Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Public Health

Epidemiology of Measles in India over the Last 10 Years

Mamatkulova Nazgul Mamatkulovna[1]*, Aryan Kumar Singh[1], Sejal Sahu[1], Mohammad Aqib[1], Zillur Rehman[1], Rizwan Mallick[1]

[1]PhD, Teacher of Public Health Department, Belagavi University, 591156

DOI: https://doi.org/10.36347/sjmcr.2025.v13i10.066 | **Received:** 03.09.2025 | **Accepted:** 21.10.2025 | **Published:** 23.10.2025

***Corresponding author:** Mamatkulova Nazgul Mamatkulovna
PhD, Teacher of Public Health Department, Belagavi University, 591156

Abstract **Review Article**

Within the epidemiological realm, the study aims to delineate measles epidemiological parameters in India in the past decade, discussing wavering incidence rates and vaccination coverage and socio-cultural determinants in disease control. In fact, measles remains a great public health challenge despite the existence of an effective vaccine due to the presence of erratic immunization policies, vaccine hesitancy, and access inequity. Closer to a review of data from 2013 to 2023, there appear to be cyclical outbreaks in places with low vaccination coverage and set-ups that are compromised in basic health domains. The COVID-19 pandemic delayed routine immunization and might have added to the risk re-emerging among children. Immunization programs stand to be interrupted based on socioeconomic, cultural, and ethical bases, with misinformation and logistical challenges just among some. The research calls for continuous work to strengthen public health policy implementation, increase vaccine coverage, empower health education, and involve the community in realizing population immunity. Measles elimination in India is possible only through comprehensive strategies integrating policy reform, immunization aided by and supporting awareness at the grassroots.

Keywords: Measles, Epidemiology, India, Vaccination Coverage, Public Health, Vaccine Hesitancy, Outbreaks, Immunization Programs, COVID-19 Impact, Health Policy, Herd Immunity, Disease Prevention.

INTRODUCTION

Measles remains a formidable public health issue, especially in places like India, where its epidemiology involves complex dynamics affected by vaccination coverage, health infrastructure, and social-cultural settings. Measles incidence in India has largely seen many fluctuations in the past decade, attributable mostly to varying immunization coverages and newly-emerging outbreaks in certain isolated areas. For instance, heightened susceptibility among children has been recorded in areas that show low uptake of MCV, a pattern similar to that seen in other countries affected by vaccine hesitancy, where the maintenance of susceptible groups has triggered resurgence events (Masunda B *et al.,*2025). Cases imported from outside add to the complexity in the area, whereby some urban centres have had outbreaks related to travel and migration patterns (Amendola A *et al.,*2025). Therefore, for a finished understanding of the epidemiological trends of measles in India, it should first consider both the public health facet and epidemiology of societal attitudes towards vaccination.

Overview of Measles and its Global Implications

Measles is a highly contagious viral disease having a very great implication in all the globe, particularly in communities that have low vaccination rates. According to the World Health Organization, even though there is a vaccine for it, measles remains one of the leading causes of death in young children in developing countries (Dr. Batool M *et al.,*2025). This vaccine-preventable disease can cause serious complications such as pneumonia, encephalitis, and even death, particularly if the affected person is malnourished or immuno-compromised. Misinformation and lack of accessibility to healthcare facilities have lowered the coverage of vaccination over the last decade; thus, a worldwide resurgence in measles outbreaks has come to be a clear issue, demonstrating how interlinked are the public health challenges of all countries at the international level (Mangeon A *et al.,*2025). In India, where campaigns are vital for measles control, understanding the epidemiology of this disease will help to identify the immunization gaps that ought to be filled and to strategize towards vaccinating the community from instances of re-emergence. The combined effects of

local health dynamics and global enterprises have a profound influence on the fate of measles in that region.

Trends in Measles Incidence in India

The past 10 years have been marked by troubling trends in measles incidence in India, mainly driven by vaccination rates and public health policies. Several regions have recently witnessed a number of outbreaks, particularly sporadic ones, thus underscoring the pressing need for better vaccination strategies. The measles incidence in India went through an alarming increase in 2019, alongside a considerable fall in vaccination coverage, especially in the first dose of measles-containing vaccine. Different reasons have been assigned to this drop, including misinformation about the vaccine and difficulties in reaching rural populations (Muse AI *et al.,*2025). The rising backdrop of neglected tropical diseases and changing epidemiological landscape are compounded by the declining coverage of vaccination at the global scale and a public in retreat from immunization efforts (Mangeon *et al.,*2025). All stakeholders must mount concerted efforts to curb this upward trend by intensifying vaccination outreach and overcoming the challenges facing immunization campaigns in the country.

