed by 30% of cases who were over 20 years old. In terms of vaccination history in confirmed cases, 77% were unvaccinated, 9% had no known history of vaccination, 5% had received one dose of measles, mumps, and rubella (MMR) vaccine, and 9% had received two doses of MMR. Thirteen percent of the cases were hospitalized (n= 22) for isolation or treatment of complications. The D8 genotype was identified in 57 of the confirmed cases and B3 in four of the cases. Two outbreaks have been identified, both starting in 2024 *(6).*

Country / Territories	Context
Mexico	In Mexico, between EW 1 and EW 10 of 2025, 22 cases of measles have been confirmed by laboratory; two imported and 20 related to imports, located in the states of Oaxaca (n= 4) and Chihuahua (n= 18). Regarding the cases in the State of Oaxaca, the first case corresponds to a five-year-old female patient, from the United States and resident in Oaxaca, with no history of vaccination. This case has a history of travel between October 2024 and January 2025 to Thailand, the Lao People's Democratic Republic, Viet Nam, Japan, and the United States, arriving in Mexico on 29 January, the exanthema began on 10 February, establishing the period of transmissibility in the state. On 14 February, the Oaxaca State Public Health Laboratory reported positive RT-PCR and IgM results for measles. The genotype and lineage identified was B3, Lineage: MVs/An_Giang.VNM/27.24. Three cases have been identified in relation to this case *(7)*. On 20 February, the second confirmed case was reported in the State of Chihuahua in a 9-year-old male without vaccination history, who presented the onset of rash on 11 February and completed the period of transmissibility within his community, he was confirmed by the Chihuahua State Public Health Laboratory with positive RT-PCR and IgM results for measles. The genotype and lineage identified was D8, Lineage: MVs/Ontario.CAN/47.24, subsequently as part of the contact tracing and active search actions, 17 additional cases have been identified *(7).* Of the total number of cases, the most affected age group corresponds to individuals 5 to 9 years old with 50% of the cases (n= 11), followed by the 10 to 14 years old and 25 to 44 years old with 18% (n= 4) each. Regarding the vaccination history, it was found that 86% (n= 19) do not have a vaccination history, while 9% (n= 2) have one dose of MMR and 4% (n= 1) have two doses of MMR *(7).*
United States of America	In the United States, between EW 1 and EW 10 of 2025, 301 cases of measles have been reported, including two deaths (one of which is under investigation), in 12 states: Alaska (n= 2), California (n= 3), Florida (n= 1), Georgia (n= 3), Kentucky (n= 1), New Jersey (n= 3), New Mexico (n= 10, including one death under investigation), New York (n= 2), Pennsylvania (n= 1), Rhode Island (n= 1), Texas (n= 194, including one confirmed death), and Washington (n= 1). Of the total cases, 93% (n= 280) are associated with outbreaks (defined as three or more cases), with three outbreaks identified this year. Thirty-four percent (n= 103) of the cases correspond to children under 5 years of age, 42% (n= 126) to persons between 5 and 19 years of age, 21% (n= 63) to adults over 20 years of age, and 3% (n= 9) to individuals whose age is unknown. In terms of vaccination, 95% of cases were unvaccinated or had an unknown vaccination history, 3% had a single dose of MMR and 2% had two doses of MMR. Seventeen percent (n= 50) of the cases required hospitalization, mainly in children under 5 years accounting for 27% (n=28/103) *(8)*. MMR vaccination coverage in children has decreased in recent years from 95.2% in 2019-2020 to 92.7% in 2023-2024 *(4).*

Context Evaluation

According to estimates by the World Health Organization (WHO) and the United States Centers for Disease Control and Prevention (US CDC), there were 10.3 million cases of measles in the world in 2023, 20% more than in the previous year, due to insufficient vaccination coverage worldwide. Although measles is preventable with two vaccine doses, more than 22 million children did not receive their first dose of the measles vaccine in 2023. According to calculations, no dose has been administered to 83% of children, while only 74% of those vaccinated with the first dose have received the recommended second dose *(19)*. Additionally, there is an increase in the number of cases reported in countries of the European Union, where it has been reported that between 1 February 2024 and 31 January 2025, a total of 32,265 were diagnosed with measles *(20).* The increase in cases globally generates a greater risk of imported cases related to unvaccinated travelers from areas with high circulation of the virus.

