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"asthma"[MeSH Terms] OR asthma[Text Word]

1

Review

Radiol Cardiothorac Imaging

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. 2025 Jun;7(3):e240505.

doi: 10.1148/ryct.240505.

[Functional Lung Imaging Using CT: An Update](#)

[Changhyun Lee](#) ^{#1 2 3 4}, [Juergen Biederer](#) ^{#5 6 7 8}, [Yoshiharu Ohno](#) ^{9 10}, [Joon Beom Seo](#) ¹¹, [Grace Parraga](#) ¹², [David L Levin](#) ¹³, [James C Gee](#) ¹⁴, [Rohit Jena](#) ¹⁴, [Yoshiyuki Ozawa](#) ⁹, [Mark O Wielpuetz](#) ^{5 6 15}, [Eric A Hoffman](#) ¹⁶, [Edwin J R van Beek](#) ¹⁷; [International Workshop for Functional Pulmonary Imaging \(IWPMI\)](#)

Affiliations Expand

- PMID: 40471076
- DOI: [10.1148/ryct.240505](#)

Abstract

Chest CT has become a key component of the diagnostic approach to a wide range of airway and vascular diseases, including asthma, emphysema, chronic airways disease, and pulmonary vascular disorders such as pulmonary embolism. The interaction between ventilation and perfusion is complex but is always aimed at optimal matching to enable efficient gas exchange. If either one or both of these are affected by disease, they have a negative effect on the other. CT is able to define the structure of lung parenchyma, airways, and pulmonary vasculature in great detail. Beyond morphology, increasingly sophisticated scanner and software technology increase the diagnostic scope of CT toward obtaining comprehensive functional information. This paves the way for new understanding of lung function, the effects of various diseases, and the way in which therapeutic interventions have an effect. Greater understanding of the principal components of chest CT and how they are developing into clinical practice is relevant to anyone with an interest in diagnostic chest imaging. Keywords: CT-Spectral Imaging (Dual Energy), Applications-CT, CT-Quantitative, CT-Perfusion, Thorax, Lung © RSNA, 2025.

Keywords: Applications-CT; CT-Perfusion; CT-Quantitative; CT-Spectral Imaging (Dual Energy); Lung; Thorax.

Supplementary info

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Saudi Pharm J

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. 2025 Jun 4;33(3):14.

doi: 10.1007/s44446-025-00021-7.

[Evaluation of a competency-based CPD programme for pharmacists on asthma care: a feasibility study](#)

[Phyllis Hio Hong Wong](#)¹, [Chi Ian Chau](#)¹, [Hao Hu](#)^{1 2 3}, [Carolina Oi Lam Ung](#)^{4 5 6}

Affiliations Expand

- PMID: 40465048
- DOI: [10.1007/s44446-025-00021-7](#)

Abstract

Competency-based education (CBE) approaches in pharmacy education has drawn increasing attention. However, the adoption of CBE in Continuing Professional Development (CPD) design especially on asthma care remains underreported. This study aimed to assess the feasibility of a CBE-informed CPD programme designed for improving asthma care for children. A CPD programme guided by the CBE approach comprising of 4 sessions of didactic lectures and interactive inhaler workshops was implemented between April 6 to 27 2024 in Macao. An evaluation tool set to test the pre- and post-lecture knowledge assessment, inhaler technique, impact on practice, and overall satisfaction was completed by the participants. About 15% of registered pharmacists involved in direct-to-patient-care attended the CPD programme (n = 88), of whom 81 participated in the study. Significant improvement in short-term knowledge was recorded when comparing the overall proportion of correct answers pre- and post-training (50.9% vs 66.5%, $p < 0.05$). By the end of the inhaler workshop, the proportion of participants performed all inhaler steps correctly were 88.7% for metered dose inhaler, 80.8% for turbuhaler, 76.0% for accuhaler, and 71.2% for ellipta. Participants self-reported an enhanced level of confidence, willingness, and professional recognition in the provision of pharmaceutical care for the patients upon completion of the CPD. Over 96% of the participants were satisfied with the overall design of the CPD programme. The study demonstrates that the CBE-informed CPD programme is feasible and can improve pharmacist's competence in asthma management. The CBE approach is worth further adoption to improve the performance of CPD programme for pharmacists.

Keywords: Asthma; Competency-based education; Continuing professional development; Inhaler; Pharmacy.

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Conflict of interest statement

Declarations. Competing Interests: The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper. **Ethics:** Research ethics approval for this study was obtained from the panel of the Ethics Committee of the University of Macau (reference number: HE-0176–2024).

- [80 references](#)

Supplementary info

Grants and fundingExpand

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3

Clinical Trial

Pediatr Allergy Immunol

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. 2025 Jun;36(6):e70110.

doi: 10.1111/pai.70110.

[Neonatal BCG vaccination to prevent asthma: Results from the MIS BAIR randomized controlled trial](#)

[Laure F Pittet](#)^{1 2 3}, [Emily K Forbes](#)¹, [Susan Donath](#)^{2 4}, [Kate L Francis](#)^{2 4}, [Kaya Gardiner](#)^{1 5}, [Katie L Flanagan](#)^{6 7 8}, [Anne-Louise Ponsonby](#)^{9 10}, [Roy Robins-Browne](#)^{1 11}, [Frank Shann](#)², [Mike South](#)^{2 12}, [Peter Vuillermin](#)^{13 14}, [Dan Casalaz](#)¹⁵, [Nigel Curtis](#)^{1 2 16}, [Nicole L Messina](#)^{1 2}; [Melbourne Infant Study: BCG for Allergy and Infection Reduction \(MIS BAIR\) Group](#)

Affiliations Expand

- PMID: 40464744
- PMCID: [PMC12136015](#)
- DOI: [10.1111/pai.70110](#)

Abstract

Background: Asthma has a significant impact worldwide, but prevention strategies remain limited. We aimed to evaluate the efficacy of neonatal BCG vaccination in preventing asthma by modulating early-life immunity.

Methods: The Melbourne Infant Study: BCG for Allergy and Infection Reduction (MIS BAIR) was a phase 3 multicentre randomized controlled trial in Victoria, Australia. Infants were randomly assigned to receive the BCG-Denmark vaccine or no intervention within 10 days of birth. The incidence of asthma at 5 years of age was estimated using the International Study of Asthma and Allergies in Childhood questions.

Clinicaltrial: gov ([NCT01906853](#)).

Results: A total of 1272 infants were randomized. The adjusted incidence of asthma was 14.4% in the BCG group compared to 16.0% in the control group (adjusted risk difference [aRD] -1.7 percentage points; 95%CI -7.4, 3.9). Secondary outcomes, including severe asthma and use of preventer medication, showed similar trends, with an aRD of -3.9 (95%CI -7.7, 0.0), and -5.6 (95%CI -10.9, -0.4), respectively, favoring the BCG group. Among participants with one or both parents asthmatic,

the rate of asthma was also lower in the BCG group (17.6%) compared with the control group (24.7%; aRD -7.2; 95%CI -15.9, 1.5), although a test for interaction was not significant ($p = .07$).

Conclusions: While the point estimates suggested BCG vaccination might protect against asthma, the wide uncertainty around the estimates means further studies with larger sample sizes are needed to evaluate the long-term benefits of BCG vaccination beyond its primary indication.

Keywords: BCG vaccine (*Mycobacterium bovis*); asthma; prevention; vaccine non-specific off-target effects; wheeze.

© 2025 The Author(s). Pediatric Allergy and Immunology published by European Academy of Allergy and Clinical Immunology and John Wiley & Sons Ltd.

Conflict of interest statement

The authors declare no conflicts of interest.

- [53 references](#)
- [3 figures](#)

Supplementary info

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Review

Am J Physiol Lung Cell Mol Physiol

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. 2025 Jun 4.

doi: 10.1152/ajplung.00046.2025. Online ahead of print.

[Maternal diabetes and Lung Health: an unexplored risk factor for COPD?](#)

[Sriyani Ranatunga](#)^{1,2}, [Christopher D Pascoe](#)^{1,2}

Affiliations Expand

- PMID: 40464374
- DOI: [10.1152/ajplung.00046.2025](https://doi.org/10.1152/ajplung.00046.2025)

Abstract

Chronic obstructive pulmonary disease (COPD), the fourth leading cause of death worldwide, is traditionally considered a disease of smoking. However, <20% of people who smoke develop COPD, indicating the disease is complex, resulting from the interplay of genetic and environmental factors. Emerging evidence highlights the importance of exposure in early life to environmental irritants that impair fetal lung development and subsequent lung function trajectories, increasing risk for future COPD. Specifically, childhood asthma, pre-term birth, and surfactant deficiency have been associated with lung function impairments and an increased COPD risk later in life. Furthermore, prenatal exposure to cigarettes influences sensitivity of individuals to smoking in later life. A mounting body of evidence now indicates that diabetes exposure during pregnancy increases risk for several childhood conditions linked with COPD risk, suggesting that maternal diabetes may be an unexplored risk factor for COPD. This article reviews the current literature on the influence of maternal diabetes on known early life COPD risk factors (asthma, preterm birth), and identifies knowledge gaps that need to be addressed to pin down a potential association with COPD. Specifically, whether exposure to maternal diabetes influences offspring risk for COPD through already identified risk modifiers, or directly by altering lung function trajectories or sensitivity to cigarettes. Maternal diabetes rates are rising worldwide, with Type 2 diabetes (T2DM) during pregnancy and gestational diabetes (GDM) nearly doubling over the last 15 years. Understanding how prenatal diabetes influences COPD risk is imperative to establishing whether intervening early can prevent COPD in this population.

Keywords: COPD; Developmental Origins; Early Life Exposure; Lung Function; Maternal Diabetes.

Supplementary info

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Review

Clin Exp Allergy

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. 2025 Jun 3.

doi: 10.1111/cea.70084. Online ahead of print.

[Mechanisms and Treatment of Type 2 High and Low Asthma Endotypes](#)

[Timothy C Chin-See-Chong](#)¹, [Jasper H Kappen](#)^{1,2,3}, [Elizabeth Palmer](#)^{2,3}, [Janice A Layhadi](#)^{2,3}, [Mohamed H Shamji](#)^{2,3}, [Johanna P M van der Valk](#)^{1,4}

Affiliations Expand

- PMID: 40462371
- DOI: [10.1111/cea.70084](#)

Abstract

Asthma is a complex, heterogeneous disease characterised by clinical phenotypes demonstrating distinct and overlapping immunological mechanisms, classified into type-2 high and type-2 low asthma endotypes. Both allergic and eosinophilic non-allergic asthma are driven through an underlying type-2 high-endotype, which can be targeted using therapeutic approaches such as allergen-specific immunotherapy (AIT) for allergic asthma and biologics. AIT demonstrates efficacy for the treatment of allergic asthma. Approved biologics for asthma management include using various interleukin antagonists and anti-immunoglobulin E, with Tezepelumab offering promising treatments for both type-2 high and type-2 low asthma patients. Novel therapeutic candidates, such as Itepekimab and depemokimab, have demonstrated promising results in a Phase 2 clinical trial in moderate-to-severe asthma patients.

Keywords: allergen-specific immunotherapy; asthma; biologics; biomarkers; endotype; phenotype.

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BMJ

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. 2025 Jun 3:389:r1146.

doi: 10.1136/bmj.r1146.

[Patients with asthma or heart disease should avoid incense sticks and other airborne pollutants, says CMO](#)

[Rebecca Coombes](#)¹

Affiliations Expand

- PMID: 40461162
- DOI: [10.1136/bmj.r1146](https://doi.org/10.1136/bmj.r1146)

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Am J Respir Crit Care Med

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. 2025 Jun 3.

Online ahead of print.

[Mucus Plug Density and Type 2 Inflammation in Asthma and/or COPD: Ultra-High-Resolution CT Study](#)

[Naoya Tanabe¹](#), [Hisako Matsumoto²](#), [Yusuke Hayashi³](#), [Ryo Sakamoto³](#), [Hironobu Sunadome³](#), [Susumu Sato^{4,5}](#), [Atsuyasu Sato⁶](#), [Toyohiro Hirai⁷](#)

Affiliations Expand

- PMID: 40460341

No abstract available

Keywords: airway; asthma; eosinophil; imaging; mucus.

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Book

[Body Plethysmography](#)

[Priya Sharma¹](#), [Abdulghani Sankari²](#)

In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan.

2025 Jun 2.

Affiliations Expand

- PMID: 40465812

- Bookshelf ID: [NBK615301](#)

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Excerpt

Body plethysmography, performed using a large plastic box, is a well-established technique for assessing lung function. This technique traces its origins to concepts developed in the late 19th century, with technical implementation beginning in the 1950s. Over time, it has evolved into an advanced technique that provides detailed insights into lung physiology. Body plethysmography is a vital pulmonary function test that measures lung volumes and airway resistance, offering a comprehensive insight into breathing mechanics. Unlike simple spirometry, which only captures airflow and lung capacity, body plethysmography assesses total lung volume—including residual volume (RV) and total lung capacity (TLC)—airway resistance, and intrathoracic gas volume (ITGV), without requiring forced breathing maneuvers.

This technique provides crucial information for diagnosing and managing various respiratory conditions, such as asthma, chronic obstructive pulmonary disease (COPD), restrictive lung impairments, and other disorders affecting lung function.

The procedure is typically performed inside an airtight chamber known as a plethysmograph, where patients breathe through a mouthpiece connected to a pneumotachograph. As the patient breathes, changes in pressure within the chamber are recorded and used to calculate lung volumes and airway resistance. This method's accuracy stems from its ability to assess trapped air and detect small airway changes that are not always evident in other testing methods. Consequently, body plethysmography is considered the gold standard for measuring lung volumes.

Body plethysmography plays a crucial role in the early detection of lung abnormalities, monitoring disease progression, and evaluating treatment responses. The ability of body plethysmography to distinguish between obstructive and restrictive lung diseases helps healthcare providers tailor treatment strategies more effectively. As the prevalence of respiratory diseases continues to rise globally, accurate and detailed pulmonary function testing, such as body plethysmography, becomes increasingly important in pulmonology.

Rationale for Body Plethysmography

Body plethysmography is essential for diagnosing conditions where lung volumes and airway resistance are altered. This technique allows for the following:

- Detection of trapped air in diseases such as COPD
- Differentiation between obstructive and restrictive lung diseases
- Accurate measurement of TLC
- Assessment of airway resistance and conductance

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Conflict of interest statement

Disclosure: Priya Sharma declares no relevant financial relationships with ineligible companies.

Disclosure: Abdulghani Sankari declares no relevant financial relationships with ineligible companies.

- [19 references](#)

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J Epidemiol Glob Health

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. 2025 Jun 2;15(1):80.

doi: [10.1007/s44197-025-00425-7](https://doi.org/10.1007/s44197-025-00425-7).

[Blood Glucose Levels, Inflammation, and Mortality in Asthmatic Populations: A Prospective Cohort Study](#)

[Jun Wen](#)^{#1}, [Changfen Wang](#)^{#2}, [Rongjuan Zhuang](#)^{#1}, [Shuliang Guo](#)³, [Jing Chi](#)⁴

Affiliations Expand

- PMID: 40455387
- PMCID: [PMC12130399](#)
- DOI: [10.1007/s44197-025-00425-7](https://doi.org/10.1007/s44197-025-00425-7)

Abstract

Background: Presently, the associations between blood glucose management, systemic inflammation, and prognosis in the asthmatic population are still uncertain.

Method: This investigation included 2719 people with asthma from the National Health and Nutrition Examination Survey (NHANES). The linear regression, Cox proportional hazards regression, the Shapley Additive Explanations (SHAP) model, restricted cubic spline (RCS), survival area plot, and survival quantile plot were used to comprehensively evaluate the associations between fasting plasma glucose (FPG), hemoglobin A1c (HbA1c), the systemic inflammation, and the mortality in populations with asthma.

Results: The Cox regression model revealed a positive correlation between HbA1c (HR: 1.21, 95% CI: 1.04-1.42) and FPG (HR: 1.08, 95% CI: 1.02-1.15) and the risk of death in asthmatics, while diabetes (HR: 1.55, 95% CI: 1.07-2.23) also increased the death risk of asthma. The RCS, survival area plot, and survival quantile plot all corroborated the positive association between HbA1c, FPG, and the death risk in asthma patients. The SHAP model suggested that the top five key markers for predicting the mortality risk of asthmatic people were age, cardiovascular disease, cholesterol, systemic inflammatory index (SII), and FPG. This investigation also revealed a positive relationship between HbA1c and FPG as well as neutrophils, along with a positive association between FPG and the SII.

Conclusions: Higher blood glucose levels-reflected by both HbA1c and FPG-are independently associated with greater mortality risk in adults with asthma. And hyperglycemia is linked to systemic inflammation, optimizing blood glucose control may improve inflammatory status and long-term outcomes in this population.

Keywords: Asthma; Fasting plasma glucose (FPG); Hemoglobin A1c (HbA1c); Mortality; Shapley Additive Explanations (SHAP); Systemic inflammation.

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Conflict of interest statement

Declarations. Ethics Approval and Consent to Participate: This research applied NHANES data and received approval from the NHANES Institutional Review Board/NCHS Research Ethics Review Board (Protocol #2011–17). **Consent for Publication:** Not applicable. **Competing interests:** The authors declare no competing interests.

- [23 references](#)
- [5 figures](#)

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10

J Asthma Allergy

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. 2025 May 26:18:817-826.

doi: 10.2147/JAA.S506835. eCollection 2025.

[Efficacy of Benralizumab in Reducing FeNO in Severe Eosinophilic Asthma: The Role of CRSwNP](#)

[Juan Luis Garcia-Rivero](#)^{1,2}, [Beatriz Abascal-Bolado](#)¹, [Nieves Aranda Sobrino](#)², [Cristina Ghadban Garrido](#)²

Affiliations Expand

- PMID: 40454227
- PMCID: [PMC12124311](#)
- DOI: [10.2147/JAA.S506835](#)

Abstract

Background: Benralizumab, targeting the IL-5 receptor, reduces exacerbations and improves lung function in severe eosinophilic asthma. Data on its effect on fractional exhaled nitric oxide (FeNO), particularly in patients with and without chronic rhinosinusitis with nasal polyps (CRSwNP), are limited.

Objective: This study evaluates benralizumab's impact on FeNO levels in severe eosinophilic asthma, focusing on the presence of CRSwNP.

Methods: We retrospectively analyzed 43 patients with severe eosinophilic asthma treated with benralizumab. Patients were divided into CRSwNP (N=13) and non-CRSwNP (N=30) groups. Baseline characteristics, FeNO levels, FEV1, FVC, ACT scores, exacerbations, and oral corticosteroid (OCS) use were recorded at baseline, 3, 6, and 12 months.

Results: At baseline, FeNO levels were higher in CRSwNP patients than in non-CRSwNP (82.80 ppb vs 41.86 ppb, $P = 0.019$). Over 12 months, FeNO significantly decreased in CRSwNP patients (-29.69 ppb, $P = 0.036$) and remained stable in non-CRSwNP patients (+3.55 ppb, $P = 0.036$). Significant improvements were observed in FEV1 (0.59L vs 0.38L, $P = 0.017$) and ACT scores (6.46 vs 4.01, $P < 0.001$) in CRSwNP patients. Both groups showed a notable reduction in exacerbations, which was more pronounced in CRSwNP patients (-3.12 vs -3.60, $P < 0.001$). OCS withdrawal was achieved in 53.8% of CRSwNP patients and 43.3% of non-CRSwNP patients.

Conclusion: Benralizumab reduces FeNO levels and improves clinical outcomes in severe eosinophilic asthma, especially in patients with CRSwNP. Monitoring FeNO levels provides additional insights into treatment response, highlighting its potential role as a marker in specific patient subgroups.

Keywords: CRSwNP; FeNO; asthma management; benralizumab; biologic therapy; eosinophilic inflammation; severe eosinophilic asthma.

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Conflict of interest statement

The authors report no conflicts of interest in this work.

- [17 references](#)
- [4 figures](#)

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11

J Asthma Allergy

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. 2025 May 28:18:827-834.

doi: 10.2147/JAA.S513358. eCollection 2025.

[CARE: Combination of Acetylcysteine and Acebrophylline in Moderate to Severe Asthma and COPD Patients](#)

[Raja Dhar](#)¹, [Rakesh K Chawla](#)², [Moumita Rahaman](#)¹, [Aditya K Chawla](#)², [Gaurav Chaudhary](#)², [Ashutosh Gautam](#)³, [Rajat Singal](#)³

Affiliations Expand

- PMID: 40454226
- PMCID: [PMC12126983](#)
- DOI: [10.2147/JAA.S513358](#)

Abstract

Objective: To assess the efficacy and safety of the combination of N-acetylcysteine and acebrophylline (Combination named Abiways), in patients with moderate to severe COPD and Asthma.

Materials and methods: In this non-randomized, interventional, prospective, single-arm, post-marketing surveillance study, participants were administered Abiways as an add-on therapy for 90 days. The primary endpoint was Quality of Life, evaluated using the COPD Assessment Test (CAT) and Asthma Control Test (ACT) questionnaires. Secondary endpoints included mean FEV1 and FVC changes. Adverse events were recorded throughout the study.

Results: 97 (of 102 subjects enrolled) completed the study (76 COPD and 21 Asthma patients, respectively; mean age 57.9 ± 8.1 years; 33 females, 64 males). Overall, FEV1 improved significantly from 1.287L to 1.484L ($p < 0.001$) with similar statistical improvements in COPD (1.237 L to 1.414 L; $p = 0.001$) and asthma (1.477 L to 1.747 L; $p = 0.004$) subpopulations. COPD patients showed statistically significant improvements in CAT scores (17.2 ± 1.0 to 10.6 ± 0.9 , $p = 0.0001$); however, such significance was not observed in the ACT scores for asthma patients. FVC remained unchanged in all subgroups. No severe adverse events were reported.

Conclusion: The combination of N-acetylcysteine and acebrophylline improves QoL in moderate to severe COPD patients and FEV1 in both COPD and asthma patients with a favorable safety and tolerability profile. The combination appears safe and effective for managing obstructive airway disease.

Keywords: Abiways; CAT score; COPD; FEV1; N-acetylcysteine; acebrophylline; asthma.

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Conflict of interest statement

The authors report no conflicts of interest in this work.

- [30 references](#)
- [3 figures](#)

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12

Review

Expert Rev Clin Immunol

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. 2025 Jun 1.

doi: 10.1080/1744666X.2025.2514607. Online ahead of print.

[The interplay between asthma and type 2 diabetes mellitus: mutual interactions and therapeutic implications](#)

[Mario Cazzola](#)¹, [Nicola A Hanania](#)², [Clive P Page](#)³, [Luigino Calzetta](#)⁴, [Maria Gabriella Matera](#)⁵, [Paola Rogliani](#)¹

Affiliations Expand

- PMID: 40452109
- DOI: [10.1080/1744666X.2025.2514607](https://doi.org/10.1080/1744666X.2025.2514607)

Abstract

Introduction: Asthma and type 2 diabetes mellitus (T2DM) are chronic diseases with a significant global health burden. Recent studies have highlighted the complex relationship between these two diseases, particularly regarding their pharmacological management.

Areas covered: This review discusses the mechanisms linking asthma and T2DM and the interactions between asthma and T2DM therapies, highlighting the potential clinical implications. We examine the effects of asthma medications on glycemic control and diabetes management and review the effects of commonly used T2DM medications on outcomes in patients with asthma.

Expert opinion: The effective management of asthma and T2DM requires a comprehensive appreciation of the beneficial and adverse pharmacological effects of drugs used in the treatment of asthma on glucose metabolism. It is also essential to consider the potential benefits of diabetes treatments on respiratory health and the impact of obesity on both diseases. Such knowledge can facilitate the optimization of drug plans and the minimization of adverse effects, while exploiting potential synergies between treatments for these diseases. However, to improve understanding of the complex mechanisms underlying the interaction between these chronic diseases, further research using a comprehensive approach that includes inflammatory pathways, metabolic factors, therapeutic interventions, gender differences, and lifestyle influences is needed.

