IAP Allergy and Applied Immunology Chapter

A Knowledge Initiative

Allergy Bulletin: September 2025 edition

INDOOR ALLERGIES

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Chairperson's Address

Allergy Bulletin – September 2025 Issue

Dr Neeraj Gupta

Indoor Allergies – The Hidden Culprit behind Chronic Respiratory Illness

Dear **Colleagues, Friends, and Readers,**

It is my pleasure to connect with you through this September issue of the Allergy Bulletin. As the monsoon slowly transitions into autumn across most parts of India, we witness a seasonal rise in allergic diseases. While outdoor triggers such as pollens and air pollutants often dominate discussions, it is equally important—if not more crucial—to recognize the silent role of indoor allergens. This month, our theme, ***"Indoor Allergies: The Hidden Culprit behind Chronic Respiratory Illness,"*** brings attention to this under-recognized yet highly impactful domain.

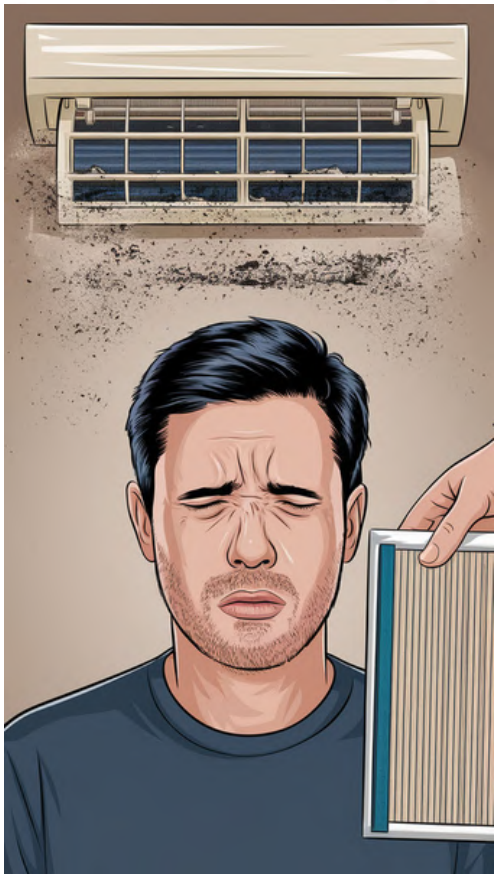
Indoor Allergies: Why They Matter

Most of us spend nearly 80–90% of our daily lives indoors—whether at home, school, or workplace. For children and the elderly, this proportion is even higher. Consequently, the quality of indoor air and the presence of allergenic triggers within enclosed spaces directly determine respiratory health.

Indoor allergies arise when individuals are exposed to allergens confined within homes or workplaces. The most important among these are:

- **House dust mites –** microscopic organisms thriving in bedding, mattresses, upholstered furniture, and carpets.
- **Indoor molds –** especially in damp corners, poorly ventilated bathrooms, and kitchens.
- Pet dander – tiny skin flakes and proteins from saliva/urine of cats, dogs, and other domestic animals.
- **Cockroach allergens –** commonly in urban households, especially in food storage or kitchen areas.

Unlike seasonal outdoor allergens, these indoor allergens persist throughout the year, producing chronic and often insidious symptoms. This makes them "hidden culprits" behind poorly controlled asthma, perennial allergic rhinitis, chronic cough, nasal obstruction, sinusitis, and even recurrent ear infections in children.



Peak Dust Mite Allergy Season

In India, dust mite exposure peaks during and immediately after the monsoon season. Warm and humid environments provide the perfect breeding ground for mites. Bedrooms, in particular, become hotspots where humans remain in prolonged contact with mite allergens, especially during sleep.

September, therefore, marks the beginning of the **"peak dust mite allergy season."** Families notice a worsening of:

- Night-time cough and wheeze in asthmatic children.
- Morning nasal congestion and sneezing.
- Sleep disturbance leading to fatigue and poor concentration in school-going children.

Many times, these symptoms are mistaken as "frequent viral infections" or "weak immunity." In reality, they reflect uncontrolled indoor allergies, especially to dust mites.

Recognizing this seasonal surge is critical for timely preventive action and intensification of therapy in vulnerable patients.

Indoor Air Quality – An Overlooked Determinant of Health

Indoor air quality (IAQ) encompasses not only the presence of allergens but also pollutants and irritants such as tobacco smoke, incense sticks, mosquito coils, cooking fuel smoke, volatile organic compounds from cleaning agents, and particulate matter seeping from outdoor pollution.

Poor IAQ is now recognized as a major public health hazard, particularly in metropolitan cities where outdoor pollution combines with indoor sources to create a double burden.

- **Children** are uniquely vulnerable due to their higher respiratory rate, immature immune systems, and more time spent indoors.
- **Elderly individuals** with chronic respiratory diseases like asthma, COPD, or interstitial lung disease are equally at risk.

The World Health Organization (WHO) and Indian Council of Medical Research (ICMR) have repeatedly highlighted that indoor pollution contributes significantly to the overall burden of respiratory illness in India.

Clinical Implications of Indoor Allergies

Indoor allergies often present subtly, with symptoms that mimic common colds. However, certain patterns should alert clinicians and families:

- **Perennial rhinitis:** Nasal congestion, sneezing, and watery discharge present throughout the year, often worse at night or on waking up.
- **Asthma with nocturnal symptoms:** Night-time cough, wheeze, or breathlessness that disturbs sleep.
- **Poor response to usual medications:** Recurrence despite repeated antibiotic or bronchodilator use.
- **Impact on quality of life:** Poor sleep, daytime fatigue, impaired school or work performance, and psychological stress.

Understanding these manifestations allows us to differentiate between "recurrent infections" and "chronic allergic inflammation" due to indoor allergens.

Prevention and Control – The Heart of Indoor Allergy Management

While medications (antihistamines, inhaled corticosteroids, nasal sprays) remain indispensable, long-term relief can only be achieved through allergen avoidance and environmental control measures.

Dust Mite Control

- Use mite-impermeable covers for mattresses and pillows.
- Wash bed linens weekly in hot water (>55°C).
- Avoid heavy carpets, upholstered furniture, and stuffed toys in children's bedrooms.
- Maintain indoor humidity below 50% using dehumidifiers or adequate ventilation.

Mold Control

- Identify and repair damp spots, leakages, or seepage.
- Ensure proper cross-ventilation in kitchens and bathrooms.
- Clean moldy surfaces with appropriate antifungal solutions.

Pet Allergens

- Restrict pets from bedrooms and upholstered furniture.
- Regular grooming and bathing of pets.
- Use high-efficiency particulate air (HEPA) filters if feasible.

Cockroach Allergen Control

- Maintain kitchen hygiene and store food in sealed containers.
- Use safe pest control methods.

Improving Indoor Air Quality

- Avoid indoor smoking, incense sticks, and mosquito coils.
- Opt for clean cooking fuels and proper exhaust systems in kitchens.
- Use air purifiers in high-burden urban settings, especially during winter smog season.

Immunotherapy – Beyond Symptomatic Control

For patients with moderate-to-severe indoor allergies, especially dust mite allergy confirmed by skin prick testing or specific IgE, allergen immunotherapy is a highly effective disease-modifying option. Subcutaneous and sublingual routes have shown significant improvement in symptom control, medication reduction, and long-term remission.

In India, where indoor allergens dominate, wider adoption of immunotherapy—under the guidance of trained allergists—can transform patient outcomes.

Role of Pediatricians, Physicians, and Community

As clinicians, we must sensitize families that not every persistent cold or cough is infectious. We should actively enquire about symptom patterns, environmental exposures, and indoor housing conditions. Counseling families on preventive strategies is as important as prescribing medicines.

Community awareness also plays a pivotal role. Simple education on the link between indoor environment and respiratory health can reduce disease burden and unnecessary antibiotic use. Schools, housing societies, and workplaces should incorporate indoor air quality standards into their health policies.

Looking Ahead

As we step into the peak indoor allergy season, let us collectively emphasize:

1. **Awareness –** Recognizing the hidden role of indoor allergens in chronic respiratory illnesses.
2. **Prevention –** Implementing practical environmental control measures at household and institutional levels.
3. **Diagnosis –** Using validated allergy testing to confirm triggers rather than assuming infections.
4. **Therapy –** Considering immunotherapy for long-term control in selected patients.

The burden of indoor allergies is not just medical—it affects productivity, education, family well-being, and national health economics. Addressing it requires combined efforts from healthcare providers, policymakers, schools, and the community at large.

Conclusion

Indoor allergies remain a "hidden culprit" behind chronic respiratory illness, often overlooked in our focus on outdoor pollution and seasonal allergens. With September marking the start of dust mite allergy peaks, this is an opportune time to intensify efforts on prevention and control.

I urge each of you—clinicians, caregivers, teachers, policymakers, and readers—to take simple but consistent steps toward creating healthier indoor environments. By doing so, we will not only reduce allergic disease burden but also improve the overall quality of life for our children, families, and communities.

Let us move forward with this shared vision of breathing clean, allergen-free air within the very walls of our homes

Warm regards,

Dr. Neeraj Gupta
Chairperson (2025)
IAP (National) Allergy and Applied Immunology Chapter
MBBS, DCH, DNB, FRCPCH, DAA, FAAAAI, IDPCCM, DPSM,
EAACI Certificate of Excellence in Pediatric Allergology

Activity Report

"Allergen Immunotherapy – Foundations to Frontiers"

The IAP Allergy and Applied Immunology Chapter organized a landmark **five-part webinar series on Allergen Immunotherapy (AIT)** from **August 1–8, 2025,** titled *"Foundations to Frontiers."* The series, held on Zoom and YouTube Live, brought together leading experts in allergy and immunology across India. The program was designed to **demystify, contextualize, and advance the practice of AIT in India,** with over **900 delegates participating** across five sessions. Each session addressed key aspects of AIT—from historical foundations to future innovations—ensuring a balance of evidence-based science, clinical pearls, and practical implementation strategies.

Dr Mritunjay Pao

Dr P K Vedanthan

Dr Taha Ashraf Qureshi

Dr Spurthi Chitta

Session 1: Demystifying Allergen Immunotherapy

Date: August 1, 2025 | **Moderator:** Dr. Mritunjay Pao
The inaugural session laid the foundation by highlighting the **historical journey of AIT,** starting with Jenner and evolving into today's precision-based approaches.

- **Dr. P K Vedanthan** presented "From Jenner to Precision", tracing milestones in AIT development, emphasizing the transformation from empirical use of crude extracts to modern component-resolved and molecular diagnostics-driven approaches.
- **Dr. Taha Ashraf Qureshi** followed with "Inside the Immune Dialogue", explaining how AIT modifies the immune system, promotes tolerance, and reshapes allergic responses.
- **Dr. Spurthi Chitta** delivered "Who, When, and Why?", offering clinical decision-making frameworks for initiating AIT, especially in children versus adults.

The **panel discussion,** *"The Right Time to Start: Children vs Adults in AIT"*, underscored that **earlier intervention, particularly in pediatric populations,** can alter the allergic march and reduce long-term morbidity.

Dr Hima Mathews

Dr Kasyapi Nagaraju

Dr Vikram Patra

Dr Gayatri Pandit

Session 2: Precision Matters – The Art of Patient Selection
Date: August 4, 2025 | **Moderator:** Dr. Hima Mathews

This session centered on **diagnosis and clinical decision-making,** crucial for AIT success.

- **Dr. Kasyapi Nagaraju** shared insights on *"Testing Truths"*, emphasizing careful interpretation of skin prick testing (SPT) and serum specific IgE results. She highlighted pitfalls such as false positives, clinical correlation, and the role of quality allergen extracts.
- **Dr. Vikram Patra** elaborated on *"The Polysensitization Puzzle"*, showing how **component-resolved diagnostics (CRD)** can clarify sensitization profiles and guide allergen selection.
- **Dr. Gayatri Pandit** spoke on "Tailoring Therapy", helping clinicians decide between **subcutaneous (SCIT)** and **sublingual (SLIT) immunotherapy,** based on patient age, comorbidities, and adherence potential.

The panel*, "Allergen Selection Made Simple",* provided **practical pearls from experienced clinicians,** demystifying complex decision points and encouraging individualized, evidence-based choices.

Dr Sinchana Bhat

Dr Nagendra Prasad

Dr Dipti Pujari

Dr Narmada S

Session 3: Making AIT Work – Protocols to Practice
Date: August 5, 2025 | **Moderator**: Dr. Sinchana Bhat

This session focused on **implementation and safety.**

- **Dr. Nagendra Prasad** Komrala in "*From Vials to Victory*" explained extract standardization, dose optimization, and protocols adapted for Indian practice.
- **Dr. Dipti Pujari** addressed *"Balancing Safety and Efficacy"*, emphasizing monitoring for systemic and local reactions, risk stratification, and emergency preparedness in clinic settings.

- **Dr. Narmada S** discussed *"Guidelines in Action"*, analyzing how global AIT guidelines can be translated to Indian realities, given constraints of cost, availability, and infrastructure.

The panel discussion, *"Compliance Crisis?",* highlighted **adherence challenges**—ranging from logistical hurdles to patient misconceptions—and proposed solutions such as **counselling, structured follow-up, and digital reminders.**


Dr Sanjukta Dey


Dr Krishna Mohan


Dr Saibal Moitra


Dr Aratrika Das

Session 4: AIT in the Real World – Special Populations & Scenarios
Date: August 6, 2025 | **Moderator:** Dr. Sanjukta Dey

This session addressed AIT beyond conventional use, focusing on vulnerable groups.

- **Dr. Saibal Moitra** presented on "*Beyond Rhinitis",* discussing the role of AIT in asthma, atopic dermatitis, and other allergic conditions, while emphasizing appropriate patient selection.
- **Dr. Krishna Mohan** highlighted *"AIT in Pediatrics"*, stressing its preventive role in halting the atopic march and long-term benefits in children.
- **Dr. Aratrika Das** spoke on *"Pregnancy, PIDs & Pitfalls"*, tackling less-discussed but clinically relevant scenarios like managing AIT in pregnant women and patients with primary immunodeficiency disorders.

The **panel discussion** offered real-world perspectives on how to navigate **clinical, ethical, and logistical challenges** while ensuring patient safety.


Dr Soundarya M


Dr Karthik Nagaraju


Dr Sowmya Nagarajan


Dr Neeraj Gupta

Session 5: Next Frontiers in AIT – Innovation & Implementation
Date: August 8, 2025 | **Moderator:** Dr. Soundarya M

The concluding session provided a glimpse into the future of AIT.

- **Dr. Karthik Nagaraju** presented *"Biomarkers and Beyond",* highlighting the need for reliable biomarkers to personalize monitoring, predict responders, and optimize treatment duration.
- **Dr. Sowmya Nagarajan** in *"Food for Thought"* addressed AIT for food allergies, an area of emerging evidence and interest, especially given rising food allergy prevalence in India.
- **Dr. Neeraj Gupta** spoke on *"Beyond Needles",* introducing novel routes like **epicutaneous (EPIT) and intralymphatic (ILIT) immunotherapy,** which may transform delivery models.

The final panel, "Blueprint for India", discussed practical strategies to establish **AIT clinics across India,** balancing innovation with affordability, accessibility, and safety.

Key Highlights and Outcomes

1. **Multidisciplinary Approach:** The series successfully integrated immunologists, pediatricians, allergists, and researchers, offering both clinical and scientific perspectives.
2. **Practical Relevance:** Each session combined theory with practical pearls, helping clinicians bridge the gap between guidelines and real-world practice.
3. **Focus on India:** Adaptation of AIT to Indian realities—extract quality, cost concerns, limited awareness—was a recurrent theme.
4. **Interactive Engagement:** Robust participation during panel discussions reflected the eagerness of clinicians to adopt AIT more widely.
5. **Future Directions:** Participants appreciated exposure to cutting-edge innovations such as biomarkers, novel routes, and food immunotherapy.

Conclusion

The *"Allergen Immunotherapy: Foundations to Frontiers"* webinar series marked an important step in strengthening the **AIT movement in India**. By weaving together history, science, clinical practice, and future innovations, the program empowered clinicians to integrate AIT more effectively in their practices.

As the burden of allergic diseases in India continues to rise, the insights from this series will help pediatricians, allergists, and other specialists **move beyond symptomatic treatment towards disease-modifying therapy**. The IAP Allergy and Applied Immunology Chapter reaffirms its commitment to fostering **education, collaboration, and innovation** in allergy care, with AIT as a central pillar of long-term solutions.

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Activity Report

"Allergy Conclave 2025"

The Ahmedabad Academy of Pediatrics (AOP), in collaboration with the Indian Academy of Pediatrics (IAP) Allergy & Applied Immunology Chapter, successfully organized the Allergy Conclave 2025 on 3rd August, 2025 at Hotel Fern Inder Residency, Ahmedabad. The conclave witnessed active participation from pediatricians, allergy specialists, and healthcare professionals with the aim of enhancing knowledge and clinical skills in the field of allergy management.