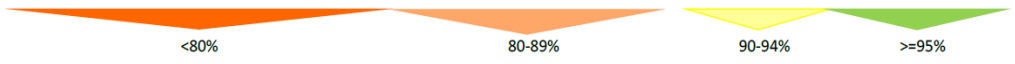
Given the increase in outbreaks and cases in countries where there is circulation of arboviruses such as dengue, chikungunya, and Zika, there may be challenges for health personnel in the timely identification of suspected cases of measles.

Vaccination coverage in the Americas Region

By 2023, 42 countries and territories in the Americas reported MMR1 and MMR2 vaccination coverage to PAHO. In relation to the application of the first dose of MMR1, 28.6% (n= 12/42) of the countries and territories in the Region have coverage greater than 95%, 35.7% (n= 15/42) have coverage between 90-94%, 21.4% (n= 9/42) coverage between 80-89%, and 14.3% (n= 6/42) coverage less than 80% (**Figure 1**) *(19)*. With respect to the application of the second MMR2 dose, only 16.7% of countries and territories (n= 7/42) have a coverage level greater than 95%, while 50.0% (n= 21/42) have a coverage level of less than 80% (**Figure 2**). Coverage for the Americas Region is 87% for MMR1 and 76% for MMR2 *(21, 22).*

Figure 1. Distribution of countries and territories according to coverage range for the first dose of measles, mumps, and rubella (MMR1) vaccine, Americas Region, 2013-2023.

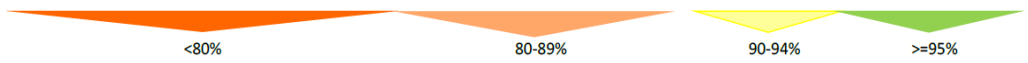
Country /Territory	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
Antigua and Barbuda	94%	100%	85%		97%	96%	100%	88%	102%	102%	103%
Argentina	80%	85%	86%	77%	86%	94%	90%	90%	89%	95%	94%
Aruba	93%	92%	94%		95%	97%	97%				
Bahamas (The)	86%	80%	82%	87%	83%	89%	90%	89%	94%	92%	92%
Barbados	89%	85%	77%	89%	101%	85%	92%	92%	96%	95%	
Belize	93%	81%	79%	82%	96%	97%	90%	95%	96%	95%	99%
Bermuda	95%	85%	92%	99%	108%	87%	87%				
Bolivia (the Plurinational State of)	68%	69%	75%	74%	79%	89%	83%	94%	95%	86%	83%
Brazil	87%	81%	73%	79%	91%	92%	87%	95%	96%	112%	107%
British Virgin Islands (the)	86%	73%	83%	99%	84%	94%	87%				
Canada	92%	92%	90%	90%	90%	90%	90%	89%	89%	90%	90%
Cayman Islands	94%	92%	85%	82%		90%	92%				
Chile	94%	94%	92%	91%	95%	93%	93%	93%	96%	97%	90%
Colombia	93%	88%	86%	91%	95%	95%	93%	93%	94%	91%	92%
Costa Rica	93%	90%	89%	95%	95%	94%	96%	93%	93%	95%	91%
Cuba	100%	100%	100%	98%	100%	100%	100%	100%	101%	102%	103%
Curacao					92%	89%	78%				
Dominica	98%	87%	88%	92%	92%	84%	77%	96%	96%	94%	93%
Dominican Republic (the)	94%	101%	88%	82%	96%	95%	86%	85%	90%	88%	83%
Ecuador	97%	74%	65%	81%	83%	83%	81%	86%	84%	85%	97%
El Salvador	100%	80%	97%	84%	96%	81%	85%	94%	95%	94%	94%
Grenada	82%	76%		83%	94%	84%	85%	95%	99%	94%	102%
Guatemala	88%	86%	88%	89%	90%	89%	94%	89%	98%	68%	91%
Guyana	103%	103%	95%	106%	98%	98%	100%	101%	101%	100%	100%
Haiti	94%	76%	73%	84%	84%	88%	75%	90%	79%	79%	93%
Honduras	77%	77%	81%	82%	89%	91%	98%	102%	98%	88%	89%
Jamaica	93%	91%	88%	93%	94%	89%	95%	95%	91%	92%	94%
Mexico	76%	86%	103%	104%	73%	97%	76%	97%	101%	98%	89%
Nicaragua	101%	110%	100%	114%	116%	113%	118%	114%	116%	113%	114%
Panama	88%	87%	92%	80%	97%	105%	98%	101%	102%	90%	92%
Paraguay	101%	42%	56%	68%	75%	81%	80%	91%	66%	72%	75%
Peru	84%	74%	78%	77%	85%	98%	82%	89%	92%	89%	85%
Saint Kitts and Nevis	95%	95%	96%	95%	97%	96%	93%	98%	95%	93%	99%
Saint Lucia	85%	81%	77%	89%	96%	86%	87%	105%	97%	102%	101%
Saint Vincent and the Grenadines	90%	99%	96%	113%	113%	101%	101%	100%	112%	101%	100%
Sint Maarten						90%	86%				
Suriname	92%	95%	79%	66%	85%	98%	97%	97%	94%	85%	93%
Turks and Caicos	100%	94%	86%	95%	96%	92%	88%				
United States of America (the)		92%	92%	91%	90%	92%	91%	92%	92%	92%	92%
Uruguay	96%	96%	93%	95%	96%	97%		95%	96%	96%	96%
Venezuela (Bolivarian Republic of)	68%		68%	76%	93%	74%	96%	88%	92%	89%	85%