Keywords: Asthma; hyperglycemia; inflammation; pharmacological interferences; type 2 diabetes mellitus.

Supplementary info

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13

J Allergy Clin Immunol Pract

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. 2025 May 30:S2213-2198(25)00504-5.

doi: 10.1016/j.jaip.2025.05.039. Online ahead of print.

[A FRAMEWORK TO DEFINE AN OCCASION OF ASTHMA RELIEVER INHALER USE](#)

[Jonathan Noble](#)¹, [Orlagh Bean](#)², [Ross Sayers](#)², [Ryan Cullen](#)², [Louis Kirton](#)³, [Allie Eathorne](#)², [Mark Weatherall](#)⁴, [Richard Beasley](#)³

Affiliations Expand

- PMID: 40451608
- DOI: [10.1016/j.jaip.2025.05.039](#)

No abstract available

Keywords: Asthma; asthma control; electronic inhaler monitoring; patterns of reliever inhaler use.

Full text links



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Book**[Exercise-Induced Bronchoconstriction](#)****[Jennifer Goldin](#)¹, [Paul J. Bruner](#)²****In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan. 2025 Jun 2.****Affiliations Expand**

- PMID: 32491486
- Bookshelf ID: [NBK557554](#)

Free Books & Documents**Excerpt**

Exercise-induced bronchoconstriction (EIB) refers to narrowing of the airways during or shortly after physical activity. While exercise is a common trigger of bronchoconstriction in individuals with asthma, EIB is also seen in up to 20% of individuals without a formal asthma diagnosis. Despite the well-documented health benefits of regular physical activity, individuals with EIB may avoid exercise due to shortness of breath, coughing, chest tightness, and wheezing. This avoidance, particularly among adolescents, can lead to social isolation, obesity, and overall poor health.

Paradoxically, regular exercise can reduce the severity of EIB, improve lung function, and decrease airway inflammation in affected individuals. This improvement is often attributed to better overall conditioning and adaptations in the respiratory system that occur with consistent physical activity. Early recognition and diagnosis, confirmed by changes in lung function during or after exercise, and appropriate treatment can significantly improve quality of life, allowing individuals with EIB to remain active, including participation in elite-level sports.

Indirect testing, which is more specific for EIB, can involve aerobic exercise in a controlled environment with cold, dry air, as these conditions are known to precipitate EIB in susceptible individuals. Alternatives to exercise testing include eucapnic voluntary hyperpnea and airway provocation tests, such as methacholine, hyperosmolar saline, or mannitol, which induce EIB by dehydrating the respiratory epithelium. The sensitivity and specificity of these methods are not well established and may vary by laboratory.

Management strategies include nonpharmacological interventions, such as improving cardiovascular fitness, performing warm-up exercises, minimizing exposure to cold, dry air, pollutants, and allergens, and pharmacological treatments. Common medications, including short-acting β -agonists (SABAs), inhaled corticosteroids (ICSs), leukotriene receptor antagonists (LTRAs), and mast

cell stabilizers (MCSAs), target the underlying pathophysiology of EIB and are generally well-tolerated, with minimal adverse events.

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Conflict of interest statement

Disclosure: Jennifer Goldin declares no relevant financial relationships with ineligible companies.

Disclosure: Paul Bruner declares no relevant financial relationships with ineligible companies.

- [37 references](#)

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Review

J Allergy Clin Immunol

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. 2025 May 28:S0091-6749(25)00611-6.

doi: 10.1016/j.jaci.2025.05.017. Online ahead of print.

[Neural Control of the Pathophysiology of Allergic Airway Disease and Its Clinical Implications: A Focus on Allergic Rhinitis and Asthma](#)

[Zhang-Fu Fang](#)¹, [Yu Fu](#)², [Fang Yi](#)², [Zhe Chen](#)³, [Ya-Zhe Li](#)², [Zhao-Ni Wang](#)², [Jian-Yang Dong](#)⁴, [Ping-Chang Yang](#)⁵, [Damo Xu](#)⁵, [Xiao-Yu Liu](#)⁶, [Jia-Xing Xie](#)⁷

Affiliations Expand

- PMID: 40447196
- DOI: [10.1016/j.jaci.2025.05.017](https://doi.org/10.1016/j.jaci.2025.05.017)

Abstract

Dysregulation of neuronal control of the upper and lower airways plays an important role in the pathogenesis of common allergic airway diseases, such as allergic rhinitis (AR) and asthma. Peripheral nervous system has been shown to regulate innate and adaptive immune responses by releasing neuropeptides and neurotransmitters in both the upper and lower airways. In addition, various airway nociceptors have been shown to mediate immune-inflammatory responses and influence type 2 immunity in patients with AR and asthma. Emerging evidence has suggested that pathophysiologic alterations in AR and asthma, such as mucosal inflammation, coughing, and upper and lower airway hyperreactivity, can be regulated by the nervous system. Targeting neural pathways has emerged as a promising strategy for achieving beneficial clinical efficacy in patients with AR and asthma. Understanding how neural control of the pathophysiology of allergic airway diseases will have significant implications for future translational studies. This review updates and highlights recent progress in research on the neural control of disease pathophysiology of AR and asthma and discusses clinical implications for future studies.

Keywords: Airway hyperreactivity; Allergic rhinitis; Asthma; Immune-inflammatory response; Nociceptor; Pathophysiology; Peripheral nervous system.

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J Allergy Clin Immunol Pract

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. 2025 May 28:S2213-2198(25)00497-0.

doi: 10.1016/j.jaip.2025.05.032. Online ahead of print.

[Uncovering Treatable Traits in Severe Asthma: The Role of Cardiopulmonary Exercise Testing](#)

[Thibaud Soumagne](#)¹, [Gilles Garcia](#)², [Justine Frija](#)³, [Cécile Chenivresse](#)⁴, [Thierry Perez](#)⁴, [Laurent Plantier](#)⁵, [Marc Humbert](#)⁶, [Pierantonio Laveneziana](#)⁷, [Antoine Beurnier](#)⁸, [Camille Taillé](#)⁹, [Bruno Degano](#)¹⁰

Affiliations Expand

- PMID: 40447050
- DOI: [10.1016/j.jaip.2025.05.032](#)

No abstract available

Keywords: CPET; asthma; treatable traits.

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J Asthma

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. 2025 Jun 4:1-5.

doi: 10.1080/02770903.2025.2513056. Online ahead of print.

[Management of asthma exacerbations in pediatric emergency departments across the United States](#)

[Melisa S Tanverdi](#)¹, [Isabella Zaniletti](#)², [Nidhya Navanandan](#)¹, [Isabel Hardee](#)³, [Andrew H Liu](#)⁴, [Rakesh D Mistry](#)⁵

Affiliations Expand

- PMID: 40445144
- DOI: [10.1080/02770903.2025.2513056](https://doi.org/10.1080/02770903.2025.2513056)

Abstract

Objectives: There are 750,000 emergency department (ED) visits by children for asthma exacerbations in the United States annually. Despite changing evidence and epidemiology, there have not been recent assessments of acute asthma prevalence, management, and outcomes from pediatric EDs. This 40-center retrospective evaluation utilizes the Pediatric Hospital Information System to characterize pediatric ED asthma presentations from 2015-2020.

Study design: Children 2-18 years with asthma ICD-9/10 code and receipt of albuterol were included. Demographics, Child Opportunity Index (COI), ED management, return visits, and adjusted costs were evaluated. Data were summarized using standard descriptive statistics and trends assessed using Mann-Kendall trend test.

Results: There were 414,264 encounters made by 256,209 unique patients; 21% had >1 visit in 12 months. Median age was 6 years, 61.6% male, 44.5% Black, and 68.5% publicly insured; 58.3% of visits were by patients with very low/low COI. Systemic corticosteroids were administered in 86.3% of visits; 52.7% used dexamethasone. Chest radiographs were obtained in 23% of encounters. Most (74.9%) encounters resulted in ED discharge with a downward trend of visits for exacerbations per 1,000 ED visits of -9.77, 95% CI [-9.99,-9.54], increase in disposition to intensive care unit of 2.01 [1.87,2.41] and decrease in home/other of -3.77 [-4.34,-3.20]. There was no significant trend in return visits. Total adjusted costs were ~\$900 million.

Conclusions: ED visits for asthma remain frequent and disproportionately affect children with lower social determinants of health. Dexamethasone has not been widely adopted as corticosteroid of choice and use of ancillary testing continues, highlighting opportunities for improvement in asthma care.

Keywords: Children; database; demographics; disposition; multicenter; testing; treatment.

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BMC Pulm Med

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. 2025 May 29;25(1):269.

doi: 10.1186/s12890-025-03701-1.

[Neutrophil percentage-to-albumin ratio \(NPAR\) as a biomarker for asthma: a cross-sectional analysis of NHANES data](#)

[Lingge Bi](#)¹, [Jinguang Liang](#)¹, [Kai Hu](#)²

Affiliations Expand

- PMID: 40442659
- PMCID: [PMC12121271](#)
- DOI: [10.1186/s12890-025-03701-1](#)

Abstract

Objective: This study aimed to assess the neutrophil percentage-to-albumin ratio (NPAR) as a potential biomarker for asthma risk and to explore its association with asthma incidence in a nationally representative adult population.

Methods: We analyzed cross-sectional data from 17,800 adults in the National Health and Nutrition Examination Survey (NHANES 2009-2018). NPAR was calculated as the ratio of neutrophil percentage to serum albumin concentration. Multivariable logistic regression models adjusted for demographic, socioeconomic, clinical, and laboratory covariates were employed to assess NPAR-asthma associations. Missing data were addressed via multiple imputations, and model performance was evaluated using receiver operating characteristic (ROC) curves with bootstrap validation. Restricted cubic splines analyzed non-linear relationships, while subgroup analyses tested effect heterogeneity across demographic and clinical strata. Sensitivity analyses compared complete-case and imputed datasets.

Results: Elevated NPAR levels were strongly associated with increased asthma risk. In fully adjusted models, each one-unit increase in NPAR corresponded to a 2.6% rise in asthma prevalence (adjusted OR = 1.026, 95% CI: 1.008-1.045, P = 0.0046). ROC curve analysis demonstrated an AUC of 0.699 for NPAR in predicting asthma. Subgroup analyses revealed effect modification by sex, race, and cardiovascular disease history, though interaction terms did not meet Bonferroni-adjusted significance thresholds. Restricted cubic spline analyses indicated a U-shaped dose-response relationship, with minimal risk observed at NPAR values of 12-15,

suggesting dual pathological mechanisms: oxidative stress susceptibility at lower NPAR values and neutrophilic inflammation dominance at higher values.

Conclusion: This study provides the first epidemiological evidence supporting NPAR as an independent biomarker for asthma risk. The U-shaped association highlights the complex interplay between systemic inflammation and oxidative stress in asthma pathogenesis. While NPAR offers a cost-effective and accessible tool for risk stratification, its moderate predictive performance underscores the need for complementary biomarkers to enhance clinical utility. Future research should integrate serial NPAR measurements and multi-omics profiling to validate its role in asthma management.

Keywords: Asthma; Biomarker; Chronic inflammation; NHANES study; Neutrophil percentage-to-albumin ratio.

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Conflict of interest statement

Declarations. Ethics approval and consent to participate: Data analyzed in the observational study were obtained from the NHANES. The survey protocol was approved by the Institutional Review Board of NCHS, and all participants provided written informed consent. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

- [33 references](#)
- [4 figures](#)

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Respir Med

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. 2025 May 27:108180.

doi: 10.1016/j.rmed.2025.108180. Online ahead of print.

[Characterizing the preserved ratio impaired spirometry phenotype in all severities of asthma](#)

[Marcello Cottini](#)¹, [Remo Poto](#)², [Atanu Bhattacharjee](#)³, [Stanley Galant](#)⁴, [Brian Lipworth](#)⁵, [Erol A Gaillard](#)⁶, [Robert Greig](#)⁵, [Alvise Berti](#)⁷, [Carlo Lombardi](#)⁸, [Francesco Menzella](#)⁹, [Laura Ventura](#)¹⁰, [Pasquale Comberiati](#)¹¹, [Rory Chan](#)¹²

Affiliations Expand

- PMID: 40441497
- DOI: [10.1016/j.rmed.2025.108180](https://doi.org/10.1016/j.rmed.2025.108180)

Free article

Abstract

Introduction: The preserved ratio impaired spirometry (PRISm) phenotype is characterized by a maintained FEV₁/FVC ratio ≥ 70 but an abnormal FEV₁ $< 80\%$ predicted. Small airways dysfunction (SAD) is common amongst asthmatics and is associated with poorer clinical outcomes. SAD can be assessed using oscillometry as resistance between 5 and 20Hz (Rrs5-20), reactance at 5Hz (X5) and area under the reactance curve (AX). We aimed to investigate the prevalence of PRISm and its relationship with SAD in all severities of asthma with the primary outcome of annual exacerbation rate.

Methods: Data from the Oscillometry Asthma Registry comprising 937 adults with GINA-defined persistent asthma were retrospectively collected from two specialized asthma centres in UK and Italy. Multivariate analyses were performed using binary logistic regression to obtain adjusted odds ratios for the association between PRISm and exacerbation frequency and symptom control.

Results: PRISm had a 19.6% prevalence in moderate-to-severe asthma and was associated with a greater likelihood of ≥ 1 exacerbation [OR 95%CI 3.00 (1.80,5.00) $p < 0.001$], ≥ 2 exacerbations [4.00 (1.86,8.59) $p < 0.001$] and uncontrolled symptoms [14.04 (4.87,40.50) $p < 0.001$] compared to patients with normal spirometry. Conversely, patients with PRISm were prescribed significantly lower ICS doses and had fewer exacerbations compared to those with airway obstruction.

Conclusion: The PRISm asthma phenotype is associated with greater exacerbation frequency, poorer symptom control and a higher SAD prevalence compared to patients with normal spirometry. Future research should focus on longitudinal follow-up to confirm the progression of PRISm to obstructive patterns and assess potential therapeutic interventions to modify this trajectory.

Keywords: asthma; exacerbations; oscillometry; preserved ratio impaired spirometry; small airways.

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Conflict of interest statement

Declaration of Competing Interest ☑The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:MC reports personal fees (talks) from Chiesi, Menarini, GSK, and support attending meetings from Chiesi.RP reports personal fees (talks) from AstraZeneca.BL reports grants, personal fees (consulting, talks and advisory board), other support (attending ATS and ERS) from AstraZeneca; grants, personal fees (talks and consulting) from Sanofi/Regeneron, personal fees (consulting, talks and advisory board) from NIOX in relation to the submitted work; grants, personal fees (consulting, talks, advisory board), other support (attending ERS) from Teva, personal fees (talks and consulting), grants and other support (attending ERS and BTS) from Chiesi, personal fees (consulting and talks) from Lupin, personal fees (consulting) from Glenmark, personal fees (consulting, talks, advisory board), other support (attending BTS) from Boehringer Ingelheim; and the son of BL is presently an employee of AstraZeneca.RG reports personal fees (talks) from AstraZeneca.SG reports no conflicts of interest.EAG has received institutional grants from Gilead, Circassia, Chiesi, Propellar Health, Helicon Health, Adherium Ltd, and AstraZeneca, and personal fees from Circassia and SanofiAlvise Berti reports grants, personal fees (consulting, talks and advisory board) from GSK and Vifor.PC reports no conflicts of interest.CL reports no conflicts of interest.FM reports no conflicts of interest.LV reports no conflicts of interest.Atanu Bhattacharjee reports no conflicts of interest.RC reports institutional grants from Chiesi, AstraZeneca and GlaxoSmithKline to Chair the Scottish Airways Research Network; serving on an advisory board for AstraZeneca; personal fees (talks and drafting educational materials) from AstraZeneca; personal fees (talks) from Chiesi, personal fees (talks) from Thorasys and personal fees (drafting educational materials) from Vitalograph; and support attending meetings from AstraZeneca, Chiesi, NIOX, Sanofi-Regeneron and Vitalograph.

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JMIR Res Protoc

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. 2025 May 29:14:e67195.

doi: 10.2196/67195.

[Validating a Patient-Reported Outcome Measure to Improve Emergency Department Asthma Care: Protocol for an Observational Study](#)

[Michelle P Lin](#)¹, [Lauren Gordon](#)¹, [Lynne D Richardson](#)¹

Affiliations Expand

- PMID: 40440691
- DOI: [10.2196/67195](#)

Free article

Abstract

Background: Asthma affects 1 in every 12 persons in the United States, resulting in 1.9 million emergency department (ED) visits annually. However, the lack of patient-reported outcome measures (PROMs) validated for use in the ED limits the evaluation of interventions to improve ED asthma care.

Objective: To address this knowledge gap, this study protocol will (1) develop and test the validity and reliability of the Patient Reported Outcomes for Acute Asthma Care and Treatment instrument (PROAACT), (2) test whether receiving more guideline-concordant ED care is associated with improved PROAACT responses, and (3) evaluate the association between PROAACT score and subsequent ED revisits and hospitalizations.

Methods: This is a prospective cohort study of adult patients visiting the ED for acute asthma exacerbation across 3 EDs at an urban, tertiary care health system. Eligible patients are 18 years or older, have a prior diagnosis of asthma (self-reported or documented in the electronic health record), are English-speaking, and experiencing an ED visit for asthma exacerbation as determined by the treating clinician. Enrolled participants complete an initial PROM survey during their ED visit assessing their symptoms in the preceding 7 days, then complete a follow-up survey 7 days after ED discharge assessing changes in the symptoms in the subsequent 7 days. To test whether guideline-concordant care is associated with improved PROAACT scores, we will conduct a retrospective chart review of medications ordered during the ED visit, and then compare guideline adherence to changes in PROAACT scores. To test whether improved PROAACT scores are associated with fewer return ED visits and hospitalizations, we will extract all-cause ED visits and hospitalizations within 30 days from a regional health information exchange, and then compare usage to changes in PROAACT scores. We will use item response theory to develop scale responses based on summed item responses, which will allow us to test associations with clinical outcomes, including adherence to guideline-recommended care and return ED visits and hospitalizations.

Results: Recruitment is ongoing and has experienced numerous challenges related to the COVID-19 pandemic. To date, we have enrolled over 250 participants and have completed over 200 follow-ups. Recruitment is expected to conclude in spring 2025.

Conclusions: Our study is intended to validate the use of PROMs during ED visits for acute asthma exacerbation among adult patients. Completion of the proposed aims will result in one of the first PROMs intended for use among adult ED patients and support the feasibility of collecting PROMs in the ED setting.

Trial registration: Clinical Trials.gov [NCT04349020](https://clinicaltrials.gov/study/NCT04349020);
<https://clinicaltrials.gov/study/NCT04349020>.

International registered report identifier (irrid): DERR1-10.2196/67195.

Keywords: asthma; emergency care; patient-reported outcomes.

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Supplementary info

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Review

Mol Biol Rep

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. 2025 May 29;52(1):513.

doi: 10.1007/s11033-025-10625-w.

[A review of recent advances in gene therapy, pharmacogenomics, and genetic polymorphisms in asthma](#)

[Radhwan Abdul Kareem](#)¹, [Hayder Naji Sameer](#)², [Ahmed Yaseen](#)³, [Zainab H Athab](#)⁴, [Mohaned Adil](#)⁵, [Hanan Hassan Ahmed](#)⁶

Affiliations Expand

- PMID: 40439783

- DOI: [10.1007/s11033-025-10625-w](https://doi.org/10.1007/s11033-025-10625-w)

Abstract

Several hereditary and environmental variables contribute to an individual's susceptibility to developing asthma. The pathophysiologic underpinnings of asthma are becoming better understood by ongoing genetic investigations. Most risk factors are differences in one or two base pairs or single-nucleotide polymorphisms (SNPs). Moreover, pharmacogenetics is a significant area of study in asthma genetics; this branch of the field examines the interplay between genes and environmental factors, with pharmacologic medication exposure serving as the environmental factor and phenotypic change as the result of interest. Asthma is an obvious candidate for gene therapy (GT) because of the disease's accessibility and the shortcomings of existing treatments. The functional effect of polymorphisms linked with asthma and their translation into disease-relevant pathways have been obfuscated since almost all of these variations are located in non-coding genomic areas. Repurposing current asthma medications and developing novel therapies may be possible with the help of genomics-guided identification of potential therapeutic targets for the condition. Further research using genomics data and tools to map and identify the relevant gene(s) and phenotype-specific SNPs is needed to understand better the processes involved in asthma's etiology and use pharmacogenomics to develop better medications for tailored treatment plans. This study uses fresh research to investigate the link between heredity and asthma. This research aimed to examine the impact of pharmacogenetic variables and gene therapies on the responsiveness to asthma therapy.

Keywords: Asthma; Gene therapy; Genetic polymorphisms; Pharmacogenomics.

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Conflict of interest statement

Declarations. Ethics approval and consent to participate: Not applicable. Consent for publication: All authors are consent to the publication. Competing interests: The authors declare no competing interests.

- [121 references](#)

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Review

Respirology

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. 2025 May 28.

doi: 10.1111/resp.70062. Online ahead of print.

[Contemporary Concise Review 2024: Chronic Obstructive Pulmonary Disease](#)

[Sarita Thawanaphong](#)^{1,2,3}, [Parameswaran Nair](#)^{1,2}

Affiliations Expand

- PMID: 40437348
- DOI: [10.1111/resp.70062](https://doi.org/10.1111/resp.70062)

Abstract

Non-smoking COPD is common in LMICs, especially in women. Biomass fuel and air pollution are major risk factors with distinct pathophysiology. The 'eosinophilic' endotype in COPD is biologically distinct from asthma. PRISm, FEV₁/FVC Z-scores, and quantitative CT improve early COPD detection. Dupilumab (anti-IL-4/IL-13) improved exacerbations and lung function in COPD with blood eosinophils ≥ 300 cells/ μ L. Mechanisms are currently being investigated. Smoking cessation remains pivotal. Nicotine metabolite ratio (NMR) can guide pharmacotherapy. Cytisine and varenicline are effective; e-cigarettes pose safety concerns. Mood disorders and dysfunctional breathing are common in COPD. Addressing these can reduce symptom burden and improve quality of life. Comorbidity management, particularly of cardiovascular risk, obesity, and sleep-disordered breathing, is integral to holistic COPD care.

Keywords: COPD investigations; COPD treatment; airway inflammation; non-smoking COPD; recent advances in COPD.

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J Allergy Clin Immunol Pract

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. 2025 May 26:S2213-2198(25)00496-9.

doi: 10.1016/j.jaip.2025.05.031. Online ahead of print.

[How to adjust asthma management once asthma is controlled on long term biologic therapy](#)

[Michael E Wechsler](#)¹, [David J Jackson](#)², [Wendy C Moore](#)³, [Monica Kraft](#)⁴

Affiliations Expand

- PMID: 40436142
- DOI: [10.1016/j.jaip.2025.05.031](https://doi.org/10.1016/j.jaip.2025.05.031)

Abstract

Monoclonal antibodies that target IgE, IL5 or the IL5 receptor, the IL4 receptor alpha, or TSLP, have improved outcomes, reducing exacerbations, minimizing symptoms, improving lung function, and facilitating corticosteroid withdrawal. While it is even possible to achieve remission with these biologics, many patients inquire about the feasibility of discontinuing their biologic, their inhalers, or consideration of alternative dosing strategies. In this commentary, we review available data regarding the safety and efficacy of different asthma medication management options once asthma is controlled on long-term biologic therapy. We evaluate stopping of biologics while continuing inhaler therapy, stopping background therapy while continuing biologics, reducing biologic dose, increasing biologic interval, and other strategies including seasonal administration of biologics. It is clear that many patients can safely adopt some of these approaches that will make their lives easier, and potentially less expensive for patient and payers. What is needed is more research to tell us who, when, and how to adopt these alternative regimens.