The scientific sessions commenced with Dr. Mitesh Kakkad delivering an insightful talk on the Management of United Airway Disease. This was followed by Dr. Dipti Pujari, who highlighted the Approach to Food Allergy according to EAACI guidelines, emphasizing the importance of accurate diagnosis and evidence-based management.

Dr. Neeraj Gupta then elaborated on Allergy Testing in Office Practice, providing practical strategies for clinicians. Dr. Dipti Pujari returned to address Chronic Urticaria, sharing updates on diagnosis and therapeutic options.

Post the formal inauguration, Dr. Mitesh Kakkad discussed Life-Threatening Allergies, underlining the critical aspects of emergency management. Dr. Neeraj Gupta followed with a thought-provoking session on Beyond Steroids in Allergy Management, exploring newer modalities and holistic approaches.

The Q&A session provided a platform for interactive discussion, clarifying clinical dilemmas faced in day-to-day practice. After a networking lunch, the program concluded with case-based workstation discussions, covering Food Allergy & Anaphylaxis, Asthma, and Allergic Rhinitis with Obstructive Sleep Apnea (OSA), offering participants practical, scenario-based learning.

The conclave was presided over by Dr. Mitul Jasani (President, AOP), with the able support of Dr. Angelica Mehta (Secretary, AOP) and Dr. Amruta Thakkar (Treasurer, AOP).

Overall, the Allergy Conclave 2025 proved to be an academically enriching and clinically relevant event, fostering awareness and updating practitioners on the latest advancements in allergy care.

Activity Report

Allergy Forum – Episode 6
Case-Based Discussion on Inborn Errors of Immunity

The IAP Allergy and Applied Immunology Chapter successfully organized a virtual case-based discussion on Inborn Errors of Immunity (IEI) on 12th August 2025. The session aimed to highlight the complexity and diversity of clinical presentations in children with IEI, while emphasizing the importance of timely diagnosis and multidisciplinary management.

The discussion was expertly moderated by Dr. Vignesh Pandiarajan, Additional Professor, Allergy & Immunology Unit, Advanced Pediatrics Centre, PGIMER, Chandigarh. Two young faculty members from PGIMER—Dr. Dev Desai and Dr. Gayathri—presented a series of thought-provoking clinical cases that illustrated diagnostic dilemmas and management challenges in IEI.

Dr Dev Desai

Dr Gayathri

Dr Vignesh Pandiarajan

The cases highlighted a spectrum of immune defects, ranging from antibody deficiencies and combined immunodeficiencies to immune dysregulation syndromes. Each case discussion was enriched with detailed evaluation pathways, laboratory work-ups, and genetic considerations, followed by practical strategies for management. Special emphasis was placed on how IEI may mimic common allergic disorders, underscoring the need for pediatricians and allergists to maintain a high index of suspicion in recurrent or atypical presentations.

The interactive format allowed participants to engage actively, with real-time questions and clinical problem-solving. Delegates appreciated the practical insights shared, particularly the step-wise approach to differential diagnosis and when to suspect IEI in routine pediatric practice.

Overall, the session was highly valued for bridging the gap between allergy practice and immunodeficiency disorders, reinforcing the importance of collaborative care. The Chapter remains committed to continuing such academic initiatives for capacity building in pediatric allergy and immunology across India.

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Activity Report

Webinar on "Demystifying Pet Allergies"

The **IAP Allergy and Applied Immunology Chapter** organized an engaging and insightful webinar on **"Demystifying Pet Allergies"** on **19th August 2025** as part of its ongoing academic initiatives. The session was **moderated by Dr. Shambo Samajdar** and featured two eminent experts from Sir Ganga Ram Hospital, New Delhi – **Dr. Anil Sachdev and Dr. Neeraj Gupta.**

Dr Shambo Samajdar

Dr Anil Sachdev

Dr Neeraj Gupta

The webinar explored the growing problem of **pet-related allergies,** a concern particularly relevant in urban India where pet ownership is rapidly rising. **Dr. Neeraj Gupta** presented an in-depth overview of **dog and cat dander allergenicity,** explaining the major allergenic proteins, their persistence in indoor environments, and their impact on children and adults with asthma or allergic rhinitis. He highlighted the importance of accurate diagnosis through history, allergy testing, and differentiating true sensitization from cross-reactivity.

Dr. Anil Sachdev addressed the less-recognized but clinically significant issue of **hypersensitivity pneumonitis** due to exposure to birds, especially **pigeons and parrots.** Through case examples, he emphasized the diagnostic challenges, the role of imaging and immunological tests, and the need for early recognition to prevent chronic lung damage.

The interactive discussion brought out practical aspects of **management and prevention**, including allergen avoidance, counseling families, role of pharmacotherapy, and the emerging place of immunotherapy. Participants actively engaged with questions, making the session highly dynamic and clinically relevant.

The Chapter's initiative successfully highlighted the **multifaceted spectrum of pet-related allergies** and reinforced the importance of awareness among pediatricians, allergists, and families.

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Activity Report

40th IAP Allergy Chapter Monthly Webinar
GINA 2025: Update and Scope

The **IAP Allergy and Applied Immunology Chapter** conducted its **40th monthly academic webinar on 29th August 2025**, marking another milestone in its continuous endeavor to deliver cutting-edge education in pediatric allergy and respiratory care. The topic for this month was **"GINA 2025 – Update and Scope",** a subject of immense relevance given the ever-evolving landscape of asthma management.

The session was delivered by **Dr. Sanjiv Singh Rawat,** Chairperson of the **IAP National Respiratory Chapter,** a distinguished leader in pediatric respiratory medicine. His lucid presentation provided participants with a comprehensive understanding of the **newly released GINA 2025 guidelines,** emphasizing both clinical updates and their practical application in day-to-day practice.

Dr Sanjiv Singh Rawat

Dr. Rawat elaborated on the **revised treatment algorithms,** highlighting the growing emphasis on **inhaled corticosteroid (ICS)-based strategies** even for mild asthma, the role of **single-inhaler therapy (ICS-formoterol)** as both maintenance and reliever, and the importance of **personalized treatment approaches.** He also underscored the significance of **early diagnosis, risk assessment, adherence strategies, and comorbidity management** in optimizing asthma outcomes.

A particularly engaging part of the session was the discussion on how these global recommendations can be contextualized for **resource-limited and diverse healthcare settings in India.**

Dr. Rawat stressed the importance of **capacity building among pediatricians, patient education, and collaboration between allergy and respiratory specialists** to achieve better asthma control nationwide.

The webinar was well-attended by pediatricians, allergists, and postgraduate trainees from across the country. The interactive Q&A session reflected the enthusiasm of participants to translate these updates into their clinical practice.

With this 40th webinar, the Chapter continues its journey of academic excellence, reaffirming its commitment to equipping pediatricians with the latest evidence-based knowledge in allergy and immunology.

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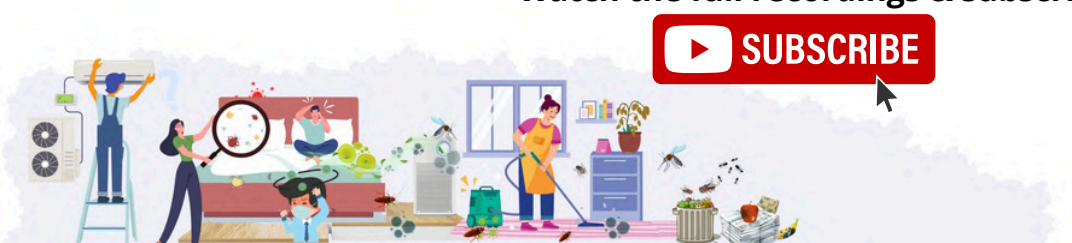
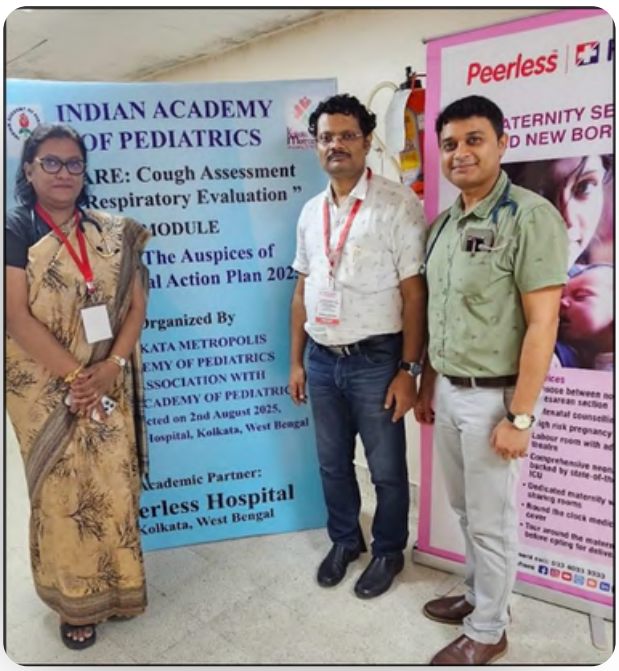


Representation at Various Allergy Platforms



Dr Sanjukta Dey conducting CARE module at Peerless Hospital, Kolkata with enthusiastic participants

Dr Neeraj Gupta felicitated by Dr Varinder Singh for a session on 'Allergy Testing in Pulmonology Practice' during Delhi Respicon – Annual Conference of Delhi Respiratory Society

Representation at Various Allergy Platforms

Dr Sinchana Bhat conducted an Allergy Awareness Session at Indian Overseas Bank Headquarters at Mangalore for the bankers .

Allergy Legends

"Dr V. K. Jain: A Lifetime dedicated to breathing new life into Allergy Care"

The September issue of Allergy Bulletin celebrates the remarkable journey of **Dr. V. K. Jain,** Professor Emeritus of Respiratory Medicine, Mahatma Gandhi Medical College, Jaipur. An exclusive interview with him, conducted by Dr. Sowmya Nagarajan, Leading Allergist from Bengaluru, and published on the Chapter's YouTube channel in August, captured the essence of his wisdom, humility, and inspiration for generations to come.

Dr. Jain's career spans nearly five decades, marked by academic brilliance, clinical leadership, and an unwavering passion for teaching. With qualifications including **MD, DTCD, and DNB,** he served as Head of Department for 37 years, guiding more than 45 postgraduate and PhD theses, shaping the careers of countless respiratory and allergy specialists. His contributions include **70 publications, 4 books, and 40 book chapters,** reflecting his dedication to knowledge creation and dissemination.

A recipient of **19 prestigious awards and orations, 7 fellowships** including the WHO Fellowship in Finland and the Netherlands, and leadership roles in **six national and international societies,** Dr. Jain has been a torchbearer for Allergy and Respiratory Medicine in India. His lifetime achievement awards from NCCP(I) and ICS stand as testimony to his enduring impact.

What sets Dr. Jain apart is not only the depth of his academic contributions but also his philosophy. As he shared in the interview, ***"Medicine is a lifelong journey; the more you give to your students and patients, the more you receive in return."*** His humility, curiosity, and passion continue to motivate the next generation to push boundaries with compassion and excellence.

Indeed, **Dr. V. K. Jain is an Allergy Legend whose story breathes inspiration into every young allergist's journey.**

We salute his legacy — inspiring generations in the quest for better allergy care.

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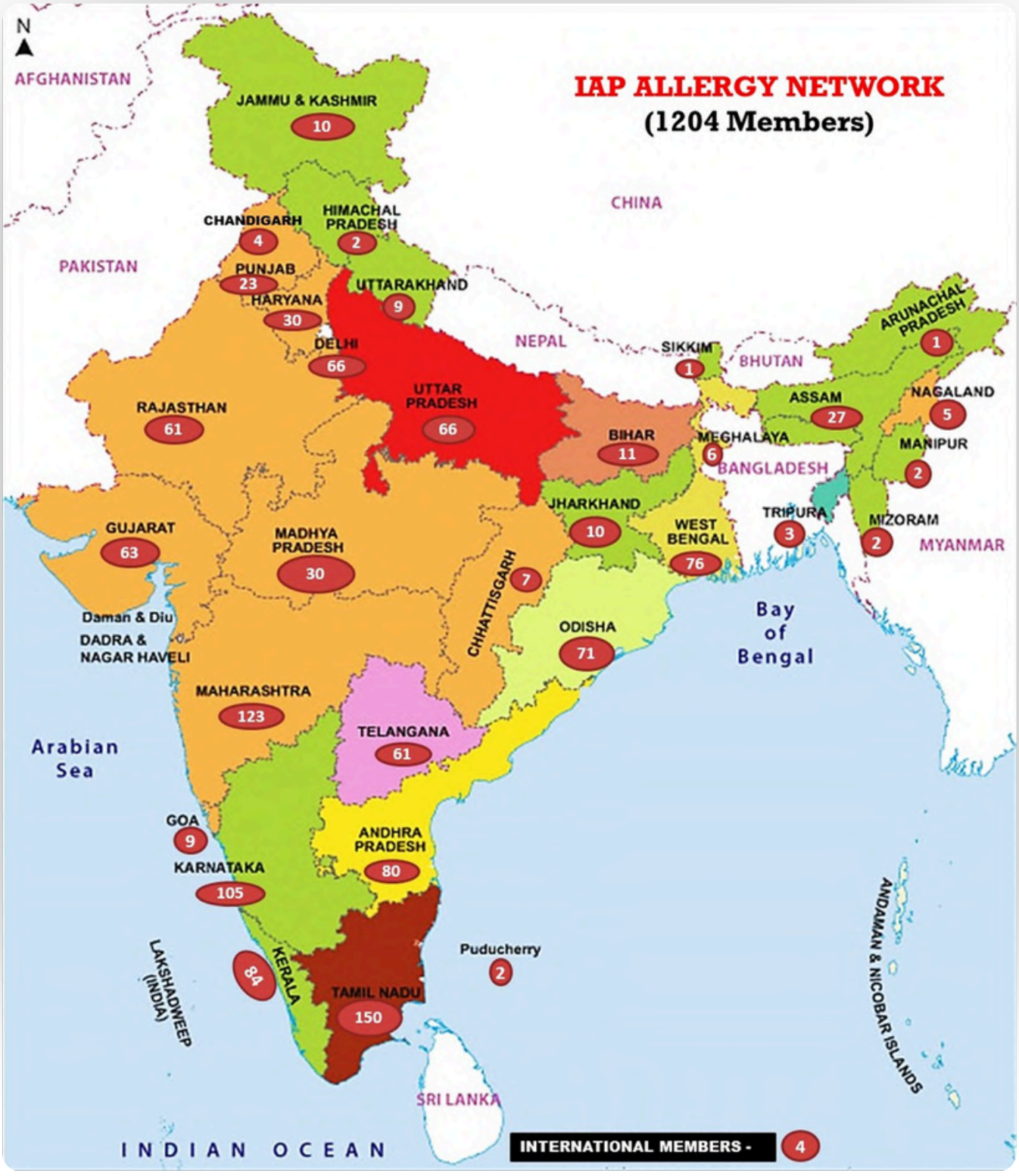
Membership Snapshot



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Expert Column

Dr Mahesh PA
Professor
Department of Respiratory Medicine
JSS Medical College, JSSAHER
Mysore, India

Air Pollution and Pediatric Allergies: An Underestimated Threat

Why this matters now ?

Allergic conditions are among the most common chronic illnesses of childhood, and their burden is rising. At the same time, children are breathing air that is increasingly complex: a mixture of fine and ultrafine particles, reactive gases, and volatile organics that vary by hour, microenvironment, and season. Because the airways, skin, and immune system are still maturing, the same exposure carries greater biological impact in children than in adults. Yet the contribution of air pollution to pediatric allergies remains underestimated. Traditional monitoring captures citywide averages rather than what a child actually inhales at home, school, and during transport. Clinical histories often stop at “smoke or pets,” missing fuels, ventilation, mold, and neighborhood traffic. Research has historically analyzed single pollutants in isolation, obscuring mixture effects and pollutant–allergen interactions. Meanwhile, climate change is reshaping pollen calendars and intensifying wildfires and heat-related ozone spikes, producing sharp pediatric surges in symptoms and health-care use. Recognizing air pollution as a modifiable, cross-cutting exposure reframes allergy care: prevention and control extend beyond pharmacotherapy to environment-focused strategies that can deliver rapid health benefits and long-term equity.

Pollutants & Exposure Landscapes in Childhood

Outdoor pollutants.

- **Particulate matter (PM2.5/PM10 and ultrafine particles):** Carriers of metals, organic compounds, and microbes including viruses that penetrate deep into the lung and can enter the circulation. Ultrafines, abundant near traffic, have high surface area and act as adjuvants for allergens.
- **Nitrogen dioxide (NO_2):** Marker and mediator of traffic-related pollution; injures airway epithelium and enhances sensitization.