Source: Adapted from the World Health Organization. Vaccination coverage against measles, mumps, and rubella. Geneva: WHO; 2025 [cited 12 March 2025]. Available from: https://immunizationdata.who.int/compare.

Figure 2. Distribution of countries and territories according to coverage range for the second dose of measles, mumps, and rubella (MMR2) vaccine, Americas Region, 2013-2023.

Country /Territory	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
Antigua and Barbuda	87%	100%	76%		71%	95%	95%	68%		100%	87%
Argentina	54%	94%	79%	71%	84%	101%	91%	88%	87%	96%	83%
Aruba	81%	83%	76%		85%	83%	89%				
Bahamas (The)	53%	65%	80%	83%	83%	69%	76%	74%	76%	72%	69%
Barbados	76%	73%	70%	78%	85%	74%	77%	87%	89%	91%	
Belize	88%	77%	77%	87%	95%	91%	88%	96%	95%	92%	92%
Bermuda	75%	58%	65%	74%	102%	70%	65%				
Bolivia (the Plurinational State of)	50%	49%	56%	46%	44%	38%		48%			
Brazil	64%	58%	46%	44%	54%	76%	67%	77%	80%	89%	69%
British Virgin Islands (the)	73%	78%	70%	97%	78%	83%	76%				
Canada	79%	79%	83%	83%	87%	87%	87%	86%	86%	86%	86%
Cayman Islands	86%	71%	68%	62%		70%	94%				
Chile	70%	81%	91%	83%	91%	93%	90%	87%	89%	88%	78%
Colombia	84%	84%	86%	88%	89%	88%	89%	87%	86%	88%	72%
Costa Rica	83%	75%	69%	81%	102%	103%	93%	87%	90%	90%	92%
Cuba	99%	100%	100%	99%	100%	100%	100%	100%	103%	102%	103%
Curacao					78%	66%	59%				
Dominica	99%	87%	87%	90%	92%	81%	81%	92%	94%	89%	91%
Dominican Republic (the)	70%	87%	60%	55%	60%	31%					
Ecuador	81%	60%	58%	70%	76%	74%	73%	64%	76%	59%	83%
El Salvador	71%	72%	80%	66%	103%	85%	86%	87%	88%	85%	85%
Grenada	84%	68%		79%	82%	74%	79%	85%	89%	92%	85%
Guatemala	77%	71%	79%	79%	78%	78%	89%	67%			
Guyana	99%	102%	83%	97%	92%	84%	93%	94%	95%	91%	95%
Haiti	67%	46%	44%	46%	47%	43%	28%	30%			
Honduras	74%	70%	75%	79%	85%	94%					
Jamaica	89%	83%	85%	89%	92%	82%	95%	85%	83%	72%	71%
Mexico	74%	83%	97%	83%	73%	99%	62%	98%	96%	96%	76%
Nicaragua	98%	102%	86%	101%	100%	95%	84%				
Panama	77%	75%	75%	74%	97%	100%	93%	102%	92%	90%	68%
Paraguay	63%	41%	55%	60%	71%	71%	70%	75%	60%	64%	64%
Peru	66%	54%	60%	52%	66%	75%	65%	68%	63%	44%	8%
Saint Kitts and Nevis	94%	93%	94%	99%	98%	96%	95%	96%	90%	90%	94%
Saint Lucia	83%	63%	66%	71%	75%	68%	73%	88%	95%	79%	62%
Saint Vincent and the Grenadines	92%	100%	94%	108%	152%	141%	112%	100%	99%	98%	96%
Sint Maarten											
Suriname	66%	65%	58%	35%	43%	39%	70%	43%	28%	18%	18%
Turks and Caicos	96%	98%	80%	83%	88%	83%	86%				
United States of America (the)					95%	94%		94%			
Uruguay	90%	92%	82%	91%	99%	91%		92%	93%	93%	92%
Venezuela (Bolivarian Republic of)	39%		37%	28%	13%	39%	59%	53%	52%	50%	38%



