

Section: EPIDEMIOLOGY

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Increased pertussis vaccine uptake during the disease outbreak

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INTRODUCTION: Pertussis is caused by the bacterium *Bordetella pertussis* and is characterized by intense coughing followed by an inspiratory 'whoop.' It is transmitted by airborne droplets and primarily affects infants younger than six months. Vaccination is the most effective prevention strategy. A marked increase in cases occurred in 2024. This study therefore analyzed the epidemiologic profile of pertussis over the past decade and its association with vaccine uptake. **METHODOLOGY:** This retrospective ecological study was based on notification records and the pertussis vaccination coverage rate (VCR) from 2014 to 2024. Information was obtained from the Notifiable Diseases Information System, the Informatics Department of the Brazilian Unified Health System, and the Department for Monitoring, Evaluation, and Dissemination of Strategic Health Information. Data were collected in January 2025 and entered into Microsoft Excel. One-way analysis of variance assessed the age group with the highest concentration of cases, and quadratic regression correlated the number of cases with VCR. **RESULTS:** Two pertussis outbreaks occurred during the period, with 8,620 and 6,005 cases, respectively. In 2014, children younger than one year were affected, whereas adults and adolescents predominated in 2024. Of the 241 recorded deaths, 233 occurred among children younger than one year. Pentavalent vaccination was positively correlated with cases among children younger than one year, and DTP vaccination with cases among children aged one to four years. Disease notifications decreased significantly during the COVID-19 pandemic. **DISCUSSION:** The reduction in cases among infants may be related to maternal Tdap vaccination, initiated in November 2014, which provides passive protection. Conversely, the increase among adults and adolescents may result from the gradual waning of vaccine-induced immunity after the last dose at four years of age. The decline in notifications during the pandemic may have been influenced by social distancing measures and mask use. Increased vaccination coverage during disease outbreaks suggests a response to public policies and public concern during these periods. **CONCLUSION:** The 2024 pertussis outbreak predominated among adults and adolescents; however, infants younger than one year remain more vulnerable and have the highest case-fatality rate. Pentavalent and DTP VCRs increased during the outbreaks, demonstrating the importance of immunization campaigns.

KEYWORDS: Pertussis vaccine; Vaccination coverage; Disease outbreak; Epidemiology.