- **Ozone (O_3):** Secondary pollutant formed in heat/sunlight; oxidant that increases airway inflammation and symptom severity, especially during heat waves.
- **Sulfur dioxide (SO_2) and industrial emissions:** Relevant near point sources; provoke bronchoconstriction and ocular/skin irritation.
- **Polycyclic aromatic hydrocarbons (PAHs):** From combustion (diesel, biomass, wildfire); bind to the aryl hydrocarbon receptor, altering immune development.
- **Wildfire and dust storms:** Episodic, high-intensity exposures with fine/ultrafine particles and irritant gases; linked to regional spikes in pediatric respiratory and allergic events.

Indoor pollutants.

- **Solid/biomass and kerosene fuels:** Major sources of PM and PAHs in many homes; exposures peak during cooking and heating.
- **Secondhand and thirdhand tobacco smoke; e-cig/vape aerosols:** Particles, nicotine, aldehydes, and metals that worsen symptoms and prime sensitization.
- **Volatile organic compounds (VOCs) and formaldehyde:** From cleaning agents, incense, air fresheners, furnishings, and paints; irritant and pro-inflammatory.
- **Dampness and mold:** Biologic and chemical co-exposures that damage skin/airway barriers and aggravate rhinitis and eczema.
- **Gas stoves and poorly vented appliances:** NO_2 and ultrafine particles with strong within-home gradients.

Where and when children are exposed?

- **Prenatal period:** Maternal inhalation exposures influence fetal lung, immune, and skin barrier development.
- **Infancy and early childhood:** High minute ventilation per body weight; floor-level breathing increases dust and particle intake; more time indoors.
- **Microenvironments:** Home (cooking/smoke/mold), school/classroom (ventilation, proximity to roads), childcare centers, and commutes (during traffic peaks).
- **Exposure dynamics:** Short peaks (cooking, traffic, storms, wildfire smoke) can trigger symptoms; cumulative exposures shape sensitization and long-term trajectories.
- **Inequities:** Children in high-poverty or high-traffic areas experience higher concentrations and fewer mitigation resources, widening allergic disparities.

Biologic Pathways Linking Pollution to Allergic Disease

Air pollutants act as both triggers and amplifiers of allergic disease. Their effects begin at the barrier surfaces and extend deep into the immune network.

Oxidative stress and barrier dysfunction

Fine and ultrafine particles, ozone, and nitrogen dioxide generate reactive oxygen species in the airway and skin epithelium. This oxidative stress disrupts tight junctions, increases permeability, and allows allergens and microbes to penetrate more easily.

Damaged epithelial cells release “alarmins” such as thymic stromal lymphopoietin (TSLP), IL-33, and IL-25, which activate dendritic cells and innate lymphoid cells toward allergic pathways.

Immune system skewing

Pollutants influence antigen presentation and polarize the immune response toward type 2 and type 17 inflammation, enhancing IgE production and eosinophil recruitment. Type 17 inflammation recruits neutrophil into the upper and lower airways and makes allergies difficult to control as neutrophils don’t respond to corticosteroids. Diesel exhaust particles, for example, act as adjuvants, increasing the potency of allergens like pollen or dust mite. Repeated exposure maintains a pro-allergic milieu, lowering the threshold for symptomatic reactions.

Epigenetic alterations

In utero and early-life exposures can modify DNA methylation patterns and microRNA profiles in genes controlling immunity and barrier function. Some changes persist, potentially shaping lifelong allergy risk. There is emerging evidence of transgenerational effects, where parental exposure alters offspring susceptibility.

Microbiome disruption

Pollutants modify the composition and function of microbial communities in the airways, skin, and gut. Reduced microbial diversity, coupled with loss of protective taxa, impairs immune tolerance and favours sensitization.

Allergen–pollutant interactions

Airborne pollen grains exposed to pollutants can fragment into respirable particles carrying concentrated allergenic proteins. Chemical modification of allergens, such as nitration by NO_2, can increase their allergenicity (Neo-allergens). This synergy explains why allergic symptoms often intensify during high-pollution days even if pollen counts are unchanged.

Clinical Evidence Across Allergic Outcomes

Asthma and wheeze

Longitudinal birth cohort studies show that higher early-life exposure to traffic-related pollutants increases the risk of developing asthma, particularly when combined with atopic predisposition. Pollutants also drive disease progression, with more frequent exacerbations, emergency visits, and reduced lung function growth. High-pollution events such as wildfires or dust storms are consistently linked to surges in pediatric asthma admissions.

Allergic rhinitis

Exposure to PM, NO_2, and ozone correlates with both new-onset rhinitis and worsening of established symptoms. Children in high-traffic areas often present with perennial symptoms, and co-sensitization to multiple aeroallergens is more common. Pollution appears to extend the symptomatic season beyond traditional pollen peaks.

Atopic dermatitis
Urban and industrial pollutants aggravate eczema by damaging the skin barrier and altering lipid composition. Increased flare frequency is reported during pollution peaks, with stronger effects in children already sensitized to aeroallergens or with filaggrin gene variants.

Food allergy and anaphylaxis
Though less studied, early-life exposure to traffic pollutants has been associated with higher rates of food sensitization. Mechanistic work suggests that barrier injury in skin and gut facilitates allergen penetration, and oxidative stress can heighten the severity of reactions.

Allergic conjunctivitis
Pollutants exacerbate ocular symptoms, particularly in children with concurrent rhinitis. High ozone and particulate days see marked increases in school absenteeism due to eye irritation and inflammation.

Strength of evidence
The weight of evidence is strongest for asthma and rhinitis, followed by atopic dermatitis. Food allergy and conjunctivitis links are emerging but biologically plausible. The most convincing studies combine personal exposure monitoring, high-resolution pollutant modeling, and standardized allergic outcome measures. Natural experiments such as reductions in pollution during major events or after policy changes show rapid improvements in pediatric allergic morbidity, underscoring the reversibility of risk.

Climate, Aeroallergens, and Extreme Events

Climate change is reshaping the allergic landscape, amplifying the impact of air pollution on children. Rising temperatures accelerate ozone formation and prolong stagnant weather patterns that trap pollutants at ground level. Warmer seasons and increased CO_2 levels alter plant physiology, producing earlier flowering, longer pollen seasons, and higher pollen loads. These pollens may also be more allergenic, as pollutants like NO_2 and ozone modify allergenic proteins.

Extreme events add acute layers of risk. *Thunderstorm asthma*, where pollen grains rupture into respirable particles during storms, has caused mass asthma outbreaks, with adolescents disproportionately affected. *Wildfires*, now longer and more frequent, release complex smoke plumes of PM, gases, and chemicals that can travel hundreds of kilometers, triggering surges in pediatric asthma and allergy visits far from the fire source. Dust storms, especially in arid and semi-arid regions, carry biological and mineral particles that can irritate eyes, skin, and airways. These shifts create a moving target for allergy prevention and control, demanding that pediatric care integrate environmental alerts, anticipatory guidance, and adaptive strategies for both chronic and episodic exposures.

Vulnerable & Underserved Populations

Not all children breathe the same air. Socioeconomic disparities shape both exposure and resilience. Children in low-income households often live closer to high-traffic roads, industrial facilities, or waste-burning sites. Housing may have poor ventilation, persistent dampness, and reliance on biomass or kerosene for cooking and heating. These exposures are compounded by limited access to clean water, nutrition, and medical care, all of which modulate allergic disease severity. The key evidences come from studies on the inner city asthma and allergies in the USA.

Biologic vulnerability also matters. Preterm infants, those with low birthweight, and children with existing atopy have less reserve in barrier and immune function. Repeated infections and malnutrition can interact with pollution exposures to worsen allergic outcomes. Schools and daycare centers in disadvantaged areas may be located in high-exposure zones without adequate air filtration or cooling systems.

This clustering of risk factors creates an environmental injustice in pediatric allergy, where the highest burden falls on children least able to avoid or mitigate exposures. Addressing this requires targeted interventions, subsidies for clean energy, school-based filtration programs, and policy measures that prioritize the most exposed communities.

Measurement & Methods: Why Underestimation Happens?

Despite mounting evidence, the role of air pollution in pediatric allergies is still underestimated, in part due to how we measure both exposure and disease.

Exposure misclassification: Most studies rely on citywide or neighborhood monitoring stations, which cannot capture the microenvironments children inhabit. Personal monitors reveal that short-term peaks, from cooking, commuting, or local burning, can be far higher than ambient averages. Children's activity patterns, such as time spent outdoors during school breaks or playing near roads, can dramatically alter actual dose.

Single-pollutant models: Many analyses examine PM2.5 or NO_2 in isolation, ignoring chemical mixtures and interactions. Pollutants often co-occur, and their combined effects may be more than additive.

Outcome variability: Allergic disease definitions vary, from self-reported symptoms to physician-diagnosed disease to biomarker-confirmed sensitization. Lack of harmonization makes meta-analysis and policy translation difficult.

Unmeasured co-exposures: Tobacco smoke, indoor allergens, dampness, and infection history may confound or mediate associations but are often missing from datasets.

Advances: High-resolution spatiotemporal modeling, wearable sensors, and integrative approaches (linking aeroallergen and heat data to pollution) are improving accuracy. Novel causal inference methods such as negative control analyses help to strengthen causal claims.

India and Other LMIC Contexts: The Perfect Storm

India and many other low- and middle-income countries (LMICs) face a unique convergence of high pollution levels, rapid urbanization, and limited mitigation infrastructure, creating a perfect storm for pediatric allergic disease.

Outdoor burden: Many Indian cities consistently record PM2.5 concentrations several times higher than WHO guidelines, driven by traffic, industry, open waste burning, and seasonal agricultural residue burning. Dust storms in the north and wildfire smoke in central and southern states add episodic spikes.

Indoor exposures: Around half of Indian households still rely on solid biomass fuels for cooking, particularly in rural areas, exposing young children to dense PM and PAH levels daily. Kerosene lamps and open fires compound the risk. Poor ventilation, overcrowding, and dampness further increase allergen and irritant loads indoors.

Demographics and vulnerability: With a large proportion of the population under 15, the sheer scale of pediatric exposure is staggering. Many children are simultaneously affected by malnutrition, infections, and low access to allergy diagnostics or controller medications, thus amplifying the impact of environmental triggers.

School environment: Many schools are located near busy roads or industrial zones and lack air filtration. Outdoor activities are rarely modified for poor air days, and awareness of AQI-based precautions remains limited.

Opportunities for change: India has launched clean cooking initiatives and is expanding its air quality monitoring network. School-based interventions — such as clean classrooms, green buffers, and awareness programs, can offer scalable, equitable protection. LMIC innovation, including low-cost air sensors, solar-powered filtration, and community health worker–led education, holds promise for reducing allergic disease burden in high-exposure settings.

Conclusion

Air pollution is a potent but under-recognized driver of pediatric allergic disease. From asthma to eczema, from rhinitis to emerging food allergy links, the evidence shows that polluted air does more than irritate, it rewires developing immune systems, disrupts barriers, and amplifies allergic responses. The problem is global but especially urgent in high-burden LMICs, where children face a combination of extreme exposures and limited mitigation resources. Clinicians need to act now, integrating exposure history, practical mitigation, and environmental counseling into routine care. Communities can push for clean energy, safer schools, and real-time environmental alerts. Policy makers can prioritize child health in urban planning, energy policy, and climate action. Protecting the air children breathe is not simply an environmental goal, it is a pediatric imperative, with benefits that will extend across lifetimes.

Suggested Readings

- *Prenatal Exposure to Air Pollutants Associated with Allergic Diseases in Children: Which Pollutant, When Exposure, and What Disease? A Systematic Review and Meta-analysis. Clin Rev Allergy Immunol. 2024;66(2):149–163.*
- *Prenatal and early-life exposure to traffic-related air pollution and allergic rhinitis in children: a systematic literature review.PLoS ONE. 2023;18(4):e0284625.*
- *The odds of developing asthma and wheeze among children and adolescents exposed to particulate matter: a systematic review and meta-analysis. BMC Public Health, 2025, 25, 1225.*
- *Association between exposure to air pollution and risk of allergic rhinitis: A systematic review and meta-analysis. Environ Res. 2022;205:112472.*
- *Air pollution and childhood allergic disease. Allergy Asthma Respir Dis. 2016 Jul;4(4):248-256.*
- *Air Pollution Effects in Allergies and Asthma. Immunology and Allergy Clinics of North America. 2022 Nov;42(4):801-815.*
- *Effect of household air pollution due to solid fuel combustion on childhood respiratory diseases in a semi-urban population in Sri Lanka. BMC Pediatr. 2019;19:306.*
- *Air pollution is associated with persistent peanut allergy in the first 10 years*
- *Journal of Allergy and Clinical Immunology, Volume 154, Issue 6, 1489 - 1499.e9*

Case of the Month

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Refractory Anaphylaxis in an Adolescent Girl: A Clinical Challenge

Case Presentation

A 15-year-old girl with a history of mild persistent asthma presented to the emergency department with sudden onset of generalized urticaria, facial swelling, wheezing, and dizziness within 10 minutes of consuming a peanut-containing snack at a school function.

At presentation, her vitals were:

- **Blood pressure:** 78/48 mmHg
- **Pulse:** 134/min (weak, thready)
- **Respiratory rate:** 32/min with audible wheeze
- **Oxygen saturation:** 88% on room air

An immediate diagnosis of **anaphylaxis** was made. She received **intramuscular (IM) adrenaline (0.5 mg, 1:1000 dilution)** in the mid-anterolateral thigh along with high-flow oxygen and IV fluids. Despite two doses of IM adrenaline given at 5-minute intervals and rapid 20 ml/kg IV fluid boluses, the patient continued to have persistent hypotension and worsening bronchospasm. This clinical scenario was labelled as **Refractory Anaphylaxis.**

Understanding Refractory Anaphylaxis

Definition:
Refractory anaphylaxis is defined as persistence of symptoms (especially hypotension, hypoxemia, or airway compromise) **despite at least two appropriate doses of IM adrenaline plus adequate IV fluids.**
It is rare but life-threatening, occurring in about **0.5–1% of all anaphylaxis cases,** with high risk of morbidity and mortality.

Differential Diagnoses

While the patient's presentation was highly suggestive of anaphylaxis, especially with a known trigger (peanuts), it is crucial to consider differentials when symptoms do not improve rapidly.

Table 1: Differential Diagnoses in Suspected Refractory Anaphylaxis

Differential	Distinguishing Features	Clues Against in This Case
Asthma exacerbation	Wheeze, dyspnea without hypotension/urticaria	Hypotension, urticaria present
Vasovagal syncope	Bradycardia, pallor, recovery in supine	Tachycardia, rash, bronchospasm present
Septic shock	Fever, prolonged course	Sudden onset post-exposure
Cardiogenic shock	Chest pain, arrhythmia, abnormal ECG	Clear temporal relation to allergen
Hereditary angioedema	Isolated angioedema, no urticaria, no response to adrenaline	Presence of urticaria, acute trigger

Work-up

In an emergency, anaphylaxis is a clinical diagnosis, but adjunctive investigations are important for confirmation, risk stratification, and future planning.

Table 2: Work-up in Suspected Refractory Anaphylaxis

Test	Purpose	Timing
Serum tryptase	Confirms mast cell activation	Within 1–2 h of event, and baseline at ≥24 h
Blood gas, lactate	Assess tissue perfusion	During resuscitation
Echocardiography (bedside)	Rule out myocardial dysfunction from stress/catecholamines	During ICU stay
Allergen-specific IgE / Skin prick test	Identify trigger (post-stabilization, ≥4 weeks later)	Follow-up

Acute Management

When initial management fails, escalation is critical.

Stepwise Approach in This Case

1. **High-flow oxygen** and airway positioning
2. **Repeated IM adrenaline** (0.5 mg every 5–10 min × 2 doses given)
3. **IV fluids –** Normal saline boluses up to 40 ml/kg rapidly
4. **Escalation for refractory state:**

Table 3: Escalated Management in Refractory Anaphylaxis

Intervention	Dose/Approach	Rationale
IV adrenaline infusion	Start at 0.05–0.1 µg/kg/min; titrate	Maintains perfusion, when IM ineffective
IV vasopressors (if persistent hypotension)	Noradrenaline or vasopressin	Receptor support when catecholamine-resistant
IV glucagon	1–2 mg IV bolus, then infusion	Especially useful in patients on beta-blockers
IV corticosteroids	Methylprednisolone 1–2 mg/kg	Prevent biphasic/protracted reaction (not acute rescue)
IV antihistamines	Diphenhydramine 1 mg/kg (max 50 mg)	Symptomatic relief (skin)
Inhaled beta-agonists	Nebulized salbutamol	Bronchospasm not relieved by adrenaline

In this patient, after initiation of **IV adrenaline infusion (0.08 µg/kg/min)** and further fluids, blood pressure stabilized within 20 minutes. Nebulized salbutamol reduced bronchospasm, and oxygenation improved. She was transferred to the **PICU for close monitoring.**

Long-term Management and Prevention

The patient was observed for 48 hours. A repeat serum tryptase drawn at baseline was normal, confirming acute mast cell activation.

