

Given the decline in vaccination coverage recorded mainly during the period of the COVID-19 pandemic and the current increase in pertussis (whooping cough) cases globally and in some countries of the Region of the Americas, the Pan American Health Organization/World Health Organization (PAHO/WHO) encourages Member States to strengthen their surveillance activities and to maintain constant monitoring of vaccination coverage in vaccinated children, the Pan American Health Organization/World Health Organization (PAHO/WHO) encourages Member States to strengthen their surveillance activities and to maintain constant monitoring of vaccination coverage in children under 1 and under 5 years of age, with special emphasis on identifying population groups with inadequate vaccination coverage.

Summary of the situation

During the decade from 2010 to 2019, an average of 170,000 cases of pertussis were reported annually globally, with a significant decrease observed during the period of the COVID-19 pandemic, with an average report of 53,940 cases, three times lower than that recorded during the previous period. The year 2021 was the year with the lowest number of cases reported globally, with 29,623 cases reported (2). In the Region of the Americas, 2012 was the year with the highest number of cases reported during the decade, with 72,328 reported cases of pertussis. Since that year, there has been a progressive annual decrease in the number of cases reported, reaching the lowest number of cases reported in 2022, with 3,283 cases (Figure 1) (2).

During 2023, 32,037 cases were reported in the World Health Organization (WHO) European Region. While the number of cases reported in 2023 was below the average from 2012 to 2019, a significant increase was recorded in the second half of 2023, and during the first months of 2024. On 8 May 2024, the European Centre for Disease Prevention and Control (ECDC) reported that between 1 January and 31 March, 2024, more cases were reported than during all of 2023 (3).

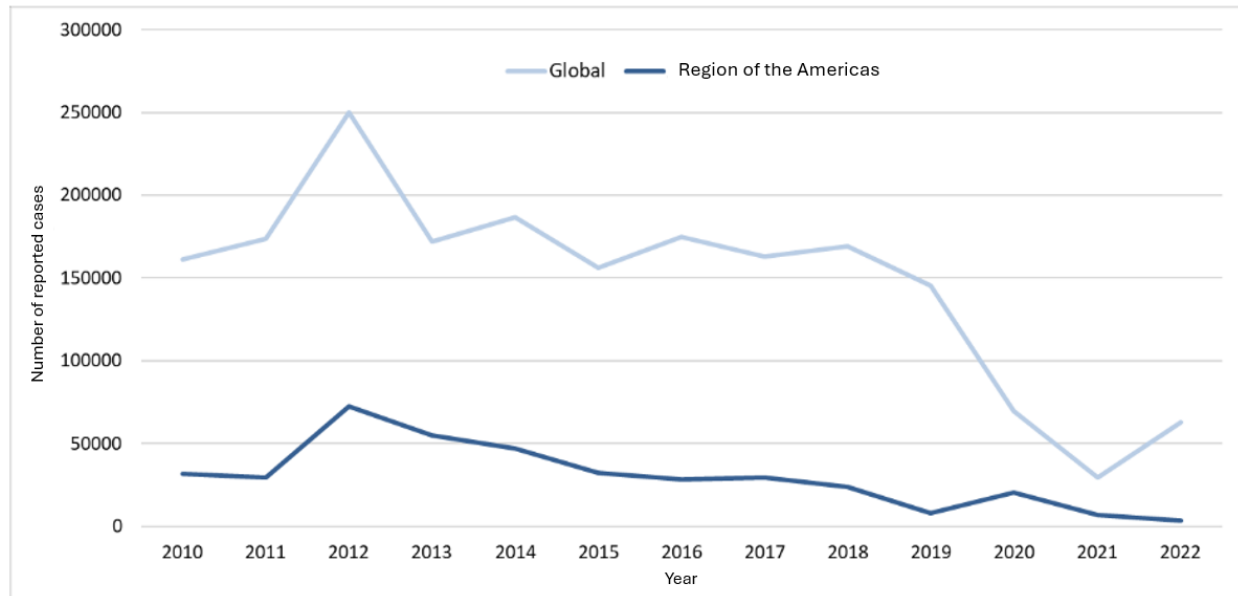
Pertussis (ICD-11 IC12.0)

Pertussis, (whooping cough or pertussis), is a highly contagious respiratory infection caused by the bacterium *Bordetella pertussis*. It is easily transmitted from person to person, mainly through droplets produced by coughing or sneezing. It is usually more severe in children and is a major cause of illness and death in this group (1).