An Observance of Measles Cases Reported from 2013 to 2023

Analysis of measles cases reported between 2013 and 2023 in India reflects some of the most disturbing trends regarding vaccination coverage and outbreak prevalence, showcasing issues seemingly common to epidemiological studies across the globe. During this decade, varying degrees of immunity suffered large outbreaks, especially in underserved regions. For example, low coverage undermines vaccination campaigns; increased incidence rates highlight existing public health failures in their conduct. Recent data have recorded coverage as low as 59.4%, creating a huge gap in herd immunity against an extremely contagious measles infection (Muse AI *et al.,*2025). India experiences outbreaks much like those reported in Greater Francistown district, Botswana, where vaccine hesitancy resulted in outbreaks in spite of high vaccination coverages, thus emphasizing the need to broaden targeted measures and outreach to vulnerable population groups (Masunda B *et al.,*2025). The next level has to be strengthening local efforts to address vaccine concerns and misconceptions toward combating this preventable disease.

Factors That Influence Measles Outbreaks

The factors responsible for the emergence of measles outbreaks in India during the last decade include causes that lessen the effects of vaccination. The waning vaccination coverage accelerated by disruption of routine immunization schedules and enhancement of vaccine hesitancy by the COVID-19 pandemic is an example of one such cause (Ainurafiq *et al.,*2025). Besides socio-economic factors, these include issues such as the lack of access to health facilities in remote areas. Low levels of health literacy and misinformation regarding vaccines have also put a stifle on various public health interventions. On the cultural front, several ethical dilemmas regarding parental consents and distribution of equities for vaccines pose severe impediments to immunization programs (Ikejezie *et al.,*2025). Therefore, confronting these multidimensional issues calls for an encompassing approach through partnership among government bodies, health-care providers, and community-based stakeholders to foster vaccine acceptance and hence reduce measles outbreaks.

Role of Vaccination Coverage and Public Health Policies

Vaccination coverage and public health policies play a critical role in shaping the epidemiology of measles in India, particularly over the last decade. Coverage provided by vaccination should ideally constitute 95 percent, thus conferring herd immunity to any population group and prevention of outbreaks. On the other hand, the COVID-19 pandemic has disrupted routine immunization service delivery and therefore heightened the level of vulnerability amongst populations, especially those within marginalized communities adjoining areas with limited access to health-care services. According to recent studies, impediments to immunization also include vaccine hesitancy and logistics, as well as some social determinants of health (Ainurafiq *et al.,*2025). Meanwhile, public health policies should consider and address the ethical complexities linked to parental consent and access to vaccines on an equitable basis, thereby aiding community engagement and trust (Chi *et al.,*2025). Thus, in the end, to enhance immunization coverage and limit outbreaks of measles is an integrated multifaceted strategy involving health education, accessibility, and community participation.

CONCLUSION

To conclude, the epidemiology of measles in India over the last 10 years represents a significant aqueous public health problem entangled with vaccination coverage and compliance. Resurgence of measles in some populations-especially among unvaccinated children-shows the extreme consequences of vaccine hesitancy along with poor outreach measures. Recent outbreaks across several areas, including those studied in (Masunda B *et al.,*2025), show that the continued spread of the virus is due in part to failure to achieve herd immunity, bringing high-risk populations and community health hazards in general. Moreover, factors such as socioeconomic disparity and cultural beliefs, as highlighted in (Akhter *et al.,*2025), widen the vaccination gap and further increase morbidity. Hence, to confront and eventually eradicate measles from India and save future generations from needless burden, it is mandatory to give concerted attention to vaccine campaigns and public awareness programs against all these factors.

Summary of Findings and Recommendations for Future Prevention Strategies

Summarizing the findings on the measles epidemiology in India over the past decade, it has become evident that vaccination is the cornerstone to curtailing epidemics and strengthening population immunity. Analysis has shown that hindrances to vaccine acceptance are often misinformation and logistical barriers. Studies underscore the importance of working on vaccine hesitancy among the public, focusing especially on targeted health education campaigns that would resonate with local communities and health-care providers. Another important aspect lies in combining maternal vaccination strategies with antenatal visits as a way for pregnant women to increase immunization coverage for both themselves and their newborns against measles and other infections. From the evaluation of evidence gathered in recent years, it has become obvious that more robust policy frameworks concern the inclusion of pregnant women in vaccine trials and vaccine policies, and consequently prove crucial for the implementation of more efficient public health interventions building toward measles eradication in India (Sauer *et al.,*2025) (Sauer *et al.,*2025).