Source: Adapted from the World Health Organization. Vaccination coverage against measles, mumps, and rubella. Geneva: WHO; 2025 [cited 12 March 2025]. Available from: https://immunizationdata.who.int/compare.

Integrated measles and rubella surveillance indicators

According to the information published in the Measles-Rubella-Congenital Rubella Syndrome bulletin, after the COVID-19 pandemic, an improvement in epidemiological surveillance indicators has been achieved in most countries in the Region. However, there are still challenges to ensure that improvement is homogeneous among all Member

States *(22, 23)*. As a result, some countries and territories that have not yet optimally re-established surveillance may not be able to detect imported cases in a timely manner and implement rapid response actions to control transmission and large-scale outbreaks (**Table 2**).

Table 2. Measles and Rubella Surveillance Indicators Latin America and the Caribbean, 2019-2024*

Measles and rubella integrated surveillance indicators	Year					
	2024	2023	2022	2021	2020	2019
Annual rate of suspected measles and rubella cases per 100,000 population	2.8	2.4	2.3	1.4	3.9	14.2
Number of suspected cases of measles and rubella	18,658	15,853	15,319	9,399	25,458	91,817
% suspected cases with adequate investigation	83	81	81	70	64	74
% suspected cases with adequate samples	92	92	91	82	75	84
% suspected cases with blood samples received in laboratory ≤ 5 days	80	81	77	71	80	83
% suspected cases with laboratory results in ≤4 days	88	84	78	71	64	34

*Note: Data as of 10 February 2025. Canada and the United States of America do not report suspected cases to PAHO.

Source: Adapted from the Pan American Health Organization/World Health Organization. Data from the Special Comprehensive Immunization Program (CIM), annual Measles-Rubella bulletins (2022 and 2023) and biweekly Measles-Rubella bulletin Vol. 31, No. 09-10 *(13-15, 24)*.

Between 2019 and 2024, measles and rubella surveillance indicators in Latin America and the Caribbean have shown significant variations. The annual rate of suspected cases per 100,000 population was 14.2 in 2019, which could be related to the outbreaks registered during 2019, after this the notification rate has remained between 3.9 and 2.7, only in 2021 the rate was below the established goal of 1.4 cases per 100,000 population. The percentage of suspected cases with adequate investigation reached 78% in 2024, while the percentage of samples with laboratory results reported in ≤ 4 days improved from 34% in 2019 to 88% in 2024 *(13-15, 24)*.