The first symptoms usually appear 7 to 10 days after infection. They include mild fever, runny nose, and cough, which often gradually evolves into a dry cough followed by whooping cough (hence the name of the disease). Pneumonia is a relatively common complication; other complications such as seizures and brain disease are rare. Persons with pertussis are contagious until about three weeks after the cough begins, and many children who contract the infection have coughing fits that last from 4 to 8 weeks (1).

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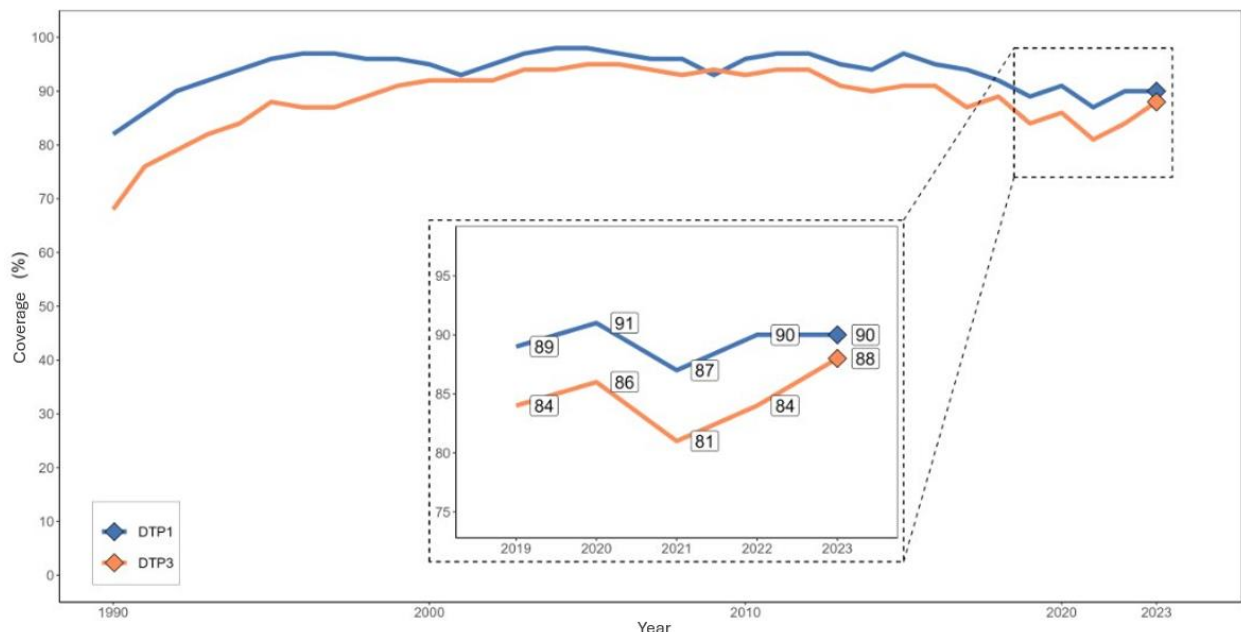
Figure 1. Pertussis cases reported globally and in the Region of the Americas, during 2010 to 2022.



Source: Adapted from World Health Organization, The Global Health Observatory, Pertussis - number of reported cases. Geneva: WHO; 2024. Available from: <https://www.who.int/data/gho/data/indicators/indicator-details/GHO/pertussis-number-of-reported-cases>

The first and third doses of diphtheria, tetanus, and pertussis vaccines (DTP1 and DTP3) are commonly used as tracers of immunization coverage in countries, both in the Region of the Americas and in the world. The trend in coverage for both first and third doses has shown a significant decline mainly during the period of the COVID-19 pandemic (4). The year 2021 was the lowest coverage year in the Region of the Americas when compared with the previous 20 years, when DTP1 and DTP3 coverage was 87% and 81%, respectively. Updated coverage data for 2023 report a recovery of 90% for DTP1 and 88% for DTP3, taking into account that there is variation in coverage between countries in the Region of the Americas and at the subnational level in each country. **Figure 2** (5) shows the history from 1990 to 2023 of DTP1 and DTP3 immunization coverage in the Region of the Americas, with a special focus on the years 2019 and 2023 (5).

Figure 2. Coverage for DTP1 and DTP3 in the Region of the Americas, period 1990 to 2023.



Source: Official coverage data reported by countries in the PAHO/WHO and UNICEF Immunization Joint Reporting Form (eJRF). Accessed on July 8, 2024.

The following is a summary of the situation in countries reporting an increase in pertussis cases during 2024 compared to 2023 (listed in alphabetical order).