Key Aspects of Long-term Care:

1. **Identification of trigger**
   - Strong history linked event to peanut ingestion.
   - Allergen-specific IgE testing confirmed peanut sensitivity.
2. **Allergen avoidance**
   - Education on strict peanut avoidance.
   - Counselling family and school on reading food labels, preventing accidental exposure.
3. **Emergency preparedness**
   - Prescription of two adrenaline auto-injectors (if available in India) or pre-filled adrenaline syringes.
   - Training patient, parents, and teachers in recognition and prompt use.
4. **Written Anaphylaxis Action Plan**
   - Customized plan detailing recognition, initial management, emergency contacts.
5. **Asthma optimization**
   - As uncontrolled asthma increases risk of severe/fatal anaphylaxis, her asthma treatment plan was revised.
6. **Psychosocial support**
   - Adolescents may experience anxiety or social withdrawal. Referral for counselling and peer-support groups recommended.

Table 4: Long-term Strategies in Refractory Anaphylaxis Survivors

Domain	Intervention
Trigger identification	IgE testing, food diary
Avoidance	Dietary counselling, education
Emergency care	Auto-injector training, action plan
Comorbidity control	Asthma, allergic rhinitis
Follow-up	Allergy clinic visits, consideration of immunotherapy (where appropriate)
Psychological care	Counselling, support groups

Learning Points

- **Refractory anaphylaxis** is rare but must be recognized early when symptoms persist despite ≥2 IM adrenaline doses and fluids.
- Early **escalation to IV adrenaline infusion** and vasopressors can be life-saving.
- Always consider differentials, but do not delay adrenaline in suspected cases.
- Long-term management requires a **holistic approach—**identifying triggers, prescribing emergency medication, and ensuring psychological support.
- Every patient should leave the hospital with a **written action plan** and appropriate follow-up with an allergist.

Investigation of the month

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Polysomnography (PSG) in children

Introduction

Polysomnography (PSG), commonly referred to as a sleep study, is a cornerstone diagnostic tool in pediatric sleep medicine. It involves the continuous recording of multiple physiologic signals during sleep to assess sleep architecture and diagnose sleep disorders. The term polysomnography is derived from 'graphy' (recording), indicating the comprehensive recording of various physiological parameters during sleep. It includes both 'somnography' (sleep parameters like EEG, eye and chin muscle activity) and 'polygraphy' (respiratory and cardiovascular parameters), providing a comprehensive assessment of sleep and associated disturbances.

PSG is particularly valuable in children, where sleep disorders often present with behavioral manifestations (e.g., inattention, hyperactivity, irritability) and nighttime symptoms such as snoring, restless sleep, mouth breathing, bedwetting, night terrors, or frequent awakenings rather than classical complaints of sleepiness. Moreover, conditions like allergic rhinitis, asthma, neuromuscular disease, and syndromic disorders frequently coexist with sleep-disordered breathing.

Types of sleep studies

Sleep studies are categorized by the number of channels used and the setting in which they are performed:

- **Level I Polysomnography:** Gold standard; attended, overnight in-lab study. Includes EEG, EOG, EMG, ECG, respiratory effort, airflow, oxygen saturation, CO2 monitoring, limb movements, and audiovisual monitoring.
- **Level II PSG:** Equivalent setup as Level I but unattended; may be conducted in a sleep lab or at home.

- **Level III Study (Home Sleep Test/HST):** Limited channel study, usually includes respiratory effort, airflow, heart rate, and oxygen saturation; lacks EEG.
- **Level IV Study: Minimal channel recording;** typically includes only oxygen saturation and heart rate (e.g., overnight oximetry).

Indications for polysomnography:

- **Respiratory Indications:**

- Snoring plus symptoms/signs of obstructive sleep apnea (OSA)
- Preoperative assessment for adenotonsillectomy (especially in children <2 years or with comorbidities)
- Postoperative evaluation in persistent or moderate-to-severe pre-op OSA
- High-risk children (e.g., obesity, Down syndrome, craniofacial syndromes, neuromuscular disorders)
- Assess treatment efficacy (e.g., PAP therapy, adjuvant surgery, oral appliance use)
- Titration and monitoring of noninvasive ventilation (NIPPV)

- **Non-Respiratory Indications:**

- Evaluation of periodic limb movement disorder (PLMD)
- Evaluation of excessive daytime sleepiness and suspected narcolepsy (PSG + MSLT)
- Differentiation between parasomnia and sleep-related epilepsy (PSG + EEG)
- Investigation of complex, injurious, or atypical parasomnias

Performing a PSG: Pediatric PSG requires age-appropriate preparation, parental support, and child-centered approaches to reduce anxiety and improve study quality.

Sleep Technician Role:

- Live monitoring of study data and video
- Documentation of key events and interventions
- Troubleshooting and reapplication of sensors
- Execution of protocol-based interventions (e.g., PAP titration)
- Summarization and triage of abnormal findings

Typical PSG Setup (28 Sensors in Level I PSG) (Figure 1)

- Head and Face: 6 EEG, 2 EOG, 3 chin EMG, 4 reference electrodes
- Respiratory Monitoring: 2 effort belts (chest and abdomen), nasal cannula (nasal pressure + EtCO2), oronasal thermistor, snore sensor
- Cardiovascular: 2-lead ECG, pulse oximeter
- CO2 Monitoring: Transcutaneous CO2 sensor (TcCO2)
- Limb Movements: 4 sensors (2 per leg)
- Video/Audio Recording: Essential for movement and behavior assessment

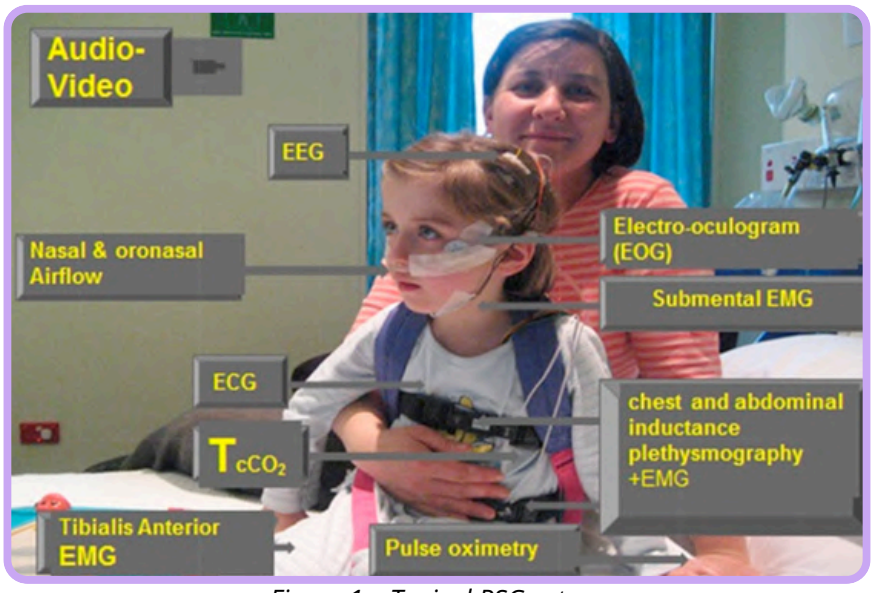

Figure 1 – Typical PSG set-up

Interpretation of PSG

Step 1: Sleep Architecture (EEG Scoring) Sleep is scored in 30-second epochs based on AASM pediatric rules:

- Wake (W), N1, N2, N3 (deep sleep), REM (R)
- Arousals are defined as abrupt EEG shifts lasting ≥3 seconds preceded by ≥10 seconds of sleep

These metrics allow calculation of:

- Total Sleep Time (TST)
- Sleep Efficiency
- Sleep Latency
- REM Latency
- Arousal Index

Step 2: Respiratory Event Scoring

- **Hypopnea:** ≥30% drop in airflow for ≥2 breaths + ≥3% desaturation or EEG arousal
- **Obstructive Apnea:** ≥90% drop in airflow for ≥2 breaths with continued respiratory effort
- **Central Apnea:** Absent airflow and effort for ≥20 sec or ≥2 breaths with arousal/desaturation or bradycardia (in infants)
- **Mixed Apnea:** Central phase followed by obstructive features

Step 3: Sleep Parameters Reported

- **AHI (Apnea Hypopnea Index):**
  - Mild: 1–5 events/hr
  - Moderate: 5–10 events/hr
  - Severe: >10 events/hr
- **ODI (Oxygen Desaturation Index)**
- **OAHI (Obstructive AHI):** Obstructive apneas + hypopneas per hour of sleep
- **CAI (Central Apnea Index):** Central apneas per hour

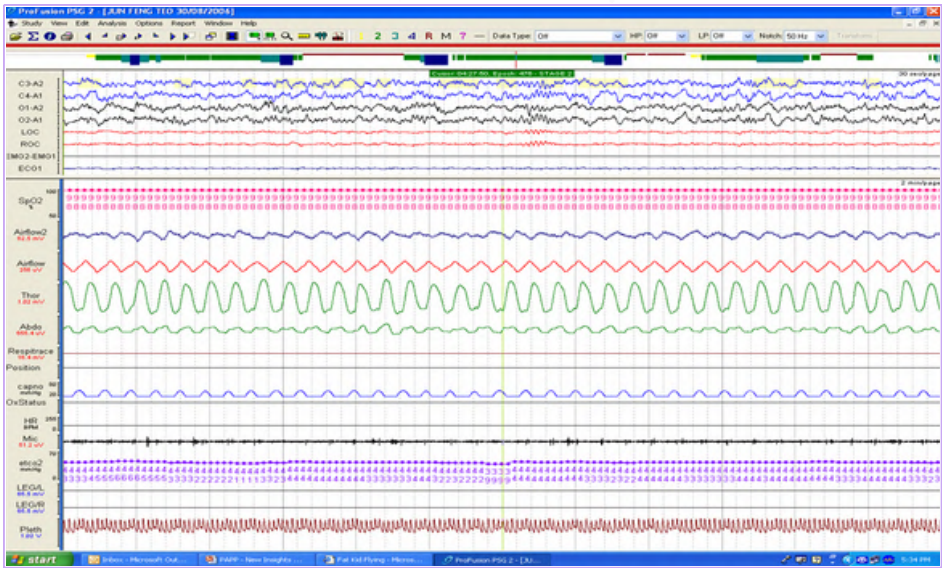

Figure 2 – Typical Montage in a normal child

Step 4: Clinical Correlation and Reporting Interpretation is integrated with history, physical examination, and risk factors to generate a comprehensive report that informs diagnosis and guides treatment.

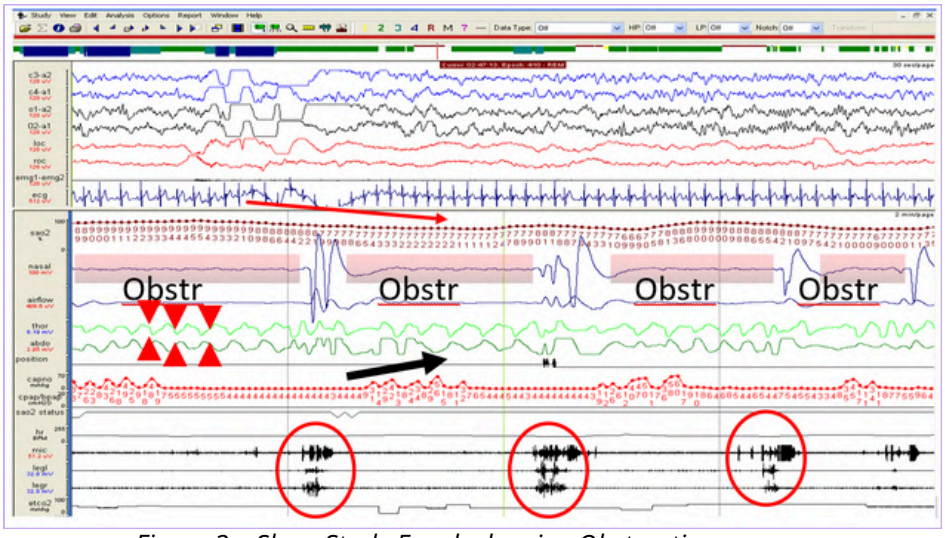

Figure 3 – Sleep Study Epoch showing Obstructive apneas, paradoxical breathing, desaturations and snoring

Limitations of PSG

- Single-night snapshot; not always representative of usual sleep
- First-night effect (more N1, less REM/N3, more supine time)
- May not reflect environmental triggers (e.g., allergens, sleep setting)
- Availability, cost, and technical challenges in pediatric populations

Conclusion: Polysomnography remains the gold standard for evaluating pediatric sleep disorders, especially sleep-disordered breathing. A well-conducted and interpreted PSG,particularly when combined with a detailed history and physical,can dramatically alter management, prevent unnecessary surgery, and improve outcomes in children with respiratory and neurological sleep complaints.

Note: Children with allergic rhinitis or poorly controlled asthma may benefit from PSG evaluation due to the high prevalence of sleep-disordered breathing in this population. Treating allergic inflammation can reduce nasal obstruction, improve sleep quality, and enhance behavioral outcomes. Early recognition and referral remain critical.

Pollen Update

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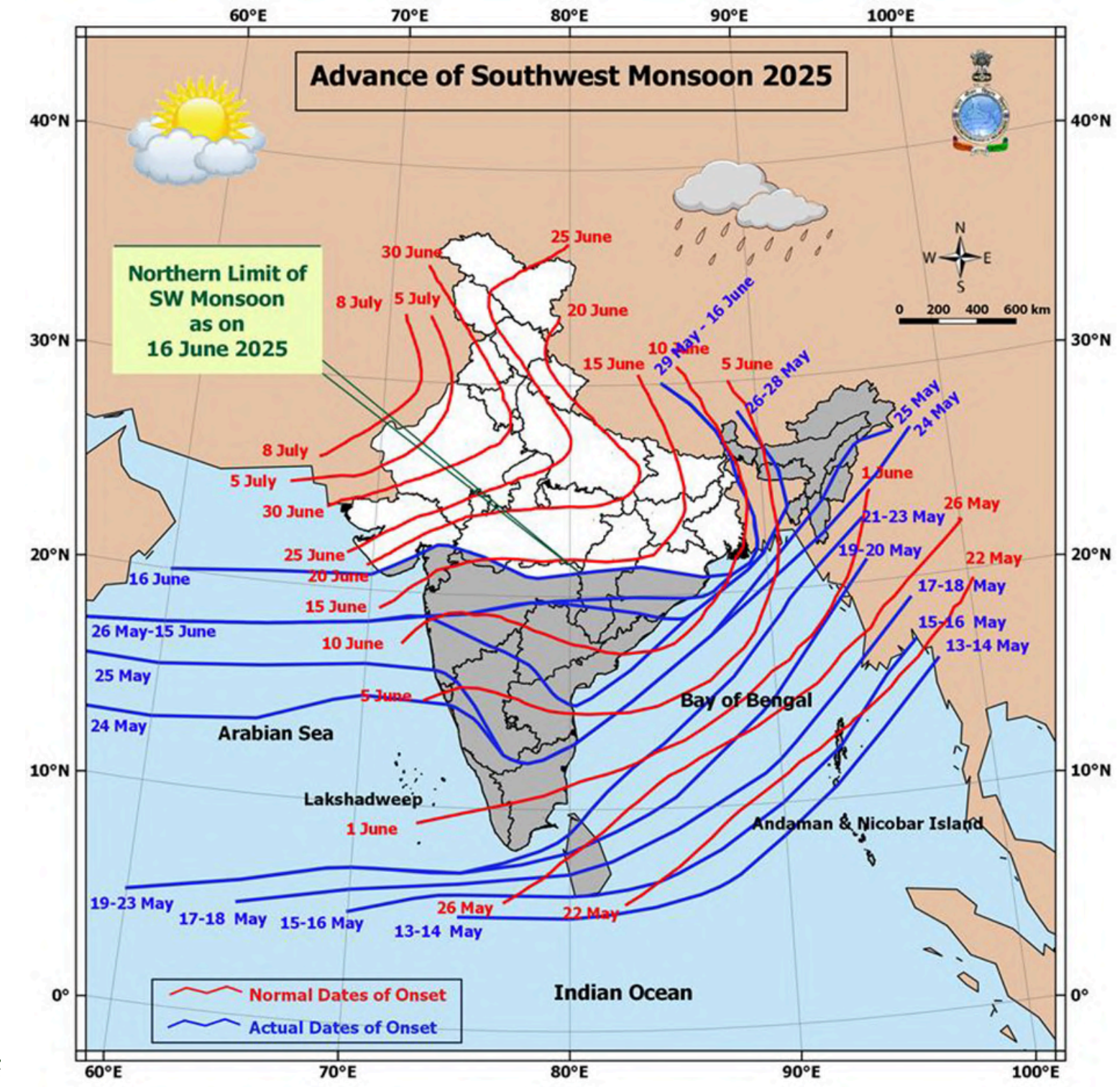
Vellore, Tamilnadu

Pollen calendar for the Monsoon season

Pollen allergy is a global health issue and the major cause for outdoor airborne allergen responsible for number of allergic disorders. The changes in the environmental conditions are also causing significant changes in the pollinosis. Hence pollen monitoring is crucial to understand the exacerbations of allergic disorders. Pollen calendar represent the time dynamics of airborne pollen taxa in a graphical form representing a geographical area. It gives a visual representation of the various airborne pollens in the particular season. India has a diverse range of vegetations and species contributing to significant challenges in developing a uniform calendar that fits for the entire nation. Here we have tried to integrate all the regions into a single table.