Table 3. Strengths and Vulnerabilities of the Countries and Territories of the Americas Region in Relation to Measles, March 2025.

Strengths	Vulnerabilities
Coordination • In 2022, the Pan American Health Organization published the new Regional Framework for the Monitoring and Re-verification of the Elimination of Measles, Rubella, and Congenital Rubella Syndrome in the Americas, which updated the basic principles, essential criteria, and components of the original 2011 plan of action to verify measles elimination in each country.	**Coordination** • The frequent turnover and rotation of authorities and health personnel in the Ministries of Health of several countries makes it difficult to coordinate monitoring, training and cooperation activities to sustain the elimination of measles, rubella and congenital rubella syndrome (CRS).

Strengths	Vulnerabilities
Surveillance • PAHO/WHO has published guidelines for use at the national and district levels, including case definitions, instructions for specimen collection and referral to laboratories, as well as for the management of control efforts. • There is the Regional Integrated Epidemiological Surveillance System for Measles and Rubella (ISIS), to which 21 countries and the non-Latin Caribbean region individually report each suspected and confirmed case of measles, rubella and congenital rubella syndrome (CSR). • PAHO has issued regional epidemiological alerts and updates on measles along with recommendations for Member States *(25)*. • Several countries in the region have surveillance capacities that have allowed them to respond immediately and effectively to the identification of imported cases, managing to interrupt circulation quickly, showing their strengths in the control measures implemented (vaccination of affected age groups, active community and institutional searches, isolation of cases and follow-up of their contacts).	**Surveillance** • The high turnover of health personnel and the negative impact of the COVID-19 pandemic has generated gaps in the knowledge of basic concepts of surveillance and rapid response to outbreaks, including essential practices. • Homogeneity in the performance of surveillance indicators at the national and subnational levels, including the notification of suspected cases, given that there are municipalities that do not report suspected cases or meet the negative notification criteria (silent municipalities) in the countries of the Americas.
Laboratory • A regional network of measles and rubella laboratories has been established in the Americas since 1995. It comprises 21 National Laboratories, two Regional Reference Laboratories, one Specialized World Laboratory and 110 Sub-National Laboratories. • As part of the laboratory support and technical expertise provided by PAHO in the post-elimination phase (once elimination has been declared), technical guidance has been developed and disseminated on an ongoing basis regarding testing strategies, correlation and interpretation of results, training, and technology transfer to enhance the capacity of national laboratories to provide results for classification It is important to optimize the response of the countries' surveillance system to detect imported viruses and provide guidance from the laboratory for the study of chains of transmission. • Technical assistance and follow-up with laboratories in countries that have had cases/outbreaks.	**Laboratory** • Failure to obtain blood, respiratory or urine samples for serological and virological tests to facilitate the confirmation of cases. • Decrease in the Positive Predictive Value of IgM assays related to the low prevalence of the disease; Additional samples and additional laboratory tests are required for proper classification of cases.

Strengths	Vulnerabilities
Immunization • PAHO/WHO promotes mass preventive vaccination campaigns. • The Revolving Fund (RF) for Access to Vaccines provides technical cooperation to national immunization programmes to improve vaccine demand planning, strengthen supply chain management and forecasting capacities, and ensure their financing and sustainability *(26, 27).* • Publication of guidelines for inventory management. • The countries of the Region have implemented the methodology of "Microplanning of high-quality vaccination activities" in routine programs or vaccination intensification campaigns. This methodology allows for a focus on detailed planning at the local level to optimize access and timely response to vaccine-preventable disease outbreaks.	**Immunization** • In some countries in the region, reaching some vulnerable populations, such as indigenous groups, peasants, among others in remote and hard-to-reach geographical areas can generate challenges in the implementation of vaccination activities. • Some individuals and population groups remain reluctant to vaccinate due to beliefs and misinformation about vaccines. • The accumulation of susceptible due to low vaccination coverage, coupled with the absence of follow-up vaccination campaigns or the implementation of follow-up campaigns that fail to achieve high-quality criteria, such as vaccination coverage equal to or greater than 95% at the national level and in at least 80% of the country's municipalities, over a 16-week time period.
Risk Communication and Community Engagement • Strengthening of the coordination of partners. • In countries where outbreaks have occurred, risk communication and community engagement have been enhanced to reinforce their commitment to immunization and recommended actions. • The countries of the Region have Safe Vaccination Committees, which play a fundamental role in risk communication and in the development of messages and technical information for the different target audiences. They also assist in the analysis and response to Events Presumably Attributable to Vaccination or Immunization (ESAVI), ensuring an evidence-based approach.	**Risk Communication and Community Engagement** • Limited understanding of risk perception and health-seeking behaviors of affected populations and low level of knowledge regarding measles. • Low level of information regarding the risk for travelers going to areas where there are active outbreaks.