In **Brazil**, from epidemiological week (EW) 1 to EW 26 of 2024, 973 suspected cases of pertussis were reported, while 1,465 suspected cases were reported throughout 2023. Of these, up to EW 26, 240 cases were confirmed during 2024 compared to 217 confirmed in the same period of 2023. The states with the most pertussis cases in 2024 are São Paulo (n= 157), Paraná (n= 26), Minas Gerais (n=15) and Rio Grande do Sul (n=12) (6).

In **Mexico**, between EW 1 and EW 26 of 2024, 154 cases of pertussis were reported, a record 242% higher than that reported during the entire year 2023. The states with the highest concentration of cases are Baja California (n= 39) and Chihuahua (n=28) (7).

In **Peru**, between EW 1 and EW 22 of 2024, 24 confirmed cases of pertussis were reported, higher than the 5 cases reported in the same period of 2023. The department of Amazonas has the highest number of confirmed cases in the country (8).

In the **United States of America**, between EW 1 and EW 26 of 2024, 7,251 pertussis cases were reported, 300% higher than reported during the same period in 2023. Between EW 1 and EW 26 of 2019, 6,314 pertussis cases were reported, indicating only a 15% increase in reported cases in 2024 over pre-COVID-19 pandemic numbers. In 2024, the states with the most pertussis cases are Pennsylvania (n= 1,035) and California (n= 702) (9).

Recommendations

Member States are reminded of the main recommendations for surveillance, clinical management, prophylaxis, and risk communication.

Surveillance

Strengthen surveillance to monitor the disease burden and evaluate the impact of the vaccination strategy implemented in the country. In addition, countries are encouraged to strengthen their laboratory diagnostic capabilities, which will improve the reporting and characterization of pertussis outbreaks in the Region. Each pertussis outbreak should be carefully studied to improve understanding of the epidemiology of the disease in the Region of the Americas. Member States are encouraged to intensify surveillance efforts in hospitalized infants under one year of age.

Diagnosis and laboratory.

The diagnostic tests used in the laboratory for the detection of *B. pertussis* infection are culture, polymerase chain reaction (PCR) and serology (10).

The reference etiological diagnosis is the culture of *B. pertussis*, from nasopharyngeal samples taken during the catarrhal and initial cough phase. It is a very specific test, but not very sensitive (less than 60%) and requires selective media. Culture positivity is higher in samples obtained during the first two weeks of cough onset.

PCR for *Bordetella* is a more sensitive test and can be performed on the same types of specimens used for culture. PCR is most sensitive on specimens obtained within the first three to four weeks of cough onset.

Serological diagnosis is based on the detection of a significant increase in the concentration of specific antibodies in paired samples (catarrhal phase and convalescent phase) of infected persons. Serological tests are not recommended in children under 1 year of age due to the potential interference of maternal antibodies, an immature immune system or interference with antibodies generated by recent vaccination. This test cannot be used for diagnosis during the year following vaccination (11).

Vaccination

Vaccines are not available against pertussis alone, they are produced in combination with diphtheria and tetanus antigens, usually known as DPT (diphtheria, pertussis, tetanus). DPT vaccine can be administered after six weeks of age and three doses are required in the primary series. Booster doses are required to maintain levels of immunity against the disease (12).

It is important to analyze vaccination coverage in children 1 year old and under 5 years of age, with special emphasis on identifying population groups with low coverage. Countries should ensure coverage with three doses of vaccine against *B. pertussis* higher than 95% in children (regional target) (12).

It is recommended to vaccinate health care workers, giving priority to maternity ward personnel and caregivers of newborns and children under 1 year of age, in order to prevent nosocomial transmission to infants and immunocompromised persons (12).

Immunizing pregnant women in the event of an outbreak provides optimal protection to newborns. For this vaccination strategy to be effective, it is important to achieve and maintain vaccination coverage above 50% (12).

Clinical management

Respiratory isolation is recommended for identified cases. Suspected cases should be kept separate from infants and young children, especially unimmunized infants, until the patients have received antibiotics for at least five days. Suspected cases not receiving antibiotics should be kept in isolation for three weeks after the onset of paroxysmal cough or until the paroxysmal cough disappears, whichever occurs first (13).

Treatment

Erythromycin, clarithromycin and azithromycin may shorten the period of transmissibility, but probably do not reduce the severity or duration of the condition unless administered before the onset of the paroxysmal stage (11).

Risk communication

- Promote the dissemination of public health messages to physicians and the general population to improve early recognition, reporting and prompt initiation of treatment of these cases.

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