EAACI 2025

Emphasised EAACI's commitment to breaking boundaries in allergy, asthma, and clinical immunology

Congress Review

Review of the European Academy of Allergy and Clinical Immunology (EAACI) Congress 2025

Location:	Glasgow, UK
Date:	13 th –16 th June 2025
Citation:	EMJ Allergy Immunol. 2025;10[1]:10-23. https://doi.org/10.33590/emjallergyimmunol/DOOV2450

THIS SUMMER, the welcoming city of Glasgow, UK, proudly hosted the European Academy of Allergy and Clinical Immunology (EAACI) Congress 2025, a pivotal event that brought together the global community to address the critical intersection of human health and our planet. The Opening Ceremony, a truly dynamic and inspiring start to the Congress, emphasised EAACI's commitment to breaking boundaries in allergy, asthma, and clinical immunology, integrating planetary health for a sustainable future.

EAACI President María Torres welcomed delegates, introducing a new era for the academy driven by transformation, resilience, and a bold vision. This forwardlooking approach is built upon five foundational pillars. First, 'Membership Empowerment': with over 17,000 members across more than 150 countries, EAACI is placing its members at the heart of its strategy. Second, 'Beyond Borders: EAACI Goes Global': expanding its reach beyond Europe, EAACI showcased its growing global influence through events like the first allergy school co-hosted with the Korean Society in Seoul, South Korea, and an upcoming allergy school in Hong Kong, China. Third, 'Patient as a Partner': reinforcing the commitment to co-creating solutions with patients, EAACI highlighted its close collaboration with the EAACI Patient Organisation Committee (POC). This includes the launch of the EAACI Anaphylaxis Awareness Day in 2024 and an Antibiotic Allergy Awareness Campaign at the congress. Fourth, 'Science & Learning':

at its core, EAACI is dedicated to scientific excellence and evolving education. The launch of the EAACl₂H framework (Research and Innovation Hub, Public Patients and Outreach Hub, and Knowledge Hub) and the Declaration of Salamanca, which calls for allergy integration in undergraduate medical education, exemplify this commitment. Finally, 'Digital Future': embracing digital innovation, EAACI unveiled a new mobile and intelligent website, along with EAACI Nexus, a dynamic media hub featuring podcasts, webinars, online courses, and a rich archive of content. These platforms are designed to empower members, amplify research, and ensure seamless knowledge flow.

A highlight of the Opening Ceremony was the presentation of prestigious awards, recognising outstanding contributions and emerging talent in the fields of allergy, asthma, and clinical immunology. The Clemens von Pirquet Award 2025 was awarded to former EAACI Vice-President, Ludger Kilmek, Center for Rhinology and Allergology, Wiesbaden, Germany. The Daniel Bovet Award 2025 was presented to Antti Lauerma, University of Helsinki, Finland. The Paul Ehrlich Award 2025 recognised Marianne van Hage, Karolinska Institute, Solna, Sweden, for her groundbreaking work on molecular allergy diagnostics and α -Gal syndrome. The Charles Blackley Award 2025 was given to Tomás Chivato Pérez, Universidad CEU San Pablo, Madrid, Spain, an expert in allergy, anaphylaxis, and respiratory disease. The EAACI Clinical Fellow Award 2025 was granted to 11 experts, including Hugh Sampson, Icahn School of Medicine, Mount Sinai, New York, USA. The EAACI Allergopharma Award 2025 was awarded to Jessy Elst, University of Antwerp, Belgium. Finally, the EAACI Early Career Research Award 2025 was presented to Janice Layhadi, Imperial College London, UK, who specialises in allergen immunotherapy and immune tolerance mechanisms.

A significant focus of the ceremony was planetary health, with a special recorded message from Maria Neira, Director, Department of Environment, Climate Change and Health at the WHO. Neira passionately called for breaking boundaries between clinical work and environmental health, urging health professionals to influence policies for a healthier planet. The ceremony also featured inspiring words from Abul Abbas, University of California San Francisco, USA, who lauded EAACI's commitment to translating basic science into patient benefit and its global outreach initiatives. The introduction of the new EAACI bee mascot, alongside spirited dancing, the Glasgow NHS choir, and the resonant sound of bagpipes, created a truly memorable and uplifting atmosphere, setting a vibrant tone for the days ahead.

As EAACI embarks on its 70th anniversary next year, in Istanbul, Türkiye, the Congress in Glasgow served as a powerful testament to its enduring legacy of excellence, advocacy, and innovation, reaffirming its vital role in shaping the future of allergy, asthma, and clinical immunology worldwide.