Keywords: asthma; biologics; dosing; remission; tapering.

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J Asthma

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. 2025 Jun 4:1-8.

doi: 10.1080/02770903.2025.2513053. Online ahead of print.

[Single-inhaler triple therapy improves small airway dysfunction in moderate to severe asthma and asthma-COPD overlap: a retrospective cohort study](#)

[Yumi Fujita](#)¹, [Toshihiro Shirai](#)¹, [Taisuke Akamatsu](#)¹, [Shogo Sakurai](#)¹

Affiliations Expand

- PMID: 40433997
- DOI: [10.1080/02770903.2025.2513053](https://doi.org/10.1080/02770903.2025.2513053)

Abstract

Background: Medium- or high-dose fluticasone furoate (FF)/vilanterol (VI)/umeclidinium (UMEC) is associated with an improvement in forced expiratory volume in one second (FEV1), a marker of large airway dysfunction. However, the effect of FF/VI/UMEC on small airway dysfunction (SAD) remains unknown.

Objective: To clarify the effect of FF/VI/UMEC on SAD in moderate to severe asthma and asthma-chronic obstructive pulmonary disease overlap (ACO) in a retrospective cohort study.

Methods: Subjects included 18 moderate to severe asthma and ACO patients who switched from inhaled corticosteroid/long-acting- β 2 agonist (ICS/LABA) to FF/VI/UMEC. Asthma Control Test (ACT), Asthma Control Questionnaire (ACQ),

blood eosinophil counts, total IgE, fractional exhaled nitric oxide, spirometry, and oscillometry were measured and compared before and after FF/VI/UMEC treatment.

Results: Markers of SAD, including forced vital capacity (FVC), forced expiratory flow at 25-75% of FVC, respiratory system reactance at 5 Hz (X5), resonant frequency, and low-frequency reactance area (AX), improved significantly after the induction of SITT, in addition to ACT, ACQ, FEV1, and FEV1/FVC. Improvements in FEV1, X5, and AX correlated with improvements in ACT, and improvements in FEV1 and FEV1/FVC correlated with improvements in ACQ.

Conclusion: FF/VI/UMEC improved SAD, and its improvement was correlated with improved asthma control in moderate to severe asthma and ACO patients.

Keywords: Asthma; asthma-COPD overlap; oscillometry; single-inhaler triple therapy; small airway dysfunction.

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Int Ophthalmol

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. 2025 May 27;45(1):211.

doi: 10.1007/s10792-025-03586-3.

[Childhood asthma, inhaled corticosteroid exposure, and risk of cataract in adulthood: a register-based study](#)

[Osman Savran](#)^{1,2}, [Daniella Bach-Holm](#)^{3,4}, [Jens Christian Nørregaard](#)⁵, [Line Kessel](#)^{3,4}, [Charlotte Suppli Ulrik](#)^{6,4}

Affiliations Expand

- PMID: 40423836
- PMCID: [PMC12116720](#)

- DOI: [10.1007/s10792-025-03586-3](https://doi.org/10.1007/s10792-025-03586-3)

Abstract

Background: Cataract is the leading cause of blindness worldwide, with corticosteroid treatment being a known risk factor. The long-term impact of childhood asthma and, particularly, inhaled corticosteroid (ICS) use in adulthood on cataract development remains unclear.

Methods: This register-based study investigated the prevalence and risk of cataract in Danish adults diagnosed with childhood asthma who, between 1950 and 1979, spent four months at an asthma care facility in Kongsberg, Norway. Follow-up was conducted in 2021 using Danish national health registries (2006-2018). These individuals were compared to an age- and sex-matched control group with no history of obstructive airway disease. Participants were stratified by ICS treatment duration and daily dose. Conditional logistic regression was used to assess associations.

Results: The study included 1394 adults with childhood asthma and 1394 controls (mean age 63 years; 43% female). Cataract prevalence was 6.1% in the childhood asthma cohort versus 4.3% in controls ($p = 0.03$). Compared to controls, individuals with childhood asthma had increased odds of cataract (OR 1.47, 95% CI 1.04-2.08, $p = 0.03$). Among those treated with ICS, the odds were higher (OR 1.75, 95% CI 1.19-2.57, $p < 0.01$), with the risk increasing in proportion to ICS dose and treatment duration. No significant difference in cataract risk was found between individuals with childhood asthma who did not receive ICS and controls (OR 1.12, 95% CI 0.69-1.79, $p = 0.65$).

Conclusions: Childhood asthma diagnosis alone was not associated with increased cataract risk. However, among those treated with ICS in adulthood, there was a significantly elevated risk, which increased with higher doses and longer treatment durations.

Keywords: Cataract risk; Childhood asthma; Dose–response; Inhaled corticosteroids; Long-term effects; Registry-based study.

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Conflict of interest statement

Declarations. Conflict of interest: The authors declare no competing interests.

Ethics approval and consent to participate: This study was a registry-based study. All methods were carried out in accordance with relevant guidelines and regulations. The study was approved by the Knowledge Center for Data Reviews, part of the Danish Data Protection Agency (H-2020-1064) in the capital region of Denmark. **Consent for publication:** Not applicable.

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- [1 figure](#)

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Review

Respirology

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. 2025 Jun;30(6):466-479.

doi: 10.1111/resp.70047. Epub 2025 May 23.

[Unlocking Asthma Remission: Key Insights From an Expert Roundtable Discussion](#)

[Dennis Thomas](#)^{1,2}, [Hayley Lewthwaite](#)^{1,2}, [Peter G Gibson](#)^{1,2,3}, [Eleanor Majellano](#)^{1,2}, [Vanessa Clark](#)^{1,2}, [Michael Fricker](#)^{1,2}, [Yuto Hamada](#)^{1,2,4}, [Gary P Anderson](#)⁵, [Vibeke Backer](#)⁶, [Philip Bardin](#)⁷, [Richard Beasley](#)⁸, [Jimmy Chien](#)^{9,10}, [Claude S Farah](#)^{10,11,12}, [John Harrington](#)^{1,3}, [Erin Harvey](#)^{1,2,3}, [Mark Hew](#)^{13,14}, [Anne E Holland](#)^{15,16,17}, [Christine Jenkins](#)^{10,11}, [Constance H Katelaris](#)^{18,19}, [Gregory Katsoulotos](#)^{20,21,22}, [Kirsty Murray](#)^{1,2}, [Matthew Peters](#)^{11,12}, [Rejoy Thomas](#)^{1,2}, [Katrina Tonga](#)^{9,10}, [John W Upham](#)^{23,24}, [Peter Wark](#)^{1,2,15,25}, [Vanessa M McDonald](#)^{1,2,3}

Affiliations Expand

- PMID: 40407301
- PMCID: [PMC12128732](#)
- DOI: [10.1111/resp.70047](#)

Abstract

Treatment targets in severe asthma have evolved towards a remission-focused paradigm guided by precision medicine. This novel concept requires a shift from

evaluating the efficacy of therapies based on a single outcome at a single time point to an outcome that captures the complexity of asthma remission involving several domains assessed over a sustained period. Since the concept is still emerging, multiple definitions have been proposed, ranging from symptom control and exacerbation-free to resolution of underlying pathobiology, with varying rigour in each parameter. Understanding the strengths and weaknesses of the current construct is needed to progress further. We conducted a roundtable discussion with 27 asthma experts to address this issue, and discussions were narratively synthesised and summarised. The participants observed that between one in three and one in five people treated with targeted biological therapies or macrolides experience low disease activity over a sustained period. They unanimously agreed that labelling the attained clinical state as clinical remission is useful as a clinical (e.g., facilitating a treat-to-target approach), policy (e.g., widening eligibility criteria for biologics), and scientific (e.g., a path to understanding cure) tool. Current remission rates vary significantly due to definition variability. When assessing remission, it is essential to consider confounding factors (e.g., steroid use for adrenal insufficiency). More research is required to reach an acceptable definition, and including the patient's voice in such research is essential. In conclusion, the concept of treatment-induced clinical remission is possible and valuable in asthma. However, further refinement of the definition is required.

Keywords: asthma; remission; roundtable.

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Conflict of interest statement

D. Thomas reports grants from GlaxoSmithKline, outside the submitted work. H. Lewthwaite reports consulting fees from Boehringer Ingelheim and shares in 4DMedical, outside the submitted work. P.G. Gibson reports personal fees for lectures from AstraZeneca, GlaxoSmithKline and Novartis, as well as grants from AstraZeneca and GlaxoSmithKline, outside the submitted work. E. Majellano has nothing to disclose. V. Clark has nothing to disclose. M. Fricker reports grants from GlaxoSmithKline, outside the submitted work. Y. Hamada reports personal fees from AstraZeneca and Kyorin, outside the submitted work. G. P. Anderson reports personal fees from AstraZeneca, GSK, ENA, RAGE Biotech, DevPro and Pieris Pharmaceuticals and research grants for RAGE Biotech, outside the submitted work. V. Backer has received personal fees from AstraZeneca, GSK, TEVA, Sanofi Genzyme, MSD, Chiesi, Boehringer-Ingelheim, Novartis, ALK-Abello, Mundipharma, BIRK NPC, Menarini and Pharmaxis, outside the submitted work. P. Bardin reports per patient trial participation fees from Monash Lung and Sleep, personal fees for advisory board work, outside the submitted work. R. Beasley received personal fees from AstraZeneca, Avillion, Cipla and Teva, and received institutional grants from AstraZeneca and Teva. J. Chien reports personal fees from GlaxoSmithKline, Novartis, AstraZeneca, Inari and Penumbra outside the submitted work. C. S. Farah reports personal fees from AstraZeneca, Chiesi Australia, GlaxoSmithKline, and Sanofi Genzyme, outside the submitted work. J. Harrington reports personal fees for education and advisory board work from AstraZeneca and GlaxoSmithKline, and personal fees for education from Novartis, outside the submitted work. E. S. Harvey reports grants from GlaxoSmithKline, outside the submitted work. M. Hew reports grants and personal fees from AstraZeneca, GlaxoSmithKline, and Novartis,

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- [4 figures](#)

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27

Review

Respir Care

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. 2025 Jun;70(6):700-708.

doi: 10.1089/respcare.12923. Epub 2025 May 12.

[Leveraging Telemedicine and Smartphones to Deliver Asthma Care](#)

[Tamara T Perry](#)¹

Affiliations Expand

- PMID: 40354159
- DOI: [10.1089/respcare.12923](#)

Abstract

Despite having established diagnostic and treatment guidelines as well as substantial medical advances over the past decades, including targeted biologic therapies, asthma remains a leading cause of health care utilization in the United States. Asthma affects 8% of the population. Individuals living in underserved communities and those who identify as underrepresented minorities have prevalence rates that far exceed national rates with African American and Puerto Rican children having prevalence rates of 20% or more. Children and adults living in underserved communities are also at high risk for poor outcomes such as increased symptoms, hospitalizations, and missed school/work. Asthma adds \$56 billion to overall health care expenditures in the United States annually. Access to high-quality asthma care remains a barrier to optimal outcomes for many patient populations, and asthma self-management programs have not been implemented on a large scale. Furthermore, opportunities for in-home visiting programs or remote patient monitoring have been largely restricted to grant or philanthropically funded programs. Telemedicine and smartphone applications offer potential solutions for these longstanding barriers to asthma care. These recent advances in technology offer opportunities to enhance traditional in-person models of health care and serve as viable solutions for improving access to hard-to-reach populations such as those who reside in rural and underserved communities. This narrative review aims to provide a summary on how clinicians can leverage technology such as telemedicine and smartphone applications to aid in the delivery of asthma care.

Keywords: asthma; mHealth; remote patient monitoring; smartphone application; telemedicine.

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28

Health Expect

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. 2025 Jun;28(3):e70285.

doi: 10.1111/hex.70285.

[Illness Expectations and Asthma Symptoms: A 6-Month Longitudinal Study](#)

[Eleonora Volpato](#)^{1,2,3}, [Valentina Poletti](#)^{1,2}, [Paolo Banfi](#)², [Andrea Bonanomi](#)⁴, [Francesco Pagnini](#)¹

Affiliations Expand

- PMID: 40325877
- PMCID: [PMC12053105](#)
- DOI: [10.1111/hex.70285](#)

Abstract

Background: After receiving a diagnosis, individuals often develop expectations about how their condition will evolve. This cognitive framework, known as 'Illness Expectations' (IEs), encompasses future-oriented beliefs regarding the course of the illness and its symptoms. In chronic conditions such as asthma, IEs may play a critical role in shaping patient-reported outcomes and clinical markers of disease progression. This study aims to empirically evaluate the impact of IEs on asthma symptoms and respiratory function.

Methods: A cohort of 310 individuals diagnosed with asthma was followed over a 6-month period, with three assessment points. Asthma control was measured using the Asthma Control Test (ACT), while respiratory function was evaluated through forced expiratory volume in 1 s (FEV₁) using spirometry. IEs were assessed using the validated 'Illness Expectation Test' (IET), which captures both explicit (conscious) and implicit (unconscious) expectations. Predictive analyses were conducted using latent growth modelling and linear regression to examine the influence of IEs on asthma symptoms and respiratory function over time.

Results: People with more negative explicit IEs about their asthma reported worse symptoms over time ($\beta = -0.50$, SE = 0.21, $p = 0.01$). Implicit IEs were not statistically significant ($\beta = -0.014$, SE = 0.008, $p = 0.09$). Explicit IEs about symptom progression

were also associated with changes in lung function, with more negative expectations predicting greater declines in respiratory performance ($\beta = 0.51$, SE = 0.11, $p = 0.001$).

Conclusions: These findings suggest that IEs may be meaningfully associated with asthma outcomes, highlighting their potential relevance in understanding patient experiences and symptom perception. These results support further research into interventions targeting cognitive frameworks, with the aim of informing more personalised, patient-centred approaches to asthma management.

Patient or public contribution: This study was developed in response to patient-reported challenges in asthma management, particularly around understanding and managing IEs. Patients contributed to identifying key areas of concern, and their perspectives informed the choice of outcomes and tools. While direct involvement in recruitment and dissemination was limited due to the pandemic, the study's design and focus were guided by patient priorities, with potential applications in clinical consultations and future co-designed interventions.

Keywords: adherence; asthma; beliefs; illness expectations; mind–body connection.

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Conflict of interest statement

Professor Francesco Pagnini reports grants from the Bial Foundation during the conduct of the study. The authors reported no other potential conflicts of interest for this study.

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- [4 figures](#)

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29

Pulm Ther

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. 2025 Jun;11(2):315-325.

doi: 10.1007/s41030-025-00294-2. Epub 2025 Apr 26.

[Tezepelumab can Restore Normal Lung Function in Patients with Severe, Uncontrolled Asthma: Pooled Results from the PATHWAY and NAVIGATOR Studies](#)

[Ian D Pavord](#)¹, [Christopher E Brightling](#)², [Stephanie Korn](#)³, [Nicole L Martin](#)⁴, [Sandhya S Ponnarambil](#)⁵, [Nestor A Molfino](#)⁶, [Jane R Parnes](#)⁷, [Christopher S Ambrose](#)⁸

Affiliations Expand

- PMID: 40285963
- PMCID: [PMC12102424](#)
- DOI: [10.1007/s41030-025-00294-2](#)

Abstract

Introduction: This post hoc analysis assessed the ability of tezepelumab treatment to restore normal lung function in patients with severe, uncontrolled asthma with abnormal lung function at baseline pooled from the PATHWAY and NAVIGATOR studies.

Methods: PATHWAY and NAVIGATOR were multicentre, randomized, double-blind, placebo-controlled studies. Patients (12-80 years old) included in this analysis received tezepelumab 210 mg subcutaneously every 4 weeks or matched placebo for 52 weeks. Patients had a percent predicted pre-bronchodilator (BD) forced expiratory volume in 1 s (FEV₁) of < 80% (< 90% for adolescents in NAVIGATOR) at screening. The change from baseline to week 52 in pre-BD FEV₁ was assessed by baseline percent predicted pre-BD FEV₁ subgroup [abnormal (< 80%) and normal (≥ 80%)]. The proportion of patients with abnormal lung function at baseline who achieved normal lung function at week 52 was assessed overall and by biomarker level and disease duration subgroups.

Results: Of the 665 and 669 patients who received tezepelumab or placebo, respectively, 564 and 569 had abnormal lung function at baseline. Tezepelumab improved the pre-BD FEV₁ from baseline to week 52 versus placebo by 0.14 L [95% confidence interval (CI) 0.09-0.19] and 0.13 L (95% CI 0.01-0.24) in patients with abnormal and normal lung function at baseline, respectively. A higher proportion of tezepelumab than placebo recipients with abnormal lung function at baseline achieved normal lung function at week 52 (17.2% vs. 9.9%, respectively). Among tezepelumab recipients, those with higher levels of type 2 inflammatory biomarkers and a shorter duration of disease at baseline were more likely to achieve normal lung function at week 52.

Conclusion: In patients with severe, uncontrolled asthma, a greater proportion of tezepelumab than placebo recipients with abnormal lung function at baseline achieved normal lung function at week 52.

Trial registration: PATHWAY: [NCT02054130](#); NAVIGATOR: [NCT03347279](#).

Keywords: Biologic; Lung function; Pre-bronchodilator percent predicted normal; Randomized placebo-controlled trial; Severe asthma; Tezepelumab.

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Conflict of interest statement

Declarations. Conflict of Interest: Ian D. Pavord has received speaker fees from Aerocrine AB, Almirall, AstraZeneca, Boehringer Ingelheim, Chiesi, GSK, Novartis, Regeneron Pharmaceuticals, Sanofi and Teva Pharmaceuticals; has received payments for organization of educational events from AstraZeneca, GSK, Regeneron Pharmaceuticals, Sanofi and Teva Pharmaceuticals; has received consultancy fees from Almirall, AstraZeneca, Boehringer Ingelheim, Chiesi, Circassia, Dey Pharma, Genentech, GSK, Knopp Biosciences, Merck, MSD, Napp Pharmaceuticals, Novartis, Regeneron Pharmaceuticals, RespiVert, Sanofi, Schering-Plough and Teva Pharmaceuticals; has received international scientific meeting sponsorship from AstraZeneca, Boehringer Ingelheim, Chiesi, GSK, Napp Pharmaceuticals, Regeneron Pharmaceuticals, Sanofi and Teva Pharmaceuticals; and has received a research grant from Chiesi. Christopher E. Brightling has received grants and consultancy fees from 4D Pharma, Areteia Therapeutics, AstraZeneca, Chiesi, Genentech, GSK, Global Access Diagnostics (formerly Mologic), Novartis, Regeneron Pharmaceuticals, Roche and Sanofi. Stephanie Korn has received fees for lectures and/or advisory board meetings from AstraZeneca, GSK, Novartis, Roche, Sanofi and Teva Pharmaceuticals. Nicole L. Martin, Sandhia S. Ponnarambil and Christopher S. Ambrose are employees of AstraZeneca and may own stock or stock options in AstraZeneca. Nestor A. Molfino and Jane R. Parnes are employees of Amgen and own stock in Amgen. **Ethical Approval:** This article is based on previously conducted studies and does not contain any new studies with human participants or animals performed by any of the authors. The original studies were conducted in accordance with the ethical principles of the Declaration of Helsinki, International Council for Harmonisation good clinical practice guidelines, and applicable regulatory requirements and consent was obtained from all study participants.

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30

DNA Cell Biol

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. 2025 Jun;44(6):294-303.

doi: 10.1089/dna.2024.0268. Epub 2025 Apr 24.

[Association Between MUC13 Gene Polymorphisms and Exacerbations of Asthma Under the Influence of Cigarette Smoking](#)

[Ji-Hong Bang¹](#), [Ji-Hye Son²](#), [Jong-Uk Lee³](#), [Min Kyung Kim³](#), [Seung-Lee Park¹](#), [Eun-Jeong Seo¹](#), [Jong-Sook Park³](#), [Hun Soo Chang^{1,2}](#), [Choon-Sik Park³](#)

Affiliations Expand

- PMID: 40273000
- DOI: [10.1089/dna.2024.0268](https://doi.org/10.1089/dna.2024.0268)

Abstract

Acute exacerbation of asthma is often characterized by increased mucus production and hypersecretion. While mucins are believed to play a role in the pathogenesis and pathophysiology of airway diseases, no genetic studies on mucin genes have been conducted to date. We initially analyzed a genome-wide association dataset of 608 asthmatics, focusing on mucin gene polymorphisms. Subsequently, we conducted fine genotyping of the MUC13 gene in a separate cohort of 704 bronchial asthma patients monitored for over a year. Using generalized linear models and multiple logistic regression analyses, we evaluated the genetic associations of single nucleotide polymorphisms (SNPs) with the frequency of annual exacerbations and the likelihood of frequent exacerbations. Among 105 SNPs in 14 mucin genes analyzed, *rs6765247* in *MUC13* showed the most significant association with annual asthma exacerbation frequency. Fine genotyping revealed that individuals homozygous for the minor allele of *rs6765247T>G* had significantly more annual exacerbations compared to those with the common allele (mean \pm SD; 0.94 ± 1.73 vs. 0.43 ± 1.02 and 0.35 ± 0.79 , $p = 0.001$). The frequency of minor allele homozygotes was 3.2 times higher in frequent exacerbators than in nonfrequent exacerbators. The associations were particularly significant in smokers (interaction $p = 0.009$). These findings indicate that *MUC13* is important in exacerbating asthma due to smoking and could be used as a marker to predict frequent exacerbations in smokers.

Keywords: MUC13; asthma; cigarette smoking; disease exacerbation; mucin; single nucleotide polymorphism.

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31

Am J Ind Med

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. 2025 Jun;68(6):516-530.

doi: 10.1002/ajim.23725. Epub 2025 Apr 23.

[Occupational Exposure Patterns to Disinfectants and Cleaning Products and Its Association With Asthma Among French Healthcare Workers](#)

[Bakari Ibrahim¹, Nicole Le Moual¹, Guillaume Sit¹, Marcel Goldberg², Bénédicte Leynaert¹, Céline Ribet², Nicolas Roche^{1,3}, Raphaëlle Varraso¹, Marie Zins², Rachel Nadif¹, Laurent Orsi¹, Orianne Dumas¹](#)

Affiliations Expand

- PMID: 40268382
- PMCID: [PMC12070147](#)
- DOI: [10.1002/ajim.23725](#)

Abstract

Background: Disinfectants and cleaning products (DCPs) are important asthma risk factors among healthcare workers. However, healthcare work involves heterogenous cleaning tasks and co-exposure to many chemicals. These multidimensional aspects have rarely been considered. We aimed to identify

patterns of occupational exposure to DCPs and study their associations with asthma.

Methods: CONSTANCES is a French population-based cohort of ≈220,000 adults. Current asthma and asthma symptom score were defined by questionnaire at inclusion (2012-2021). Healthcare workers completed a supplementary questionnaire on their current/last held occupation, workplace, and cleaning activities that were used in unsupervised learning algorithms to identify occupational exposure patterns. Logistic and negative binomial regression models, adjusted for potential confounders, were used to assess associations with asthma outcomes.

Results: In 5512 healthcare workers, four occupational exposure clusters were identified: Cluster1 (C1, 42%, reference), mainly characterized by low exposed nurses and physicians; C2 (7%), medical laboratory staff moderately exposed to common DCPs (chlorine/bleach, alcohol); C3 (41%), nursing assistants and nurses highly exposed to a few DCPs (mainly quaternary ammonium compounds); and C4 (10%), nurses and nursing assistants highly exposed to multiple DCPs (e.g., glutaraldehyde, hydrogen peroxide, and acids). Among women (n = 3734), C2 (mean score ratio [95% CI]: 1.31 [1.02; 1.68]) and C3 (1.18 [1.03; 1.36]) were associated with higher asthma symptom score, and an association was suggested between C3 and current asthma (odds ratio 1.22 [0.99; 1.51]).