References

1. Pan American Health Organization / World Health Organization. Measles elimination: Field Guide. Washington, D.C.: PAHO/WHO; 2007. Available from: https://www.paho.org/en/documents/measles-elimination-field-guide.
2. Pan American Health Organization / World Health Organization. Action Plan for the Sustainability of the Elimination of Measles, Rubella and Congenital Rubella Syndrome in the Americas 2018-2023: Final Report – 6 August 2024. Washington, D.C.: PAHO/WHO; 2024. Available from: https://iris.paho.org/handle/10665.2/64601.
3. Pan American Health Organization / World Health Organization. Measles. Washington, D.C.: PAHO/WHO; 2025 [cited 12 March 2025]. Available from: https://www.paho.org/en/topics/measles.
4. Pan American Health Organization / World Health Organization. Epidemiological Alert: Measles in the Americas Region, 28 February 2025. Washington, D.C.: PAHO/WHO; 2025. Available from: https://www.paho.org/en/documents/epidemiological-alert-measles-americas-region-28-february-2025.
5. Ministerio de Salud de la República de Argentina. Boletín Epidemiológico Nacional N°747, SE 10, Año 2025. Buenos Aires: MINSAL; 2025. Available from: https://www.argentina.gob.ar/sites/default/files/2025/01/ben_747_se_10.pdf.
6. Public Health Agency of Canada. Measles and Rubella Weekly Monitoring Report: Week 9 (February 23 to March 1, 2025). Ontario: PHAC; 2025. Available from: https://www.canada.ca/en/public-health/services/publications/diseases-conditions/measles-rubella-surveillance/2025/week-9.html.
7. Secretaria de Salud de México. Aviso Epidemiológico. Situación epidemiológica de sarampión en México 2025. Mexico City: CONAVE; 2025. Available from: https://www.gob.mx/cms/uploads/attachment/file/983437/AE_Sarampion__20250312.pdf.
8. United States Centers for Disease Control and Prevention. Measles cases and outbreaks. Atlanta: CDC; 2025 [cited 18 March 2025]. Available from: https://www.cdc.gov/measles/data-research/index.html.
9. Pan American Health Organization / World Health Organization. Epidemiological Alert: Measles in the Americas Region, 28 October 2024. Washington, D.C.: PAHO/WHO; 2024. Available from: https://www.paho.org/en/documents/epidemiological-alert-measles-americas-region-28-october-2024 .
10. World Health Organization. Measles. Geneva: WHO; 2025 [cited 12 March 2025]. Available from: https://www.who.int/news-room/fact-sheets/detail/measles.
11. Heymann DL: Editor. Control of Communicable Diseases Manual. 21st ed. Washington, D.C.: American Public Health Association; 2022.
12. Pastor D, Bravo P, Durón R, Tirso C, Ortiz C, Rey G. Factores de riesgo y medidas de control en brotes de sarampión en países de la Región de las Américas, 2017-2023. Revista Panamericana de Salud Pública 2024; 48:10 p. Washington, D.C.: PAHO/WHO; 2024. Available from: https://doi.org/10.26633/RPSP.2024.105.
13. Pan American Health Organization / World Health Organization. Bulletin 2022 Epidemiological Weeks 1-52 Measles, Rubella and Congenital Rubella - Vol. 28, Epi-Week 1-52 of 2022. Washington, D.C.: PAHO/WHO; 2024. Available from: https://www.paho.org/en/documents/bulletin-2022-epidemiological-weeks-1-52-measles-rubella-congenital-rubella.
14. Pan American Health Organization / World Health Organization. Bulletin 2023 Epidemiological Weeks 1-52 Measles, Rubella and Congenital Rubella - Vol. 29, Epi-Week 1-52 of 2023. Washington, D.C.: PAHO/WHO; 2024. Available from: https://www.paho.org/en/documents/bulletin-2023-epidemiological-weeks-1-52-measles-rubella-congenital-rubella.