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Allergy Trajectories From Infancy to Adulthood Explored



A RECENT study, presented at the EAACI Congress 2025, has provided new insight into the complex relationship between eczema, wheeze or asthma, and rhinitis from infancy to early adulthood.¹



Children who followed the multimorbidity pattern showed the greatest likelihood (87%) of an asthma diagnosis in early adulthood Using data from 1,184 participants, researchers tracked these conditions at multiple intervals, ages 1, 3, 5, 8, 11, 16, and 20 years, employing a sophisticated trajectory modelling approach to uncover patterns over time.

Six distinct developmental profiles were identified. The most common was a 'no disease' trajectory, affecting around 38% of children. Other groups included persistent eczema with late-onset rhinitis (8.3%), persistent wheeze with later rhinitis (14.7%), eczema only (10%), rhinitis only (22%), and a small but significant group (7.4%) with multimorbidity, experiencing all three conditions.

Boys were significantly more likely to follow the multimorbidity and persistent wheeze with later rhinitis paths. Maternal factors played a notable role: maternal smoking during pregnancy increased the risk of persistent wheeze with later rhinitis, while maternal asthma raised the likelihood of both multimorbidity and persistent wheeze trajectories. Maternal atopy increased the risk across all symptomatic profiles when compared to the no-disease group. Children who followed the multimorbidity pattern showed the highest rates of allergic sensitisation from infancy through to adulthood, and had the greatest likelihood (87%) of an asthma diagnosis in early adulthood. This group was followed by those with persistent wheeze and lateronset rhinitis (61%), in stark contrast to only 2% in the no-disease group.

The study highlights that the development of eczema, wheeze, and rhinitis does not follow a single, predictable course. Importantly, a small group of children experience a burdensome multimorbidity trajectory, underlining the need for early identification and targeted intervention strategies.

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Cold-Induced Urticaria in Children: High Anaphylaxis Risk and Ongoing Challenges

CHILDREN with cold-induced urticaria (coldU) face significant risks of anaphylaxis and impaired quality of life, with the condition often persisting into adulthood, according to new research presented at the EAACI Congress 2025.²



In this multicentre study, 203 paediatric patients diagnosed with coldU before the age of 18 years were recruited from 31 centres. Diagnosis was confirmed through a standardised cold stimulation test, using an ice cube on the forearm, and patient data were collected from medical records. The median age of participants was 14.25 years, with 56.1% being female. Concomitant chronic urticaria was present in 14.7% of cases. Notably, 17.2% of children experienced cold-induced anaphylaxis, a severe and potentially fatal reaction. Quality of life, measured by the Paediatric Quality of Life Inventory (PedsQL), was significantly lower in those with a history of anaphylaxis (p=0.005).

The analysis revealed that female gender was associated with a reduced risk of anaphylaxis, while autoimmune disease and older age increased the risk. Ingestion of cold foods or drinks was also identified as a common trigger for severe reactions. Disease resolution, defined as being symptom-free without treatment or avoidance for at least 1 year, occurred in 30.5% of patients. However, those with a history of anaphylaxis were significantly less likely to achieve remission (p=0.012). Out of the 43 patients who were followed into adulthood, 28% reported disease resolution, but no clear predictors for persistence beyond age 18 were identified.

These findings highlight the complex nature of coldU in children and the need for ongoing vigilance, particularly in those with severe reactions or comorbidities. For clinical practice, regular assessment of quality of life and risk factors is crucial, and families should be educated about the potential for anaphylaxis and the importance of avoiding known triggers.

Dupilumab Improves Clinical and Microbial Outcomes in Paediatric Atopic Dermatitis

A PRELIMINARY observational study presented at the EACCI Congress 2025 showed data from Naples, Italy, offering new supporting evidence of the dual clinical and microbial benefits of dupilumab in children with moderate-to-severe atopic dermatitis (AD).³

Conducted at the University of Campania Luigi Vanvitelli, Naples, Italy, between 2022–2024, the study tracked 30 paediatric participants (aged 6–16 years) across three groups: dupilumab-treated severe AD, untreated moderate AD, and healthy controls.

These findings support the hypothesis that IL-4 and IL-13 blockade not only controls inflammation but also indirectly restores the skin's antimicrobial defence

> In the dupilumab group, clinical outcomes improved significantly over 12 months, Eczema Area and Severity Index (EASI) scores dropped from a median of 24.5 to 1.2 (p<0.001), alongside marked improvements in pruritus and quality of life scores. Perhaps, more interestingly, dupilumab also appeared to modulate the microbiota: treated patients showed a reduced colonisation of *Staphylococcus aureus* on

both the skin and nasal mucosa, compared to untreated peers.