Conclusion: In a large population of healthcare workers, four DCP exposure patterns were identified, reflecting the heterogeneity of healthcare jobs. Two patterns, including one characterized by laboratory workers, were associated with greater asthma symptoms in women.

Keywords: asthma; cleaning and disinfecting products; clustering; healthcare workers; occupational exposure.

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Conflict of interest statement

The authors declare no conflicts of interest.

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- [1 figure](#)

Supplementary info

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32

Review

Respir Care

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-
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. 2025 Jun;70(6):619-631.

doi: 10.1089/respcare.12543. Epub 2025 Apr 23.

[Diagnosing Asthma in Children](#)

[Shikha Saxena](#)¹, [Christian Rosas-Salazar](#)²

Affiliations Expand

- PMID: 40267168
- DOI: [10.1089/respcare.12543](https://doi.org/10.1089/respcare.12543)

Abstract

Despite being the most common chronic lung disease in children, asthma continues to be frequently misdiagnosed in the pediatric population. The recommendations to establish a diagnosis of asthma in school-aged children have evolved over time, but there are still important discrepancies between published guidelines. Furthermore, preschool-aged children are often unable to perform objective testing, so the diagnosis of asthma remains a clinical one in the first several years of life, and there is still debate on the criteria and nomenclature to be used in this age group. In this review, we first discuss the definition and misdiagnosis of asthma in children. We then assess and compare published guidelines that outline how to establish the diagnosis of asthma in school-aged children. We also discuss the necessary steps to diagnose preschool-aged children with this disease. Last, we outline unanswered questions and opportunities for research in this field.

Keywords: GINA; asthma; children; diagnosis; guidelines.

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33

Review

Adv Ther

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. 2025 Jun;42(6):2679-2689.

doi: 10.1007/s12325-025-03184-w. Epub 2025 Apr 22.

[Efficacy of Biologics in Reducing Exacerbations Requiring Hospitalization or an Emergency Department Visit in Patients with Moderate or Severe, Uncontrolled Asthma](#)

[Reynold A Panettieri Jr](#)¹, [Monica Kraft](#)², [Mario Castro](#)³, [Magdalena Bober](#)⁴, [Andrew W Lindsley](#)⁵, [Max Shelkrot](#)⁶, [Christopher S Ambrose](#)⁷

Affiliations Expand

- PMID: 40261563
- PMCID: [PMC12085395](#)
- DOI: [10.1007/s12325-025-03184-w](#)

Abstract

Introduction: Patients with moderate or severe, uncontrolled asthma are often prescribed biologic therapies to improve disease control and reduce asthma exacerbations. The efficacy of different biologics in reducing asthma exacerbations associated with hospitalization or an emergency department (ED) visit has varied across randomized controlled trials (RCTs). This study summarizes published US Food and Drug Administration-approved biologic efficacy data for exacerbations that required hospitalization or an ED visit in patients with moderate or severe, uncontrolled asthma.

Methods: A PubMed literature search (24 May 2024) identified phase 2b/3 RCTs of omalizumab, mepolizumab, reslizumab, benralizumab, dupilumab, or tezepelumab.

Annualized asthma exacerbation rate (AAER) ratios for exacerbations that required hospitalization or an ED visit, or hospitalization regardless of an ED visit, were extracted. A pooled efficacy estimate of the AAER ratio for exacerbations that required hospitalization or an ED visit across the RCTs was assessed using a meta-analysis based on a random effects model. The percentage of total variation across all included RCTs that was due to heterogeneity was calculated (I^2).

Results: Among 308 articles identified, nine publications describing 10 RCTs reported relevant AAER ratio data. No suitable omalizumab data were identified. In all trials, biologic treatment showed a reduction versus placebo in the AAER for exacerbations that required hospitalization or an ED visit, except in one of two benralizumab studies and both reslizumab studies. The pooled efficacy estimate showed a 56% reduction (95% CI 37-69) in the AAER for exacerbations requiring hospitalization or an ED visit (I^2 , 59.93%; $p = 0.0075$). One of three mepolizumab trials and both tezepelumab trials showed a reduction versus placebo in the AAER for exacerbations that required hospitalization regardless of an ED visit.

Conclusion: These findings suggest that there may be differential effects of biologics in reducing exacerbations that require hospitalization or an ED visit in patients with moderate or severe, uncontrolled asthma.

Keywords: Biologic; Efficacy; Emergency department; Exacerbations; Hospitalization; Literature review; Moderate asthma; Randomized placebo-controlled trial; Severe asthma.

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Conflict of interest statement

Declarations. Conflict of Interest: Reynold A. Panettieri Jr. has received research support from ACTIV-1, Agomab Therapeutics, AstraZeneca, Janssen Pharmaceuticals, the Research Institute for Fragrance Materials, Teva Pharmaceuticals, and Vault Health; has served as a consultant/advisory board member for AstraZeneca, Genentech, Praesidia Biotherapeutics, and the Research Institute for Fragrance Materials; and has received speaker fees from AstraZeneca, Merck Group, and Sanofi. Monica Kraft has received research support from the American Lung Association, AstraZeneca, Janssen, the National Institutes of Health, Sanofi, and Synairgen with funds paid to the Icahn School of Medicine and University of Arizona and has received personal fees from AstraZeneca, Chiesi, Genentech, Kinaset Therapeutics, and Sanofi. Mario Castro has received grants/research support from the American Lung Association, AstraZeneca, Gala Therapeutics, Genentech, GSK, the National Institutes of Health, Novartis, the Patient-Centered Outcomes Research Institute, PULMATRiX, Sanofi-Aventis, Shionogi, and Theravance Biopharma; consultancy fees from Allakos, Amgen, Arrowhead, AstraZeneca, Genentech, Merck, Novartis, OM Pharma, Pioneering Medicines, Regeneron Pharmaceuticals, Sanofi, and Teva Pharmaceuticals; and royalties from Aer Therapeutics. Magdalena Bober, Max Shelkrot and Christopher S. Ambrose are employees of AstraZeneca and may own stock or stock options in AstraZeneca. Andrew W. Lindsley is an employee of Amgen and owns stock in Amgen. Ethical Approval: This article is based on previously conducted studies and does not contain any new studies with human participants or animals performed by any of the authors.

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34

J Am Coll Emerg Physicians Open

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. 2025 Apr 4;6(3):100112.

doi: 10.1016/j.acepjo.2025.100112. eCollection 2025 Jun.

[Breath-Actuated Nebulizers for Asthma and Chronic Obstructive Pulmonary Disease Exacerbation: A Monte Carlo Simulation Demonstrating National Cost Savings and Length of Stay Reduction](#)

[Andrew D Luo](#)^{1,2}, [DaMarcus E Baymon](#)¹, [Gregory A Peters](#)², [Joshua M Kosowsky](#)¹, [Lauren M Nentwich](#)², [Joshua J Baugh](#)², [Christopher W Baugh](#)¹

Affiliations Expand

- PMID: 40242405
- PMCID: [PMC12002978](#)
- DOI: [10.1016/j.acepjo.2025.100112](#)

Abstract

Objectives: Breath-actuated nebulizers (BANs) deliver medication only during inspiration, and prior studies have demonstrated their increased efficacy for asthma and chronic obstructive pulmonary disease (COPD) exacerbations compared to

continuous nebulizers. However, the widespread adoption of BAN has been limited by its higher per-unit cost. Our primary objective was to estimate the annual national net cost and emergency department (ED) bed-hour savings of switching to BAN for pediatric and adult patients presenting to the ED with asthma or COPD exacerbation.

Methods: We estimated the prevalence of ED visits for asthma and COPD requiring nebulizer treatment using publicly available datasets. We created a Monte Carlo model and ran 1000 trials to determine the marginal cost of a BAN-first approach. We modeled the cost savings from decreased ED bed hours and averted inpatient admissions among eligible patients nationally and by common annual ED visit volumes.

Results: Adoption of a BAN-first strategy nationally is estimated to incur an additional \$6,059,000 (\pm \$1,024,000) in supply costs, with total savings of \$744,610,000 (\pm \$141,922,000) and a reduction of 178,000 (\pm 77,000) ED bed hours. An ED with 30,000 annual visits would save \$206,000 (\pm \$38,000) annually with a supply cost of \$1400 (\pm \$260). For 60,000 visits, savings would be \$551,000 (\pm \$99,600) with a supply cost of \$3700 (\pm \$680). At 130,000 visits, savings would reach \$896,000 (\pm \$168,000) with a supply cost of \$5900 (\pm \$1100).

Conclusion: BAN may yield significant cost savings driven primarily by a decreased likelihood of admission for COPD exacerbation. Further research is needed to validate clinical efficacy and address barriers to adoption.

Keywords: COPD exacerbation; Monte Carlo simulation; asthma exacerbation; breath-actuated; cost savings; length of stay reduction; nebulizer.

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Conflict of interest statement

CWB: paid speaker for Roche Diagnostics, Octapharma, and CE Symmetry, an investigator for Abbott Laboratories, an advisory board participant for Roche Diagnostics, Salix Pharmaceuticals, Pfizer Inc., and AstraZeneca, a consultant for Abbott, Pfizer, Roche, and an advisor to Lucia Health Guidelines.

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- [4 figures](#)

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Comput Biol Med

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. 2025 Jun:191:110192.

doi: 10.1016/j.combiomed.2025.110192. Epub 2025 Apr 15.

[Automatic cough detection via a multi-sensor smart garment using machine learning](#)

[Philippe C Dixon](#)¹, [Simon Dubeau](#)², [Jean-François Roy](#)², [Pierre-Alexandre Fournier](#)²

Affiliations Expand

- PMID: 40239229
- DOI: [10.1016/j.combiomed.2025.110192](https://doi.org/10.1016/j.combiomed.2025.110192)

Free article

Abstract

Coughing behavior is associated with conditions such as sleep apnea, asthma, and chronic obstructive pulmonary disorder and can severely affect quality of life in those affected. In this context, coughing quantification is often important, but routinely performed via questionnaires. This approach is dependent on patient compliance or recall, which may affect validity and be especially difficult for nocturnal coughs. Manual review of audio recordings is potentially more accurate, but raises privacy concerns due to the collection and review of sensitive audio-data by a human annotator. Today, machine learning approaches are increasingly used to quantify coughs; however, algorithms often rely on microphone recordings, resulting in the same privacy issues, especially if data are sent to a remote server for analysis. The aims of this study are to determine if (1) a suite of sensors, excluding microphone recordings, can accurately detect coughs unobtrusively and (2) what the relative importance of each sensor-type on model performance may be. Data from 44 healthy young adult participants performing on-demand coughs and other tasks (breathing, talking, throat clearing, laughing, sniffing) in supine and sitting conditions were collected for this observational, cross-sectional study using a multi-sensor smart-garment device. Synchronized video was used to annotate tasks. Three-dimension acceleration, respiration (inductance plethysmography), and electrical activity (electrocardiography) signals were extracted into 1 s strips and binarized into coughs and non-coughs. Data were split into train and test sets using an inter-subject 80:20 split, ensuring that data from a particular participant are found in a single set. This procedure was repeated 10 times with different random inter-subject splits to assess the variability of results. Statistical and frequency-based features were computed and used as inputs to a Random Forest Classifier to predict classes (cough vs not-cough). Model hyperparameters were tuned to maximize F1-score using five-fold cross validation of the training set. Final model performance was assessed using F1-score, precision, and recall (sensitivity) on the test sets with mean (standard deviation) reported. Single sensor models based on acceleration, respiration, or electrocardiography revealed F1 scores of 92.6 (1.2)%, 88.9 (3.2)%, and 77.5 (3.4)%, respectively. Overall, the dual (acceleration, respiration)

sensor model achieved the highest performance (F1-score 93.0 (1.1)%, precision 84.2 (4.2)%, and recall 95.5 (1.6)%). The multi-modal wearable device was able to distinguish coughs from other respiratory maneuvers, with acceleration and respiration sensors providing the most valuable information. Future studies could implement this approach for remote monitoring of coughs in patients suffering from coughing symptoms.

Keywords: Artificial intelligence; Coughing; Hexoskin; Random-forest; Smart-shirt; Wearables.

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Conflict of interest statement

Declaration of competing interest The authors declare the following conflicts of interests. Roy and Fournier are the founders of Carré Technologies, Inc., developers of the Hexoskin garment device used herein. Dubeau is a current employee of Carré Technologies, Inc. Dixon is a former employee of Carré Technologies, Inc. and currently consults for the company on artificial intelligence projects, including the present work.

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. 2025 Jun 1;185(6):745.

doi: 10.1001/jamainternmed.2025.0075.

[Limitations in Assessing Antidiabetic Medications and Asthma Attacks](#)

[Chi-Kuei Hsu](#)^{1,2}, [Chih-Cheng Lai](#)³

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- PMID: 40227727

- DOI: [10.1001/jamainternmed.2025.0075](https://doi.org/10.1001/jamainternmed.2025.0075)

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. 2025 Jun 1;185(6):745-746.

doi: [10.1001/jamainternmed.2025.0078](https://doi.org/10.1001/jamainternmed.2025.0078).

[Limitations in Assessing Antidiabetic Medications and Asthma Attacks-Reply](#)

[Chloe I Bloom](#)¹, [Bohee Lee](#)¹

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- PMID: 40227679
- DOI: [10.1001/jamainternmed.2025.0078](https://doi.org/10.1001/jamainternmed.2025.0078)

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. 2025 Jun;13(6):475-476.

doi: 10.1016/S2213-2600(25)00057-8. Epub 2025 Apr 8.

[Inflammatory risks and asthma attacks: what comes next?](#)

[Mona Al-Ahmad](#)¹, [Asmaa Ali](#)²

Affiliations Expand

- PMID: 40215992
- DOI: [10.1016/S2213-2600\(25\)00057-8](https://doi.org/10.1016/S2213-2600(25)00057-8)

No abstract available

Conflict of interest statement

MA-A has received lecture and advisory board honoraria from GSK, Sanofi, AstraZeneca, and Novartis. AA declares no competing interests. Both authors used AI for error checking only. After using this service, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication. MA-A and AA contributed equally.

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Meta-Analysis

Lancet Respir Med

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. 2025 Jun;13(6):505-516.

doi: 10.1016/S2213-2600(25)00037-2. Epub 2025 Apr 8.

Inflammatory and clinical risk factors for asthma attacks (ORACLE2): a patient-level meta-analysis of control groups of 22 randomised trials

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Affiliations Expand

- PMID: 40215991
- PMCID: [PMC12117016](#)
- DOI: [10.1016/S2213-2600\(25\)00037-2](#)

Abstract

Background: Clinical risk factors for severe asthma attacks have been identified, but their incremental prognostic values are unclear. Additionally, the incremental contribution of type 2 inflammation, a common, treatable process, is undetermined. We aimed to quantify the prognostic value of baseline characteristics and type 2 inflammatory biomarkers, specifically blood eosinophil count and fractional exhaled nitric oxide (FeNO), to predict asthma attacks.

Methods: In this systematic review and meta-analysis of randomised controlled trials (RCTs), Oxford Asthma Attack Risk Scale 2 (ORACLE2), we searched MEDLINE from Jan 1, 1993, to April 1, 2021, for trials investigating fixed treatment regimen effects on asthma attack rates for at least 6 months with baseline blood eosinophil count and FeNO. Eligible participants were aged 12 years or older with asthma (any severity) who had been randomly assigned to the control group of an RCT. Relevant trials were manually retrieved and reviewed by two independent reviewers (SC and IDP). Disagreements were discussed with five reviewers. Individual patient data (IPD) for meta-analysis were requested from study authors. We investigated the rate of severe asthma attacks (≥ 3 days of systemic corticosteroids) for at least 6 months and prognostic effects of baseline blood eosinophil count and FeNO in control group participants. Rate ratios (RRs) with 95%

CIs were derived for annualised asthma attack rates from negative binomial models adjusted for key variables, including blood eosinophil count and FeNO, and interactions between these type 2 inflammatory biomarkers were explored. Certainty of evidence was assessed using GRADE. The heterogeneity of the included studies and potential for ecological bias were quantified by the concordance statistic (C-statistic). This study was registered with PROSPERO, CRD42021245337.

Findings: We identified 976 potentially eligible studies. After automated screening, we manually reviewed 219 full-text articles. Of these, 19 publications comprising 23 RCTs were eligible. 6513 participants (4140 [64%] female; 2370 [36%] male; three missing) spanning 22 RCTs were included for data analysis. 5972 (92%) of 6513 patients had moderate-to-severe asthma. 4615 asthma attacks occurred during 5482 person-years of follow-up (annualised rate 0.84 per person-year). Higher blood eosinophil count or FeNO was linked to higher asthma attack risk (per 10-fold increase, RR 1.48 [95% CI 1.30-1.68] for blood eosinophil count and 1.44 [1.26-1.65] for FeNO; high-certainty evidence). Other prognostic factors were attack history (yes vs no, RR 1.94 [1.61-2.32]); disease severity (severe vs moderate, RR 1.57 [1.22-2.03]); FEV₁ percentage predicted (FEV₁%; per 10% decrease, RR 1.11 [1.08-1.15]); and 5-item Asthma Control Questionnaire score (ACQ-5; per 0.5 increase, RR 1.10 [1.07-1.13]). High blood eosinophil count and FeNO combined were associated with greater risk than either prognostic factor separately. Bronchodilator reversibility was associated with lower risk of severe asthma attacks (per 10% increase, RR 0.93 [0.90-0.96]), with the reduction observed primarily between 0% and 25%. Regarding heterogeneity of the included studies, the C-statistic ranged from 0.58 to 0.95, indicating major differences in patient and disease characteristics between studies. In the univariable meta-analysis per trial, we found substantial heterogeneity in associations between studies, with I² statistics ranging from 0.56 to 0.97.

Interpretation: Blood eosinophil count, FeNO, asthma attack history, disease severity, low lung function (low FEV₁%), and symptoms (ACQ-5 score) are key predictors of asthma attacks. Conversely, we found that moderate bronchodilator reversibility was associated with reduced risk. These findings from high-quality multinational RCTs support incorporation of blood eosinophils and FeNO into clinical risk stratification for targeted risk reduction. More individualised clinical decision-making models should be explored.

Funding: National Institute of Health and Care Research Oxford Biomedical Research Centre; Association pulmonaire du Québec; Fonds de recherche du Québec-Santé; Québec Air-Intersectorialité-Respiratoire-Son network; Stichting Astma Bestrijding; Leiden University Fund; and Academy of Medical Sciences.

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Conflict of interest statement

Declaration of interests Outside this work, CC-P has received speaker honoraria from AstraZeneca, GSK, and Sanofi-Regeneron; and consultancy fees from AstraZeneca, GSK, and Sanofi-Regeneron. SR has received salary support from the National Institute for Health and Care Research (NIHR) UK and the Charlie's Foundation for Research. SR also declares speaker fees from GSK and

AstraZeneca, and conference travel support from AstraZeneca. MEW has received consulting, advisory, or speaking honoraria from Allakos, Amgen, Areteia Therapeutics, Arrowhead Pharmaceutical, AstraZeneca, Avalo Therapeutics, Celldex, Connect Biopharma, Eli Lilly, Equillium, GSK, Incyte, Kinaset, Kymera, Merck, MyBiometry, Pharming, Phylaxis, Pulmatrix, Rapt Therapeutics, Recludix Pharma, Regeneron, Roche/Genentech, Sanofi/Genzyme, Sentien, Sound Biologics, Tetherex Pharmaceuticals, Uniquity Bio, Upstream Bio, Verona Pharma, and Zurabio. GB has received speaker honoraria from AstraZeneca, Boehringer Ingelheim, Chiesi, GSK, Merck Sharp & Dohme, Novartis, and Sanofi-Regeneron; he is President of the Belgian Respiratory Society. JC has received grants or contracts from Regeneron, Sanofi, and Novartis. He also has received consulting fees from AstraZeneca, Amgen, Regeneron, and Sanofi and payment of honoraria from AstraZeneca, Amgen, Regeneron, and Sanofi. SED has received consultancy fees from AstraZeneca. CEB has received grants and consultancy fees from 4D Pharma, Areteia, AstraZeneca, Chiesi, Genentech, GSK, Mologic, Novartis, Regeneron Pharmaceuticals, Roche, and Sanofi. MC has received grants or contracts from American Lung Association, AstraZeneca, Gala Therapeutics, Genentech, GSK, National Institutes of Health, Nacion, Novartis, PCORI, Pulmatrix, Sanofi-Aventis, Shionogi, and Theravance Biopharma. He has also received consulting fees from Allakos, Amgen, Apogee, Apreo Health, Arrowhead Pharmaceuticals, Blueprint Medicines, Connect BioPharma, Evommune, Genentech, GSK, Jasper, Kinaset, Merck, Novartis, OM Pharma, Pfizer, Pioneering Medicines, Sanofi-Aventis, Teva, Third Rock Ventures, Upstream Bio, and Verona Pharmaceuticals; honoraria from Amgen, AstraZeneca, Med Learning Group, Regeneron Pharmaceuticals, and Sanofi; and stock options from Aer Therapeutics. NAH has received honoraria for serving as a consultant or advisor to GSK, AstraZeneca, Genentech, Sanofi, Regeneron, Verona, and Amgen; and research grant support from GSK, AstraZeneca, Genentech, Regeneron, and Sanofi. DJJ has received advisory board and speakers fees from AstraZeneca, Boehringer Ingelheim, Novartis, Teva, GSK, Sanofi-Regeneron, and Chiesi. NM is an employee and shareholder with AstraZeneca. AL is employed by AstraZeneca. ES is a former GSK employee and provided anonymised data from GSK studies CAPTAIN and DREAM; provided inputs into manuscript development; and holds GSK stock options. CC holds shares in GSK and is an employee of GSK. MEH is a Sanofi employee. CTJH is a former employee of Genentech. AS is a Novartis employee. TSCH was supported by a Wellcome Trust Fellowship (211050/Z/18/z); he reports grants from the Guardians of the Beit Fellowship, Pfizer, NIHR Oxford Biomedical Research Centre (BRC), University of Oxford, Kymab, Arcturis, and Asthma+Lung UK; and personal fees from AstraZeneca Pieris. RWB has received institutional research funding from AstraZeneca, Teva, Health Research Council, Cure Kidz, and Perpetual Guardian; personal fees from AstraZeneca, Avillion, and Teva; and is Chair of the Asthma Foundation of New Zealand adolescent and adult asthma guidelines, a reviewer for GINA, and a former member of the Global Initiative for Chronic Obstructive Lung Disease board. JKS has received non-restricted research grants from AstraZeneca, European Respiratory Society Severe Heterogeneous Asthma Research collaboration—Patient Centred Clinical Research Collaboration, Register of Adult Patients with Severe Asthma for Optimal Disease Management Foundation, and ZonMw. EWS has received consultancy fees from GSK. IDP has received honoraria for speaking at sponsored meetings from AstraZeneca, Circassia, AmgenNovartis, Chiesi, Sanofi-Regeneron, Menarini, and GSK; and payments for organising educational events from AstraZeneca, GSK, Sanofi-Regeneron, and Teva. He has

received honoraria for attending advisory panels with Genentech, Sanofi-Regeneron, AstraZeneca, GSK, Novartis, Teva, Merck, Circassia, and Amgen. He has received sponsorship to attend international scientific meetings from GSK, AstraZeneca, Sanofi, and Regeneron. SC reports non-restricted research grants from NIHR Oxford BRC, the Quebec Respiratory Health Research Network, the Fondation Québécoise en Santé Respiratoire, AstraZeneca, Sanofi-Regeneron, and Circassia Niox group; speaker honoraria from AstraZeneca, GSK, Sanofi-Regeneron, and Valeo Pharma; consultancy fees from FirstThought, AstraZeneca, GSK, Sanofi-Regeneron, Access Biotechnology, and Access Industries; and sponsorship to attend or speak at international scientific meetings by or for AstraZeneca and Sanofi-Regeneron. He is an advisory board member for and holds stock options in Biometry—a company that is developing an exhaled nitric oxide device (myBiometry). He advised the Institut national d'excellence en santé et services sociaux on an update of the asthma general practice information booklet for general practitioners. Within the submitted work, CC-P has received an education scholarship from the Université de Sherbrooke, and SC reports that he has received non-restricted research grants from the Québec Air-Intersectorialité-Respiratoire-Son network, the Academy of Medical Sciences, and the NIHR Oxford BRC, is the holder of the Association pulmonaire du Québec's Research Chair in Respiratory medicine, and is a clinical research scholar of the Fonds de recherche du Québec. All other authors declare no competing interests.

