Infectious diseases

Resurgence of Measles in the United States - A Public Health Risk

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Dear Editor,

Measles is a highly contagious respiratory illness caused by the measles virus (MeV). As per the World Health Organisation, there was a 20% rise from 2022 to 2023, with 10.34 million cases reported worldwide in 2023. Resultantly, 107,500 unvaccinated or partially vaccinated children died under the age of 5 [1]. Despite notable progress in vaccination efforts, it poses significant public health challenges globally and in the region of the Americas. Between January 1 and April 18, 2025, the region of the Americas recorded 2,318 confirmed measles cases and three deaths, an 11-fold rise from 205 cases during the same period in 2024. Cases were reported in six countries: Argentina (21), Belize (2), Brazil (5), Canada (1,069), Mexico (421, one death), and the USA (800, two deaths) [2]. This recent resurgence of measles globally and in the region of the Americas, driven by disruptions to routine vaccination services and campaigns during the COVID-19 pandemic, has heightened the risk of imported cases and outbreaks in the United States, although measles was officially declared eradicated in the United States in the year 2000. After the declaration of the COVID-19 pandemic in the United States in March 2020, there was a marked decrease in routine childhood vaccine administration due to disrupted routine immunisation services. This decline was also consistent with the enactment of stay-at-home orders in many regions [3]. The COVID-19 pandemic-related vaccine hesitancy also led to the reluctance to other routine immunisations, including Measles vaccination [4].

Of all the 2,280 confirmed measles cases in 2025 across 49 outbreaks (89% outbreak-associated) age distribution was as follows: 26% (582 cases) < 5 years, 44% (1,014 cases) 5-19 years, 29% (671 cases) ≥ 20 years while 93% cases occurred in unvaccinated individuals [5]. These patterns indicates increased vulnerability in children and teenagers, supporting seroepidemiological screening to identify susceptible individuals so they can get the MMR vaccine quickly after possible exposure during outbreaks. NHANES 2009-2010 national seroprevalence data showed declining measles IgG seropositivity, reaching 93.3% in adults aged 20- 29 years, pointing to potential waning of immunity provided by the vaccine over time.[6] Data from the 2025 U.S. measles outbreaks revealed that 29% of cases (671) occurred in adults ≥ 20 years, indicating possible waning MMR immunity [5]. Control via MMR could be beneficial, especially in regions with consistently low vaccination coverage or sustained transmission risks. Although the routine two-dose MMR schedule provides approximately 97% effectiveness against measles, outbreak data shows that a third dose offers additional protection which includes higher seroprotection rates and reduced antibody waning over time [7].

All unprotected healthcare workers must get the MMR vaccine to achieve presumptive immunity and lower the measles transmission risk in healthcare settings. As per CDC guidelines, healthcare workers are required to show measles immunity (2 MMR doses or lab evidence); those without protection must be vaccinated and excluded from work during any measles exposures [8].

For 2025, 2,280 cases of measles were reported in the USA across 45 states. The situation is more alarming in states such as Texas, South Carolina, Arizona, Utah and New Mexico. Alarmingly, 89% of confirmed measles cases are linked to outbreaks as compared to 69% in 2024. Forty-nine outbreaks have occurred in 2025, and 11% of the patients required hospitalisation [5].

Currently, several preventive steps are being taken to reduce the resurgence of vaccine-preventable diseases despite the severe reduction in vaccination coverage throughout the United States. The importance of sustaining elevated vaccination levels remains critical as shown by a study conducted by Mathew V et al., which shows that even a mere 5% spike in measles-mumps-rubella (MMR) vaccination coverage might substantially lower measles incidence over a 25-year period [9].

Health experts are now focusing on culturally appropriate vaccine promotion to deal with under-immunised groups that have trouble because of language and mistrust. Health officials in central Ohio use messages that fit the local culture and make sure vaccine information is given in various languages. None of these strategies works without support from reliable community leaders and local influencers who help remove fears and misconceptions about vaccines. Many vaccination centers can be found in popular community hubs to

improve access and make things more convenient for these groups [10].

Risk is higher, especially when USA travelers contact measles abroad and return while still contagious [11]. In the United States, imports accounted for 19% of measles cases reported between 2001 and 2019 [12]. Unvaccinated foreign visitors are the source of measles cases in the US. Measles vaccinations should be received at least two weeks before to overseas travel [13].

Between 2013 and 2018, measles susceptibility was primarily driven by waning immunity after vaccination, undervaccination, and primary vaccine failure. From 2021 to 2024, the immunity gap between vaccinated and unvaccinated children widened, highlighting the accumulation of susceptible individuals over time [14].

Despite these efforts and the availability of an effective vaccine, resurgence has been noticed in many states of the USA [15]. Moreover, recent policies have also been criticised for their detrimental impact on measles control in the U.S. Measures like reducing the vaccination schedule, reforming advisory committees, modifying official information, and resisting mandatory vaccinations pose a further risk of increasing measles cases among the American population. Whereas CDC recommends a more than 95% vaccination rate for measles to ensure herd immunity. This goal is affected by policy changes and hence increases the probability of outbreak and the number of susceptible individuals.

This calls for the need of effective measures to be taken to increase the vaccination coverage in the region. Moreover, the use of the Supplementary Activities (SIA), like those which are used by Kenya, especially the use of auto-disable syringes, can reduce the risk of transmission of disease [16]. A method by which access of laymen to vaccines can be increased, which may also facilitate measles eradication by increasing vaccination coverage, is the use of microarray patches, which are easily accessible and easy to use. Point-of-care diagnostic tests can help to assess measle outbreak so that immediate preventive measures can be taken, also point of contact IgG antibody tests can help to identify the population that is susceptible to measles so that their vaccination can be done. Measles is one of the diseases the eradication of which cannot be done without global commitment and coordination. So, there is a need to raise awareness and to encourage the stakeholders, including local and national health authorities, to make efforts to devise new tools that can help to achieve measles eradication [17].

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Ethics approval and consent to participate

Not applicable. This report is based solely on publicly available data and does not involve human participants or identifiable individual information.

Consent for publication

Not applicable.

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All data referenced in this report are publicly available from the cited sources.

Authors' contributions

MT: Review the work critically; MT, ZF, ZK: Conception of the work; MT, ZF, ZK, S: Final approval of the version to be published; Agreement to be accountable; ZF, ZK, S: Drafting the work.

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