These findings support the hypothesis that IL-4 and IL-13 blockade not only controls inflammation but also indirectly restores the skin's antimicrobial defence. By improving barrier function and microbiome balance, dupilumab may offer broader protection against secondary infections, a key consideration in severe paediatric AD.

While the sample size was small, this is one of the first studies to demonstrate microbiota modulation in paediatric AD via biologic therapy. It strengthens the case for early, targeted intervention in children with refractory disease and adds a microbial dimension to the growing evidence base for dupilumab.



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Sewage Reveals Allergy Trends Through Antihistamines

PRESENTED at the EAACI Congress 2025, a Swiss study has revealed that what flows through our sewers could help track the nation's struggle with hay fever.⁴ Researchers found that residues of commonly used antihistamines in wastewater closely reflected airborne pollen levels, opening the door to a new, cost-effective method for monitoring allergy symptoms across entire populations.



of its annual use was tied directly to peak pollen exposure,



to steady use during allergy season, and



appeared unrelated to pollen Led by Stephan Baumgartner, University of Bern, and colleagues from across Switzerland, the study examined 279 daily wastewater samples collected from Zurich, Switzerland, between 2021–2023. These samples represented the excretions of roughly 471,000 people each day. Using high-resolution mass spectrometry, the team analysed levels of 11 antihistamines, drugs commonly used to relieve allergy symptoms like sneezing, congestion, and itchy eyes.

The results were striking. Levels of bilastine, cetirizine, and particularly fexofenadine surged in line with daily pollen counts. In the case of fexofenadine, around 50% of its annual use was tied directly to peak pollen exposure, 20% to steady use during allergy season, and 30% appeared unrelated to pollen.

Pollen from birch, grasses, hazel, hornbeam, plane, and plantain were identified as the primary drivers of this spike, with grass pollen alone accounting for a quarter of the fexofenadine load. Unexpected increases during low-pollen periods hinted that less commonly monitored allergens, such as yew, may also play a role.



Does the Mandatory Food Allergen List Need Updating?

GOAT'S-SHEEP'S milk (GSM) should be included as a distinct allergen in the mandatory food allergen list, according to breaking research presented at the EAACI Congress 2025, which took place between 13th–16th June, in Glasgow, UK.⁵

In the current literature, there is limited data characterising GSM-induced anaphylaxis. To overcome this, and to compare the phenotype of GSM-induced anaphylaxis with that induced by other food allergens, researchers performed a retrospective analysis of Allergy-Vigilance Network recorded cases of GSM-induced anaphylaxis between 2002–2024.

GSM-induced anaphylaxis was also associated with greater reaction severity than anaphylaxis induced by other food allergens

In total, 3,285 cases of food-induced anaphylaxis were included in the study, of which 3% (n=97) were caused by GSM. Of the GSM-induced cases, 57.8% (n=56) had a known allergy to GSM, 13.4% (n=13) had a known cow's milk allergy, 58.8% (n=57) occurred in males, and 75.3% (n=73) occurred in those <18 years of age. Within the GSM-induced allergy group, a total of four Grade IV reactions occurred (4.1%), of which two resulted in death, and 33 Grade III reactions occurred (34.0%). GSM-induced anaphylaxis was significantly associated with older age (mean: 13.5 years) compared with cow's milk-induced anaphylaxis (mean: 7.1 years). Moreover, those with GSMinduced anaphylaxis were significantly more likely to have asthma (44.5%) than those with cow's milk-induced anaphylaxis (17.4%).

When compared with anaphylaxis induced by other food allergens, GSM-induced anaphylaxis was found to be significantly more likely to be associated with younger age (mean: 25.1 years versus 13.5 years) and a history of asthma (26.1% versus 44.5%). GSM-induced anaphylaxis was also associated with greater reaction severity than anaphylaxis induced by other food allergens.

The authors concluded that GSM-induced anaphylaxis occurs frequently, can occur in individuals without an allergy to cow's milk, and the grade of severity can be high. Taken together, these findings highlight the need to include GSM as an independent allergen on the mandatory food allergen list, and suggest that GSM should no longer be considered solely as a milk product. Allergists should be aware of this new data and consider the findings in their daily practice.

