AMERICAN ACADEMIC PUBLISHER

INTERNATIONAL JOURNAL OF MEDICAL SCIENCES

ISSN 2692-5206

AMERICAN ACADEMIC PUBLISHER

INTERNATIONAL JOURNAL OF MEDICAL SCIENCES

Volume 5, issue 08, 2025 August

The International Journal of Medical Sciences (IJMS) 2692-5206 is a peer-reviewed academic journal that aims to publish high-quality research articles, reviews, and other scholarly works in the field of medical sciences. The journal's primary focus is on advancing and disseminating scientific knowledge and research related to various aspects of medicine and healthcare.

ISSN: 2692-5206
AMERICAN ACADEMIC PUBLISHER
INTERNATIONAL JOURNAL OF MEDICAL SCIENCES

UDK 616.915:614.2

MEASLES: EPIDEMIOLOGICAL SITUATION, CLINICAL COURSE AND EFFECTIVENESS OF PREVENTIVE MEASURES

Ergashev B.M., Meliqo'ziyev O.E., Azimov Sh.T., Ayupova SH.T., Lapasov O.A.
Tashkent Medical University Uzbekistan

Abstract: The aim of this study was to analyze the current epidemiological situation of measles, its clinical course, and the effectiveness of preventive measures. The study was based on epidemiological surveillance of measles cases registered in the Republic of Uzbekistan during 2020–2024. The clinical course was evaluated using data from 120 patients treated in the measles ward of the 3rd Clinic of the Tashkent Medical Academy. The main symptoms of the disease, distribution by age groups, and the relationship with vaccination coverage were analyzed using statistical methods. According to the results, measles was most frequently observed in children aged 1–5 years (68%). The most common clinical signs were fever (95%), rash (100%), cough (85%), and conjunctivitis (70%). The incidence was significantly lower in regions with high vaccination coverage ($p<0.05$). These findings indicate that measles still remains a pressing health problem. It has been proven that increasing vaccination coverage can reduce the incidence of the disease.

Keywords: Measles, epidemiology, clinical symptoms, infectious disease, pediatrics, vaccination, prevention, Uzbekistan.

Introduction: Measles is a highly contagious viral disease that can cause severe complications and is one of the most widespread infections in human history. According to the World Health Organization (WHO), in 2022 more than 9 million measles cases were reported worldwide, with approximately 136,000 deaths caused by the infection [1]. Unvaccinated children under the age of 5 are at the highest risk and often develop severe complications such as pneumonia, diarrhea, and encephalitis [2]. Thanks to global vaccination programs, measles-related deaths decreased by 73% between 2000 and 2018 [3]. However, in some regions, insufficient vaccination coverage has led to new epidemic outbreaks.

In Central Asian countries, an increasing trend in measles incidence has also been observed in recent years. In Uzbekistan, sporadic cases were reported between 2020 and 2023, but in 2024, a significant rise in incidence was recorded in some regions [4,5].

Objective: The aim of this article is to scientifically highlight the relevance of measles, analyze international and local statistical indicators, and assess the clinical features and the effectiveness of preventive measures in the context of Uzbekistan.

Materials and Methods: The study was based on epidemiological surveillance and clinical analysis of measles cases registered in the Republic of Uzbekistan during 2020–2024. Statistical data were obtained from the Republican Center for Infectious Diseases and the Ministry of Health. The clinical part included 120 patients treated in the measles ward of the 3rd Clinic of the Tashkent Medical Academy. Children aged 6 months to 14 years were included in the study. For each patient, clinical symptoms (fever, rash, cough, conjunctivitis)

ISSN: 2692-5206
AMERICAN ACADEMIC PUBLISHER
INTERNATIONAL JOURNAL OF MEDICAL SCIENCES

were recorded, and laboratory diagnostics were performed. Serological ELISA was used to detect IgM antibodies, and in some cases RT-PCR was performed to confirm the presence of viral RNA. Statistical analysis was conducted using SPSS 26.0 software. Results were expressed as mean values (M±m). Student's *t*-test and the χ^2 test were used to evaluate group differences. A *p*-value <0.05 was considered statistically significant. The study was carried out in accordance with the principles of the Helsinki Declaration, and written informed consent was obtained from the parents of all participants. The research design was approved by the institutional bioethics committee.

Results: A total of 120 patients with measles were analyzed. Their age and sex distribution, as well as the frequency of clinical symptoms, are presented in the tables below.

