



INFLUENZA IN CHILDREN: EMERGING TRENDS, VACCINE INNOVATIONS, AND CLINICAL CHALLENGES

Medicine

Dr. Shrusti Yadav	Junior Resident, Department of Paediatric, Rajasthan Vidyapeeth Homoeopathic Medical College & Research Center, Dabok, Udaipur, Rajasthan, India.
Dr. Tanay Vyas	Assistant Professor, Department of Paediatric, Rajasthan Vidyapeeth Homoeopathic Medical College & Research Center, Dabok, Udaipur, Rajasthan, India. *
Dr. Neelam Tiwari	Assistant Professor, Department of Practice of Medicine, Rajasthan Vidyapeeth Homoeopathic Medical College & Research Center, Dabok, Udaipur, Rajasthan, India.

KEYWORDS

The Indian Perspective

For many Indian families, a child's fever and cough in the monsoon is just "a viral". Behind that label is influenza, a virus that keeps drifting and returning, and one that still has no place in the national immunisation schedule.

At A Glance

India has two flu peaks (January to March and post-monsoon), and reliable national data on children are scarce.

- 2025 brought a severe influenza B outbreak; 2026 brought a sharp H1N1 surge in Delhi.
- Influenza vaccination is outside India's national schedule; uptake is largely private and urban.
- IAP now recommends trivalent vaccines; early antivirals and better surveillance are key priorities.

Two Seasons, One Data Gap

India does not have a single flu season. The Union Health Ministry notes two annual peaks: January to March, and the post-monsoon period. Paediatricians describe year-round activity with two distinct peaks, which complicates a single annual vaccination strategy. The same review says the burden is heaviest in children under five, but reliable national burden data are inconsistent.

In the US, pediatric deaths are counted case by case. Its 2025–26 season saw 191 child deaths, with about 85% of those who died historically unvaccinated. India has no comparable public tally. That absence hides the true toll rather than showing that it is small.

Recent trends: B, H1N1 and H3N2

The last two years have been unusual.

- **Influenza B in 2025.** India saw an unusually severe outbreak of B/Victoria, a type that typically affects children.
- **H1N1 in 2026.** Delhi reported about 1,349 confirmed cases by early August, against roughly 229 in the same period of 2025. A later report put the 2026 figure at 1,777. A summary of ICMR surveillance identifies the driver as an established A(H1N1) pdm09 lineage, an A/Missouri/11/2025-like variant, not a novel reassortant.
- **H3N2 in Schools.** An ICMR investigation of an H3N2 outbreak among schoolchildren in northern India noted strain variation from the vaccine-like virus and urged routine surveillance in confined settings.

Globally, H3N2 subclade K spread widely in 2025–26, particularly in East and South Asia. I found no Indian paediatric data on how much of it circulated here, so that gap is worth stating plainly.

Why Indian Children are Exposed

Influenza vaccination is not part of India's National Immunization Schedule. Uptake is almost entirely in the private sector, and hesitancy, low awareness and cost add to the structural barriers. Vaccination is concentrated among urban and socioeconomically advantaged groups.

Vaccine Developments

Trivalent Vaccines. The Indian Academy of Pediatrics (IAP) advisory committee has recommended trivalent vaccines in place of quadrivalent ones. India aligned with this shift for the 2025–26 northern hemisphere season, because B/Yamagata has effectively

vanished from surveillance. Globally, all three components of the 2026–27 vaccines were updated, including a change to cover H3N2 subclade K.

Timing. Indian guidance has favored pre-monsoon vaccination in May–June with the latest southern hemisphere strain, since WHO places India in the South Asia transmission zone. The two-peak pattern still makes one annual dose an imperfect fit. For a child not yet vaccinated this year, waiting for an ideal window is a poor plan.

mRNA. In August 2026 the FDA approved Moderna's mFlusiva, the first mRNA flu vaccine, for adults 50 and older. It has no paediatric indication, so its immediate relevance to Indian children is limited. Its longer-term promise is faster strain updating, which would suit a country with drifting viruses and two seasons.

Clinical Challenges at the Bedside

Triage Versus Early Treatment. MoHFW's risk categorization is the working framework. Category A (mild illness) needs no oseltamivir and no testing, only reassessment at 24–48 hours. Children with mild illness but predisposing risk factors are treated with oseltamivir. Category C patients are tested, given empirical oseltamivir while results are awaited, and hospitalized immediately. IAP names oseltamivir as the recommended drug for both treatment and chemoprophylaxis.

Newer Evidence Pushes Toward Speed. A Taiwanese study found that starting antivirals within 48 hours was associated with an 81% lower risk of hospitalization. It was observational, so it shows association, not proof. The AAP now recommends treating children under 5 and other high-risk groups regardless of vaccination status or symptom duration, and allows it for otherwise healthy children within 48 hours. In practice, the risk of a delayed or missed diagnosis matters as much as the risk of over-treatment.

Surveillance. National tracking through IDSP has centered on A(H1N1), which sits uneasily with a year of B, H1N1 and H3N2 activity. Sentinel testing in paediatric wards and schools would show what is actually circulating.