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. 2025 Jun;42(6):2950-2956.

doi: 10.1007/s12325-025-03175-x. Epub 2025 Apr 8.

[The Real-World Impact of Glucagon-Like Peptide 1 Receptor Agonists on Asthma Control in People with High-Risk Asthma and Obesity](#)

[Alan Kaplan](#)¹, [Heath Heatley](#)², [John Townend](#)², [Derek Skinner](#)², [Victoria Carter](#)², [Richard Hubbard](#)², [Tan Tze Lee](#)³, [Mariko Siyue Koh](#)⁴, [David Price](#)⁵

Affiliations Expand

- PMID: 40198520
- PMCID: [PMC12085370](#)
- DOI: [10.1007/s12325-025-03175-x](#)

Abstract

To quantify the impact of Glucagon-like peptide1 receptor-agonists (GLP1-RAs) on asthma control, we analysed people with asthma and obesity, using the Optimum Patient Care Research Database (OPCRD). We identified 10,111 GLP1-RA exposed people and 50,555 unexposed controls. The exposed cohort had higher BMI and more uncontrolled asthma [risk domain asthma control (RDAC) and overall asthma control (OAC)]. The exposed cohort lost more weight and had improved asthma control for both RDAC (odds ratio 2.11 95% CI 1.90-2.36) and OAC (OR 2.10, 95%CI 1.81-2.45) scores. GLP1-RA drugs appear to improve asthma control for people with obesity.

Keywords: Asthma; Asthma outcomes; GLP1s; Obesity.

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Conflict of interest statement

Declarations. Conflict of Interest: Alan Kaplan is a member of the advisory board of, or speakers bureau for, ALK, AstraZeneca, Belus, Boehringer Ingelheim, Covis, Eisai, GlaxoSmithKline, Idorsia, Merck Frosst, Moderna, Novo Nordisk, Novartis, Pfizer, Purdue, Sanofi, Teva, Trudel and Valeo. Heath Heatley, John Townend, Derek Skinner, Victoria Carter, and Richard Hubbard are employees of Observational & Pragmatic Research Institute, Singapore. Tan Tze Lee is an advisory Board Member for Boehringer Ingelheim, AstraZeneca, Takeda, GlaxoSmithKline, Merck Sharp & Dohme, Mundipharma, and Janssen. Honoraria were received for these advisory boards. Honoraria were received for speaking at CMEs for AstraZeneca in the past. Conference sponsorships from AstraZeneca, Boehringer Ingelheim, Merck Serono, GlaxoSmithKline, Novartis, Mundipharma and Merck Sharp & Dohme. Research grants from Merck Serono (Concor Study), Merck Sharp & Dohme (Apbord study). Mariko Siyue Koh reports grant support from AstraZeneca, and honoraria for lectures and advisory board meetings paid to her hospital (Singapore General Hospital) from GlaxoSmithKline, AstraZeneca, Novartis, Sanofi, and Boehringer Ingelheim, outside the submitted work. David B. Price has advisory board membership with AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline,

Novartis, Viartis, Teva Pharmaceuticals; consultancy agreements with AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Novartis, Viartis, Teva Pharmaceuticals; grants and unrestricted funding for investigator-initiated studies (conducted through Observational and Pragmatic Research Institute Pte Ltd) from AstraZeneca, Chiesi, Viartis, Novartis, Regeneron Pharmaceuticals, Sanofi Genzyme, and UK National Health Service; payment for lectures/speaking engagements from AstraZeneca, Boehringer Ingelheim, Chiesi, Cipla, Inside Practice, GlaxoSmithKline, Medscape, Viartis, Novartis, Regeneron Pharmaceuticals and Sanofi Genzyme, Teva Pharmaceuticals; payment for travel/accommodation/meeting expenses from AstraZeneca, Boehringer Ingelheim, Novartis, Medscape, Teva Pharmaceuticals.; owns 74% of the social enterprise Optimum Patient Care Ltd (Australia and UK) and 92.61% of Observational and Pragmatic Research Institute Pte Ltd (Singapore); is peer reviewer for grant committees of the UK Efficacy and Mechanism Evaluation Programme, and Health Technology Assessment; and he was an expert witness for GlaxoSmithKline. David B. Price is an Editorial Board member of Advances in Therapy. David B Price was not involved in the selection of peer reviewers for the manuscript nor any of the subsequent editorial decisions. Ethics Approval: The OPCRd is approved by the Health Research Authority for clinical research use and governed by the Anonymized Data Ethics and Protocols Transparency Committee (ADEPT). This study was approved by the ADEPT committee (ADEPT0523) as an independent body of experts and regulators commissioned by the Respiratory Effectiveness Group to govern the standard of research conducted on internationally recognized databases.

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. 2025 Jun;13(6):491-492.

doi: 10.1016/S2213-2600(25)00083-9. Epub 2025 Mar 22.

[Transition of adolescents with asthma to adult care](#)

[Priya Venkatesan](#)

- PMID: 40127660
- DOI: [10.1016/S2213-2600\(25\)00083-9](#)

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Review

Pulm Ther

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. 2025 Jun;11(2):177-193.

doi: 10.1007/s41030-025-00291-5. Epub 2025 Mar 23.

[Monoclonal Antibodies for the Treatment of Chronic Obstructive Pulmonary Disease](#)

[Dimitrios Toumpanakis](#)¹, [Konstantinos Bartziokas](#)², [Agamemnon Bakakos](#)³, [Evangelia Fouka](#)⁴, [Petros Bakakos](#)³, [Stelios Loukides](#)², [Paschalis Steiropoulos](#)⁵, [Andriana I Papaioannou](#)³

Affiliations Expand

- PMID: 40123030
- PMCID: [PMC12102449](#)

- DOI: [10.1007/s41030-025-00291-5](https://doi.org/10.1007/s41030-025-00291-5)

Abstract

Chronic obstructive pulmonary disease (COPD) is a common and complex disease characterized by persistent airflow limitation and the presence of exacerbations, resulting in significant morbidity and mortality. Although the pathogenesis of COPD is multifactorial, airway inflammation plays a significant role in disease progression. Despite the advantages of non-pharmaceutical and pharmaceutical interventions that have significantly improved the symptom burden and exacerbation frequency in COPD, there is a lack of disease-modifying therapies that target the underlying disease mechanisms. Monoclonal antibodies (mAbs), a drug class that has improved treatment in severe asthma by blocking mediators of the type 2 (Th2) and allergic inflammatory cascades, are currently under investigation for their efficacy in COPD. Our review summarizes the evidence for the use of monoclonal antibodies in COPD and discusses current limitations and promising advances. Although targeting Th1 inflammation has failed to improve COPD outcomes, recent clinical trials have shown beneficial effects of monoclonal antibodies targeting Th2 inflammation, providing evidence for a personalized approach in COPD treatment.

Keywords: Biomarkers; COPD; Cytokines; Eosinophils; Monoclonal antibodies.

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Conflict of interest statement

Declarations. Conflict of Interest: Paschalis Steiropoulos is an Editorial Board member of Pulmonary Therapy. Paschalis Steiropoulos was not involved in the selection of peer reviewers for the manuscript nor any of the subsequent editorial decisions. Dimitrios Toumpanakis, Konstantinos Bartziokas, Agamemnon Bakakos, Evangelia Fouka, Petros Bakakos, Stelios Loukides and Andriana I Papaioannou have no conflict of interest to disclose. **Ethical Approval:** This article is based on previously conducted studies and does not contain any new studies with human participants or animals performed by any of the authors.

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Review

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. 2025 Jun 1;37(3):259-265.

doi: 10.1097/MOP.0000000000001455. Epub 2025 Mar 19.

[Respiratory syncytial virus vaccination: likely and less likely outcomes](#)

[Dvir Gatt](#)^{1,2}, [Guy Hazan](#)^{1,2}

Affiliations Expand

- PMID: 40105190
- DOI: [10.1097/MOP.0000000000001455](https://doi.org/10.1097/MOP.0000000000001455)

Abstract

Purpose of review: Respiratory syncytial virus (RSV) remains a leading cause of lower respiratory tract infections in infants, older adults, and high-risk populations. The recent approval of new RSV vaccines and monoclonal antibodies marks a turning point in RSV prevention. This review explores these advancements, their immediate and potential long-term effects, and the remaining challenges.

Recent findings: Several novel RSV prevention strategies have been approved, including maternal RSVPreF vaccines, infant-targeted monoclonal antibodies like Nirsevimab, and vaccines for older adults. These interventions significantly reduce RSV-related hospitalizations, ICU admissions, and mortality, particularly in high-risk groups. Early evidence also suggests benefits in reducing wheezing during infancy; however, long-term impacts on asthma development remain uncertain. Challenges such as vaccine hesitancy and limited access in low-resource settings remain pressing issues that require sustained focus.

Summary: RSV vaccines and monoclonal antibodies are expected to alter clinical management and public health by reducing severe disease burden and RSV transmission. Further research is needed to evaluate their long-term effects, including implications for asthma prevention and pediatric obstructive sleep apnea. Addressing access disparities and public acceptance will be critical for maximizing their global impact.

Keywords: asthma prevention; respiratory syncytial virus vaccines; wheezing.

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Randomized Controlled Trial

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. 2025 Jun;30(6):480-492.

doi: 10.1111/resp.70016. Epub 2025 Mar 12.

[Treatable Trait Guided Asthma Management: A Feasibility Study](#)

[James Fingleton](#)¹, [Rob McLachlan](#)^{1,2}, [Jenny Sparks](#)², [Richard Beasley](#)², [Alvar Agustí](#)³, [Peter G Gibson](#)⁴, [Ian D Pavord](#)⁵, [Jo Hardy](#)², [Mark Weatherall](#)⁶, [Allie Eathorne](#)², [Vanessa M McDonald](#)⁴; [Treatable Traits Study Group](#)

Collaborators, Affiliations Expand

- PMID: 40074003
- PMCID: [PMC12128700](#)
- DOI: [10.1111/resp.70016](#)

Abstract

Background and objectives: Treatable trait-based personalised medicine improves outcomes in severe asthma clinics. We assessed the feasibility of a randomised controlled trial (RCT) of protocolised treatable trait-guided asthma management in patients not under a severe asthma clinic.

Methods: Ten week single-group cohort study. Participants had a doctor's diagnosis of asthma, Asthma Control Questionnaire-5 (ACQ-5) score > 1, and ≥ 1 exacerbation in the last year.

Intervention: biomarker-guided asthma medication according to a protocolised algorithm, targeting traits of type-2 inflammation and airflow obstruction. **Feasibility outcomes:** recruitment rates, acceptability of intervention, willingness to enrol in an RCT, need for 'extended' trait assessment after 10 weeks, and estimation of trait prevalence.

Results: Recruitment ceased with 29/50 participants after 14 months due to difficulties associated with COVID-19. Recruitment rate: 29/118 (25%) of those invited to participate (95% CI 17 to 33). 24/26 (92%) participants found the intervention acceptable and were willing to participate in a future study. After 10 weeks, 65% remained not well controlled (ACQ-5 > 1) and would have required the 'extended' assessment. Participants had a mean (SD) 4.8 (2.3) of 13 traits assessed. ACQ-5 improved during the study by -1.0 (0.3 to 1.8) units, and post-bronchodilator airflow limitation reduced from 59% of participants to 35%. 12/29 (41%) participants received continuous oral corticosteroids at some point during the study.

Conclusion: Protocolised treatable trait management was acceptable to participants, associated with significant clinical benefit, and a full RCT appears feasible. Targeting type-2 inflammation and airflow obstruction was insufficient to control asthma in the majority of patients, despite marked systemic corticosteroid exposure.

Trial registration: ACTRN12620000935932.

Keywords: asthma; clinical trial; inflammometry; phenotypes; treatable trait.

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Conflict of interest statement

J.F. reports personal fees and non-financial support from AstraZeneca and GSK outside the submitted work. R.B. reports research funding from AstraZeneca, Genentech, Teva, and Cure Kids NZ, and personal fees from AstraZeneca, Teva, Avillion, and Cipla; outside the submitted work. A.A. reports research funding from AstraZeneca, GSK, and the Menarini Foundation, and personal fees from AstraZeneca, Chiesi, GSK, the Menarini Foundation, MSD, Sanofi, and Zambon; outside the submitted work. P.G.G. reports research funding from GSK and personal fees from AstraZeneca, GSK, Novartis, and Sanofi; outside the submitted work. I.D.P. reports research funding, personal fees, and non-financial support from Aerocrine, Almirall, AstraZeneca, Boehringer Ingelheim, Chiesi, Circassia, Roche-Genentech, GSK, Knopp, Merck, Novartis, Sanofi-Regeneron, and Teva; outside the submitted work; and royalties related to the Leicester Cough Questionnaire from Bayer, Ismed, and Merck outside the submitted work. J.H. reports non-financial support from AstraZeneca outside the submitted work. V.M.M. reports personal fees and non-financial support from GSK, Boehringer Ingelheim, and the Menarini Foundation outside the submitted work. A.E., J.S., M.W., and R.M. declare no conflicts of interest. R.B. and V.M.M. are Editorial Board members of *Respirology*

and co-authors of this article. They were excluded from all editorial decision-making related to the acceptance of this article for publication.

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J Occup Environ Med

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. 2025 Jun 1;67(6):459-461.

doi: [10.1097/JOM.0000000000003377](https://doi.org/10.1097/JOM.0000000000003377). Epub 2025 Feb 28.

[Work-Related Asthma Mortality, Michigan 2003-2023](#)

[Kenneth D Rosenman](#)¹, [Mary Jo Reilly](#)

Affiliations Expand

- PMID: 40063891
- DOI: [10.1097/JOM.0000000000003377](https://doi.org/10.1097/JOM.0000000000003377)

Abstract

Objective: The aim of the study was to identify causes and factors associated with work-related asthma.

Methods: There were 13 work-related asthma (WRA) deaths identified over 21 years in a statewide lung disease surveillance system.

Results: The deceased ranged from 19 to 77. Eight had new onset, and five had aggravated WRA. Five deaths from exposure to isocyanates, two to welding fumes, two to food products, and one death each from exposure to secondhand cigarette smoke, milk tank cleaning agents, chemicals used in construction, and molding machine release spray.

Conclusions: Even when health care practitioners note that work is a trigger of a patient's asthma, there is typically a delay in the recognition and action to address the workplace exposure(s). A WRA death is the ultimate consequence of a practitioner's delay in not addressing work exposure(s) as an asthma trigger.

Keywords: mortality; work-related asthma.

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Conflict of interest statement

Conflict of interest: None declared.

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Review

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. 2025 Jun;11(2):159-176.

doi: 10.1007/s41030-025-00288-0. Epub 2025 Mar 6.

[A Brief Report on a Systematic Review of Real-World Effectiveness Studies of ICS/LAMA/LABA for Treatment of Adults with Asthma in the US](#)

[Stephen G Noorduyn](#)^{1,2}, [Kejsi Begaj](#)^{3,4}, [Amber Martin](#)⁵, [Sergio Forero-Schwanhaeuser](#)⁶, [Kassandra Schaible](#)⁵, [Alison Moore](#)⁷, [Rosirene Paczkowski](#)³

Affiliations Expand

- PMID: 40050459
- PMCID: [PMC12102432](#)
- DOI: [10.1007/s41030-025-00288-0](#)

Abstract

Introduction: Long-acting muscarinic antagonist (LAMA) addition to inhaled corticosteroid/long-acting β_2 -agonist (ICS/LABA) dual therapy is recommended for severe asthma, but its real-world effectiveness is not well established.

Methods: A systematic literature review was conducted in accordance with Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) to investigate clinical outcomes in US adults with asthma receiving ICS + LABA + LAMA as multiple-/single-inhaler triple therapy (MITT/SITT). Real-world/observational studies published in English in Embase/MEDLINE databases (2014-2024) and conference abstracts presented 2022-2024 were eligible for inclusion.

Results: From 588 identified records, only 8 articles reporting 6 unique studies were included; 2 assessed SITT and 4 assessed MITT, and 4 treatments were investigated. Exacerbation rates reported in two studies were significantly reduced with tiotropium (TIO) + ICS + LABA MITT versus high-dose ICS + LABA within 6 (64% lower) and 12 months (73%), and fluticasone furoate/umeclidinium/vilanterol (FF/UMEC/VI) 100/62.5/25 mcg SITT versus pre-treatment after 12 months (41%). Oral corticosteroid (OCS) use was reported in two studies. The proportion of patients with ≥ 1 rescue OCS dispensing decreased with TIO 1.25 mcg + ICS + LABA MITT, with greatest reductions for MITT \pm leukotriene receptor antagonist (pre-treatment: 68.4%, post treatment: 54.2%). Mean number of OCS dispensings/patient/year significantly decreased (29%, $p < 0.001$) following FF/UMEC/VI 100/62.5/25 mcg SITT initiation. Treatment adherence/persistence was reported in three studies. Mean (standard deviation) proportion of days covered was significantly higher ($p < 0.001$) for FF/UMEC/VI SITT versus MITT after 6 (0.56 [0.31] versus 0.46 [0.31]) and 12 months (0.46 [0.33] versus 0.35 [0.30]). Persistence at 12 months was 25.9% and 12.0%, respectively. Lung function, clinical remission, quality of life, and safety outcomes were not reported in any study.

Conclusions: This brief communication reports a systematic review that identified few sources of SITT or MITT in US patients with asthma. Although inclusion of observational studies can result in reporting/selection bias, we identified greater clinical benefits with triple therapies versus dual therapies.

Keywords: Adherence; Asthma; Exacerbation; Fluticasone furoate; Long-acting; Long-acting muscarinic antagonist; Oral corticosteroid; Tiotropium; Umeclidinium; Vilanterol; β_2 -agonist.

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Conflict of interest statement

Declarations. Conflict of Interest: Stephen G. Noorduyn, Sergio Forero-Schwanhaeuser, Alison Moore, and Rosirene Paczkowski are employees of GSK and hold financial equities in GSK. Kejsi Begaj is an employee of GSK contracted through the Rutgers Health Outcomes, Policy, and Economic (HOPE) program, and does not hold any financial equities in GSK. Amber Martin and Kassandra Schaible are employees of Evidera Inc., a part of Thermo Fisher Scientific, which received funding from GSK to conduct the study. **Ethical Approval:** No ethical approval was required for this study as no human participants were recruited or animals used.

- [21 references](#)
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Supplementary info

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47

Review

Respir Care

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. 2025 Jun;70(6):686-699.

doi: 10.1089/respcare.12574. Epub 2025 Feb 19.

[Use of Digital Health in Pediatric Asthma](#)

[Joyce A Baker](#)¹, [Ariel Berlinski](#)^{2,3}

Affiliations [Expand](#)

- PMID: 40045921

- DOI: [10.1089/respcare.12574](https://doi.org/10.1089/respcare.12574)

Abstract

Asthma is a heterogeneous disease characterized by variable, reversible airway obstruction and hyper-responsive airways. In the United States, it is estimated nearly 25 million adults and children have asthma with over 4 million being children. Despite national and global asthma management guidelines, 44% of children report poor asthma control, resulting in higher health care utilization, greater number of missed work/school days, and poorer quality of life, all contributing to the United States' economic burden of more than \$80 billion annually. The landscape of health care is transforming rapidly as technology advancements accelerate integration of digital health technology into patient care and management. Digital health technology uses computing platforms, connectivity, software, artificial intelligence, machine learning, and sensors to manage illnesses and health risks and promote wellness with a strong emphasis around personalized health care. This includes wearable devices, mobile health, telehealth, health information technology, remote monitoring, and telemedicine. A literature search on electronic monitoring for pediatric asthma was done that also included wearable devices, smart inhaler, digihaler, smart spacer, smart nebulizer, adherence monitoring, home spirometry, and symptom monitoring. The aim of this article is to review literature on how digital health technology can impact asthma care by identifying and educating about environmental triggers, prompting earlier recognition of asthma symptoms, and improving medication adherence and inhaler device technique.

Keywords: asthma; medication adherence; mobile health; pediatric; personalized medicine; spirometry; wearable technology.

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Review

Respir Care

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. 2025 Jun;70(6):675-685.

doi: 10.1089/respcare.12562. Epub 2025 Mar 5.

[Biologic Therapies for Severe Asthma in School-Age Children](#)

[Leonard B Bacharier](#)¹

Affiliations Expand

- PMID: 40040424
- DOI: [10.1089/respcare.12562](https://doi.org/10.1089/respcare.12562)

Abstract

Children with severe asthma incur substantial disease-related morbidity. Despite treatment with inhaled corticosteroids and additional controller medications, many patients continue to experience recurrent exacerbations, impaired lung function, and diminished quality of life. Most children with severe asthma demonstrate evidence of a phenotype consistent with ongoing type 2 inflammation. Fortunately, the advent of biologic therapies, monoclonal antibodies that target specific pathways relevant to asthma pathogenesis, has allowed most children with severe asthma to experience marked improvements in disease control and clinical outcomes. Four biologic medications that target various aspects of type 2 inflammation—specifically omalizumab, mepolizumab, benralizumab, and dupilumab—are currently approved by the United States Food and Drug Administration for use in children 6-11 years of age with specific phenotypes of severe asthma. The selection of the most appropriate biologic for a patient's phenotype is driven by a biomarker-based approach, including assessments of blood eosinophil counts, fraction of exhaled nitric oxide levels, and allergic sensitization and total immunoglobulin E levels. These biologic medications have been demonstrated to significantly reduce the rates of asthma exacerbations between 27% and 59% relative to placebo, although they vary in their impact on lung function. The overall safety profiles of these biologics have been reassuring. This review discusses the role of biologics in childhood asthma, including the strategy for phenotyping patients, summarizes the data supporting the efficacy and safety of biologics in this population, and presents an approach for choosing a biologic and monitoring patient outcomes.

Keywords: biologics; childhood asthma; severe asthma.

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Mary Ann Liebert

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49

Review

Respir Care

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. 2025 Jun;70(6):632-639.

doi: 10.1089/respcare.12674. Epub 2025 Feb 25.

[The Role of Fractional Exhaled Nitric Oxide and Oscillometry in Pediatric Asthma](#)

[Michael D Davis](#)¹

Affiliations Expand

- PMID: 40028857
- DOI: [10.1089/respcare.12674](https://doi.org/10.1089/respcare.12674)

Abstract

Diagnosing pediatric asthma is challenging and requires the evaluation of symptoms, inflammation, and lung function. Spirometry, which is commonly used to evaluate lung function in asthma, is difficult to obtain from young pediatric patients and frequently not possible to obtain from patients under 5 years of age. This is also true for the fraction of exhaled nitric oxide (F_{ENO}) measurement, which can indicate type 2 airway inflammation in asthma, and controversy has existed regarding the appropriate use of F_{ENO} measurement in asthma diagnosis and monitoring. Impulse oscillometry can be used to evaluate lung function and may be easier to perform than spirometry for pediatric patients. This narrative review evaluates the recent guidelines for diagnosis and monitoring of pediatric asthma. It also provides an overview of the use of F_{ENO} measurement and impulse oscillometry in pediatric asthma. A panel discussion of the role of F_{ENO} measurement and impulse oscillometry in pediatric asthma concludes this article.