The month of June, July and August brings the south west monsoon to India. It is the rainy season here starting from Kerala and moving up towards north eastern belt. The map (Figure 1) gives the origin dates of the rains in India depending on the region.

With the advent of the rains there is shift in the pollens from those contributed to trees to that of shrubs and weeds. There is also more of molds that will be the predominant contributor as the rain spells become more prominent. Though the species are varied in each region, there is preponderance of grasses and weed across India. It can also be said as a relatively quiet period for pollens in contrast to the previous blooming months especially in Assam and Kashmir.



Visit Website

POLLEN CALENDAR FOR THE MONSOON SEASON

TREES


Cassia family (Pudding-pipe Tree, Golden Shower)


Casuarina (she-oak)


Eucalyptus


Holoptelea (Indian elm)


Holoptelea (Indian elm)


Morus (mulberry)


Morus (mulberry)


Putranjiva (child life tree, karuvilai)

Pollen	North	South	Central	East	West
Trees					
Ailanthus					
Areca catachu		+		+	
Cassia				+++	+
Cedrus					
Casuarina		+			
Cocus nucifera		+		+++	+
Cyperus					
Cicer					
Eucalyptus		+		+	
Holoptela					
Quercus					
Morus					
Magnifera				+	
Pinus					
Putranjiva				+	
Pongamia				+	
Peltophorum		+			
Spathodia					
Trema orientalis				+	

TREES


Quercus


Ailanthus (tree of heaven)


Cocos nucifera (coconut)


Arecha catechu


Pongamia tree (Indian beech, Pungai, Hongae)


Trema orientalis (Charcoal tree)


Peltophorum (yellow flame)


Spathodea(Fountain tree, Nandi flame)


Mangifera (mango)

North		South	Central	East	West
Himachal Pradesh	Uttar Pradesh	Andhra Pradesh	Madhyapradesh	Bihar	Maharashtra
Uttarakhand	Delhi	Karnataka	Chhattisgarh	Jharkhand	Goa Rajasthan
Punjab	Jammu and Kashmir	Kerala	Uttar Pradesh	West Bengal	Gujarat
Haryana	Ladakh	Tamilnadu			Dadra
Rajasthan		Telangana			Nager& Haveli

SHRUBS


Asteraceae family (sun flower)


Xanthium (cocklebur)

Apocynaceae (dog bane, milkweed)


Ricinus (castor bean plant)

Cicer (Chickpea)

Cicer (Chickpea)


Hibiscus

Prosopis

Shrubs					
Asteraceae	++++			++++	
Xanthium	++++	++++			
Apocynaceae					
Prosopis		++++			
Rosa					
Ricinus		++++		+++	
Hibiscus					
Grasses					
Artemesia	++++				++++
Amaranth/Chenopod	++++	++++		++++	
Argemone	++++		++++		++++
Cyperaceae	++++	++++	++++		
Poaceae	++++	++++	++++	++++	++++
Parthenium	++++	++++	++++		++++

GRASSES


Parthenium


Poaceae grass family


Chenopodium (goose foot)


Ragweed


Cyprus


Argemone


Artemisia vulgaris (mugwort)

North		South	Central	East	West
Himachal Pradesh	Uttar Pradesh	Andhra Pradesh	Madhyapradesh	Bihar	Maharashtra
Uttarakhand	Delhi	Karnataka	Chhattisgarh	Jharkhand	Goa Rajasthan
Punjab	Jammu and Kashmir	Kerala	Uttar Pradesh	West Bengal	Gujarat
Haryana	Ladakh	Tamilnadu			Dadra
Rajasthan		Telangana			Nager& Haveli

Journal Scan

Dr Soundarya M (Mangalore)

2024 ESPGHAN Position Paper on Cow's Milk Allergy

1. Introduction

Cow's milk allergy (CMA) remains the most prevalent food allergy in infants and young children across Europe and globally. It encompasses a diverse spectrum of immune-mediated reactions to cow's milk proteins and significantly impacts nutritional health, infant feeding practices, and quality of life. Despite advancements in understanding, CMA is still frequently misdiagnosed and overtreated, leading to unnecessary dietary restrictions and potential nutrient deficiencies.

The **2024 ESPGHAN position paper, Dr Soundarya M, KMC, Mangalore,** aims to provide comprehensive, **evidence-based recommendations** on the diagnosis, management, and prevention of CMA, with an emphasis on **avoiding overdiagnosis**, ensuring **nutritional adequacy**, and **supporting breastfeeding** wherever possible.

2. Classification of Cow's Milk Allergy

CMA is broadly categorized into:

- **IgE-mediated CMA:**
  - Immediate onset (within minutes to 2 hours).
  - Common symptoms: urticaria, angioedema, vomiting, wheezing, anaphylaxis.
- **Non-IgE-mediated CMA:**
  - Delayed onset (hours to days).
  - Typically gastrointestinal: vomiting, diarrhea, constipation, blood-streaked stools, food protein-induced enterocolitis syndrome (FPIES), eosinophilic esophagitis, proctocolitis.
- **Mixed-type CMA:**
  - Features of both IgE and non-IgE.

Understanding the type of CMA is crucial for diagnostic accuracy and therapeutic decision-making.

3. Epidemiology and Natural History

- Prevalence is approximately **1.5–3%** in infants.
- Most children **outgrow CMA** by age **3 to 5 years.**
- IgE-mediated allergies may persist longer than non-IgE types.
- There is an increasing trend in **self-reported CMA** and unnecessary elimination diets, which do not reflect confirmed cases.

4. Diagnosis of CMA

4.1 Importance of Accurate Diagnosis

- **Overdiagnosis** is common and can lead to:
  - Unnecessary elimination diets.
  - Nutrient deficiencies.
  - Increased caregiver stress and healthcare costs.

4.2 Diagnostic Approach

A. Clinical History

- Essential first step.
- Focus on timing, reproducibility, nature of symptoms, feeding history, and family history of atopy.

B. Diagnostic Tests

IgE-mediated CMA:

- ***Skin Prick Test (SPT) and serum-specific IgE:***
  - Helpful but not definitive alone.
  - Positive test without symptoms is sensitization, not allergy.
- ***Oral Food Challenge (OFC):***
  - **Gold standard.**
  - Must be performed under medical supervision.

Non-IgE-mediated CMA:

- No reliable in vitro tests.
- Diagnosis based on **symptom resolution** after elimination and **recurrence** on reintroduction.

C. Oral Food Challenge (OFC)

- Recommended for both diagnosis and tolerance assessment.
- Types:
  - Open OFC.
  - Single- or double-blind placebo-controlled food challenge (DBPCFC).
- Risk stratification essential before challenge.

D. Avoidance of Non-validated Tests

- ESPGHAN strongly recommends against the use of:
  - IgG testing.
  - Hair analysis.
  - Vega testing.
  - Cytotoxic testing.

These are not scientifically valid for CMA diagnosis and may lead to mismanagement.

5. Management of Confirmed CMA

5.1 General Principles

- Goal: manage symptoms, ensure growth, avoid unnecessary restrictions.
- **Individualized dietary planning** is essential.

5.2 Breastfed Infants

- **Continue breastfeeding** wherever possible.
- If symptoms are linked to cow's milk protein in maternal diet:
  - Maternal **elimination of cow's milk** (strict).
  - Consider supplementing mother with **calcium (1000–1200 mg/day)** and **vitamin D.**
  - Breast milk remains the preferred source of nutrition. Unnecessary cessation should be avoided.

5.3 Formula-Fed Infants

A. Extensively Hydrolyzed Formula (eHF)

- First-line in mild to moderate CMA.
- Derived from casein or whey.
- Well tolerated in ~90% of affected infants.

B. Amino Acid Formula (AAF)

- Indicated in:
  - Severe CMA.
  - FPIES, eosinophilic esophagitis.
  - Anaphylaxis.
  - Infants who fail to respond to eHF.
- Nutritionally complete but more expensive.

C. Soy Formula

- Considered after **6 months** in non-IgE CMA if no soy allergy.
- Contraindicated in multiple food allergies or infants with soy sensitivity.

5.4 Complementary Feeding

- Should be introduced as per normal developmental timing (around **4–6 months).**
- No evidence supports delayed introduction of solids to prevent allergies.
- **Ensure dietary diversity,** avoid unnecessary restrictions.

6. Nutritional Considerations

6.1 Micronutrient Monitoring

- Risk of deficiencies in:
  - **Calcium.**
  - **Vitamin D.**
  - **Protein, iron,** and **zinc** in some cases.

Supplementation is often needed, especially with maternal dairy elimination or prolonged exclusion diets.

6.2 Dietetic Support

- Involvement of a **pediatric dietitian** is strongly encouraged.
- Tailored nutritional plans improve adherence and growth outcomes.

6.3 Growth Monitoring

- Regular assessment using **standard growth charts.**
- Catch-up growth expected once allergy is managed.

7. Re-evaluation and Tolerance Development

7.1 Natural History

- Majority of non-IgE CMA resolves by 2–3 years.
- IgE-mediated CMA can persist longer; ~50% outgrow it by 5 years.

7.2 Re-challenge Protocol

- Re-evaluate **every 6–12 months.**
- OFC is required to confirm tolerance.
- In some cases, supervised home reintroduction may be safe (non-IgE).

7.3 Baked Milk Tolerance

- Many children with IgE-mediated CMA can tolerate **baked milk** products.
- Introduction may help in developing full tolerance.
- Should be done **under medical supervision.**

8. Prevention of Cow's Milk Allergy

8.1 Breastfeeding

- **Exclusive breastfeeding for about 6 months** remains recommended.
- No strong evidence that maternal dietary restrictions during pregnancy or lactation prevent CMA.

8.2 Introduction of Cow's Milk Protein

- Introducing small amounts of cow's milk protein (e.g., yogurt, baked milk) **after 4 months of age** may **support immune tolerance.**
- Early introduction of allergenic foods (as shown in peanut and egg studies) may also apply to milk, although more evidence is needed.

8.3 Hydrolyzed Formula in Prevention

- Use of partially **hydrolyzed formula (pHF)** for prevention is **not recommended,** as evidence is insufficient.
- **Extensively hydrolyzed formula (eHF)** may have a role in specific high-risk groups, but more data are needed.

8.4 Probiotics and Prebiotics

- Current evidence is **inconclusive**.
- Routine use for prevention or treatment is **not recommended.**

9. Psychosocial and Family Impact

- CMA diagnosis affects the entire family:
  - Increased anxiety and burden.
  - Fear of accidental exposure.
  - Social limitations.

Recommendations:

- Provide **clear, evidence-based education.**
- Avoid fear-based messages.
- Involve families in decision-making.
- Encourage **early reintroduction when safe** to reduce burden.

10. Healthcare System Considerations

10.1 Standardized Protocols

- Avoid variation in practice.
- Adopt uniform diagnostic and management pathways across settings.

10.2 Avoiding Overmedicalization

- Not every infant with reflux, colic, or eczema has CMA.
- Avoid reflexive elimination diets without objective testing.

10.3 Education of Healthcare Providers

- Clinicians must be trained to distinguish between functional GI symptoms and true CMA.
- Diagnostic skills should be prioritized over reliance on commercial tests.

11. Key Recommendations from ESPGHAN 2024

Area	Recommendation
Diagnosis	Clinical history + OFC is gold standard. Avoid IgG/hair/non-validated tests.
Breastfeeding	Encourage continuation. Maternal dairy elimination only if needed.
Formula	Use eHF as first-line; AAF for severe cases. Soy after 6 months (selectively).
Complementary Feeding	Introduce at 4–6 months. Promote diversity. No delayed solids.
Re-evaluation	Every 6–12 months. OFC to confirm tolerance.
Prevention	No delayed allergen introduction. Breastfeeding encouraged.
Supplements	Ensure calcium, vitamin D, protein adequacy. Dietitian support is key.
Probiotics	Not routinely recommended for treatment or prevention.

12. Conclusion

The **2024 ESPGHAN position paper** reaffirms the importance of **a balanced, evidence-based approach** to CMA. It calls for:

- Precision in **diagnosis** through careful clinical evaluation and judicious use of oral food challenges.
- Prioritization of **breastfeeding** and avoidance of unnecessary formula switching.
- **Nutritional safeguarding,** with individualized plans to ensure healthy growth.
- Avoiding **overmedicalization** and the misuse of non-validated diagnostic tests.
- Supporting **families** with education and regular re-evaluation to minimize the long-term burden of food allergy.

This comprehensive guideline aims to **improve outcomes** for infants and families by aligning clinical practice with the latest scientific evidence.

Allergy Trivia

Dr. D. Rama Rajyam
Visakhapatnam

The Hygiene Hypothesis

1. The hygiene hypothesis was first proposed in 1989 by David P. Strachan, who noticed that children from larger families had fewer allergies – possibly due to more infections in early life.

2. The idea: Too much cleanliness and fewer childhood infections may prevent the immune system from "learning" properly, leading to allergy and asthma.

3. Rural children exposed to farm animals, unpasteurized milk, and soil microbes often have lower rates of allergies than urban children.

4. Early exposure to pets (dogs, cats) may actually reduce risk of allergies – contrary to old advice of avoiding them!

5. Not all microbes are equal: exposure to diverse, harmless microbes (like those in soil, gut, and environment) may protect, while harmful infections are not beneficial.

6. Modern lifestyle factors – smaller families, less outdoor play, antibiotics, processed food – are believed to contribute to rising allergy rates worldwide.

Today, the hygiene hypothesis has evolved into the broader "microbial diversity hypothesis" – highlighting the role of a balanced gut microbiome in preventing allergies.

Cow's Milk Protein Allergy

1. Most common infant food allergy – CMPA affects about 2–3% of infants worldwide.

2. Not the same as lactose intolerance – CMPA is an immune reaction to milk proteins, while lactose intolerance is due to enzyme deficiency.

3. Two main immune pathways – CMPA can be IgE-mediated (immediate reactions like hives, wheeze, anaphylaxis) or non-IgE-mediated (delayed symptoms like diarrhea, colitis, reflux).

4. Multiple proteins can trigger it – Casein and whey proteins (α-lactalbumin, β-lactoglobulin) are the main culprits.

5. Breast milk can transmit cow's milk proteins – Tiny amounts from the mother's diet can trigger symptoms in sensitive babies.

6. Common mimic – CMPA often gets confused with colic, reflux, or lactose intolerance.

7. Cross-reactivity – Goat's and sheep's milk proteins are very similar to cow's, so they're usually not safe alternatives.

8. Diagnosis is clinical – Elimination and reintroduction (oral food challenge) remain the gold standard for diagnosis.

9. Most children outgrow it – Around 80% outgrow CMPA by age 3–5 years.

10. Early introduction of milk in baked form – Some children can tolerate baked milk products earlier, which may even help speed up tolerance development.

Spotlight

Dr. Uppin Narayan Reddy
MBBS, DCH, MD, DNB, FACI
Consultant Pediatrician and Allergy Specialist
Professor & Head, Department of Pediatrics
Shadan Institute of Medical Sciences
Hyderabad, Telangana

A Journey of Dedication, Ethics, and Inspiration

Early Footsteps: The Making of a Clinician

The story of **Dr. Uppin Narayan Reddy** begins in the bustling corridors of **Karnataka Medical College, Hubli,** where he pursued his MBBS (1982–1986). Those formative years laid the foundation for a career that would later blend pediatrics, allergy, and ethics in unique ways.

Following this, he completed his **DCH at Bangalore Medical College (1988–89)** and went on to earn his **MD Pediatrics from Seth GS Medical College & KEM/Wadia Hospital, Mumbai (1990–93)**—one of India's most iconic pediatric institutions. The early exposure to academic excellence instilled in him discipline, curiosity, and a passion for lifelong learning.

But his journey was not merely about degrees. It was about inspiration—an inspiration that would eventually transform his career path toward **Allergy and Pulmonology.**

Mentors Who Shaped the Path

Every great journey has guiding lights. For Dr. Reddy, the first came in the form of **Dr. M. D. Shah**, the legendary founder-chairman of the IAP Respiratory Chapter. It was Dr. Shah who entrusted him with the thesis on **Pulmonary Function Tests in children**, a decision that sparked Dr. Reddy's interest in respiratory medicine and allergy.

Years later, destiny introduced him to **Dr. Major Nagaraju** during the **first PedAllercon (2012)** in Bangalore. That meeting became the turning point—Dr. Reddy not only became a life member of the Allergy Chapter but also began to envision a career devoted to allergic disorders.

When he joined the **first batch of Fellowship in Allergy and Immunology at Saveetha Deemed University (2015)** under the mentorship of Dr. Nagaraju, the seeds of a specialized practice were sown. He also drew motivation from **Dr. H Paramesh** and the personal encouragement of **Dr. P K Vedanthan**, both of whom reinforced his determination to pursue allergy with conviction.