15. Pan American Health Organization / World Health Organization. BiWeekly Measles-Rubella Newsletter Vol. 31, No. 09-10 – 8 March 2025. Washington, D.C.: PAHO/WHO; 2024. Available from: https://www.paho.org/en/documents/measles-rubella-bi-weekly-bulletin-09-10-8-march-2025.

16. World Health Organization. Guide for clinical case management and infection prevention and control during a measles outbreak. Geneva: WHO; 2025. Available from: https://iris.who.int/bitstream/handle/10665/331599/9789240002869-eng.pdf.

17. World Health Organization. Measles vaccines: WHO position paper, April 2017. Geneva: WHO; 2017.Available from: https://www.who.int/publications/i/item/who-wer9217-205-227.

18. Pan American Health Organization. Instrument for the diagnosis and care of patients with suspected arboviruses. Washington, D.C.: PAHO; 2016. Available from: https://iris.paho.org/handle/10665.2/33895.

19. World Health Organization. Measles cases surge worldwide, infecting 10.3 million people in 2023. Geneva: WHO; 2023. Available from: https://www.who.int/news/item/14-11-2024-measles-cases-surge-worldwide--infecting-10.3-million-people-in-2023.

20. European Centre for Disease Prevention and Control. Measles on the rise again in Europe: time to check your vaccination status. Solna: ECDC; 2025. Available from: https://www.ecdc.europa.eu/en/news-events/measles-rise-again-europe-time-check-your-vaccination-status.

21. World Health Organization. Vaccination coverage against measles, mumps, and rubella. Geneva: WHO; 2025 [cited 12 March 2025]. Available from: https://immunizationdata.who.int/compare.

22. Pan American Health Organization / World Health Organization. BiWeekly Measles-Rubella Bulletin Vol. 30, No. 51-52. Washington, D.C.: PAHO/WHO; 2025. Available from: https://www.paho.org/en/documents/measles-rubella-bi-weekly-bulletin-51-52-28-december-2024.

23. Pan American Health Organization / World Health Organization. Surveillance of Measles, Rubella and Congenital Rubella Syndrome in the Americas. Vol. 31, No. 01-02. Washington, D.C.: PAHO/WHO; 2024. Available from: https://www.paho.org/en/documents/measles-rubella-bi-weekly-bulletin-01-02-11-january-2025.

24. Pan American Health Organization/World Health Organization. Data Special Comprehensive Immunization Program (CIM). Washington, D.C.: PAHO/WHO; 2025. Unpublished.

25. Pan American Health Organization/World Health Organization. Epidemiological updates and alerts. Washington, D.C.: PAHO/WHO; 2025. Available from: https://www.paho.org/en/epidemiological-alerts-and-updates.

26. Pan American Health Organization/World Health Organization. Reports of the meetings of the Technical Advisory Group (TAG) on Vaccine-Preventable Diseases. Washington, D.C.: PAHO/WHO; 2025. Available from: https://www.paho.org/en/technical-advisory-group-vaccine-preventable-diseases.

27. Pan American Health Organization/World Health Organization. Immunization Toolbox: Access to Vaccines Revolving Fund. Washington, D.C.: PAHO/WHO; 2025. Available from: https://www.paho.org/en/topics/immunization/immunization-toolkit/immunization-toolkit-revolving-fund-access-vaccines.