Keywords: FENO; IOS; asthma diagnosis; asthma monitoring; exhaled nitric oxide; impulse oscillometry; pediatric asthma.

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. 2025 Jun;70(6):649-674.

doi: 10.1089/respcare.12352. Epub 2025 Feb 10.

[Asthma Phenotypes and Biomarkers](#)

[Jocelyn R Grunwell](#)¹, [Anne M Fitzpatrick](#)²

Affiliations Expand

- PMID: 40013975
- DOI: [10.1089/respcare.12352](https://doi.org/10.1089/respcare.12352)

Abstract

Asthma experienced by both adults and children is a phenotypically heterogeneous condition. Severe asthma, characterized by ongoing symptoms and airway inflammation despite high doses of inhaled and/or systemic corticosteroids, is the focus of research efforts to understand this underlying heterogeneity. Clinical phenotypes in both adult and pediatric asthma have been determined using supervised definition-driven classification and unsupervised data-driven clustering methods. Efforts to understand the underlying inflammatory patterns of severe asthma have led to the seminal discovery of type 2-high versus type 2-low phenotypes and to the development of biologics targeted at type 2-high

inflammation to reduce the rates of severe asthma exacerbations. Type 2-high asthma is characterized by upregulation of T helper 2 immune pathways including interleukin (IL)-4, IL-5, and IL-13 along with eosinophilic airway inflammation, sometimes allergic sensitization, and responsiveness to treatment with corticosteroids. Type 2-low asthma is poorly responsive to corticosteroids and is not as well characterized as type 2-high asthma. Type 2-low asthma is limited by being defined as the absence of type 2-high inflammatory markers. Choosing a biologic for the treatment of severe asthma involves the evaluation of a panel of biomarkers such as blood eosinophils, total and specific immunoglobulin E/allergic sensitization, and fractional exhaled nitric oxide. In this review, we focus on the underlying pathobiology of adult and pediatric asthma, discuss the different phenotype-based treatment options for adult and pediatric type 2-high with or without allergic asthma and type 2-low asthma, and describe a clinical phenotyping approach to patients to guide out-patient therapy. Finally, we end with a discussion of whether pediatric asthma exacerbations necessitating admission to an ICU constitute their own high-risk phenotype and/or whether it is a part of other previously defined high-risk subgroups such as difficult-to-control asthma, exacerbation-prone asthma, and severe treatment-resistant asthma.

Keywords: allergic sensitization; asthma; biomarker; cluster; endotype; exacerbation; latent class analysis; phenotype; type-2 inflammation.

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Clin Exp Allergy

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. 2025 Jun;55(6):511-513.

doi: 10.1111/cea.70018. Epub 2025 Feb 23.

[Asthma With Fixed Obstruction Displays a Similar Small Airway Dysfunction to That Observed in Asthma-COPD Overlap](#)

[Toshihiro Shirai](#)¹, [Keita Hirai](#)², [Yasuhiro Gon](#)³

Affiliations Expand

- PMID: 39988449
- DOI: [10.1111/cea.70018](https://doi.org/10.1111/cea.70018)

Abstract

The clinical characteristics of asthma patients with fixed airflow obstruction were compared with those with asthma-COPD overlap. Asthma patients with fixed airflow obstruction had comparable small airway dysfunction to asthma-COPD overlap patients.

Keywords: asthma–COPD overlap; fixed airflow obstruction; oscillometry; small airway dysfunction; smoking history.

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Review

J Asthma

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. 2025 Jun;62(6):919-928.

doi: 10.1080/02770903.2025.2460549. Epub 2025 Feb 6.

[Computed tomography in severe asthma assessment: a systematic review](#)

[Simona Luzzi](#)¹, [Tommaso Pianigiani](#)¹, [Akter Dilroba](#)¹, [Martina Meocci](#)¹, [Elisa Salvadori](#)¹, [Benedetta Picchi](#)¹, [Vittoria Ventura](#)¹, [Sara Croce](#)¹, [Laura Bergantini](#)¹, [Miriana D'Alessandro](#)¹, [Elena Bargagli](#)¹, [Paolo Cameli](#)

Affiliations Expand

- PMID: 39898584
- DOI: [10.1080/02770903.2025.2460549](https://doi.org/10.1080/02770903.2025.2460549)

Abstract

Objective: Chest computed tomography (CT) is usually performed in patients with severe asthma (SA) to exclude concomitant conditions related to poor clinical control. Despite the growing evidence regarding the utility of CT in the characterization of morphological abnormalities and airway remodeling, its role in SA assessment is still largely unexplored. The aim of our systematic review was to evaluate published data investigating the role of chest CT in patients with SA.

Data sources: The systematic search was conducted on the Medline database through the Pubmed search engine.

Study selections: A total of 53 studies has been included.

Results: Quantitative CT (qCT) parameters generally differ between SA patients compared to mild to moderate asthmatic patients or healthy controls and are related to functional decline. CT parameters allow to identify image-based clusters reflecting remodeling patterns and/or air trapping features. The detection of mucus plugs is more frequent in severe eosinophilic asthma, and it is related to marked airway obstruction and ventilation defects. Benralizumab treatment appears to reduce or vanish mucus plugging. Most studies regarding CT and bronchial thermoplasty (BT) detect the usefulness of this investigation in predicting treatment response. Lastly, conflicting results surround the relation between chest CT and SA assessment in children due to also the scarcity of studies focusing on pediatric population.

Conclusions: The role of CT scans in SA is still debated. Most studies focus on the identification of CT-derived disease clusters while studies primarily evaluating the predicting role of CT scan to different biologics are lacking and could represent an interesting research area.

Keywords: Severe asthma; airway disease; computed tomography; imaging.

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53

J Asthma

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. 2025 Jun;62(6):997-1006.

doi: 10.1080/02770903.2025.2451690. Epub 2025 Feb 7.

[Exacerbation during the first year of treatment affects lung function in subjects with asthma - a 10-year follow-up](#)

[Pca Almeida](#)^{1,2}, [Ev Ponte](#)³, [R Stelmach](#)^{2,4}, [Tw Harrison](#)⁵, [N Scichilone](#)⁶, [A Souza-Machado](#)^{2,7}, [Aa Cruz](#)^{2,8}

Affiliations Expand

- PMID: 39888725
- DOI: [10.1080/02770903.2025.2451690](https://doi.org/10.1080/02770903.2025.2451690)

Abstract

Background: Inhaled corticosteroids (ICS) are the preferred treatment for asthma. They improve symptoms and reduce exacerbations and deaths, but their long-term impact on lung function loss remains unclear, especially after delayed treatment. We aimed to characterize the lung function trajectories in subjects with previously untreated severe asthma. The secondary aim was to identify predictors of FEV₁ decline, and future exacerbations.

Methods: This is a *post-hoc* analysis that followed 184 subjects with asthma for 10 years after a delayed start of regular maintenance ICS treatment. Absolute lung function variation was calculated using two different baselines: (i) FEV₁ after one year of regular treatment (V₁) and (ii) best FEV₁ observed any time before the final visit.

Results: Most individuals were female (84%) over 50 years old and had early-onset asthma with a median of 30 years without regular ICS treatment. Ninety-nine (54%) had an FEV₁ decline above 25ml/year, using strategy (i). Those subjects were younger, had shorter duration of asthma, and had better lung function at V₁. Most of the participants without any obstructive pattern (74%) or with mild obstruction (64%) at V₁ showed a faster absolute FEV₁ decline, however PRISm showed faster relative decline than the other groups.

Conclusion: This study showed improved symptoms and quality of life with variable lung function trajectories among individuals with asthma who start regular treatment after decades of delay. Additionally, exacerbation during the first year was a strong predictor of absolute FEV₁ decline and future exacerbations, while time without treatment was a predictor of relative reduction of FEV₁.

Keywords: Asthma long-term follow-up; exacerbation risk; lung function decline; previously untreated severe asthma.

Plain language summary

In 10 years of follow-up and treatment, individuals with previously untreated severe asthma classification showed different lung function trajectories. Exacerbation during the first year increased the odds of faster lung function decline and future exacerbations, even after many years of regular treatment with ICS/ICS+LABA and multidisciplinary care.

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54

Randomized Controlled Trial

J Asthma

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. 2025 Jun;62(6):1041-1051.

doi: 10.1080/02770903.2025.2455416. Epub 2025 Feb 3.

[The efficacy and safety of Fluticasone Furoate/Umeclidinium/vilanterol \(FF/UMEC/VI\) on cough symptoms in adult patients with asthma, a randomized double-blind, placebo-controlled, parallel group study: Chronic Cough in Asthma \(COCOA\) study](#)

[Etsuko Tagaya](#)¹, [Jun Shinada](#)², [Hiroyuki Nagase](#)³, [Junko Terada-Hirashima](#)⁴, [Masayuki Hojo](#)⁴, [Naruhiko Sugihara](#)⁵, [Osamitsu Yagi](#)¹, [Mayoko Tsuji](#)¹, [Tomohiro Akaba](#)¹, [Katsunori Masaki](#)⁶, [Koichi Fukunaga](#)⁶, [Hiroyuki Ohbayashi](#)⁷, [Kaoru Chiba](#)⁸, [Soichiro Hozawa](#)⁹, [Ryo Atsuta](#)¹⁰, [Yasuhiro Aoki](#)¹¹, [Hisato Hiranuma](#)¹², [Yasuhiro Gon](#)¹², [Akihiko Tanaka](#)¹³

Affiliations Expand

- PMID: 39874464
- DOI: [10.1080/02770903.2025.2455416](https://doi.org/10.1080/02770903.2025.2455416)

Free article

Abstract

Background: Persistent cough bothers many patients with asthma because it worsens their quality of life; therefore, it must be remedied immediately. The efficacy of triple therapy as a first-line treatment for cough remains unclear. To evaluate the effectiveness and safety of the triple therapy against persistent cough, the clinical effect of regular treatment with fluticasone furoate/umeclidinium/vilanterol (FF/UMEC/VI) or placebo in adult patients with asthma was investigated.

Methods: This randomized, double-blind, placebo-controlled, parallel-group multicenter trial recruited asthma patients with persistent cough from hospitals and primary care clinics between June 2022 and December 2023. Participants were randomly given FF/UMEC/VI 200/62.5/25 µg or placebo for 6 wk. The primary endpoint was the average change in the cough symptom score from baseline to week 6. Secondary outcomes were effectiveness on cough-related disease burdens (asthma control questionnaire [ACQ]-5, Leicester cough questionnaire [LCQ] and nighttime awakening). Furthermore, lung function and adverse events were evaluated.

Results: The decrease from baseline in the cough symptom score at week 6 was significantly greater in the FF/UMEC/VI group than in the placebo group ($p = 0.006$). The ACQ-5 scores showed a greater decrease in the FF/UMEC/VI group than in the placebo group. The change from baseline in morning and evening FEV₁ increased in the FF/UMEC/VI group as with the results of peak expiratory flow. No significant adverse events associated with FF/UMEC/VI were noted.

Conclusions: In asthma patients with persistent cough, FF/UMEC/VI showed an early response and a significant effect on cough and lung function for 6 wk of treatment.

This study is registered with [jRCTs031210412](#).

Keywords: Asthma; clinical study; cough; triple therapy.

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Expert Opin Emerg Drugs

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. 2025 Jun;30(2):87-97.

doi: 10.1080/14728214.2025.2460529. Epub 2025 Feb 1.

[Emerging biological treatments for asthma](#)

[Daniela Pastore](#)¹, [Chiara Lupia](#)¹, [Maria D'Amato](#)², [Andrea Bruni](#)³, [Eugenio Garofalo](#)³, [Federico Longhini](#)³, [Luca Gallelli](#)¹, [Alessandro Vatrella](#)⁴, [Girolamo Pelaia](#)¹, [Corrado Pelaia](#)³

Affiliations Expand

- PMID: 39873193
- DOI: [10.1080/14728214.2025.2460529](https://doi.org/10.1080/14728214.2025.2460529)

Abstract

Introduction: Severe asthma is a chronic airway disease characterized by many pathomechanisms known as endotypes. Biological therapies targeting severe asthma endotypes have significantly improved the treatment of this disease, thus remarkably bettering patient quality of life.

Areas covered: This review aims to describe current biological therapies for severe asthma, highlighting emerging ones. Several studies have confirmed the beneficial effects of currently available monoclonal antibodies targeting immunoglobulin E (IgE), interleukin-5 (IL-5) or its receptor, and interleukin-4 (IL-4)/interleukin-13 (IL-13) receptors (IL-4R/IL-13R). However, patients with T2-low asthma are not eligible for the above biological therapies.

Expert opinion: New treatments are now moving toward targeting the upstream pathways of asthma pathogenesis, coordinated by innate cytokines such as alarmins. These key proinflammatory mediators orchestrate the activation of complex cellular networks including both innate and adaptive immune responses. Alarmins include thymic stromal lymphopoietin (TSLP), interleukin-25 (IL-25), and interleukin-33 (IL-33), which are released from injured airway epithelial cells. TSLP and the other alarmins are suitable targets of biological therapies which are effective for add-on treatment of type 2 asthma. Moreover, anti-alarmin monoclonal antibodies can be also beneficial for patients with T2-low, poorly controlled severe asthma.

Keywords: Severe asthma endotypes; alarmins; asthma control; biologic drugs; innate and adaptive immune responses.

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56

J Asthma

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. 2025 Jun;62(6):1052-1060.

doi: 10.1080/02770903.2025.2458509. Epub 2025 Jan 31.

[Adult patients with an exacerbation of asthma and a higher risk for pulmonary embolism: a cluster analysis](#)

[Javad Sadeghi](#)¹, [Neda Esfandiari](#)², [Babak Mohammadi](#)³

Affiliations Expand

- PMID: 39852240
- DOI: [10.1080/02770903.2025.2458509](https://doi.org/10.1080/02770903.2025.2458509)

Abstract

Objective: Current literature acknowledges the complexity of exacerbation triggers in patients with asthma. We studied the clinical heterogeneity of patients with asthma exacerbation suspected of having pulmonary embolism using cluster analysis and compared the clusters regarding of the risks for pulmonary embolism.

Methods: In a secondary analysis of a dataset from the University of Florida, USA, individuals who experienced asthma exacerbation between June 2011 and October 2018 were included. All patients had undergone pulmonary CT angiography. Overall, 18 variables consisting of demographic, clinical, comorbidity, and therapeutic characteristics were used to cluster patients. The clusters were then profiled and compared in the percentages of pulmonary embolism.

Results: In total, 758 patients (226; 29.8% men) with an exacerbation of asthma were included in the analysis. The frequency of a confirmed pulmonary embolism was 145 (19.1%). Two distinct clusters were identified with a statistically significant difference in pulmonary embolism [$p < 0.001$, odds ratio (95%CI)=2.24 (1.55, 3.24)]. We developed a high-performance classifier to profile the low- and high-risk clusters (area under the curve = 0.923, positive likelihood ratio = 20.2). The three top important variables discriminating the two clusters were age, heart rate, and body mass index. Older age, lower heart rate, higher body mass index, black race, and positive medical history (including atrial fibrillation) were more frequent in the high-risk group. Despite the higher percentage of women in the high-risk group, the sex ratios were not significantly different between the clusters.

Conclusion: There are two clusters in patients with an exacerbation of asthma with different prognoses percentages of pulmonary embolism. The clusters can be well identified based on patient characteristics.

Keywords: Asthma; atrial fibrillation; clustering; exacerbation; prognosis; pulmonary embolism.

Plain language summary

We identified two distinct clinical clusters of patients with asthma exacerbation suspected of having pulmonary embolism. Age, HR, and BMI were the top important variables to differentiate the clusters. Comorbidities, medications, and race were other important factors. The clusters were different in their associations with PE and AF. Our study acknowledges the heterogeneity of patients with asthma exacerbations.

Supplementary info

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57

J Asthma

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. 2025 Jun;62(6):1092-1093.

doi: 10.1080/02770903.2025.2458525. Epub 2025 Jan 30.

[Letter to the editor regarding "assessing ChatGPT's accuracy and reliability in asthma general knowledge"](#)

[Simon Høj¹](#), [Howraman Meteran^{2 3 4}](#)

Affiliations Expand

- PMID: 39849838
- DOI: [10.1080/02770903.2025.2458525](https://doi.org/10.1080/02770903.2025.2458525)

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J Asthma

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. 2025 Jun;62(6):1013-1019.

doi: 10.1080/02770903.2025.2453507. Epub 2025 Jan 25.

[The assessment of exhaled nitric oxide in patients with obesity and asthma before and after exercise](#)

[Burcu Parlak](#)¹, [Zeynep Ülker Tamay Altinel](#)², [Nermin Güler](#)²

Affiliations Expand

- PMID: 39804570
- DOI: [10.1080/02770903.2025.2453507](#)

Abstract

Objective: It is well-known that children who suffer from obesity and asthma may also have exercise-induced bronchospasm. Exhaled nitric oxide is an indicator of airway inflammation, and could be affected by exercise. This study looked at how exercise, which is a typical cause of acute airway obstruction, affects the levels of FeNO and spirometric parameters in obese and asthmatic children.

Materials and methods: Seventy children between the ages of 6 and 18 were divided into four groups: healthy children, obese children with asthma, obese children without asthma, and normal-weight asthmatic children. FeNO and spirometric parameters were assessed before and after exercise. Their heart rate was raised to 160-170 beats per minute by walking on a flat surface.

Results: The highest mean FeNO was seen in the asthmatic-obese group, while the lowest mean FeNO was found in the healthy group. MEF25-75 increased with exercise in the obese non-asthmatic group. FEV1/FVC was the lowest in the asthmatic-obese group.

Conclusions: FeNO and FEV1/FVC have a strong association with asthma. The highest values of FeNO found in asthma-obesity combined. It was seen that obesity increased inflammation but exercise did not affect FeNO values. FeNO and FEV1 values were found to be higher in obese patients with and without asthma than normal weight and overweight asthmatics and non-asthmatics.

Keywords: Asthma; FeNO; exercise; obesity; pediatric; pulmonary function test.

Supplementary info

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. 2025 Jun;114(6):1329-1337.

doi: 10.1111/apa.17573. Epub 2025 Jan 13.

[Trends in childhood asthma in Denmark, Finland, Norway and Sweden](#)

[Lise Gehrt](#)^{1,2}, [Signe Vahlkvist](#)³, [Thomas Houmann Petersen](#)³, [Hélène Englund](#)⁴, [Heta Nieminen](#)⁵, [Ida Laake](#)⁶, [Poul-Erik Kofoed](#)^{3,7}, [Berit Feiring](#)⁶, [Christine Stabell Benn](#)^{1,2}, [Lill Trogstad](#)⁶, [Signe Sørup](#)^{1,8}

Affiliations Expand

- PMID: 39803879
- PMCID: [PMC12066901](#)
- DOI: [10.1111/apa.17573](#)

Abstract

Aim: Estimate the incidence of asthma among children aged 0 to 15 years in Denmark, Finland, Norway and Sweden during 2000-2017.

Methods: Cases of preschool asthma (up to 6 years) and school-age asthma (from 6 years) were identified through national registers using an algorithm including hospital diagnoses and prescription medicines. The respective cumulative incidence (CI) was estimated in 1-year age intervals for each country and birth year.

Results: The CI of algorithm-based preschool asthma peaked for the birth cohorts 2008 or 2009 at 14.8% in Denmark, 11.0% in Finland, 15.1% in Norway and 13.7% in Sweden. For later birth cohorts, a slight decrease was observed. The CI of school-age asthma was 7.1% in Denmark, 10.5% in Finland, 9.7% in Norway and 10.2% in Sweden (children born in 2002). A slight decline over time was seen in Denmark and Norway, and a slight increase in Sweden and Finland.

Conclusion: Finland had a markedly lower CI of preschool asthma and Denmark lower CI of school-age asthma as estimated by prescriptions and hospital diagnoses. Preschool asthma may have plateaued in the Nordic countries. For school-age asthma trends over time varied by country. Differences in diagnostic and prescription practices may have influenced the results.

Keywords: Nordic countries; asthma; burden of disease; childhood; population registers.

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Conflict of interest statement

LG is currently employed at Novo Nordisk A/S, the current employment has no implications for the work presented in this publication as this was undertaken as part of LGs previous employment with SDU. HN is an investigator in vaccine-related studies for which THL has received funding from GSK, Pfizer and Sanofi Pasteur. These fundings are not relevant to the current study. Department of Clinical Epidemiology, Aarhus University and Aarhus University Hospital, the employer of SS, receives institutional research funding from public and private entities for studies of medicines and vaccines, to and administered by Aarhus University. None of these are relevant to the current study. The remaining authors report no relation that could be construed as a conflict of interest.

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J Asthma

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. 2025 Jun;62(6):1007-1012.

doi: 10.1080/02770903.2025.2451691. Epub 2025 Jan 17.

[Pre-biologic FeNO might predict anti-IL-5/IL-5R \$\alpha\$ response to treatment in severe asthmatics](#)

[Bruno Sposato](#)¹, [Marco Scalese](#)², [Gianna Camiciottoli](#)³, [Giovanna Elisiana Carpagnano](#)⁴, [Corrado Pelaia](#)⁵, [Pierachille Santus](#)⁶, [Girolamo Pelaia](#)⁷, [Paolo Cameli](#)⁸, [Elena Bargagli](#)⁸, [Leonardo Gianluca Lacerenza](#)⁹, [Dejan](#)

[Radovanovic](#)^{6 10}, [Paola Rogliani](#)¹¹, [Mauro Maniscalco](#)^{12 13}, [Simonetta Masieri](#)¹⁴, [Carlo Cavaliere](#)¹⁵, [Angelo Guido Corsico](#)¹⁶, [Nicola Scichilone](#)¹⁷, [Stefano Baglioni](#)¹⁸, [Antonio Perrella](#)¹, [Pierluigi Paggiaro](#)¹⁹, [Alberto Ricci](#)²⁰

Affiliations Expand

- PMID: 39783623
- DOI: [10.1080/02770903.2025.2451691](https://doi.org/10.1080/02770903.2025.2451691)

Abstract

Objective: It remains unclear whether baseline FeNO levels can predict response to anti-IL5/5R biologic treatment in patients with severe asthma.

Methods: We recruited 104 patients with severe eosinophilic asthma treated with anti-IL5/anti-IL5R for at least one year who had measured FeNO values before the beginning of anti-eosinophilic treatment. Population was divided into subjects with FeNO < 25 and ≥ 25 ppb. In each group we evaluated the changes in pulmonary function (FEV₁% and FEF₂₅₋₇₅%), clinical (ACT and exacerbations) and steroid-sparing effect, expressed as the modification of daily dosage of inhaled corticosteroids (ICS) and oral corticosteroids (OC), after anti-IL5/anti-IL5R.

Results: FEV₁ changes after treatment were $3.34 \pm 15.97\%$ in subjects with low baseline FeNO, whereas $11.2 \pm 16.1\%$ in individuals with FeNO ≥ 25 ppb ($p = 0.012$). Also, FEF₂₅₋₇₅% variations after treatment were different in the two groups: $2.1 \pm 10.7\%$ vs $9.6 \pm 18\%$ in individuals with FeNO < 25 and ≥ 25 respectively ($p = 0.05$). Conversely, ACT (4.4 ± 4.2 vs 5.9 ± 4.6 ; $p = 0.147$), exacerbation changes (-2.46 ± 1.5 vs -2.9 ± 1.6 ; $p = 0.137$) after treatment were similar in both groups where ICS dosages reduction was alike. On the contrary, the percentage of subjects that reduced/stopped OC treatment after anti-IL5/anti-IL5R was 71.7% in the group with FeNO < 25 ppb whereas 94.1% in individuals with FeNO ≥ 25 ($p = 0.06$). Multivariate analysis adjusted for all confounding factors also confirmed the relationship between FeNO ≥ 25 and improvement in FEV₁%/FEF₂₅₋₇₅% ($\beta = 8.372$, $p = 0.013$ and $\beta = 8.883$; $p = 0.062$ respectively) and the increased probability of discontinuing/reducing OC use (OR:17.838 [95%CI:3.159-100.730]; $p = 0.001$) in the high FeNO group.