Three Decades of Teaching and Service

Parallel to his evolving allergy journey, Dr. Reddy built a remarkable academic career. Starting in **1994 as medical college faculty,** he has accumulated nearly **30 years of teaching experience**, mentoring countless students in pediatrics.

Currently, as **Professor and Head of Pediatrics at Shadan Institute of Medical Sciences, Hyderabad,** he continues to blend teaching, clinical care, and allergy practice. His classrooms extend far beyond medical students—every patient, every parent, and every young allergist he meets becomes a learner in his school of thought.

Challenges on the Road Less Travelled

Like every pioneer, Dr. Reddy faced challenges in his early allergy practice.

- **Low Acceptance:** Allergy as a discipline was poorly recognized, especially in children. Patients and families struggled to accept it as a distinct disease entity.
- **Lack of Infrastructure:** In the 1990s and early 2000s, standardized allergens, diagnostic kits, and ImmunoCAP facilities were limited or absent.
- **Skepticism:** Both patients and colleagues were often hesitant about allergy testing or long-term treatment plans.

But Dr. Reddy was undeterred. He turned every obstacle into an opportunity by **counselling patients**, spreading **awareness**, and slowly building trust in the value of structured allergy care. With time, families began to see the results, and more patients embraced the idea of testing and tailored management.

The Pillars of His Practice: Ethics, Empathy, and Education

Ethical Foundation

For Dr. Reddy, ethics has never been optional—it is the **cornerstone of his medical journey.** His approach emphasizes:

- A **detailed history and clinical examination** as the bedrock of diagnosis.
- **Minimal, relevant investigations** rather than an over-reliance on technology.
- **Preventive counselling,** ensuring patients understand allergens and their avoidance.
- **Rational pharmacotherapy,** always as a second line after lifestyle and preventive measures.

Patient-Centric Care

He believes that no prescription is complete without awareness. Every consultation is an opportunity to educate families about allergens in their homes, schools, and communities. His motto: “Treatment is not just about medicines; it is about empowerment.”

Commitment to Prevention

Dr. Reddy's treatment philosophy revolves around preventing the disease from worsening rather than merely suppressing symptoms. He emphasizes adherence, regular follow-ups, and lifestyle changes—ensuring children not only survive allergy but thrive despite it.

Lessons for Young Allergists

1. **Start with Basics:** Never underestimate the power of history-taking and physical examination.
2. **Stay Ethical:** Shortcuts in investigations and treatment may be tempting but are never sustainable.
3. **Be Patient:** Building awareness in communities is slow but rewarding work.
4. **Seek Mentorship:** Inspiration from seniors can transform careers.
5. **Balance Roles:** It is possible to excel as a teacher, clinician, and allergist if one remains disciplined and focused.

Philosophy of Care: His Final Message

Dr. Reddy distils his vision into three powerful commitments:

- **"No child should die of allergy diseases."**
- **"No allergic child should be admitted to ICU."**

"Allergic diseases should not affect quality of life—schooling, play, or sleep."

These are not just words; they are his guiding principles. Every consultation, lecture, or counselling session reflects this pledge to protect children from the burden of preventable suffering.

The Inspiration Beyond Medicine

What makes Dr. Reddy's story truly inspiring is not just the career milestones, but the values he embodies: **perseverance in adversity, humility in success, and a deep ethical compass.**

For young allergists, his journey is a reminder that:

- Building a specialty in a less-accepted field takes courage.
- Trust and awareness grow slowly but surely with patience.
- Ethical practice is the most powerful legacy a doctor can leave behind.

A Legacy in the Making

Today, Dr. Uppin Narayan Reddy stands tall as a **pediatrician, allergy specialist, professor, and mentor**—a rare combination of academic rigor and ethical clarity. His journey from a curious MBBS student in Hubli to a leading allergist in Hyderabad is nothing short of inspirational.

For the next generation, he offers more than a roadmap—he offers a philosophy: *Practice medicine with ethics, treat allergy with empathy, and live life with humility.*

Closing Thought

The story of Dr. Reddy is not merely about one man's journey. It is about the **possibility of transforming challenges into opportunities,** of turning a little-recognized specialty into a life mission, and of inspiring future allergists to serve with knowledge, passion, and ethics.

In his words and actions lies a timeless reminder—

"Aim is to give quality care to society. No child should ever lose their smile to allergy."

Allergy Quiz

Contributed by the Delhi Chapter

Q1. What best describes Cow's Milk Protein Allergy (CMPA)?
A. Enzyme deficiency disorder
B. Immune-mediated reaction to cow's milk proteins
C. Autoimmune reaction against lactose
D. Genetic intolerance to dairy

Q2. What is the estimated prevalence of CMPA in infants?
A. 0.5–1%
B. 5–7%
C. 2–3%
D. 10%

Q3. Which of the following is not a typical cow's milk protein allergen?
A. β-lactoglobulin
B. Casein
C. α-lactalbumin
D. Lactase

Q4. How does IgE-mediated CMPA typically present?
A. Delayed gastrointestinal symptoms
B. Chronic constipation
C. Acute hives, wheezing, vomiting
D. Eczema after several days

Q5. Which of the following is a key diagnostic tool for Non-IgE-mediated CMPA?
A. Skin prick test
B. Serum-specific IgE
C. Patch testing
D. Elimination diet followed by oral food challenge

Q6. What is the typical time between exposure and symptom onset in IgE-mediated CMPA?
A. 24–48 hours
B. Minutes to 2 hours
C. 2–7 days
D. One week

Q7. What distinguishes CMPA from lactose intolerance?
A. CMPA causes bloating only
B. CMPA is an immune reaction
C. Lactose intolerance causes skin reactions
D. CMPA results from lactase deficiency

Q8. What is the minimum recommended elimination duration for suspected delayed CMPA reactions?

A. 1 day
B. 3–5 days
C. 2 weeks
D. 8 weeks

Q9. Which statement about the oral food challenge (OFC) is correct?

A. Only one dose of milk is used
B. Monitoring is unnecessary
C. It confirms diagnosis by reintroducing milk gradually
D. It's not useful in Non-IgE CMPA

Q10. Which formula is preferred for most non-breastfed infants with CMPA?

A. Whole cow's milk
B. Soya-based formula
C. Extensively hydrolyzed formula (eHF)
D. Goat's milk

Q11. What percentage of children with CMPA are also sensitive to soya-based formulas?

A. 2–5%
B. 6–8%
C. 10–14%
D. 25%

Q12. At what age do more than 90% of children typically outgrow CMPA?

A. 1 year
B. 3 years
C. 6 years
D. Adolescence

Q13. Which of the following is not recommended in infants under 6 months with CMPA?

A. Amino acid-based formula
B. Soya formula
C. eHF
D. Calcium supplementation for lactating mother

Answers

1.B	2. C	3. D	4. C	5. D	6. B	7. B
8. C	9. C	10. C	11. C	12. C	13. B	

Explanation

1. CMPA is an immune-mediated allergic reaction to one or more proteins found in cow's milk. It is the most common food allergy in infants and young children.

2.The actual estimated prevalence of cow's milk protein allergy (CMPA) is 2–3% in infants, which reduces to less than 1% in children beyond 6 years of age

3. CMPA is caused by an abnormal immune response to cow's milk proteins. It can be IgE-mediated (immediate), Non-IgE-mediated (delayed), or mixed. The major allergens belong to casein fraction (αs1-, αs2-, β-, and κ-casein) and to whey proteins (α-lactalbumin and β-lactoglobulin).

4. Immediate reactions are usually mediated by IgE pathway with increased chances of anaphylaxis whereas various non-IgE mechanisms operate during late reactions. The symptoms might involve any of the body systems; gastrointestinal and respiratory being the common one. Nonspecific extra-intestinal manifestations may include fatigue, allergic shiners, mouth ulcers, joint pain or hypermobility, poor sleep, night sweats, headache, and bed wetting.

- IgE-mediated: hives, vomiting, swelling, wheezing.
- Non-IgE-mediated: diarrhea, constipation, eczema, reflux, blood in stool.

Table 1: Characteristics of IgE and non-IgE-mediated immune reactions

Characteristic	IgE-mediated	Non-IgE-mediated
Time of exposure to reaction	Minutes to 2 hours	Several hours to days
Severity	Mild to anaphylaxis	Mild to moderate
Duration	May persist beyond 1 year of age	Usually resolved by 1 year
Diagnosis	Specific IgE, skin prick test	Oral challenge

5. Diagnosis is clinical. However, tests that can be helpful:

- IgE-mediated: Skin prick test or serum-specific IgE.
- Non-IgE-mediated: Elimination diet followed by oral food challenge.

The sensitivity and specificity of specific IgE are 87% and 48%, whereas for skin prick test are 88% and 68%, respectively. Skin prick test can be demonstrated either by using commercial extract or fresh cow's milk. The larger the wheal size (in vivo) or higher the antibody titer (in vitro), the chances of milk protein allergy are higher with longer persistence, hence apart from diagnosis, these tests can also help in prognostication.

6. Explained in Table 1

7. CMPA is an immune reaction; lactose intolerance is a digestive issue due to enzyme deficiency. CMPA can cause allergic symptoms, unlike lactose intolerance.

8. 1.A 3–5 days of elimination of cow milk is sufficient in children with immediate reactions (angioedema, vomiting, eczema exacerbation), whereas up to 2 weeks might be required for patients with delayed reactions (exacerbation of eczema, rectal bleeding). Sometimes prolonged elimination (4 weeks) may be required when chronic diarrhea or faulty growth are suspected manifestations. An improvement in symptoms is suggestive of CMPA and a challenge test followed by reappearance of symptoms will confirm the diagnosis.

9. If IgE-based investigations are negative and suspicion for CMPA is quite high, a graded oral food challenge (OFC) should be done to prove or disprove milk allergy. In children with delayed reaction, incremental doses of 1, 3, 10, 30 and 100 mL milk may be introduced at 30 minutes interval with close monitoring of vital signs, skin condition, and any gastrointestinal complaints.
Patients should be observed for a minimum of 2 hours after the maximum dose for any adverse reaction. In case of no reaction, 200 mL/day of milk is advised for next 2 weeks at home with telephonic monitoring for delayed reactions. Milk and dairy products can be freely introduced after 2 weeks, once no immediate or delayed reaction is witnessed. In case of a suspected or proven adverse reaction, the trial should be immediately aborted and the patient should be symptomatically managed with early adrenaline use. A retest may be tried after 6–12 months of elimination period.

10. In case of breast-fed infants, breast milk may be continued while avoiding all milk and milk-containing products from maternal diet. It may take up to 72 hours to clear breast milk antigens ingested by the lactating woman. Mother should be supplemented with calcium supplements (1 g/day) with adequate dietary counseling. Non-breast-fed babies should be started on extensively hydrolyzed formulas (eHF). eHF are milk formulas where milk protein is present in hydrolyzed oligopeptide (<3000 Da) form, which is hypoallergenic due to different allergenic protein configuration. Amino acid-based formulas may be required in small percentage of children who might even react to eHF. Prohibiting high cost and bitter taste of hypoallergenic formulas may be the limiting factors in developing countries, where soya-based milk formulas may be a good alternative. About 10–14% of CMPA patients may be sensitive to soya also. Another disadvantage with soya-based formula is high phytate contents which can hamper with absorption of minerals and trace elements. Soya formula is not recommended in infants under 6 months of age. Hydrolyzed rice formulas may be used in vegan families who are sensitive to both milk and soya protein. There is high degree of cross-reactivity of cow's milk with goat, sheep, buffalo, horse, and camel milk, so these cannot be used. "Milk beverages" derived from almond, coconut, hazelnut, oat, potato, rice or soya are nutritionally inadequate and hence not recommended.
Introduction of extensively heated (baked) CMP-containing products have been tried in the West with mixed results. The tolerance induction using baked milk products and oral immunotherapy are upcoming modalities to combat CMPA, but more robust data is warranted before any recommendation.

11. Explained in Answer 10

12. Approximately, 50% of affected children develop tolerance by the age of 1 year, more than 75% by the age of 3 years, and more than 90%, are tolerant at 6 years of age.

13. About 10–14% of CMPA patients may be sensitive to soya also. Another disadvantage with soya-based formula is high phytate contents which can hamper with absorption of minerals and trace elements. Soya formula is therefore not recommended in infants under 6 months of age.

Patient Information Leaflet

Contributed by the West Bengal Chapter

Allergic Conjunctivitis in Children
(For Parents and Caregivers)

👀 What is Allergic Conjunctivitis?

- Allergic conjunctivitis means red, itchy, watery eyes caused by an allergy—not an infection.
- It happens when the eyes react to pollen, dust mites, pets, smoke, or seasonal changes.
- It is not contagious (does not spread from one child to another).

🔍 Common Symptoms in Children

- Both eyes red, itchy, and watery
- Puffy/swollen eyelids
- Burning or irritation in eyes
- Sometimes associated with sneezing or runny nose
- Symptoms may appear seasonally (spring/summer) or continue year-round

⚠️ When to Worry – See a Doctor if Your Child Has:

- Severe eye pain
- Sudden blurring or loss of vision
- Sensitivity to light (photophobia)
- Very red eye on one side only

Treatment (As Advised by Your Doctor)

- Antihistamine eye drops / tablets → Give quick relief from itching and redness
- Mast cell stabilizer drops → Work slowly but prevent future flare-ups
- Cold compress (soft cotton cloth dipped in clean, cold water and placed gently over eyes) → Soothes irritation

✅ Do's and ❌ Don'ts

Do:

✅ Wash your child's hands and face after outdoor play
✅ Use sunglasses or protective spectacles outdoors
✅ Wash pillow covers and bed sheets regularly to reduce dust
✅ Encourage your child not to rub their eyes

Don't:

❌ Don't allow your child to rub their eyes (rubbing worsens itching & redness)
❌ Don't use over-the-counter steroid eye drops without medical advice
❌ Don't share towels or handkerchiefs

Home Care Tips

- Keep windows closed on windy days (reduces pollen exposure)
- Wash eyes gently with clean, cool water
- Use air conditioning or ceiling fans with clean filters

Key Message for Parents

Allergic conjunctivitis is common and not dangerous, but it can cause discomfort. With the right care, most children get relief quickly.

👉 Avoid triggers, follow your doctor's advice, and ensure regular eye hygiene for your child's comfort.

Myths and Facts: Drug Allergies

Contributed by North-East Team

MYTHS FACTS

Myth 1: "Any side effect from a medicine is an allergy."
Fact: Not true. Most side effects (like stomach upset from antibiotics or sleepiness from antihistamines) are not allergies. A drug allergy involves the immune system and usually shows as rash, hives, swelling, breathing difficulty, or severe reactions like anaphylaxis.

Myth 2: "If I had an allergy to a medicine once, I will never be able to take any medicines in that group."
Fact: Not always. Some drug allergies are specific to one medicine, while others may cross-react with similar drugs. An allergist can help identify safe alternatives with tests or careful monitoring.

Myth 3: "All antibiotic rashes are dangerous allergies."
Fact: Not true. Many children develop mild rashes when taking antibiotics, especially amoxicillin during viral infections. These are often not true allergies. However, sudden rashes with swelling, itching, or breathing problems should always be taken seriously.

Myth 4: "Drug allergies last for life."
Fact: Not always. Some drug allergies (like to penicillin) may fade over time. With proper testing, many patients found "allergic" years ago can safely take the drug again.

Myth 5: "If my parent is allergic to a drug, I will also be allergic."
Fact: Drug allergies are not directly inherited. Just because a parent is allergic to penicillin or aspirin doesn't mean the child will be too. Each person reacts differently.

Myth 6: "Herbal or natural medicines are always safe and allergy-free."
Fact: Not true. Herbal and natural products can also cause allergic reactions, rashes, or even severe side effects. "Natural" does not always mean "safe."

Myth 7: "Once I take a drug and nothing happens, I can never develop an allergy to it."
Fact: False. Drug allergies can develop even after previous safe use. Sometimes the immune system reacts after multiple exposures.

Myth 8: "Stopping the medicine is enough in case of a drug allergy."
Fact: Stopping the drug is the first step, but severe drug allergies (like anaphylaxis) need urgent treatment with epinephrine and hospital care. Always consult a doctor before deciding on future drug use.

Myth 9: "All drug allergies are equally serious."
Fact: No. Some cause only mild skin rashes, while others (like Stevens-Johnson syndrome or anaphylaxis) can be life-threatening. Any suspected drug allergy should be evaluated by a healthcare provider.

Myth 10: "I should avoid telling doctors about my drug allergy to avoid fewer medicine options."
Fact: Dangerous misconception. Always inform your doctor about suspected allergies. It helps them choose safer alternatives and avoid serious reactions.

Take-home message for patients:

- Not every reaction to a drug is an allergy.
- Always inform your doctor about past reactions.
- Never self-diagnose or self-treat drug allergies.
- Allergy testing and medical guidance can help find safe medicines.