The Way Forward

Three priorities follow from this.

1. **Vaccinate High-risk Children First.** Children under five and those with chronic disease or immunosuppression should be the first targets, even without a universal programme.
2. **Match Timing to Regional Seasons.** Strategies should follow regional influenza seasonality rather than one uniform national schedule.
3. **Count Child Cases and Deaths.** Without paediatric surveillance, India cannot show what flu vaccines and early antivirals would save.

REFERENCES

- [1] Vashishtha VM, Kumar P. Optimizing influenza vaccine protection in India. *Indian Pediatr.* 2025;62:769–74. <https://link.springer.com/article/10.1007/s13312-025-00119-0>
- [2] Indian Academy of Pediatrics ACVIP. Recommended Immunization Schedule (2025) and update on immunization for children aged 0 through 18 years. *Indian Pediatr.* 2026;63:311–24. <https://pubmed.ncbi.nlm.nih.gov/41954836/>
- [3] Mehndiratta S. Enhancing influenza vaccination strategies for immunocompromised children in India. *Indian Pediatr.* 2026;63:226. <https://pubmed.ncbi.nlm.nih.gov/41670940/>

- [4] Real-world safety profile of an Indian trivalent influenza vaccine: multi-centre post-marketing surveillance study. PMC. <https://pmc.ncbi.nlm.nih.gov/articles/PMC13241601/>
- [5] Singh N, et al. Epidemiological investigation of influenza A(H3N2) outbreak in school children of Northern India. *Indian J Med Microbiol.* 2026;61:101108. <https://pubmed.ncbi.nlm.nih.gov/41932397/>
- [6] Cases of H3N2 subtype being strictly monitored, says Health Ministry (Union Health Ministry statement). *BW Healthcare World.* <https://www.bwhealthcareworld.com/article/cases-of-h3n2-subtype-being-strictly-monitored-says-health-ministry-468603>
- [7] Delhi H1N1 case counts, 2026: (a) AIMS India, "A seasonal flu, a sharper surge"; (b) Nova Hospital, "H1N1 cases in Delhi" (citing Delhi's Health Minister). <https://www.aimsindia.com/news/a-seasonal-flu-a-sharper-surge-h1n1-cases-rise-across-delhi-ncr/> <https://www.novahospitalmeerut.com/blog/h1n1-cases-in-delhi-symptoms-prevention>
- [8] India's 2026 H1N1 surge driven by known seasonal strain (summary of New Microbes and New Infections analysis). *Bioengineer.org*, Sept 2026. <https://bioengineer.org/indias-2026-h1n1-surge-driven-by-known-seasonal-strain/>
- [9] Understanding H3N2 subclade K: a public health concern for the 2026 influenza season. PMC. <https://pmc.ncbi.nlm.nih.gov/articles/PMC13236280/>
- [10] ACVIP (IAP). Influenza vaccine. <https://acvip.org/professional/columns/influenza-vaccine>
- [11] CDC. 2026–2027 Flu Season (updated Sept 2, 2026). <https://www.cdc.gov/flu/season/2026-2027.html>
- [12] AAP News. AAP updates flu guidance, adds detailed recommendations for immunocompromised children. Aug 10, 2026. <https://publications.aap.org/aapnews/news/35699/AAP-updates-flu-guidance-adds-detailed>
- [13] Contemporary Pediatrics. AAP updates 2026–2027 pediatric influenza vaccine and antiviral recommendations. Aug 2026. <https://www.contemporarypediatrics.com/view/aap-updates-2026-2027-pediatric-influenza-vaccine-antiviral-recommendations>
- [14] Contemporary Pediatrics. Early antiviral therapy linked to 81% lower influenza hospitalization risk in children (reporting Huang Y-N, et al. *Pediatrics* 2026;158(3)). <https://www.contemporarypediatrics.com/view/early-antiviral-therapy-linked-to-81-lower-influenza-hospitalization-risk-in-children> Influenza in Children: The Indian Perspective Page 3
- [15] Ministry of Health & Family Welfare, Government of India. Seasonal influenza: guidelines on risk categorisation. https://mohfw.gov.in/sites/default/files/394697031477913837_3.pdf
- [16] IAP Standard Treatment Guidelines, Chapter 134: Influenza in children. <https://iapindia.org/pdf/Ch-134-Influenza-in-Children.pdf>
- [17] Healthcare Dive. FDA approves Moderna's mRNA flu vaccine. Aug 6, 2026. <https://www.healthcaredive.com/news/moderna-fda-approve-mflusiva-seasonal-influenza/827180/>
- [18] CIDRAP. Fatal H5N1 case reported in India's Andhra Pradesh state. <https://www.cidrap.umn.edu/avian-influenza-bird-flu/fatal-h5n1-case-reported-indias-andhra-pradesh-state>
- [19] CDC. Global summary of human cases of H5N1 bird flu, August 2025 to June 2026. <https://www.cdc.gov/bird-flu/spotlights/global-summary-06262026.html>