Conclusion: Pre-biologic FeNO might predict a greater response to treatment with anti-IL-5/5R especially in terms of lung function and OC sparing in subjects with severe eosinophilic/allergic asthma. This could likely be a biomarker that can better guide in choosing an anti-IL5/5R in severe overlapping asthma (eosinophilic/allergic) to maximize treatment effects.

Keywords: FeNO; Severe asthma; anti-IL-5; anti-IL-5R α ; benralizumab; biologic; mepolizumab; real-life; response.

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61

Randomized Controlled Trial

J Clin Pharmacol

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. 2025 Jun;65(6):665-674.

doi: 10.1002/jcph.6179. Epub 2025 Jan 7.

[Pharmacokinetics and Pharmacodynamics of Intravenous Magnesium Sulfate in Pediatric Acute Asthma Exacerbations](#)

[Joseph E Rower](#)^{1,2}, [Michael D Johnson](#)³, [Joseph J Zorc](#)⁴, [Bashar Shihabuddin](#)⁵, [Mengtao Dai](#)⁶, [Bradley J Barney](#)⁶, [Yaron Finkelstein](#)⁷

Affiliations Expand

- PMID: 39775569
- PMCID: [PMC12110724](#)
- DOI: [10.1002/jcph.6179](#)

Abstract

Pediatric asthma exacerbations represent a significant cause of emergency department use and hospitalizations. Despite available treatment options, many children's exacerbations are refractory to standard therapies and require adjunct treatments. The Intravenous Magnesium: Prompt use for Asthma in Children Treated in the Emergency Department study investigated the pharmacology of intravenous magnesium sulfate (IVMg) in treating pediatric asthma exacerbations. Specifically, the objectives of the study included (1) externally validating a previously published population pharmacokinetic model and (2) linking serum magnesium concentrations with outcomes including asthma severity score

(efficacy) and hypotension (safety). Data were obtained from 49 children prospectively treated with IVMg (placebo, 50 or 75 mg/kg) after presenting to the pediatric emergency department with an acute asthma exacerbation. Reductions in Pediatric Respiratory Assessment Measure scores were associated with both total and ionized serum magnesium area under the concentration-time curve (AUC_{0-2 h}). Despite frequent study-specific blood pressure monitoring, hypotension was uncommon in IVMg-treated participants (n = 2/31), and no concentration dependence was observed. The findings signal that IVMg may be an efficacious and safe option for treating moderate-severe pediatric acute asthma exacerbations in the ED. Importantly, this study is the first to suggest a serum exposure target (total serum magnesium AUC_{0-2 h} >63.1 mg h/L) reflective of effective IVMg dosing in pediatric acute asthma. While further study in a larger clinical trial is needed to refine and validate this exposure target, these findings support the continued study of IVMg therapy as an adjunct therapeutic option in the setting of pediatric asthma exacerbations.

Keywords: Pediatric Respiratory Assessment Measure; blood pressure; magnesium sulfate; pediatric asthma; pharmacodynamics; pharmacokinetics.

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Conflict of interest statement

The authors declare no conflicts of interest.

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- [2 figures](#)

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62

J Asthma

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. 2025 Jun;62(6):975-983.

doi: 10.1080/02770903.2025.2450482. Epub 2025 Jan 11.

[Assessing ChatGPT's accuracy and reliability in asthma general knowledge: implications for artificial intelligence use in public health education](#)

[Muhammad Thesa Ghozali](#) ¹

Affiliations Expand

- PMID: 39773167
- DOI: [10.1080/02770903.2025.2450482](https://doi.org/10.1080/02770903.2025.2450482)

Abstract

Background: Integrating Artificial Intelligence (AI) into public health education represents a pivotal advancement in medical knowledge dissemination, particularly for chronic diseases such as asthma. This study assesses the accuracy and comprehensiveness of ChatGPT, a conversational AI model, in providing asthma-related information.

Methods: Employing a rigorous mixed-methods approach, healthcare professionals evaluated ChatGPT's responses to the Asthma General Knowledge Questionnaire for Adults (AGKQA), a standardized instrument covering various asthma-related topics. Responses were graded for accuracy and completeness and analyzed using statistical tests to assess reproducibility and consistency.

Results: ChatGPT showed notable proficiency in conveying asthma knowledge, with flawless success in the etiology and pathophysiology categories and substantial accuracy in medication information (70%). However, limitations were noted in medication-related responses, where mixed accuracy (30%) highlights the need for further refinement of ChatGPT's capabilities to ensure reliability in critical areas of asthma education. Reproducibility analysis demonstrated a consistent 100% rate across all categories, affirming ChatGPT's reliability in delivering uniform information. Statistical analyses further underscored ChatGPT's stability and reliability.

Conclusion: These findings underscore ChatGPT's promise as a valuable educational tool for asthma while emphasizing the necessity of ongoing improvements to address observed limitations, particularly regarding medication-related information.

Keywords: AGKQA; ChatGPT; artificial intelligence; asthma; health education; knowledge.

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63

Review

Ann Allergy Asthma Immunol

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. 2025 Jun;134(6):639-648.

doi: 10.1016/j.anai.2024.12.021. Epub 2024 Dec 24.

[Therapeutic and mechanistic advances in chronic cough](#)

[Anju T Peters](#)¹, [Ken W Altman](#)², [Peter Dicpinigaitis](#)³, [Matthew G Drake](#)⁴, [Imran Satia](#)⁵, [Gayatri B Patel](#)⁶

Affiliations Expand

- PMID: 39722320
- DOI: [10.1016/j.anai.2024.12.021](#)

Abstract

Cough is one of the most common reasons patients seek medical care in the outpatient setting. Chronic cough (CC) in adults is defined as a cough lasting more than 8 weeks, with a global prevalence of approximately 10%. CC significantly impairs quality of life, affecting physical, social, and psychological well-being. In most cases, CC is attributed to 1 or more of the following 3 key conditions: upper airway cough syndrome, gastroesophageal or laryngopharyngeal reflux, and asthma or non-asthmatic eosinophilic bronchitis-assuming a normal chest x-ray result and no use of angiotensin-converting enzyme inhibitors. If the cough persists despite thorough guideline-based evaluation and treatment, it is classified as refractory CC (RCC). RCC is thought to arise from neuronal dysregulation involving both peripheral and central mechanisms, termed cough hypersensitivity syndrome. This is typically characterized by a tickle or itch sensation in the throat, leading to an urge to cough in response to seemingly harmless stimuli. Current treatment

options for RCC include "off-label" use of centrally acting neuromodulators and speech therapy. In addition, a new peripherally acting oral P2×3 receptor antagonist, gefapixant, has been approved in the European Union, United Kingdom, Switzerland, and Japan, though not in the United States or Canada. Emerging treatments hold promise for improving management in the future.

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Review

Am J Med Sci

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. 2025 Jun;369(6):653-656.

doi: 10.1016/j.amjms.2024.12.008. Epub 2024 Dec 19.

[Changing paradigms in asthma management](#)

[Charles E Grogan](#)¹, [Marlee Wadsworth](#)¹, [Gailen D Marshall Jr](#)²

Affiliations Expand

- PMID: 39709041
- DOI: [10.1016/j.amjms.2024.12.008](https://doi.org/10.1016/j.amjms.2024.12.008)

Abstract

Asthma is a complex clinical syndrome characterized by airway inflammation that can cause variable, usually reversible airway obstruction and bronchial

hyperreactivity. This illness has a spectrum from intermittent to persistent that has mild, medium or severe intensity. As our understanding of the underlying inflammatory pathway grows, so too does our catalogue of advanced treatments (such as monoclonal antibodies), opening the path for treatment individually curated for patients. The current approved therapies are directed against IgE, interleukin (IL)-5, IL-5 receptor, IL-4 receptor subunit- α and most recently thymic stromal lymphopoietin (TSLP). These therapies all have demonstrated efficacies that make them variably effective in patients with moderate to severe persistent disease. More recently, other inflammatory molecules have been therapeutically targeted and are currently under clinical investigation for future potential use. However, a significant concern remains: the high financial costs for these advanced therapies continues to pose a significant burden both to patients and the healthcare system. Novel uses of long-acting bronchodilator-corticosteroids inhalers may reduce the use of highly priced biologics in many patients with comparatively less severe disease. Furthermore, the variability in patient response demands further research into to identify which patients will best respond to which specific therapy.

Keywords: Asthma; Biologics; Cytokines; Inflammation.

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Conflict of interest statement

Declaration of competing interest The authors have no conflicts of interest.

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J Pharm Pract

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. 2025 Jun;38(3):285-286.

doi: 10.1177/08971900241308623. Epub 2024 Dec 15.

[Why Bisoprolol? A Neglected Beta-Blocker in the U.S](#)

[Kazuhiko Kido](#)¹, [Maya Guglin](#)²

Affiliations Expand

- PMID: 39675838
- DOI: [10.1177/08971900241308623](https://doi.org/10.1177/08971900241308623)

No abstract available

Keywords: COPD; asthma; bisoprolol; erectile dysfunction; heart failure.

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. 2025 Jun;70(6):760-776.

doi: [10.4187/respcare.12487](https://doi.org/10.4187/respcare.12487). Epub 2025 Jan 31.

[Noninvasive Respiratory Support for Pediatric Critical Asthma](#)

[Andrew G Miller](#)¹, [Alexandre T Rotta](#)²

Affiliations Expand

- PMID: 39362757
- DOI: [10.4187/respcare.12487](https://doi.org/10.4187/respcare.12487)

Abstract

Pediatric asthma is a common cause of emergency department visits and hospital admissions. Whereas most patients respond well to standard pharmacologic treatments, those with more severe disease frequently require noninvasive respiratory support (NRS) and adjunct therapies or admission to an ICU—a condition termed critical asthma. NRS modalities include high-flow nasal cannula, CPAP, and noninvasive ventilation to deliver standard air-oxygen mixtures or helium-oxygen (heliox). Each NRS modality offers distinct physiological benefits, primarily aimed at reducing work of breathing, enhancing gas exchange, and optimizing aerosol delivery. Despite the growing use of NRS, robust evidence supporting its efficacy in pediatric critical asthma is limited, with few published clinical trials and a heavy reliance on observational studies to inform clinical practice. This narrative review explores the current evidence, physiological rationale, practical considerations, and future research directions for the use of NRS in pediatric critical asthma. The goal is to provide clinicians with a comprehensive overview of the benefits and limitations of NRS modalities to better inform therapeutic decisions and improve patient outcomes.

Keywords: CPAP; asthma; children; critical asthma; heliox; helium-oxygen; high-flow nasal cannula; noninvasive respiratory support; noninvasive ventilation; pediatrics; respiratory support; status asthmaticus.

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Respir Care

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. 2025 Jun;70(6):746-759.

doi: 10.4187/respcare.12458. Epub 2025 Feb 10.

[Pharmacological Management of Pediatric Critical Asthma](#)

[Colin M Rogerson](#)¹, [Benjamin R White](#)², [Samer Abu-Sultaneh](#)¹

Affiliations Expand

- PMID: 39348943
- DOI: [10.4187/respcare.12458](https://doi.org/10.4187/respcare.12458)

Abstract

Pediatric critical asthma, formerly known as status asthmaticus, is a common pediatric condition encountered in emergency departments, hospital wards, and PICUs. Systemic corticosteroids and inhaled bronchodilators are evidence-based, initial treatments for patients with pediatric critical asthma. If clinical symptoms do not improve, then pediatric practitioners often prescribe adjunctive medications, including inhaled anticholinergics, intravenous ketamine, intravenous magnesium, intravenous short-acting β_2 agonists, and intravenous methylxanthines (eg, aminophylline). In this narrative review, we summarize the current evidence and present the research gaps related to these therapies in the pediatric population.

Keywords: aminophylline; bronchodilator agents; critical care; glucocorticoids; ketamine; magnesium; pediatrics; status asthmaticus; terbutaline.

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"rhinitis"[MeSH Terms] OR rhinitis[Text Word]

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Am J Respir Cell Mol Biol

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. 2025 Jun 4.

doi: 10.1165/rcmb.2025-0241ED. Online ahead of print.

[Switching On Gene Therapy for Allergic Rhinitis: The AAVITS Approach](#)

[Hongpeng Jia](#)¹

Affiliations Expand

- PMID: 40466048
- DOI: [10.1165/rcmb.2025-0241ED](https://doi.org/10.1165/rcmb.2025-0241ED)

No abstract available

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Review

J Allergy Clin Immunol

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. 2025 May 28:S0091-6749(25)00611-6.

doi: 10.1016/j.jaci.2025.05.017. Online ahead of print.

[Neural Control of the Pathophysiology of Allergic Airway Disease and Its Clinical Implications: A Focus on Allergic Rhinitis and Asthma](#)

[Zhang-Fu Fang¹, Yu Fu², Fang Yi², Zhe Chen³, Ya-Zhe Li², Zhao-Ni Wang², Jian-Yang Dong⁴, Ping-Chang Yang⁵, Damo Xu⁵, Xiao-Yu Liu⁶, Jia-Xing Xie⁷](#)

Affiliations Expand

- PMID: 40447196
- DOI: [10.1016/j.jaci.2025.05.017](https://doi.org/10.1016/j.jaci.2025.05.017)

Abstract

Dysregulation of neuronal control of the upper and lower airways plays an important role in the pathogenesis of common allergic airway diseases, such as

allergic rhinitis (AR) and asthma. Peripheral nervous system has been shown to regulate innate and adaptive immune responses by releasing neuropeptides and neurotransmitters in both the upper and lower airways. In addition, various airway nociceptors have been shown to mediate immune-inflammatory responses and influence type 2 immunity in patients with AR and asthma. Emerging evidence has suggested that pathophysiologic alterations in AR and asthma, such as mucosal inflammation, coughing, and upper and lower airway hyperreactivity, can be regulated by the nervous system. Targeting neural pathways has emerged as a promising strategy for achieving beneficial clinical efficacy in patients with AR and asthma. Understanding how neural control of the pathophysiology of allergic airway diseases will have significant implications for future translational studies. This review updates and highlights recent progress in research on the neural control of disease pathophysiology of AR and asthma and discusses clinical implications for future studies.

Keywords: Airway hyperreactivity; Allergic rhinitis; Asthma; Immune-inflammatory response; Nociceptor; Pathophysiology; Peripheral nervous system.

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3

Practice Guideline

Otolaryngol Head Neck Surg

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. 2025 Jun;172(6):1807-1832.

doi: 10.1002/ohn.1286.

[Executive Summary of the Clinical Practice Guideline on the Surgical Management of Chronic Rhinosinusitis](#)

[Jennifer J Shin](#)¹, [Meghan Wilson](#)², [Margo McKenna](#)³, [Richard Rosenfeld](#)⁴, [Kathryn Ammon](#)⁵, [Dana Crosby](#)⁶, [Jonathan M Fuchs](#)⁷, [Jason Blakeley Hensler](#)⁸, [Elisa A Illing](#)⁹, [Kent Lam](#)¹⁰, [Corinna Levine](#)¹¹, [Steven T Kmucha](#)¹², [Edward D McCoul](#)¹³, [Jessa Miller](#)¹⁴, [Kenneth Rodriguez](#)¹⁵, [Nicholas R Rowan](#)¹⁶, [Ahmad R Sedaghat](#)¹⁷, [Bruce K Tan](#)¹⁸, [Emma Roy](#)¹⁹, [Nui Dhepyasuwan](#)¹⁹

Affiliations Expand

- PMID: 40437675
- DOI: [10.1002/ohn.1286](https://doi.org/10.1002/ohn.1286)

Abstract

Objective: The purpose of this specialty-specific clinical practice guideline is to identify quality improvement opportunities and provide clinicians with trustworthy, evidence-based recommendations for the surgical management of chronic rhinosinusitis in adults. The target audience includes otolaryngologist-head and neck surgeons who manage adults with chronic rhinosinusitis, including candidacy and performance of endoscopic sinus surgery.

Methods: This executive summary describes the guideline developed using the 55-page protocol published as the American Academy of Otolaryngology-Head and Neck Surgery Foundation's Clinical Practice Guideline Development Manual (3rd edition), which summarizes the methodology for assessments of current data, topic prioritization, development of key action statements (KASs), application of value judgments, and related procedures. The guideline group represented otolaryngologists, rhinologists, advanced practice nursing and physician assistants, and consumers who represented participating national professional organizations.

Action statements: The Guideline Development Group made strong recommendations for the following KASs: Before considering surgery, the surgeon should verify an existing diagnosis of chronic rhinosinusitis to ensure established diagnostic criteria (signs and symptoms) from clinical practice guidelines are met, and the surgeon should assess candidacy for sinus surgery based on symptoms, disease characteristics, quality of life, and prior medical or surgical therapy (KASs 1A and 1B). The surgeon or their designee should not prescribe antibacterial therapy to an adult with chronic rhinosinusitis if significant or persistent purulent nasal discharge (anterior, posterior, or both) is absent on examination (KAS 3). The Guideline Development Group made recommendations for the following KASs: The surgeon should not endorse or require a predefined, one-size-fits-all regimen or duration of medical therapy (eg, antibiotics, steroids, antihistamines) as a prerequisite to sinus surgery for an adult with chronic rhinosinusitis (KAS 2). The surgeon should identify patients with chronic rhinosinusitis that would benefit most from surgery and are least likely to benefit from continued medical therapy alone, such as those with chronic rhinosinusitis subtypes that include, but are not limited to, chronic rhinosinusitis with polyps, polyps with bony erosion, eosinophilic mucin, or fungal balls (KAS 4). The surgeon or their designee should counsel patients before sinus surgery to establish realistic expectations, including the potential for chronicity or relapse, and the likelihood of long-term medical

management, taking into account their chronic rhinosinusitis subtype (KAS 5). The surgeon should offer sinus surgery to an adult with chronic rhinosinusitis when the anticipated benefits exceed that of nonsurgical management alone, there is clarity regarding the anticipated outcomes, and the patient understands the expectation for long-term disease management following surgery (KAS 6). For an adult who is a candidate for sinus surgery, the surgeon or their designee should obtain a computed tomography (CT) scan with a fine-cut protocol, if not already available, to examine the paranasal sinuses for surgical planning (KAS 7). The surgeon should not plan the extent of sinus surgery (eg, which specific sinuses to operate on) solely based on arbitrary criteria regarding a minimal level of mucosal thickening, sinus opacification, or outflow obstruction on a CT scan (KAS 8). The surgeon or their designee should educate an adult with chronic rhinosinusitis who is scheduled for sinus surgery regarding anticipated postoperative care, specifically pain control, debridement, medical management, activity restrictions, return to work, duration and frequency of follow-up visits, and the potential for recurrent disease or revision surgery (KAS 9). When the sinus involves polyps, osteitis, bony erosion, or fungal disease in an adult with chronic rhinosinusitis who is scheduled for sinus surgery, the surgeon should perform sinus surgery that includes full exposure of the sinus cavity (lumen) and removal of diseased tissue, not just balloon or manual ostial dilation, or refer the patient to a surgeon who can perform this extent of surgery (KAS 10). The surgeon or their designee should routinely follow up to assess and document outcomes of sinus surgery for chronic rhinosinusitis, between 3 and 12 months after the procedure, through history (symptom relief, quality of life, complications, adherence to therapy, need for rescue medications, and ongoing care) and nasal endoscopy (KAS 11). There were no recommendations that were considered options from the Guideline Development Group.

Keywords: chronic rhinosinusitis; clinical practice guideline; endoscopic sinus surgery; evidence-based practice; novel data; rhinosinusitis; systematic reviews.

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. 2025 May 28;15(1):18685.

doi: [10.1038/s41598-025-02462-5](https://doi.org/10.1038/s41598-025-02462-5).

[Association of grass pollen concentration and physical symptoms as well as impairments in day-to-day life in pollen allergy patients](#)

[V Landesberger¹, J Huß^{2,3}, K Grenzebach¹, D Nowak^{4,5}, M Gröger⁶, E Oppel⁷, B Schaub^{8,9,10}, L E French⁷, S Kutzora¹, C Quartucci¹, C Herr^{1,4,5}, S Heinze^{1,4,5}](#)

Affiliations Expand

- PMID: 40436986
- PMCID: [PMC12119830](https://pubmed.ncbi.nlm.nih.gov/PMC12119830/)
- DOI: [10.1038/s41598-025-02462-5](https://doi.org/10.1038/s41598-025-02462-5)

Abstract

Allergic diseases are a major global public health issue, profoundly impacting the daily lives of millions of people worldwide. The aim of this study is to investigate the association between daily grass pollen concentration and daily physical symptoms as well as impairments in day-to-day life in pollen allergy patients in Bavaria, Germany over a period of three-months. Pollen data of the pollen season 2022 were obtained from the electronic pollen information network of Bavaria. We used an app-based questionnaire and developed an index to measure physical symptoms-regarding eyes and nose as well as impairments in day-to-day life including performance, sleep quality and daily activities. For our analyses we used data from 53 patients. The associations were analysed using linear mixed models (LMM). We found a statistically significant association between the level of grass pollen concentration and both the index physical symptoms ($\beta = 0.002$; $p < 0.001$) and the index impairments in day-to-day life ($\beta = 0.00064$; $p < 0.048$). It is important that patients are well informed about the pollen count as well as their physical symptoms and daily life impairments so that they can manage their allergies effectively and appropriately.

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Conflict of interest statement

Declarations. Competing interest: The authors declare no competing interests.

- [33 references](#)
- [3 figures](#)

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5

Int Arch Allergy Immunol

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. 2025 May 28:1-21.

doi: 10.1159/000545508. Online ahead of print.

[Inhalant Allergen Sensitization: Prevalence, Risk Factors, and Geographic Variation in the United States](#)

[Kenny Kwong](#), [Zhen Chen](#), [Lyne Scott](#), [Lee H Hilborne](#)

- PMID: 40435963
- DOI: [10.1159/000545508](#)

Free article

Abstract

Introduction: We aimed to assess the prevalence of IgE-mediated sensitization to two perennial (dust mite and animal) and four seasonal allergen sources (tree, grass, weed, and mold/fungi) using data from a national clinical reference laboratory (Quest Diagnostics).

Methods: Patients tested in 2019 for ≥ 1 specific serum IgE toward 4 dust mites, 14 animals, 32 trees, 12 grasses, 21 weeds, or 19 mold/fungi allergens, were included. Patients with ≥ 1 specific IgE ≥ 0.10 kU/L within a source were considered sensitized for the source. Chi-square tests and multivariate logistic regression were used to compare the estimated prevalence of allergic sensitization related to demographics, geography, and clinical diagnosis.

Results: Sensitization for dust mite, animal, tree, grass, weed, and mold/fungi sources was 38.0% (21,161/55,735), 32.1% (21,888/68,035), 34.5% (22,975/66,567), 30.3% (21,664/71,575), 31.2% (22,960/73,605), and 19.7% (13,514/68,574), respectively. Across allergen sources, males had higher prevalence (from lowest to highest: 25.3% mold/fungi to 43.0% dust mite) compared to females (from lowest to highest: 16.1% mold/fungi to 34.6% dust mite); prevalence peaked in 10-19 years (from lowest to highest: 29.7% mold/fungi to 54.2% dust mite) and then decreased with increasing age; large metropolitan areas (from lowest to highest: 39.6% dust mite to 20.7% mold/fungi) had higher prevalence compared to small-to-medium metro (from lowest to highest: 36.6% dust mite to 17.9% mold/fungi) or nonmetro areas (from lowest to highest: 32.4% dust mite to 19.5% mold/fungi); a higher prevalence was observed in patients with asthma, atopic dermatitis, or rhinitis than in those with none of these diagnoses reported. Sensitization to perennial and seasonal allergens showed regional variation.