Patient Awareness Corner

Dr. Nayan Mani Deka
Guwahati, Assam

Back to School
Allergies: Creating a safe environment for kids

Going back to school is an exciting time for children—new books, new friends, and new experiences. But for children with allergies, it can also be stressful. Allergies are very common in children today. Something as simple as eating a snack, sitting near a chalkboard, or playing in a classroom with a pet can trigger symptoms like sneezing, cough, itching, or even serious reactions.

The good news is that with a little preparation, schools and parents can work together to create a safe environment where children with allergies feel confident and protected.

Common School-Related Allergens

Children spend a large part of their day in school, and many things there can act as triggers.

1. Chalk Dust

Traditional chalk is still widely used in classrooms. For children with asthma or dust allergy, chalk dust can irritate the nose, throat, and lungs. It may cause coughing, sneezing, or breathing difficulty.

What can be done?

- Schools can use dust-free chalk or whiteboards.
- Classrooms should be well-ventilated.
- Children sensitive to dust should sit a little away from the chalkboard.

2. Food Allergens

Food allergy is one of the biggest concerns in schools. Even a small bite or accidental contact with food can cause itching, hives, stomach upset, or sometimes a life-threatening reaction called anaphylaxis.

Common food allergens are: peanuts, tree nuts, milk, egg, wheat, soy, fish, and shellfish.

3. Pet Dander

Some schools keep pets such as rabbits, guinea pigs, or birds in the classroom. While these animals bring joy, their fur, feathers, or droppings can trigger allergies and asthma in sensitive children. Even classmates who own pets at home may unknowingly carry pet dander on their clothes.

What can be done?

- Avoid keeping furry or feathered pets in classrooms.
- If pets are used for teaching, ensure children with allergies are not forced to interact with them.
- Classrooms should be cleaned regularly to reduce dander.

4. Environmental Allergens

Dust mites in carpets, mold in damp classrooms, pollen from open windows, and strong odors from cleaning agents can all act as triggers.

What can be done?

- Keep classrooms clean, dry, and well-ventilated.
- Avoid carpets, heavy curtains, and stuffed toys that trap dust.
- Use mild, fragrance-free cleaning products.

How Schools Can Help: Classroom Accommodations

Children with allergies should feel safe and included in school life. Some simple steps make a big difference:

1. Individual Health Plan – Every child with allergies should have a written plan made by parents and doctors. It should mention the child's allergens, warning signs, and what to do in case of a reaction.
2. Seating Arrangements – Children with chalk dust or pollen allergy can sit away from boards or open windows. Those with food allergies may have a safe eating area.
3. Safe Celebrations – Teachers can plan allergy-friendly celebrations. Instead of food, children can bring stickers, pencils, or small gifts to share.
4. Awareness in the Classroom – When classmates understand why a child avoids certain foods or needs medication, they are more supportive. This also reduces teasing or bullying.
5. Clean Environment – Schools should keep classrooms dust-free, mold-free, and well-ventilated.

Emergency Preparedness: Being Ready to Act

Even with precautions, accidents can happen. That is why emergency preparedness is so important.

1. Action Plan for Emergencies

Every child with a severe allergy should have a written Allergy Emergency Plan. This plan explains:

- What symptoms to look out for (rash, swelling, breathing difficulty, fainting).
- When and how to give emergency medicine.
- Whom to contact immediately.

Copies of this plan should be with the class teacher, school nurse, and even the sports coach.

2. Epinephrine Auto-Injectors

For children at risk of severe allergic reaction, epinephrine auto-injectors (commonly called "EpiPens") are life-saving.

- The child should always carry one in their bag.
- Schools should also keep stock auto-injectors in accessible places like the nurse's room or cafeteria.
- Teachers and staff must be trained to use them quickly.

3. Training for School Staff

All teachers, bus drivers, and canteen workers should know:

- How to recognize early signs of allergy.
- How to use an epinephrine auto-injector.
- When to call emergency services.

4. Practice Drills

Just like fire drills, schools can organize practice sessions for allergy emergencies. This reduces panic and ensures everyone knows their role.

5. After-Care and Communication

After an allergy emergency, children need medical observation as symptoms can return. Parents should be informed immediately, and the incident should be recorded so that future precautions can be improved.

The Role of Parents, Teachers, and Healthcare Providers

Managing allergies in school is a team effort.

- Parents should keep the school informed about their child's allergies, send safe snacks, and train their child to recognize early symptoms.
- Teachers should create an inclusive classroom, avoid allergen exposure, and respond calmly in emergencies.
- Healthcare providers should support schools with medical advice, emergency action plans, and staff training.

Building a Culture of Safety and Inclusion

Allergies can sometimes make children feel "different." A supportive environment helps them feel safe, included, and confident. Simple classroom lessons on kindness, empathy, and not sharing food can make a huge difference.

When schools, parents, and children work together, allergies do not have to be a barrier to learning or fun.

Key Takeaways for Parents and Schools

- ✅ Identify and avoid common school allergens (chalk dust, food allergens, pet dander, mold, dust).
- ✅ Create a written health and emergency plan for each allergic child.
- ✅ Ensure teachers, staff, and even classmates are allergy-aware.
- ✅ Keep epinephrine auto-injectors available and train staff in their use.
- ✅ Promote inclusion so that children with allergies feel safe and supported.

Conclusion

Back-to-school time should be full of excitement, not anxiety. By taking simple, practical steps, schools can become safe and welcoming spaces for children with allergies. Awareness, preparation, and teamwork are the keys. Every child deserves to learn, play, and grow without the constant fear of an allergic reaction.

Allergy Awareness Session

Venue: Bal Bharati Public School, Pusa Road, Delhi
Theme: "Understanding Allergies – Be Smart, Stay Safe!"
Conducted by: Dr. Neeraj Gupta
Chairperson, IAP Allergy and Applied Immunology Chapter

As part of the ongoing community outreach and awareness initiative by the IAP Allergy and Applied Immunology Chapter, an impactful **Allergy Awareness Session** was conducted at **Bal Bharati Public School, Pusa Road,** New Delhi, on the theme **"Understanding Allergies – Be Smart, Stay Safe!".** This physical session, held in the school auditorium, witnessed enthusiastic participation from over **250 students from grades 10 to 12,** along with several teachers and school administrators.

Objective and Importance

The primary aim of this awareness session was to **sensitize adolescents about allergies**, their early symptoms, potential complications, and most importantly, **simple lifestyle and environmental measures** that can help prevent or reduce the burden of allergies. Given the rising prevalence of allergic disorders such as asthma, rhinitis, eczema, and food allergies among Indian children and adolescents, especially in urban settings, such educational initiatives are the need of the hour.

Adolescents today are not only at the receiving end of increasing allergic triggers—both **indoor and outdoor**—but they also lack awareness and preparedness when it comes to recognizing symptoms or managing an allergic emergency among their peers. This session aimed to fill this critical knowledge gap and build a culture of **early recognition, peer support, and preventive care** in school settings.

Session Highlights

The interactive session was led by **Dr. Neeraj Gupta**, Chairperson of the IAP Allergy and Applied Immunology Chapter, who is also a leading Pediatric Allergy Specialist. He engaged students in a simplified and relatable manner, beginning with real-life examples of common allergic experiences such as sneezing fits in class, breathing issues during sports, skin rashes after applying creams or eating packaged snacks, and episodes of coughing or wheezing during pollution spikes.

Key topics discussed included:

1. What are Allergies?

Students were explained the basic concept of allergies as an **overreaction of the immune system** to usually harmless substances like pollen, dust mites, certain foods, pet dander, insect stings, or mold.

2. Common Allergic Conditions in School-age Children

Dr. Gupta highlighted the most frequent allergic conditions affecting school children:

- **Allergic Rhinitis:** frequent sneezing, nasal congestion, itchy eyes
- **Asthma:** coughing, wheezing, breathlessness, chest tightness
- **Atopic Dermatitis (Eczema):** itchy, dry, or inflamed skin
- **Food Allergies:** reactions to milk, peanuts, tree nuts, eggs, etc.
- **Urticaria and Anaphylaxis:** rashes, swelling, severe reactions

3. Recognizing Allergy Symptoms Early

Students were taught how to **identify early signs** of allergic reactions both in themselves and in their classmates. The importance of not ignoring recurring symptoms such as a chronic runny nose, repeated coughs, or skin irritation was emphasized.

4. Prevention: Home and School Environment

A major focus of the session was on environmental safety. Dr. Gupta discussed how both the home and school environments can harbor potential allergens:

- **At Home:** dust mites in bedding, soft toys, curtains; mold in damp corners; pets
- **In School:** dusty classrooms, poorly ventilated labs, perfumes, chalk dust, or even classroom snacks for children with food allergies

He encouraged students to be proactive in reducing allergen exposure by simple steps such as:

- Regular cleaning of books and school bags
- Using dust-free chalk or boards
- Keeping personal hygiene items separate
- Wearing masks in high-pollution seasons
- Avoiding strong scents and perfumes

5. Healthy Habits for Better Allergy Control

Dr. Gupta stressed on cultivating **healthy lifestyle habits** such as:

- Adequate hydration and balanced nutrition
- Regular physical activity
- Adequate sleep and stress management
- Avoiding junk food and allergens known to trigger symptoms

6. Peer Support and Creating a Safe School Culture

A vital part of the talk was directed at promoting **peer awareness and support**. Students were encouraged to look out for one another, especially those with known allergies or asthma. Being aware of a friend's emergency medication like inhalers or epinephrine auto-injectors (if prescribed), and responding promptly can save lives.

Interactive Quiz and Student Engagement

The session concluded with a **lively quiz round,** reinforcing the key messages shared. Students were divided into small teams and responded with great enthusiasm to questions ranging from "What are common indoor allergens?" to "How do you use an asthma inhaler correctly?" or "What foods commonly trigger allergies in children?"

The winners were felicitated with **small prizes**, boosting morale and encouraging broader participation in such health awareness initiatives.

Feedback and School Response

The teachers and school administration expressed **immense appreciation** for the session. Many commented that it was not only informative but delivered in a highly **student-friendly, engaging format**, making the topic of allergies relatable and memorable.

The Principal and senior coordinators requested the IAP Allergy Chapter to conduct follow-up activities, including sessions on:

- **Asthma management workshops**
- **Food allergy safety protocols in school settings**
- **Training of school nurses and staff for emergency allergy care**
- **Environmental safety audits for allergen control in classrooms**

The session sparked a larger conversation around integrating **allergy education into school health programs**, and building a school ecosystem that is aware, equipped, and responsive to the needs of children with allergies.

Conclusion

The allergy awareness session at Bal Bharati Public School is a testament to the power of education in allergy prevention and early recognition. When students are made aware, they become responsible not just for themselves but also for their peers. As allergy-related disorders continue to surge among children, such school-based initiatives serve as a foundation for a healthier, safer, and more inclusive environment.

The IAP Allergy and Applied Immunology Chapter remains committed to expanding this model across schools in India, empowering students, teachers, and families in the fight against allergies.

Free Health Check-up Camp

Venue: Usmanpur, Delhi

The IAP Allergy and Applied Immunology Chapter organized a free health check-up camp in collaboration with SarvVidhya Education Research Foundation at Usmanpur, Delhi, on **23rd August 2025,** as part of its ongoing community outreach and awareness initiatives. The camp witnessed an overwhelming response from local families, with **over 200 children evaluated** for various health concerns.

Dr. Neeraj Gupta, Chairperson of the Chapter, personally led the camp and conducted detailed assessments. Children underwent **free consultation, physical examination, and lung function testing,** ensuring a holistic evaluation of their health status. The findings revealed a significant community burden of allergic disorders—**nearly 50% of the children were identified with at least one type of allergy,** including asthma, allergic rhinitis, skin allergies, and eye allergies.

This camp highlighted the urgent need for **early recognition and management of allergic diseases** in children, particularly in underserved areas. Parents were counselled about preventive measures, environmental control strategies, and the importance of timely medical follow-up.

The Chapter remains committed to taking allergy awareness beyond clinics and hospitals, reaching directly into communities to promote better respiratory and allergy care for children.

Awareness Activity Report

Webinar and Flyer release on "Allergy Smart School"

The **IAP Allergy and Applied Immunology Chapter** conducted a landmark webinar on **"Allergy Smart School"** on **26th August 2025**, bringing together educators, healthcare professionals, parents, and students in a collective effort to address the growing burden of allergies in children. The event was attended by **over 1000 participants** from across the country, reflecting the urgent need for structured policies and practical solutions for safer school environments.

The session was **moderated by Dr. Neeraj Gupta**, Chairperson of the IAP Allergy and Applied Immunology Chapter. The event was graced by distinguished guests – **Dr. Vasant Khalatkar, President of CIAP**, as the **Chief Guest**, and **Ms. Rashmi Raj Biswal, Principal, DAV School, Pitampura, Delhi**, as the **Guest of Honour**. Their presence symbolized the essential collaboration between the medical fraternity and the educational sector in shaping a healthier future for children.

Dr Vasant Khalatkar

Dr Neeraj Gupta

Ms Rashmi Raj Biswal

Dr Sowmya Nagarajan

Dr Vikram Patra

Expert Insights

The webinar featured insightful talks by **Dr. Sowmya Nagarajan** and **Dr. Vikram Patra**, both well-recognized in the field of pediatric allergy. They elaborated on the concept of an *"Allergy Smart School"*—an institution that recognizes allergies as a critical health issue, ensures preparedness for emergencies, educates teachers and staff, and fosters an inclusive environment for students with allergic conditions.

Dr. Sowmya highlighted practical aspects of **identifying allergic children, developing individualized action plans, and ensuring prompt treatment of emergencies such as anaphylaxis**. Dr. Vikram emphasized the **role of awareness programs, policy formulation, and regular training sessions** for school staff to effectively handle allergic disorders.

Educational Perspective

In her address, **Ms. Rashmi Raj Biswal** shared the perspective of the education sector, acknowledging the gaps in current school health policies. She strongly advocated for **integrating allergy management protocols into school health systems** and assured her commitment towards implementing these measures at the school level.

Call for a Nationwide Movement

In his keynote, **Dr. Vasant Khalatkar** underscored the significance of making Indian schools "allergy smart" at a national scale. He stressed that with the rising prevalence of asthma, rhinitis, food allergies, and anaphylaxis among children, the education sector must become an active partner in promoting child health. Dr Khalatkar released an **awareness flyer (in Hindi and English) about "Allergy Smart School"** and urged everyone to spread it to the indigent. He applauded the Chapter's initiative, noting that this program marks the **beginning of a nationwide momentum** towards making every school in India better equipped to manage allergies.

Interactive Engagement and Outcome

The webinar saw **active engagement from teachers, parents, and students**, with queries ranging from handling food allergies during school events to ensuring indoor air quality in classrooms. The discussion highlighted the shared responsibility of healthcare providers, educators, and families in protecting children from allergy-related risks.

Conclusion

The "Allergy Smart School" webinar was not just an academic session but the **launch of a national movement**. By uniting medical experts with educators and parents, the IAP Allergy and Applied Immunology Chapter has taken a decisive step towards building safer, more supportive school environments for allergic children. This initiative is expected to pave the way for **policy development, awareness drives, and nationwide implementation**, ultimately ensuring that no child's education or well-being is compromised due to allergies.

Watch the full recordings & subscribe

INDIAN ACADEMY OF PEDIATRICS
ALLERGY AND APPLIED IMMUNOLOGY CHAPTER

ALLERGY SMART SCHOOL

What are Allergies?

An overreaction of the body's defense system to harmless substances.
Like mistaking a friend for a foe!

Common Allergens Around Us

Indoor:	Dust mites, pet dander, mold
Outdoor:	Pollen, molds, insect bites
Food:	Milk, nuts, eggs, seafood
Other Triggers:	Pollution, smoke, cold air, exercise

Signs & Symptoms

Nose (Allergic Rhinitis):	Sneezing, itchy/watery nose, blocked nose
Asthma:	Cough, wheezing, breathlessness
Eyes:	Redness, itching, watering
Skin (Dermatitis):	Itchy, red, eczematous patches
Anaphylaxis (Emergency!):	Breathing difficulty, swelling, rash, fainting

Prevention & Safe Practices

- Keep rooms dust-free, wash hands after play/meals
- Avoid food triggers (always read labels!)
- Don't share food or personal items
- Inform teachers/friends about allergies
- Carry prescribed medicines/inhalers

School Safety Tips

- Keep classrooms clean & ventilated, use air purifiers, no pets inside.
- Create allergy-safe zones (e.g., peanut-free tables).
- Avoid latex balloons/gloves if a student has latex allergy.

INDIAN ACADEMY OF PEDIATRICS
ALLERGY AND APPLIED IMMUNOLOGY CHAPTER

एलर्जी स्मार्ट स्कूल

एलर्जी क्या है?

शरीर की रक्षा प्रणाली की हानिरहित चीज़ों पर ज़रूरत से ज़्यादा प्रतिक्रिया। जैसे किसी दोस्त को दुश्मन समझ लेना!