Figure 1. Age distribution of patients (n=120)

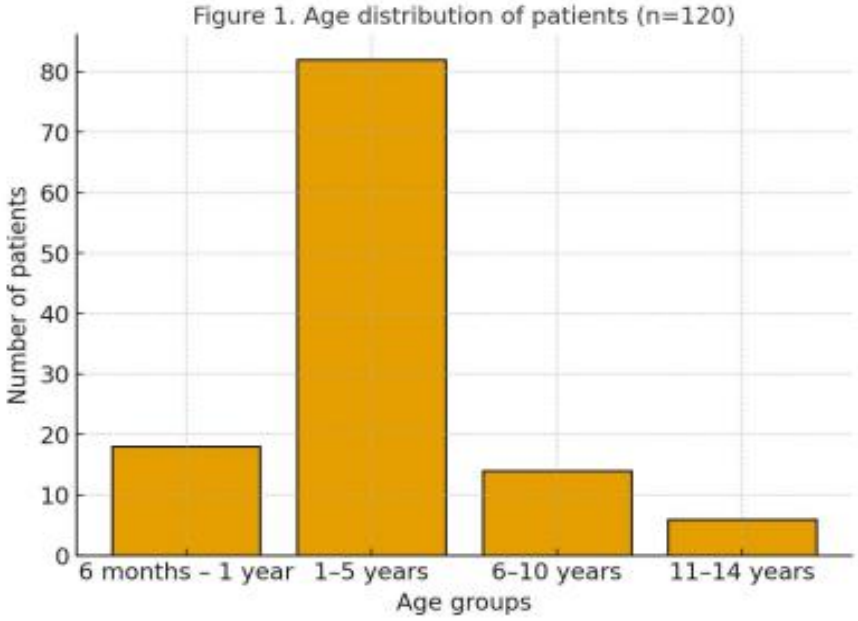


Figure 2. Frequency of clinical features (%)

ISSN: 2692-5206
AMERICAN ACADEMIC PUBLISHER
INTERNATIONAL JOURNAL OF MEDICAL SCIENCES

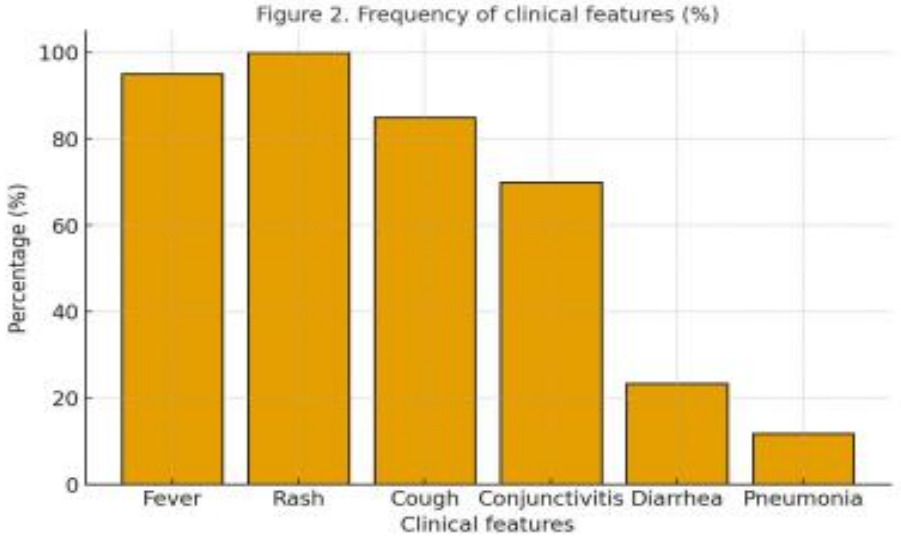
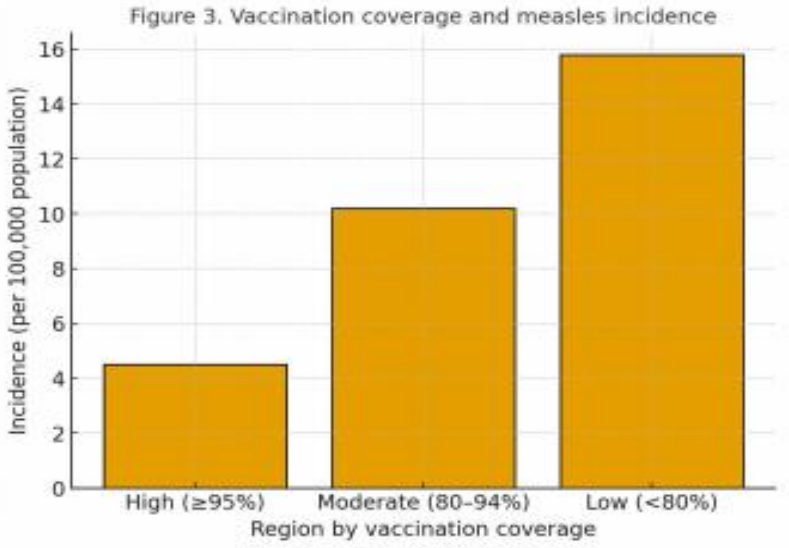