Infant Fish Oil Markers Linked to Lower Asthma Risk

A NEW study, presented at the EAACI Congress 2025, has highlighted a potential link between early-life exposure to fish oil-derived compounds and reduced risk of childhood asthma.⁶

The study found that higher levels of 3-CMPFP at both time points were significantly associated with a lower risk of developing asthma, with a 34% reduction in risk observed

Researchers focused on the compound 3-carboxy-4-methyl-5-propyl-2-furan propanoic acid (CMPF), a biomarker of fish-oil and fatty fish intake, and its metabolites, including hydroxy-CMPF and 3-CMPFP. Using blood samples collected from mothers at pregnancy Week 24 and their children at age 6 months, scientists examined how these compounds affected metabolic profiles and asthma outcomes by age 10 years.

The study found that higher levels of 3-CMPFP at both time points were significantly associated with a lower risk of developing asthma, with a 34% reduction in risk observed after adjusting for other factors. Additionally, a metabolome score reflecting 3-CMPFP-related pathways, particularly those involved in vitamin A and sphingomyelin metabolism, was also linked to a reduced asthma risk. CMPF levels at 6 months were similarly protective, while levels during pregnancy and hydroxy-CMPF showed no clear associations.

Interestingly, the strongest protective effects of CMPF and 3-CMPFP at 6 months were seen in children whose mothers received a placebo during pregnancy, suggesting that postnatal, rather than prenatal, exposure may be especially important. The fish oil intervention during pregnancy appeared to diminish these associations, indicating a complex interaction between maternal supplementation and infant metabolite levels.

These findings suggest that early-life blood markers of fish oil exposure may play a key role in shaping long-term respiratory health. The study emphasises the value of metabolomics in identifying potential preventive strategies against asthma and underscores the need for further research into how dietary components influence immune and respiratory development in children.





Miniaturised Allergy Test Promises Breakthrough in Multi-Food Allergy Diagnosis

A RECENT study, presented at the EAACI Congress 2025, has shown that a new streamlined, miniaturised, and multi-allergen basophil activation test (SMMABAT) offers higher predictive value than traditional IgE testing, with the added benefit assessing multiple allergens with minimal blood volume.⁷

Whilst basophil activation tests are increasingly recognised for their diagnostic potential, their complexity and resource requirements have limited widespread clinical adoption. The development of a simplified, high-throughput approach could help overcome these barriers and enable more precise allergy management.

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> In this pilot study, whole blood samples from 81 participants aged 1–36 years were collected and processed within 4 hours using a 96-well plate-based SMMABAT prototype. This miniaturised system enabled testing of 87 different conditions using <2 mL of blood per patient, with each well requiring only 20 μ L. The test assessed reactivity to 11 allergenic extracts, such as peanut, tree nuts, sesame, milk, and egg,

across seven concentrations (10,000–0.01 ng/mL), as well as seven individual allergen components at 1,000 ng/mL.

In total, 891 dose-response curves were generated. SMMABAT reactivities showed significant correlations (p<0.0001) with clinical allergic or tolerant status for each allergen. The most informative dose range was 10-1,000 ng/mL, with a positive predictive value of 88.3% at 10 ng/mL, and a negative predictive value of 87% at 1,000 ng/mL. For comparison, specific IgE (slgE) to raw extracts had a positive predictive value of 64% and a negative predictive value of 92% in a subset of cases. Notably, allergic patients undergoing immunotherapy showed significantly lower SMMABAT reactivities than those not receiving treatment, even though slgE levels did not differ significantly.

For clinical practice, this approach offers a rapid, high-throughput, and minimally invasive method to complement traditional slgE testing, providing more nuanced information about allergic status and treatment response.

Re-evaluating Penicillin Allergy Labels in Paediatric Care: Insights from Evelina London



A RECENT audit and interview-based study presented at the EAACI Congress 2025, conducted at Evelina London Children's Hospital, UK, has shown significant discrepancies in the accuracy and management of penicillin allergy labels (PAL) in paediatric patients.⁸

Among 7,050 children reviewed between October 2024–December 2024, 194 had a PAL, representing a prevalence of 5.6%. Of the 51 families interviewed, nearly 40% of patients met British Society for Allergy and Clinical Immunology (BSACI) criteria for low-risk status and could have been safely de-labelled by non-allergists.

However, risk stratification was inconsistently applied: only 45% were correctly identified as low-risk in electronic records, and 40% had no risk level documented at all. Additional challenges emerged from both clinician and caregiver perspectives, including fear of re-exposure, lack of education around the safety and benefits of de-labelling, and minimal referral to allergy services. Notably, some children retained a PAL despite having tolerated penicillin since their initial reaction, while others were labelled solely due to family history.