हमारे आस-पास के सामान्य एलर्जेन

- घर के अंदर: धूल के कण, पालतू जानवरों की रूसी, फफूंदी
- बाहर: परागकण, फफूंदी, कीड़े के काटने
- भोजन: दूध, मेवे, अंडे, समुद्री भोजन
- अन्य कारण: प्रदूषण, धुआं, ठंडी हवा, व्यायाम

लक्षण और संकेत

- नाक (एलर्जिक राइनाइटिस): छींक, खुजली/पानी आना, बंद नाक
- अस्थमा: खांसी, घरघराहट, सांस लेने में तकलीफ़
- आंखें: लालपन, खुजली, पानी आना
- त्वचा (डर्माटाइटिस): खुजली, लाल, चकत्तेदार धब्बे
- एनाफाइलेक्सिस (आपातकाल!): सांस लेने में कठिनाई, सूजन, चकत्ते, बेहोशी

रोकथाम और सुरक्षित आदतें

- कमरों को धूल रहित रखें, खेलने/खाने के बाद हाथ धोएं
- भोजन से बचें (हमेशा लेबल पढ़ें!)
- खाना या निजी सामान साझा न करें
- शिक्षकों/दोस्तों को एलर्जी के बारे में बताएं
- डॉक्टर द्वारा दी गई दवाइयाँ/इनहेलर साथ रखें

स्कूल में सुरक्षा

- कक्षाएं साफ और हवादार रखें, एयर प्यूरीफायर का इस्तेमाल करें, पालतू जानवर अंदर न लाएं।
- एलर्जी-मुक्त क्षेत्र बनाएं (जैसे मूंगफली मुक्त टेबल)।
- यदि किसी बच्चे को लेटेक्स से एलर्जी है तो लेटेक्स गुब्बारे/दस्ताने से बचें।

Upcoming Allergy Events

1 Allergy Forum

Second Tuesday of every month at Virtual Platform (9-10 PM)

Description: The Allergy Forum will provide a platform for case-based discussions on various aspects of allergy by different institutions. Previous sessions can be accessed at https://www.youtube.com/@PAAI-IAP.

2 Allergy Webinar

Last Friday of every month at Virtual Platform (9-10 PM)

Description: The monthly activity of the chapter, ongoing since April 2022, involves talks and panel discussions by leading allergy experts across the globe. Previous sessions can be accessed at https://iapaai.com/webinar/.

3 Webinar Series: Allergen Immunotherapy: Foundations to frontiers

Dates: September 1-3, 2025 at Virtual Platform (8-10 PM)

Description: The IAP Allergy & Applied Immunology Chapter, in collaboration with the All India Ophthalmological Society (AIOS), is proud to announce a **three-part webinar series on Eye Allergies**. This unique initiative brings together leading **ophthalmologists and pediatric allergists** to provide an integrated perspective on one of the most under-recognized yet impactful allergic disorders.

The series will cover:

- **Episode 1 (Sept 1):** Understanding Eye Allergies – Basics to Bedside with discussions on classification, immunology, systemic evaluation, role of allergy testing, and interactive case discussions.
- **Episode 2 (Sept 2):** Management Strategies – From Eye Drops to Immunotherapy focusing on topical and systemic therapies, biologics, immunotherapy, immunomodulators, and practical management pearls.
- **Episode 3 (Sept 3):** Special Situations, Prevention & Collaborative Care addressing severe and refractory ocular allergies, pediatric perspectives within the atopic march, preventive/environmental strategies, surgical interventions, and multidisciplinary case discussions.

This comprehensive program is designed to enhance clinical understanding, promote collaborative care, and empower pediatricians, allergists, and ophthalmologists with the latest evidence-based approaches.

Join us for this landmark academic collaboration to advance awareness and management of **ocular allergies** in India. Sessions will stream live on YouTube at https://www.youtube.com/@PAAI-IAP.

Upcoming Allergy Events

PED ALLERCON 2025, New Delhi

4

1.PedAllercon 2025 – Workshops & Scientific Program: Register Now!

Description: The 13th edition of PedAllercon – The Global Summit will be held from October 10–12, 2025 at Vivanta, Dwarka, New Delhi, bringing together over 1000 delegates, global experts, and cutting-edge science in pediatric allergy and asthma.

The conference opens on **October 10th** with **10 pre-conference workshops**, carefully designed to provide hands-on skills and practical learning. Delegates can choose **two workshops (one pre-lunch and one post-lunch)** from a diverse menu including **Molecular Diagnostics, Skin Tests, Pulmonary Function Testing, Food Allergy Challenges, Immunotherapy, Drug Allergy, Immunodeficiency, Allergy Emergencies, and Nasal Endoscopy**. A highlight this year is the newly introduced "Sleep Studies in Allergy Practice" workshop, focusing on the crucial but often overlooked relationship between allergic disorders and sleep, including OSA in children.

The **scientific program (Oct 11–12)** will run in parallel tracks – Clinical Allergy for Practitioners and Advanced Allergy Science for Experts. Sessions will cover practical updates on food allergy, rhinitis, asthma, eczema, drug allergy, anaphylaxis, ocular allergy, biologics, immunotherapy, microbiome, epigenetics, nanotechnology, and AI in allergy. Engaging **panel discussions, debates, and case-based sessions** will ensure relevance to both practicing pediatricians and researchers.

With its perfect blend of **hands-on training, cutting-edge science, and policy discussions**, PedAllercon 2025 promises to be an unmissable event for anyone passionate about allergy care.

👉 Register now at https://pedallercon2025.com/registrations.php. to secure your place at this landmark event.

10th October 2025 | 09:00 AM – 12:00 Noon

Pre-Lunch Workshops Program

Each registered delegate can attend
2 workshops (1 Pre- Lunch and 1 Post- Lunch)

PED ALLERCON 2025, New Delhi

13th Edition- - The Global Summit
10th - 12th October 2025 | Vivanta New Delhi, Dwarka

Workshop 1 - Molecular Diagnostics

Time	Topic
05 minutes	Opening remarks & Learning Objectives
30 minutes	Introduction to molecular allergy diagnostics
30 minutes	Clinical applications – Case based
30 minutes	How to read and interpret a molecular allergy report?
15 minutes	**Tea/Coffee Break**
20 minutes	Laboratory Techniques & Best Practices
40 minutes	Panel Discussion: "Is CRD Overkill or a Game-Changer"
10 minutes	**Wrap-Up, Feedback & Certificate Distribution**

Workshop 2 - Allergy Skin Tests

Time	Topic
05 minutes	Opening remarks & Learning Objectives
20 minutes	Basics of Allergy Skin Testing
40 minutes	Skin Prick, Prick to Prick & Intradermal Testing
30 minutes	Patch Testing
15 minutes	**Tea/Coffee Break**
20 minutes	Case-based interpretation
40 minutes	Hands-on Rotations
10 minutes	**Wrap-Up, Feedback & Certificate Distribution**

Workshop 3 - PFT

Time	Topic
05 minutes	Opening remarks & Learning Objectives
30 minutes	Physiology of Lung Function & Principles of Testing
	Spirometry & PEFR
20 minutes	FeNO
15 minutes	**Tea/Coffee Break**
30 minutes	Oscillometry
30 minutes	Hands-on Rotation
10 minutes	**Wrap-Up, Feedback & Certificate Distribution**

Workshop 4 – Nasal Endoscopy

Time	Topic
05 minutes	Opening remarks & Learning Objectives
30 minutes	Principles, Indications & Contraindications
30 minutes	Nasal Anatomy & Pathology Review
30 minutes	Equipment & Technique
15 minutes	**Tea/Coffee Break**
20 minutes	Case-based Discussion
40 minutes	Hands-on Rotation
10 minutes	**Wrap-Up, Feedback & Certificate Distribution**

Workshop 5 - Food Allergy: Office Challenges

Time	Topic
05 minutes	Opening remarks & Learning Objectives
30 minutes	Principles & Indications
40 minutes	Preparation & Protocols
20 minutes	Safety & Emergency Management
15 minutes	**Tea/Coffee Break**
30 minutes	Simulated OFC Demonstration
30 minutes	Case-based discussion
10 minutes	**Wrap-Up, Feedback & Certificate Distribution**

Scan QR to Register

For any General Query, please contact us at +91 8595 251325

REGISTER NOW

www.pedallercon2025.com

10th October 2025 | 13:00 – 16:00

Post-Lunch Workshops Program

PED ALLERCON 2025, New Delhi

13th Edition- - The Global Summit

10th - 12th October 2025 | Vivanta New Delhi, Dwarka

Workshop 6 – Allergen Immunotherapy

Time	Topic
05 minutes	Opening remarks & Learning Objectives
30 minutes	Principles of Allergen Immunotherapy
30 minutes	Subcutaneous Immunotherapy (SCIT)
30 minutes	Sublingual Immunotherapy (SLIT)
15 minutes	**Tea/Coffee Break**
20 minutes	Nasal provocation Test for HDM
40 minutes	Case-based discussion
10 minutes	**Wrap-Up, Feedback & Certificate Distribution**

Workshop 7 – Allergy Emergencies

Time	Topic
05 minutes	Opening remarks & Learning Objectives
30 minutes	Acute Asthma Exacerbation
30 minutes	Angioedema in ER
30 minutes	SCAR
15 minutes	**Tea/Coffee Break**
20 minutes	Anaphylaxis
40 minutes	Hands-On Simulation
10 minutes	**Wrap-Up, Feedback & Certificate Distribution**

Workshop 8 – Drug Allergy in Clinical Practice

Time	Topic
05 minutes	Opening remarks & Learning Objectives
30 minutes	Overview & Classification of Drug Hypersensitivity
45 minutes	Diagnostic Approaches
15 minutes	**Tea/Coffee Break**
30 minutes	Drug Desensitization
45 minutes	Case-based discussion
10 minutes	**Wrap-Up, Feedback & Certificate Distribution**

Workshop 9 – Immunodeficiency

Time	Topic
05 minutes	Opening remarks & Learning Objectives
30 minutes	Introduction & Classification of Primary Immunodeficiency
30 minutes	Recognizing the red flags
30 minutes	Diagnostic approach & Lab work-up
15 minutes	**Tea/Coffee Break**
20 minutes	Management Principles
40 minutes	Case-based discussion
10 minutes	**Wrap-Up, Feedback & Certificate Distribution**

New Addition

Workshop

Workshop 10 – Sleep Studies in Allergy Practice

Time	Topic
05 minutes	Opening remarks & Learning Objectives
30 minutes	Allergic Disorders and Sleep: Understanding the Link
30 minutes	Principles & Indications of Sleep Studies in Allergy Practice
30 minutes	How to read & interpret a Sleep study report
15 minutes	**Tea/Coffee Break**
20 minutes	OSA in Allergic Children & Adults
40 minutes	Hands on Demonstration
10 minutes	**Wrap-Up, Feedback & Certificate Distribution**

Scan QR to Register

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PED ALLERCON 2025, New Delhi

13th Edition- - The Global Summit
11th & 12th October 2025 | Vivanta New Delhi, Dwarka

Scientific Programme

Day-1 | Saturday | 11th October 2025

Time	Hall – A Clinical Allergy for Practitioners (General Pediatricians)	Hall – B Advanced Allergy Science & Practice (Experts)
08:00-09:00	Registration & Breakfast	
09:00-09:20	**Talk 1:** Food Allergy: Practical Diagnosis in Children	**Talk 5:** Circadian Biology in Allergy
09:20-09:40	**Talk 2:** Drug Allergy in Children: When to Suspect, How to Manage	**Talk 6:** Environmental Drivers of Food Allergy
09:40-10:00	**Talk 3:** Allergic Rhinitis–Conjunctivitis: Practical ARIA Updates	**Talk 7:** Mast Cells, Dendritic Cells, and Beyond: Emerging Insights
10:00-10:20	**Talk 4:** Delayed Drug Hypersensitivity: Recognition and Referral	**Talk 8:** Childhood Asthma and the 'Omics Revolution
10:20-11:00	**Panel Discussion 1:** Allergy Smart Schools: Practical Strategies and Policy Implications in India	**Panel Discussion 2:** Biologics in Pediatric Asthma & Rhinitis: Patient Selection, Monitoring and Challenges
11:00-11:30	Tea Break	
11:30-12:15	Oration	
12:15-13:15	Inaugural Ceremony	
13:15-14:15	Lunch	
14:15-14:35	**Talk 9:** Basics of Molecular Allergy Diagnostics	**Talk 13:** Microbiome and Allergies: The Gut–Lung–Skin Axis
14:35-14:55	**Talk 10:** From Extracts to Components: Transitioning to Precision	**Talk 14:** Epigenetics and Allergy: Future Therapeutic Targets
14:55-15:15	**Talk 11:** Smart Allergy Solutions for Clinics	**Talk 15:** Novel Preparations in Allergen Immunotherapy
15:15-15:35	**Talk 12:** Tips & Tricks in Biological Treatment: Pediatric Considerations	**Talk 16:** Advances in Biologic Therapies for Severe Asthma
15:35-16:15	**Panel Discussion 3:** Food Allergy in Children: Diagnostic Dilemmas and Management Pathways	**Panel Discussion 4:** Barrier Dysfunction across Atopic Diseases: Skin, Gut and Airways
16:15-16:35	**Debate 1:** Genetics testing in Skin Allergies	**Debate 1:** Skin as a Gateway to Food Allergy
16:35-16:55	**Debate 2:** OSA Tug of War: Allergist vs ENT?	**Debate 2:** Molecular Diagnostics is the future
16:55-17:00	Closing Remarks	
18:30-22:00	Cultural Evening & Gala Dinner	

Scan QR to Register

REGISTER NOW

For any General Query, please contact us at +91 8595 251325

PED ALLERCON 2025, New Delhi

13th Edition- - The Global Summit
11th & 12th October 2025 | Vivanta New Delhi, Dwarka

Scientific Programme

Day-2 | Sunday| 12th October 2025

Time	Hall-A	Hall-B
08:00-09:00	Registrations & Breakfast	
09:00-09:20	**Talk 17:** Sleep-Disordered Breathing and Allergies: Case-Based Approach	**Talk 21:** Nanotechnology in Allergy: From Diagnostics to Therapy
09:20-09:40	**Talk 18:** Managing Atopic Dermatitis in Daily Pediatric Practice	**Talk 22:** Mastocytosis and Mast Cell Disorders
09:40-10:00	**Talk 19:** Occupational Allergens and Hazard Risks (Latex, Dust, Chemicals)	**Talk 23:** Severe Food Allergy in Children: Beyond Basics
10:00-10:20	**Talk 20:** Food Allergy Emergencies: Recognition and First Aid	**Talk 24:** Eosinophilic Esophagitis: From Bench to Bedside
10:20-11:00	**Panel Discussion 5:** Medico-legal aspects in Allergy Practice	**Panel Discussion 6:** Food Immunotherapy: Current Evidence, Timing and Safety in Children
11:00-11:30	Tea Break	
11:30-11:50	**Talk 25:** Pediatric Anaphylaxis: Recognition, Action Plan & EpiPen Use	**Talk 29:** Venom Allergy Management: What's New
11:50-12:10	**Talk 26:** Immunotherapy in Children: Simplified Guide for Pediatricians	**Talk 30:** Co-factor Dependent Food-Induced Anaphylaxis
12:10-12:30	**Talk 27:** Clinical Challenges in Pediatric Eczema (Including wet wrap therapy and biologics)	**Talk 31:** Climate Change and Allergies: Clinical Implications
12:30-13:10	**Panel Discussion 7:** Allergic Rhinitis – Asthma Overlap: A Practical Approach for Busy Pediatricians	**Panel Discussion 8:** CRSwNP: Emerging Therapies and Collaborative Care
13:10-13:30	**Talk 28:** Approach to Ocular Allergies	**Talk 32:** Refractory Eye Allergy - What should I do?
13:30-14:15	Lunch	
14:15-14:35	**Talk 33:** Simplified Interpretation of In-Vitro Allergy Tests	**Talk 39:** Diversity of Regulatory B Cells: Markers and Functions
14:35-14:55	**Talk 34:** Practical Updates in Drug Desensitization	**Talk 40:** AI in Allergy: Predicting Biomarkers and Outcomes
14:55-15:15	**Talk 35:** Patient Education & Counselling in Allergy Practice	**Talk 41:** Immune Mechanisms Driving Airway Remodeling
15:15-15:35	**Talk 36:** Rewriting the Dengue Story: A New Era with Vaccination	**Talk 42:** Research Methodology for Allergists: Writing & Publishing
15:35-16:15	**Panel Discussion 9:** Pollution and Climate Change: Implications for Pediatric Allergy and Asthma in India	**Panel Discussion 10:** Severe Pediatric Asthma: Precision Care in 2025
16:15-16:35	**Talk 37:** Rebalancing Immunity: Role of Probiotics in Allergy	**Talk 43:** Symposium on Specific Allergy (SOSA)
16:35-16:55	**Talk 38:** Choosing Wisely: Antihistamines in Pediatric Allergy Practice	**Talk 44:** 12 SQ HDM tab – New Entrant in India
16:55-17:00	Valedictory & Awards	

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