REFERENCES

- Masunda B, Solomon B, Mayenzanisi D, Baraedi G, Monamodi G, Oumer NJ, Mosupiemeng O, *et al.,*(2025). Measles outbreak investigation, Greater Francistown District, Botswana, 2023. African Field Epidemiology Network, doi: https://core.ac.uk/download/659463243.pdf
- Akhter, Marufa. (2025). Risk Factors of Upper Respiratory Tract Infection among Children: A Case Study at Combined Military Hospital, Dhaka. SCHOLINK INC., doi: https://core.ac.uk/download/647911910.pdf
- Muse AI, Muse AI, Kalinle AA, Berhe BM, Shuramu JB, Kayat MY, Aden MH, *et al.,*(2025). Spatial analysis of measles cases and vaccination coverage in the Somali region, eastern Ethiopia. Frontiers Media S.A., doi: https://core.ac.uk/download/653155239.pdf
- Masunda B, Solomon B, Mayenzanisi D, Baraedi G, Monamodi G, Oumer NJ, Mosupiemeng O, *et al.,*(2025). Measles outbreak investigation, Greater Francistown District, Botswana, 2023. African Field Epidemiology Network, doi: https://core.ac.uk/download/659463243.pdf
- Masunda B, Solomon B, Mayenzanisi D, Baraedi G, Monamodi G, Oumer NJ, Mosupiemeng O, *et al.,*(2025). Measles outbreak investigation, Greater Francistown District, Botswana, 2023. African Field Epidemiology Network, doi: https://core.ac.uk/download/659463243.pdf
- Amendola A, Fappani C, Colzani D, Cereda D, Emilio D'Ugo, Magurano F, Castillo GD, *et al.,*(2025). From multiple measles genotype D8 introductions in 2024 to sustained B3 local transmission in and around Milan, northern Italy, January to April 2025. European Centre for Disease Prevention and Control (ECDC), doi: https://core.ac.uk/download/656693740.pdf
- Muse AI, Muse AI, Kalinle AA, Berhe BM, Shuramu JB, Kayat MY, Aden MH, *et al.,*(2025). Spatial analysis of measles cases and vaccination coverage in the Somali region, eastern Ethiopia. Frontiers Media S.A., doi: https://core.ac.uk/download/653155239.pdf
- Mangeon A, Livia, Carvalho-Costa, Anibal F, Da-Cruz, Maria A, Paula D, *et al.,*(2025). On the 125th Anniversary of the Oswaldo Cruz Institute, the Postgraduate Program in Tropical Medicine Celebrates 45 years of Achievements in an Evolving Landscape. SciELO Preprints, doi: https://core.ac.uk/download/656519901.pdf
- Mangeon A, Livia, Carvalho-Costa, Anibal F, Da-Cruz, Maria A, Paula D, *et al.,*(2025). On the 125th Anniversary of the Oswaldo Cruz Institute, the Postgraduate Program in Tropical Medicine Celebrates 45 years of Achievements in an Evolving Landscape. SciELO Preprints, doi: https://core.ac.uk/download/656519901.pdf
- Dr. Batool M, Mughal, Monis B. (2025). Muslim Contributions to the Cure of Smallpox: An Analytical Study of Al-Rāzī's Medical Legacy. Department of Islamic Studies, The Islamia University of Bahawalpur, Rahim Yar Khan Campus, doi: https://core.ac.uk/download/660899640.pdf
- Ainurafiq, Ainurafiq, Asrianti, Tanti, Indar, Indar, Salim, *et al.,*(2025). Measles-Rubella Vaccination: Epidemiological Issue, Immunology, and Ethical Challenges. Fakultas Kesehatan Masyarakat, Universitas Pancasakti, Makassar, doi: https://core.ac.uk/download/642641937.pdf
- Ikejezie, Juniorcaius. (2025). Disentangling diphtheria: an investigation into its persistence worldwide. doi: https://core.ac.uk/download/664729932.pdf
- Ainurafiq, Ainurafiq, Asrianti, Tanti, Indar, Indar, Salim, *et al.,*(2025). Measles-Rubella Vaccination: Epidemiological Issue, Immunology, and Ethical Challenges. Fakultas Kesehatan Masyarakat, Universitas Pancasakti, Makassar, doi: https://core.ac.uk/download/642641937.pdf
- Chi, Primus, Elliott, Alison M, Kaleebu, Pontiano, Luzze, *et al.,*(2025). Assessing community vulnerability to reduced vaccine impact in Uganda and Kenya: A spatial data analysis [version 1; peer review: 1 approved with reservations]. doi: https://core.ac.uk/download/667804880.pdf
- Sauer, Molly A. (2025). Exploring maternal immunization decision making, demand, and readiness in advance of future vaccines in pregnancy. 'The Busan Gyeongnam Mathematical Society', doi: https://core.ac.uk/download/664112575.pdf
- Sauer, Molly A. (2025). Exploring maternal immunization decision making, demand, and readiness in advance of future vaccines in pregnancy. 'The Busan Gyeongnam Mathematical Society', doi: https://core.ac.uk/download/663932454.pdf