



Editorial

## Mumps resurgence-strategy ahead

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Received: 02 May 2024

Accepted: 02 May 2024

Published: 17 August 2024

**DOI**

10.25259/KPJ\_17\_2024

**Quick Response Code:**



Mumps is a vaccine-preventable disease that usually occurs as parotitis, but it can also lead to several life-threatening complications, including pancreatitis, meningitis, and encephalitis. Mumps disease is caused by mumps virus (MV), which belongs to the genus Rubulavirus of the family Paramyxoviridae. MV is antigenically monotypic and spreads by respiratory droplets. Mumps is a vaccine-preventable disease that is endemic in most parts of the world.

Although mumps is preventable by vaccination, there has been a surge in cases occurring among vaccinated populations. The most common complication of mumps in children is meningitis, sometimes associated with encephalitis. Encephalitis is the most dangerous complication and can result in seizures, paralysis or other neurologic conditions. It is the most frequent cause of the very rare deaths attributed to mumps. The mortality rate for patients presenting with meningoencephalitis has been reported to be up to 1.4%. Other rare complications include, but are not limited to, nephritis, arthritis, thrombocytopenia purpura, mastitis, thyroiditis, and keratouveitis. Post-pubertal males can also develop orchitis in approximately 20% of the cases. Oophoritis in females can also occur but with significantly less frequency. Although hearing loss is a rare (1%) complication of mumps, it is usually unilateral and temporary. However, hearing loss can be permanent, and mumps is the most frequent cause of one-sided sensorineural deafness in children.

Mumps is a public health problem in India; however, inadequate data from different parts of the country underestimate the true extent of the burden. In India, very limited data are available on the epidemiology of mumps. Many outbreak reports, few zero-prevalence studies and vaccine studies on mumps are available from different parts of the country. It has been observed that there is no uniformity in the methodology of surveillance, serological testing algorithm, attempt for virus isolation, and use of available molecular tools and sequencing. Limited information is available about the seasonality of mumps cases in the country. Circulation of two MVs (i.e., genotypes C and G) were reported from India; more genotyping studies are necessary to understand other indigenous MV circulation if any.

Mumps continues to occur in epidemic proportions in India despite the availability of a safe and effective vaccine. Mumps outbreaks or sporadic cases have been periodically reported from the States of Kerala, Maharashtra, Gujarat, Karnataka, Punjab, Tamil Nadu, Uttar Pradesh, and West Bengal. These outbreaks or sporadic cases were confirmed either by clinical presentation or using serological or molecular tools. Only a handful of studies confirmed mumps by serological or molecular tools while in the remaining studies, clinical diagnosis was used for confirming mumps. Reports suggest that due to a lack of surveillance and documentation systems, the burden of mumps is underestimated in India. Similarly, mumps-associated complications and outcomes of patients are not reported systematically.

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The recent outbreaks and resurgence of mumps are thought to have occurred for multiple reasons, including declining levels of vaccine-derived immunity and the lack of recommended boosters for the measles, mumps, and rubella (MMR) vaccine. Prevention through vaccination is a key in the management of mumps since there is only supportive therapy for infected patients.

Mumps vaccination has been incorporated into the regular immunization schedule of many countries, usually along with measles and rubella vaccines in a triple formulation. These vaccines have enabled the World Health Organization (WHO) to establish global strategies for the advanced control of measles and rubella leading to an elimination target in some regions. However, in contrast to rubella and measles, secondary vaccine failure occurs frequently in the case of mumps and circulation of MV within highly vaccinated populations has been frequently reported.

Mumps-containing vaccines have not been included in the Universal Immunization Programme (UIP) or National immunization schedule but are available in the private healthcare system. Despite being a vaccine-preventable disease, mumps has never been a part of the UIP because of the disease's no-mortality profile and the perception that it has low public health significance. However, the Indian Academy of Paediatrics (IAP) has always maintained that the public health significance of mumps has been underestimated mainly because of the poor documentation of clinical cases, its complications, and patients' follow-up data as well as the lack of published studies. There is no nationally representative data on the incidence of the disease. There is very little information on the actual long-term morbidity profile of the disease even though the disease is known to have some impact on reproductive organs.

Considering reports on mumps cases or outbreaks and mumps-related complications from different parts of the country, the IAP suggested the inclusion of mumps antigen in the form of MMR vaccine, the first dose at 9 months and the second dose at 16–24 months and a third dose at 4–5 years. The IAP Committee on Immunization has reiterated the inclusion of mumps antigen in UIP as MMR vaccine instead of measles-rubella vaccine.

A major difficulty with curbing the spread of mumps is its long gestation period (the time between infection setting in and disease manifestation). Much like COVID-19, many

remain asymptomatic and can be carriers of the virus. The current infections are largely in those who are unvaccinated or yet to complete all three doses. Another theory is the chance that the virus may have mutated to become more infectious and possibly escape the protection offered by the vaccines. However, there is no evidence yet to support the claim. Health officials maintain that creating public awareness about the disease and the importance of isolation is the most important tool in bringing down the transmission of the disease. Mumps is primarily being reported in unimmunized children and adolescents and hence improving general immunization coverage is important. Transmission of the disease begins before the symptoms actually manifest and isolation of the patient for a full 3 weeks is necessary to limit the spread of the disease.

According to the WHO, vaccination strategies targeting mumps control should be closely integrated with existing measles elimination and rubella control. The IAP for one has always advocated the use of MMR vaccine in UIP, which has been available in the private sector for a long time. There are no studies from India on the effectiveness of the mumps vaccine. However globally, the protection from two doses is estimated to be between 70 and 95%, if the coverage is high.

MMR are vaccine-preventable disease. However, morbidity and mortality due to these diseases remain largely unnoticed in India. Measles has received much attention; mumps and rubella still need to garner attention. According to the WHO, near-elimination of mumps could be achieved by maintaining high vaccine coverage using a two-dose strategy. However, the Government of India has not yet decided on the mumps vaccine. Overall, mumps seems to be a significant public health problem in India but does not garner attention due to the absence of a surveillance and documentation system. Thus, the inclusion of mumps antigen in the UIP would have added advantages, with the economic burden imposed by the cost of the vaccine offset by a reduction in disease burden. It is high time that the government includes the mumps vaccine in the national immunization schedule. IAP should once again strongly advocate the inclusion of the mumps vaccine in the national immunisation programme.

**How to cite this article:** Shenoy B. Mumps resurgence-strategy ahead. *Karnataka Paediatr J.* 2024;39:45-6. doi: 10.25259/KPJ\_17\_2024