This study calls for improved clinician training in allergy history-taking and risk assessment, particularly among nonspecialists, as well as enhanced educational efforts aimed at caregivers. Systematic improvements in PAL documentation, clear referral pathways, and targeted education could support more effective de-labelling strategies, reducing inappropriate antibiotic avoidance, improving antimicrobial stewardship, and ultimately enhancing paediatric patient care.

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Food Diversity Trends in Infants with Eczema

PRESENTED at the EAACI Congress 2025, a 12-year cross-sectional cohort study investigated national trends and disparities in complementary food diversity among Korean infants aged 9–12 months, focusing on those diagnosed with atopic dermatitis (AD).⁹



The study analysed data from 3,425,301 infants (mean age: 11.3 months), of whom 17.1% were diagnosed with AD

Using data from the national health screening programme between 2009–2020, the study aimed to evaluate trends in food diversity and identify associated risk factors. Infants were categorised as having high food diversity if they consumed all six complementary food groups, and low diversity if they consumed five or fewer. AD was defined by the 10th version of the International Classification of Diseases (ICD-10) L20 diagnosis recorded at least five times prior to the survey.

The study analysed data from 3,425,301 infants (mean age: 11.3 months), of whom 17.1% were diagnosed with AD. Among those with AD, 55.8% were male. The overall prevalence of high food diversity increased markedly during the study period, from 29.4% to 49.1% among infants with AD, and from 32.1% to 56.9% in those without. While infants with AD initially exhibited lower food diversity, adjusted analyses revealed no significant interaction between AD and food diversity trends over time. Risk factors associated with low food diversity included preterm birth, low birth weight, and exclusive breastfeeding.

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Despite overall improvements, disparities in complementary feeding practices persist among infants with AD. The findings highlight the need for targeted public health strategies to ensure equitable nutritional interventions for this vulnerable population, aiming to support healthy growth and reduce allergy-related risks through optimised early-life dietary diversity.



Innovation Improves Sensitivity for Correct Beta-Lactam Allergy Diagnosis

A MODIFIED tool for diagnosing β -lactam (BL) allergy outperforms the original in terms of sensitivity and negative predictive value, according to cutting-edge research presented at the EAACI Congress 2025, which took place in Glasgow, UK, between 13th-16th June.¹⁰

Staggeringly, approximately 90% of individuals who self-diagnose as allergic to BL, aren't. Tools to aid diagnosis of BL allergy, such as PENFAST, have previously been developed. However, research has revealed that a percentage of individuals classified as low risk are, in fact, confirmed as allergic.

In light of this, researchers from Gregorio Marañón General University Hospital, Madrid, Spain, developed a modified version of PENFAST, called PEN-FAST-Allergy (PEN-FAST-A). In this modified version, urticaria was included as an immediate, severe reaction. They then sought to compare the efficacy of PENFAST and PEN-FAST-A with regard to correctly diagnosing BL allergy by reviewing data from 528 patients aged 17–97 years.

inclusion of urticaria as a severe, immediate reaction in PEN-FAST-A yielded an increase in sensitivity

Of those enrolled in the study, 68.75% were women, and 66.6% (n=352) presented with immediate hypersensitivity reactions (HSR); of whom 11.4% had anaphylaxis, 36.4% had an unknown history, and 52.2% had urticaria-angioedema. In total, 18.75% of participants had confirmed BL allergy.

A PENFAST score <3 (low risk) was seen in 80.1% of those who presented with HSR, of whom 6% were diagnosed with BL allergy. The remaining individuals with HSRs had a PENFAST score >3 (high risk), of whom 51.42% were BL allergic. In contrast, when using the PEN-FAST-A score, 59.9% of individuals with HSRs were categorised as low risk (score of <3), with BL allergy confirmed in 1.2%. The remaining 40.1% were categorised as high risk (PEN-FAST-A score >3), and allergy was confirmed in 39.7%.

Notably, inclusion of urticaria as a severe, immediate reaction in PEN-FAST-A yielded an increase in sensitivity (84.85% versus 54.55%) and negative predicted value (95.26% versus 89.36%), when compared to PENFAST. However, PEN-FAST-A yielded a lower specificity (70.30% versus 88.1%) and positive predictive value (39.71% versus 51.43%) than PENFAST. The risk of missing a BL allergy diagnosis in those categorised as low risk reduced from 10.6% to 4.7% when using PEN-FAST-A instead of PENFAST.

From their findings, the study authors concluded that use of PEN-FAST-A resulted in an increased percentage of correct diagnoses and reduced the risk of missing individuals categorised as low risk who do, in fact, have a BL allergy. However, the authors cautioned that PEN-FAST-A should be applied under allergy specialist supervision and should not replace a formal allergological study.



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