

Mumps Outbreak—Another Challenge?

Mumps outbreak has recently been reported in several states across the country, causing concern among public health officials. This is the 1st outbreak that occurred during the post-COVID era. The history of mumps dates to the 5th century BC, when Hippocrates described the condition as a bilateral or unilateral swelling near the ears and noted that some patients had bilateral or unilateral pain and swelling of the testicles. Isolation and culture of the virus did not occur until 1945 however, and a vaccination against it was first licensed in 1967.

Mumps is a highly contagious viral infection that primarily affects the salivary glands, caused by Paramyxovirus. Incubation period is 10 to 14 days.

The most commonly affected age-group is 2–12 years. May affect all 3 pairs of salivary glands. It can also lead to other serious complications such as meningitis, deafness, and inflammation of the testicles or ovaries resulting in infertility. Both occur as long-term sequelae. Cases of diabetic ketoacidosis were also noticed in a patient with DM after 7–10 days of infection. The outbreak has been linked to low vaccination rates in certain communities, as mumps can easily spread through close contact with infected individuals. While mumps outbreaks are not uncommon, the recent increase in cases highlights the importance of vaccinations in protecting ourselves and our communities from preventable diseases.

Mumps remains a prevalent viral disease with >90% of the disease going unreported. Worldwide, mumps is not as well controlled as compared to measles and rubella. From 1999 to 2019, on average, about 500,000 mumps cases were reported to the World Health Organization annually. One of the largest mumps outbreaks occurred in Pakistan in 2022 and continued in 2023. Pakistan had the sporadic transmission of mumps from 1991 to 2009 and the first localized outbreak of mumps was documented in 2010. Localized mumps outbreaks in Pakistan were reported from 2010 to 2021. After the COVID-19 pandemic in 2022, the mumps outbreak surpassed all previous records. From 1st January to 31st December 2022, a total of 19,444 mumps cases had been officially recorded from all provinces of the country, it is speculated that the actual number of cases may be much higher than reported because 20–30% of mumps cases remain asymptomatic so people can spread the virus without knowing they have it.

Global and regional mumps incidence is challenging to estimate as mumps is not a notifiable disease in many countries including India. As of 2019, the mumps vaccine is routinely used in 122 of 194 (63%) countries and the mumps incidence is still much higher in countries that do not have routine mumps vaccination. Sadly, according to the World Health Organization, the mumps vaccine had been introduced nationwide in only 122 countries by the end of 2018. As of June 2020, Japan, Afghanistan, Pakistan, India, and most countries in southeast Asia and sub-Saharan Africa, did not have the mumps vaccine included in their national immunization programmes.

Mumps despite being a prevalent disease is considered an insignificant public problem due to poor documentation of clinical cases. Mumps poses a significant disease burden in India, and this calls for the inclusion of mumps vaccine in the national immunization programme. Huge outbreak has been reported across the country. Reasons for outbreak include cyclical trend of mumps occurring every 3–4 years, noninclusion of mumps vaccine in national immunization schedule, loss to follow-up vaccination and low vaccination rates during COVID and high communicability of the disease.

In the past few years, vaccine hesitancy has also led to a decrease in the uptake of many vaccines and currently, the COVID-19 pandemic imposed a negative impact on vaccination. During the COVID-19 pandemic, a general reduction of vaccination coverage is reported across the globe. Without routine immunization, the incidence of mumps would be projected to be 100–1,000 cases per million, with an epidemic occurring every four to five years. Universal vaccination has been a crucial factor in the global decline in the incidence of mumps. Finland was the first country to declare itself mumps-free, in 2000, after a national two-dose vaccination program for children, resulting in high vaccination coverage.

Prevention consists of isolation of the patients and immunization with MMR vaccine. The strategy to control mumps is to have the measles-mumps and rubella (MMR) vaccination as part of a national immunization programme. It is reported that a 78% risk reduction against mumps following one dose rises to 88% after receiving two doses of MMR vaccine. During 2010–2015, multiple mumps outbreaks among highly vaccinated populations in close-contact settings occurred. Most cases occurred among vaccinated young adults, suggesting that waning immunity played a role. Further evaluation of risk factors associated with these outbreaks is warranted.

The occurrence of mumps outbreaks even in highly vaccinated populations and the control of such outbreaks with booster vaccines emphasize the importance of vaccination. Although the two-dose vaccine series appears adequate to protect the general population, outbreaks such as the Nebraska incident described in the MMWR raise valid concerns. Such outbreaks led the US Advisory Committee on Immunization Practices to recommend a third dose of mumps vaccine for at-risk adults.

In 2017, the effectiveness of a third dose of the mumps vaccine was demonstrated during an outbreak among vaccinated students at the University of Iowa. The recent incident in Nebraska lends support to the approach. According to the MMWR, a community-wide MMR vaccination campaign helped end the outbreak. This emphasizes the need for third dose of mumps vaccine. Another important issue raised by the Nebraska incident is that of quarantine. The isolation of ill people was the second approach that helped to quell the outbreak.

Alongside vaccination, the isolation of infected individuals is the second approach that helps to control the outbreak. In the meantime, coordinated local and global efforts are needed to promote the availability and proper use of vaccines in low-income countries including India. Therefore, the health authorities must consider the MMR immunization strategies on the basis of current evidence to save the children from measles, mumps, and rubella at the same time.

Pediatricians report mumps knowledge gaps and practices that do not align with public health recommendations. These gaps may lead to underdiagnosis and underreporting of mumps cases, delaying public health response measures and contributing to ongoing disease transmission. More research is needed to improve the efficacy of all vaccines. But in the meantime, coordinated local and global responses are needed to promote the availability and use of the vaccines that we have.

Let's join hands to control mumps.

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