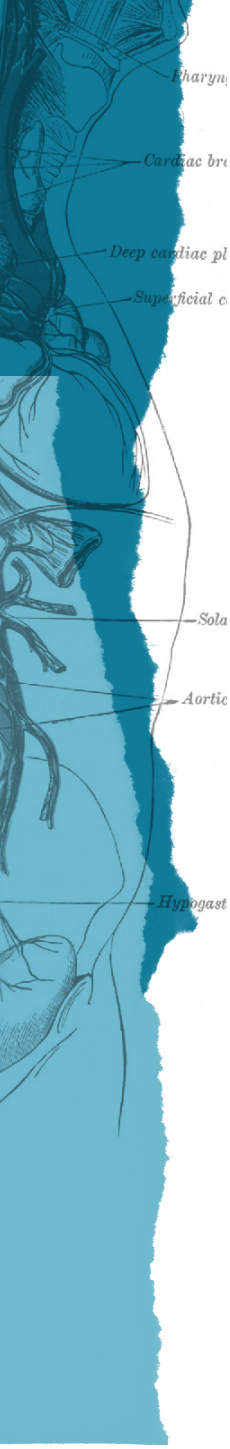

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A Critical Analysis of the Trends in Low Measles-Containing-Caccine First- and Second Dose (MCV1 & 2) Immunization Coverage among 1-Year-Olds in Venezuela, 2009-2024

Alfonso J. Rodriguez-Morales[1,2], Jaime A. Cardona-Ospina[3], Maria Alejandra Avila-Tangarife[1], Carmen Rosa Salazar-Ledesma[1], Maria Paula Cedeño[1], Mely Alexandra Olarte-Durand[1,12], Deicy Mariana Soto-Ramírez[1], Domenica Acevedo[1,13], Thomas Malavet[1,14], Valeria Marmolejo[1], Rima Moghnieh[4], Rola Husni[4], German Camacho-Moreno[5,6], Carlos Torres-Martinez[7], Jose Brea[8], Jorge Luis Bonilla-Aldana[9], D. Katterine Bonilla-Aldana[10], Rolando Ulloa-Gutierrez[11,12,13]

[1] Grupo de Investigación Biomedicina, Faculty of Medicine, Fundación Universitaria Autónoma de las Américas-Institución Universitaria Visión de las Américas, Pereira, Risaralda 660003 (Colombia).
[2] Faculty of Health Sciences, Universidad Científica del Sur, Lima, 4861 (Perú).
[3] Division of Infectious Diseases and Vaccinology, School of Public Health, University of California, Berkeley, Berkeley, CA (USA).
[4] Division of Infectious Diseases, Department of Internal Medicine, Gilbert and Rose-Marie Chagoury School of Medicine, Lebanese American University, Beirut, 1102 (Lebanon).
[5] HOMI, Fundación Hospital Pediátrico de la Misericordia, Bogotá (Colombia).
[6] Universidad Nacional de Colombia, Bogotá (Colombia).

[7] Department of Pediatrics, Universidad El Bosque, Cafettor Médica SAS, Bogotá (Colombia).

[8] Facultad de Ciencias de La Salud, Instituto Tecnológico de Santo Domingo, Santo Domingo (República Dominicana).

[9] Grupo de Virología, Universidad El Bosque, Bogotá (Colombia).

[10] College of Medicine, Korea University, Seoul (Republic of Korea).

[11] Servicio de Aislamiento, Hospital Nacional de Niños "Dr. Carlos Sáenz Herrera", Centro de Ciencias Médicas, Caja Costarricense de Seguro Social (CCSS), San José (Costa Rica).

[12] Instituto de Investigación en Ciencias Médicas UCIMED (IICIMED), San José (Costa Rica).

[13] Cátedra de Pediatría, Facultad de Medicina, Universidad de Ciencias Médicas (UCIMED), San José (Costa Rica).

Correspondence: Alfonso J. Rodríguez-Morales. alfonso.rodriguez@uam.edu.co

Alfonso J. Rodriguez-Morales, Jaime A. Cardona-Ospina, Maria Alejandra Avila-Tangarife, Carmen Rosa Salazar-Ledesma, Maria Paula Cedeño, Mely Alexandra Olarte-Durand, Deicy Mariana Soto-Ramírez, Domenica Acevedo, Thomas Malavet, Valeria Marmolejo, Rima Moghnieh, Rola Husni, German Camacho-Moreno, Carlos Torres-Martinez, Jose Brea, Jorge Luis Bonilla-Aldana, D. Katterine Bonilla-Aldana, Rolando Ulloa-Gutierrez

ABSTRACT

Introduction: Recently, measles has reemerged as a significant public health concern globally, affecting countries in Latin America, particularly children in areas facing low vaccination coverage and political or socioeconomic instability. Despite being a vaccine-preventable disease with elimination goals established by the World Health Organization (WHO), measles immunization rates in several Latin American countries remain below the recommended thresholds, increasing the risk of outbreaks and regional transmission amid epidemics in North America. The objectives of this study were to assess measles vaccine trends and indicators in Venezuela.

Methods: Using PAHO, the WHO/UNICEF Joint Reporting Form on Immunization, and the WHO/UNICEF Estimates of National Immunization Coverage (WUENIC) data from the Venezuelan Ministry of Health, a trend analysis of immunization coverage of under-1-year-olds against measles in Venezuela, 2009-2024 (Measles-containing-vaccine first- and second-dose, MCV1/2, immunization coverage among 1-year-olds), with an ecological approach, was done. Additionally, cases of measles infections were considered and analyzed. Variations in rates and other analyses were made.

Results: Immunization coverage of under-1-year-olds varied from 87% in 2009 (MCV1) to a maximum of 96% in 2017. Since 2017, a significant reduction trend (r^2=0.600, p=0.0409, linear regression) up to 2023 has been observed, reaching 52% in 2022, slightly recovering to 68% in 2023, and 71% in 2024. Specifically, from 2011 to 2019, low MCV1 vaccine coverage was significantly associated with an increase in measles cases (6,943 cases during the period) (r^2=0.9600, p<0.0001, non-linear regression). No significant associations were observed between MCV2 and measles cases (p≥0.05).

Conclusions: Measles immunization coverage in Venezuela has declined significantly since 2017, contributing to an increase in measles cases, particularly in areas where first-dose coverage (MCV1) fell below the recommended levels. Therefore, strengthening routine immunization programs and addressing coverage gaps are urgently needed to prevent future outbreaks and progress toward measles elimination goals in the country and the region.

Keywords: measles, vaccines, migration, coverage, humanitarian crisis, Venezuela.