Figure 3. Vaccination coverage and measles insidence



1. Figure 1. Age distribution of patients (n=120)
2. Figure 2. Frequency of clinical features (%)
3. Figure 3. Vaccination coverage and measles incidence

ISSN: 2692-5206
AMERICAN ACADEMIC PUBLISHER
INTERNATIONAL JOURNAL OF MEDICAL SCIENCES

Discussion: The results of this study showed that measles occurred mainly among young children, especially those aged 1–5 years. This finding is consistent with WHO data, which indicate that the highest risk group consists of unvaccinated or partially vaccinated children [1,2]. Clinical analysis revealed that fever and rash were present in all patients, while cough and conjunctivitis were also observed at a high frequency. These findings are in agreement with other studies, confirming the classic measles triad of fever, rash, and conjunctivitis [3]. Epidemiological surveillance demonstrated that measles incidence was 3–4 times lower in regions with high vaccination coverage. This result is in line with global studies conducted by WHO [8,10] and confirms that mass immunization campaigns play a key role in reducing measles incidence [4,6]. However, in regions where vaccination coverage has declined, measles resurgence has been observed, increasing the risk of epidemic outbreaks [7].

Conclusion: Measles was found to occur predominantly in children aged 1–5 years, with fever, rash, and cough identified as the main clinical symptoms. The incidence of measles was significantly lower in regions with high vaccination coverage, confirming that immunization remains the most effective preventive measure.

The findings of this study highlight the local epidemiological and clinical characteristics of measles. Practically, the results can assist physicians in improving diagnosis and preventive measures. Future research directions should include: deeper investigation of the immunological aspects of measles, evaluation of vaccine effectiveness using molecular methods, and sociological studies on public attitudes toward vaccination.

References:

1. Moss WJ. Measles. *Lancet*. 2017;390(10111):2490–2502.
2. Parums DV. A review of the resurgence of measles, a vaccine-preventable viral infection. *Hum Vaccin Immunother*. 2024. (PMC)
Bassetti M. Epidemiology, clinical overview, and potential risk of a new... *IDCases*. 2024. (Lippincott Journals)
3. Mathis AD et al. Measles — United States, January 1–March 28, 2024. *MMWR Morb Mortal Wkly Rep*. 2024. (CDC)
4. CDC. Measles Update — United States, January 1–April 17, 2025. *MMWR Morb Mortal Wkly Rep*. 2025. (CDC)
Hewitt GL et al. Measles outbreaks in the United States in 2025. *PMC*. 2025. (PMC)
5. van der Staak M et al. Long-term dynamics of measles virus–specific neutralizing antibodies in children vaccinated before 12 months. *Clin Infect Dis*. 2025. (Oxford Academic)
6. Hopkins R. Measles 2025: Looking back and moving forward. *ContagionLive*. 2025. (ContagionLive)
7. Mpabalwani E. Global resurgence of measles: turning the tide through a... *Int J Infect Dis*. 2025. (IJID Online)
8. Zhao S et al. Comparative analysis of long-term measles immune... *Vaccines (Basel)*. 2025. (MDPI)
9. NEJM Review: Measles 2025. *New England Journal of Medicine*. 2025. (New England Journal of Medicine)
10. Dattani S, Spooner F. Measles vaccines save millions of lives each year. *Our World in Data*. 2025. (Our World in Data)

ISSN: 2692-5206
AMERICAN ACADEMIC PUBLISHER
INTERNATIONAL JOURNAL OF MEDICAL SCIENCES

11. US tipping point for return of endemic measles. *Reuters*. 2025. (Reuters)
12. Wired/Stanford study on measles endemic risk. *Wired*. 2025. (WIRED)
13. People.com: US measles cases record high since elimination; 2025. (People.com)