Conclusions: Prevalence of allergic sensitization to perennial and seasonal allergens is associated with patient age and sex, census regions, level of urbanization, and allergic disease states. These factors should be considered when designing and selecting allergen panels for diagnosing and treating symptomatic patients.

The Author(s). Published by S. Karger AG, Basel.

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6

Practice Guideline

Otolaryngol Head Neck Surg

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. 2025 Jun:172 Suppl 2:S1-S47.

doi: 10.1002/ohn.1287.

[Clinical Practice Guideline: Surgical Management of Chronic Rhinosinusitis](#)

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Affiliations Expand

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- DOI: [10.1002/ohn.1287](https://doi.org/10.1002/ohn.1287)

Abstract

Objective: The purpose of this specialty-specific clinical practice guideline is to identify quality improvement opportunities and provide clinicians with trustworthy, evidence-based recommendations for the surgical management of chronic rhinosinusitis in adults. The target audience includes otolaryngologist-head and neck surgeons who manage adults with chronic rhinosinusitis, including candidacy and performance of endoscopic sinus surgery.

Methods: This guideline was developed using the 55-page protocol published as the American Academy of Otolaryngology-Head and Neck Surgery Foundation's Clinical Practice Guideline Development Manual (3rd edition), which summarizes the methodology for assessments of current data, topic prioritization, development of key action statements (KASs), application of value judgments, and related procedures. The guideline group represented otolaryngologists, rhinologists, advanced practice nursing and physician assistants, and consumers who represented participating national professional organizations.

Action statements: The Guideline Development Group made strong recommendations for the following KASs: Before considering surgery, the surgeon should verify an existing diagnosis of chronic rhinosinusitis to ensure established diagnostic criteria (signs and symptoms) from clinical practice guidelines are met, and the surgeon should assess candidacy for sinus surgery based on symptoms, disease characteristics, quality of life, and prior medical or surgical therapy (KASs 1A and 1B). The surgeon or their designee should not prescribe antibacterial therapy to an adult with chronic rhinosinusitis if significant or persistent purulent nasal discharge (anterior, posterior, or both) is absent on examination (KAS 3). The Guideline Development Group made recommendations for the following KASs: The surgeon should not endorse or require a predefined, one-size-fits-all regimen or duration of medical therapy (eg, antibiotics, steroids, antihistamines) as a prerequisite to sinus surgery for an adult with chronic rhinosinusitis (KAS 2). The surgeon should identify patients with chronic rhinosinusitis that would benefit most from surgery and are least likely to benefit from continued medical therapy alone, such as those with chronic rhinosinusitis subtypes that include, but are not limited to, chronic rhinosinusitis with polyps, polyps with bony erosion, eosinophilic mucin, or fungal balls (KAS 4). The surgeon or their designee should counsel patients before sinus surgery to establish realistic expectations, including the potential for chronicity or relapse, and the likelihood of long-term medical management, taking into account their chronic rhinosinusitis subtype (KAS 5). The

surgeon should offer sinus surgery to an adult with chronic rhinosinusitis when the anticipated benefits exceed that of nonsurgical management alone, there is clarity regarding the anticipated outcomes, and the patient understands the expectation for long-term disease management following surgery (KAS 6). For an adult who is a candidate for sinus surgery, the surgeon or their designee should obtain a computed tomography (CT) scan with a fine-cut protocol, if not already available, to examine the paranasal sinuses for surgical planning (KAS 7). The surgeon should not plan the extent of sinus surgery (eg, which specific sinuses to operate on) solely based on arbitrary criteria regarding a minimal level of mucosal thickening, sinus opacification, or outflow obstruction on a CT scan (KAS 8). The surgeon or their designee should educate an adult with chronic rhinosinusitis who is scheduled for sinus surgery regarding anticipated postoperative care, specifically pain control, debridement, medical management, activity restrictions, return to work, duration and frequency of follow-up visits, and the potential for recurrent disease or revision surgery (KAS 9). When the sinus involves polyps, osteitis, bony erosion, or fungal disease in an adult with chronic rhinosinusitis who is scheduled for sinus surgery, the surgeon should perform sinus surgery that includes full exposure of the sinus cavity (lumen) and removal of diseased tissue, not just balloon or manual ostial dilation, or refer the patient to a surgeon who can perform this extent of surgery (KAS 10). The surgeon or their designee should routinely follow up to assess and document outcomes of sinus surgery for chronic rhinosinusitis, between 3 and 12 months after the procedure, through history (symptom relief, quality of life, complications, adherence to therapy, need for rescue medications, and ongoing care) and nasal endoscopy (KAS 11). There were no recommendations that were considered options from the Guideline Development Group.

Keywords: chronic rhinosinusitis; clinical practice guideline; endoscopic sinus surgery; evidence-based practice; novel data; rhinosinusitis; systematic reviews.

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7

Ann Otol Rhinol Laryngol

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. 2025 May 26:34894251341110.

doi: 10.1177/00034894251341110. Online ahead of print.

[Surgical Treatment Outcomes in the Management of Rhinitis: A Systematic Review and Meta-Analysis](#)

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Affiliations Expand

- PMID: 40417957
- DOI: [10.1177/00034894251341110](#)

Abstract

Background: Rhinitis can present with symptoms including severe nasal obstruction, rhinorrhea, nasal itching, and sneezing. Surgical treatment options include inferior turbinate procedures, thought to target nasal congestion, and posterior nasal nerve (PNN) procedures, for relief of rhinorrhea. This review intends to quantify the degree of resolution of symptoms related to rhinitis from various procedures and guide clinical decision making.

Methods: A literature search identified studies reporting rhinitis symptoms at baseline and following surgical treatment. Outcomes of interest were the 4-item Total Nasal Symptom Score (TNSS) and VAS equivalents for "rhinorrhea," "nasal obstruction," "nasal itching," and "sneezing." Postnasal drip (PND) scores were additionally collected when available.

Results: A total of 20 studies (N = 1408) were analyzed. The TNSS fell by 50% (mean difference 3.86 points [95% CI 3.03-4.69]), with all 4 symptoms undergoing significant amelioration across all procedure types. Nasal congestion, rhinorrhea, and PND saw the largest improvement, with reductions ranging from 1.2 to 1.5 points. VAS scoring followed a similar pattern, with nasal obstruction and runny nose undergoing the largest changes. Turbinate and PNN procedures led to similar improvements in congestion and rhinorrhea, with average score reductions of 56.8% and 57.6% ($P = 0.7168$), respectively. Nasal itching and PND underwent differential improvement, with greatest improvements from PNN procedures (mean differences of 14.2% [95% CI: 4.7-23.4%] and 31.6% [95% CI: 21.2-40.6%], $P < .0001$).

Conclusion: All surgical treatments for rhinitis improve patient symptom burden, having the most drastic effect on nasal congestion and rhinorrhea. PNN procedures result in greater improvements in nasal itching and PND but otherwise perform similarly to inferior turbinate surgeries.

Keywords: adults rhinology; allergy/rhinology; quality of life.

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8

Randomized Controlled Trial

Eur Arch Otorhinolaryngol

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. 2025 Jun;282(6):3097-3101.

doi: 10.1007/s00405-025-09392-y. Epub 2025 Apr 21.

[Efficacy of nasal saline irrigation in conjunction with intranasal steroids in allergic rhinitis](#)

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Affiliations Expand

- PMID: 40257579
- DOI: [10.1007/s00405-025-09392-y](#)

Abstract

Aim: To study the efficacy of nasal saline irrigation combined with intranasal corticosteroids in treating Allergic Rhinitis and compare it with intranasal corticosteroids alone.

Methodology: A prospective, randomized trial conducted at a tertiary care center. Symptomatic individuals diagnosed with Allergic Rhinitis were included. The control group received fluticasone propionate nasal spray (200 mcg/day) and the treatment group received fluticasone propionate nasal spray (200 mcg/day) along with nasal saline irrigation with isotonic normal saline (50 ml/nostril with each irrigation thrice a day). The two groups were followed up for 12 weeks. The outcome was compared using a patient-reported experience measure "Allergic rhinitis scoring system".

Results: A total of 120 patients (60 in each group) were included in the study. Pre-intervention, there were no significant differences between the two groups with the Allergic rhinitis scoring system. Post-Intervention, significant improvements were evident across all assessed symptoms: rhinorrhoea (14.93 ± 4.16 vs. 17.80 ± 3.16 , $p < 0.0001$), sneezing (14.40 ± 3.91 vs. 18.27 ± 3.16 , $p < 0.0001$), nasal blockage (10.47 ± 4.66 vs. 13.80 ± 4.80 , $p = 0.0002$), nasal pruritus (17.93 ± 3.17 vs. 19.13 ± 1.96 , $p = 0.0140$), ocular pruritus (18.60 ± 2.84 vs. 19.13 ± 2.22 , $p = 0.2537$), and total Allergic rhinitis scoring system score (77.00 ± 9.79 vs. 88.13 ± 7.70 , $p < 0.0001$).

Conclusion: Nasal saline irrigation used in conjunction with intranasal corticosteroids more effectively alleviates all symptoms of Allergic rhinitis. However, there was no significant difference in ocular pruritus in both groups.

Trial registration: Trial registered with Clinical trial registry-India, CTRI/2023/01/048641. URL: <https://ctri.nic.in/Clinicaltrials/main1.php?EncHid=44058.73881> .

Keywords: Allergic rhinitis; Allergy; Intranasal corticosteroids; Nasal obstruction; Normal saline nasal irrigation; Sneezing.

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Conflict of interest statement

Declarations. Conflict of interest: None. **Ethical approval:** Institute ethical committee clearance taken for this study (Approval Number: CHCC/ACA/14/Corres/IEC Cert No. 49/2022 dt Sept 2022). All patients received the standard of care for their condition and was as per the ethical standards. **Informed consent:** No identifying information about participants is available in the article. However, all patients have given consent for the treatment they have received.

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9

Review

Curr Opin Immunol

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. 2025 Jun:94:102538.

doi: 10.1016/j.coi.2025.102538. Epub 2025 Feb 27.

[Primary atopic disorders: inborn errors of immunity causing severe allergic disease](#)

[Maryam Vaseghi-Shanjani](#)¹, [Simran Samra](#)¹, [Pariya Yousefi](#)², [Catherine M Biggs](#)², [Stuart E Turvey](#)³

Affiliations Expand

- PMID: 40020536
- DOI: [10.1016/j.coi.2025.102538](https://doi.org/10.1016/j.coi.2025.102538)

Free article

Abstract

Allergic diseases, including asthma, allergic rhinitis, atopic dermatitis, and food allergies, are driven by dysregulated immune responses, often involving IgE-mediated mast cell and basophil activation, Th2 inflammation, and epithelial dysfunction. While environmental factors are well-known contributors, the genetic components underpinning these conditions are increasingly understood. Traditionally viewed as polygenic multifactorial disorders, allergic diseases can also be caused by single-gene defects affecting the immune system and skin epithelial barrier, leading to profoundly dysregulated allergic responses. These monogenic allergic disorders are collectively referred to as primary atopic disorders or PADs. To date, over 48 single-gene defects have been established to cause PADs. This review highlights (i) the significance of PADs, (ii) the biological pathways involved in the pathogenesis of PADs, (iii) clinical strategies to differentiate PADs from their much more common polygenic counterparts, and (iv) diagnostic strategies for PADs.

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Conflict of interest statement

Declaration of Competing Interest The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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10

Review

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. 2025 Jun 1;25(3):144-150.

doi: [10.1097/ACI.0000000000001067](https://doi.org/10.1097/ACI.0000000000001067). Epub 2025 Feb 27.

[From one biologic to another: the rationale and evidence behind switching therapies in chronic rhinosinusitis](#)

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Affiliations Expand

- PMID: 40013972
- DOI: [10.1097/ACI.0000000000001067](https://doi.org/10.1097/ACI.0000000000001067)

Abstract

Purpose of review: Although biologics had been used to treat CRSwNP, not all patients respond favourably, necessitating the use of other biologics. As there are currently no guidelines available, the process and rationale for switching biologic therapy in the treatment of CRSwNP are examined in this review.

Recent findings: Due to the heterogeneity of diseases, biologic therapies may efficiently control CRSwNP but give inadequate control for asthma, or vice versa. Changing an ineffective first-line biologic to a second-line treatment or others is generally referred to as switching. The most common reasons for switching biologics are poor symptom management or ineffectiveness, and undesirable adverse effects. The ineffectiveness was largely due to the use of omalizumab or mepolizumab, whereas the adverse effects were due to dupilumab.

Summary: Switching biologics is a nuanced process influenced by a variety of patient-specific and clinical factors. Biologics that effectively treat upper and lower airway diseases are recommended for optimal control in CRSwNP patients with concurrent asthma. There was no difference in outcomes between switching biologics with and without a washout period. Switching between biologics in the same class is generally not recommended. Dupilumab serves as an effective treatment option for refractory cases particularly aspirin-exacerbated respiratory disease.

Keywords: biologics; chronic rhinosinusitis; outcomes; polyps; switching.

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11

Observational Study

Eur Arch Otorhinolaryngol

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. 2025 Jun;282(6):3329-3334.

doi: 10.1007/s00405-025-09275-2. Epub 2025 Feb 20.

[Clinical effectiveness of dupilumab in CRSwNP: unaffected by baseline nasal polyp size in real-world settings](#)

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Affiliations Expand

- PMID: 39979624
- PMCID: [PMC12122593](#)
- DOI: [10.1007/s00405-025-09275-2](#)

Abstract

Purpose: This study aimed to investigate the impact of baseline nasal polyp score (NPS) on the effectiveness of dupilumab treatment in patients with chronic rhinosinusitis with nasal polyps (CRSwNP).

Methods: In this retrospective observational study, 80 CRSwNP patients treated with dupilumab 300 mg biweekly at a tertiary referral center were stratified according to the baseline NPS into two groups: low-NPS (< 5) and high-NPS (≥ 5). Treatment outcomes were evaluated at the 6-month follow-up visit and compared.

Results: Both groups showed significant clinical improvements. The NPS decreased significantly in both low- and high-NPS groups, from a mean score of 3.2 to 0.8 and from 6.1 to 1.4, respectively ($p < 0.001$ for both). SNOT-22 scores improved significantly in both groups ($p < 0.001$ for both), though the reduction was greater in the high-NPS group (35.5 vs. 23.9, $p = 0.018$). There were no significant differences between low- and high NPS groups in proportions of NPS reduction of ≥ 1 (89% vs. 95%, $p = 0.396$) and clinically significant SNOT-22 improvement (= reduction > 12 or follow-up SNOT < 40 ; 80% vs. 86%, $p = 0.544$).

Conclusions: Our results suggests that dupilumab is effective in CRSwNP treatment, regardless of baseline nasal polyp size. Both small and large polyp groups showed significant improvements in NPS and patient-reported outcome measures. Future, prospective studies are warranted to validate these findings.

Keywords: Biological treatment; CRSwNP; Chronic rhinosinusitis; Monoclonal antibody.

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Conflict of interest statement

Declarations. Ethical approval: The study was conducted in accordance with the Declaration of Helsinki, and approved by the Institutional Review Board of Medical University of Graz (approval code: 1086/2024). Due to the retrospective nature of this study, requirement of patient's informed consent was waived by the Institutional Review Board of Medical University of Graz. Conflict of interest: The authors declare that they have no conflict of interest.

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12

Ann Otol Rhinol Laryngol

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. 2025 Jun;134(6):459-462.

doi: 10.1177/00034894251320303. Epub 2025 Feb 19.

[Exploring Completion Rates of the SNOT-22 Questionnaire](#)

[Luv Amin](#)^{1,2}, [John Davis](#)³, [Mishek Thapa](#)², [Syeda L Khalil](#)², [Arthur W Wu](#)², [Thomas S Higgins](#)⁴, [Dennis M Tang](#)²

Affiliations Expand

- PMID: 39968847
- DOI: [10.1177/00034894251320303](https://doi.org/10.1177/00034894251320303)

Abstract

Background: The 22-item Sinonasal Outcome Test (SNOT-22) is a widely used patient-reported outcome measure (PROM) for assessing chronic rhinosinusitis (CRS). However, incomplete surveys may impact its predictive utility.

Aims: This study explores SNOT-22 completion rates, response trends, and potential factors influencing survey omissions aiming to optimize its predictive utility and practical application.

Methods: SNOT-22 surveys were retrospectively collected from patients at various time points throughout their CRS treatment. Surveys with at least one question unanswered were included in the study. Completely unanswered surveys were excluded. Survey response dynamics and trends were analyzed and reported.

Results: 1,034 SNOT-22 surveys were collected, 18% of the surveys were incomplete. Questions on "Ear fullness" and "Embarrassed" were most unanswered, while "Need to blow nose" and "Nasal blockage" were least unanswered. Questions later in the survey showed a moderate positive correlation with missing responses. Mean scores per question were higher in incomplete than

in complete surveys, though differences in SNOT-22 scores between partially and fully completed surveys weren't significant.

Conclusion: Our study found that a large number of SNOT-22 surveys were incomplete, higher than rates reported in similar PROMs. Mean scores did not differ significantly between partial and complete surveys, suggesting interpretation should prioritize individual responses over total scores. Potential barriers to survey completion include question wording, symptom relevance, and survey length. Future research should further investigate survey completion through qualitative methods and randomized question ordering to refine survey design.

Keywords: chronic rhinosinusitis; otolaryngology; quality of life; rhinologic research; rhinology; sinonasal pathology; sinusitis; survey.

Conflict of interest statement

Declaration of Conflicting InterestsThe author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: Dr. Dennis M. Tang is a consultant for Aerin Medical, Acclarent, 3D Matrix, and SoundHealth. He is a speaker for Optinose. None of these are relevant to this publication. Dr. Arthur W. Wu is a consultant with SoundHealth and 3D Matrix. He is a speaker with Sanofi-Regeneron. He is an investigator with Optinose. None of these are relevant to this publication. Dr. Thomas S. Higgins is a speaker and consultant for Sanofi/Regeneron, Optinose, Genentech, and GSK. He is an investigator for Optinose, Lyra, and Biohaven. None of these are relevant to this publication.

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13

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. 2025 Jun;15(6):602-607.

doi: 10.1002/alr.23534. Epub 2025 Jan 19.

[Persistent Eosinophilic Inflammation Is Not a Feature of Type 2 CRS Patients Failing Anti-IL-5R Therapy and Requiring Class Switching to Anti-IL-4/13](#)

[Peta-Lee Sacks](#)^{1,2}, [Christian M Meerwein](#)^{1,3}, [Peter Earls](#)⁴, [Cedric Thiel](#)¹, [Christine Choy](#)¹, [Raewyn G Campbell](#)^{1,5}, [Raymond Sacks](#)^{1,2,6,7}, [Larry Kalish](#)^{1,6,7}, [Richard J Harvey](#)^{1,2,7}

Affiliations Expand

- PMID: 39828890
- PMCID: [PMC12135457](#)
- DOI: [10.1002/alr.23534](#)

Abstract

Background: Type 2 inflammation dominates eosinophilic chronic rhinosinusitis (eCRS) and adult onset asthma. IL-4, -5, and -13 are prominent disease mediators. Disease control can be achieved with biologic therapies. However, despite some patients entering remission, others experience poor control.

Aim: We aimed to describe eCRS patients treated with anti-IL-5R antibody (benralizumab) and assess characteristics between responders and those requiring class switching to anti-IL-4/13R (dupilumab).

Method: A retrospective cohort study was performed on consecutive adult patients with eCRS and asthma who had commenced benralizumab. Disease control was defined as controlled or poorly controlled (EPOS2020 partly control/uncontrolled). Poorly controlled patients were switched to dupilumab. Baseline and post-IL-5R characteristics including age, sex, 22-item Sinonasal Outcome Test (SNOT-22), Asthma Control Questionnaire (ACQ) score, and serum/tissue eosinophilia were assessed. Disease control post-class switching was reassessed. Factors predicting poorly controlled disease on anti-IL-5R therapy were sought.

Results: Fifty patients were assessed (51.44 ± 12.73 years, 56% female). Poorly controlled disease on anti-IL-5R requiring class switch to dupilumab was seen in 42%. Poorly controlled patients were younger (46.14 ± 10.76 vs. 55.28 ± 12.83 years, p = 0.01) with higher baseline SNOT-22 (61.42 ± 19.19 vs. 42.32 ± 21.55, p < 0.01). Baseline ACQ scores and eosinophil count (0.78 ± 0.49 vs. 0.62 ± 0.34 × 10⁹cells/L, p = 0.23) and were similar between groups. In the poorly controlled patients on anti-IL-5R therapy, eosinophilia had reduced in both serum (0.78 ± 0.5 vs. 0.02 ± 0.1 × 10⁹cells/L, p < 0.01) and tissue (>100 cells/HPF: 100% vs. 29%, p = 0.01). Class switching resulted in disease control for 65%.

Conclusion: Neither eosinophilia nor its reduction predicted a non-responder group to anti-IL-5R therapy. While the eosinophil population may be a good marker for the CRS phenotype seen in nasal polyps, it is unlikely to be the cell population driving the disease process.

Keywords: biologics; eosinophils; rhinosinusitis.

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Conflict of interest statement

Richard J. Harvey is consultant/advisory board with Medtronic, Novartis, Glaxo-Smith-Kline, and Meda Pharmaceuticals. He has been on the speakers' bureau for Glaxo-Smith-Kline, Astra-Zeneca, Meda Pharmaceuticals, and Seqirus. Larry Kalish is on the speakers' bureau for Viatris, Stallergenens, and Seqirus Pharmaceuticals. Raewyn G. Campbell is on the speaker's bureau for Medtronic, Viatris, and Glaxo-Smith-Kline. All other authors have no personal, financial, or institutional interest in any drugs, materials, or devices described in this article.

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14

Laryngoscope

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. 2025 Jun;135(6):1872-1883.

doi: 10.1002/lary.31969. Epub 2024 Dec 21.

[Intrapolyp Steroid Injection for Nasal Polyposis: A Systematic Review and Network Meta-Analysis](#)

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Affiliations Expand

- PMID: 39707800

- DOI: [10.1002/lary.31969](https://doi.org/10.1002/lary.31969)

Abstract

Objective: To conduct a systematic review and network meta-analysis to evaluate the safety and efficacy of intrapolyp steroid injection compared with oral steroids, nasal steroid wash, nasal steroid spray, and a control group in patients with chronic rhinosinusitis with nasal polyps (CRSwNP).

Data sources: PubMed, Scopus, Web of Science, Embase, and CENTRAL.

Review methods: Both randomized and non-randomized clinical trials were included. For risk of bias assessment, we used the RoB-2 and ROBINS-I tools. Our outcomes focused on safety and efficacy, including rates of visual disturbance and bleeding, as well as improvements in nasal polyps evaluated through three domains: endoscopic, radiologic, and patient-reported assessments. Safety data were pooled as events (%), while efficacy data were pooled as mean difference (MD) or standardized mean difference (SMD).

Results: Eight clinical trials involving 579 patients were analyzed. The pooled analyses showed low event rates for visual disturbances (event rate = 0.64%, 95% CI [0.00%, 2.23%]) and bleeding (event rate = 0.61%, 95% CI [0.00%, 2.25%]). Additionally, intrapolyp steroid injections were found to be comparable with oral steroids, with no statistically significant differences. Moreover, intrapolyp steroid injections demonstrated some superiority over nasal sprays, nasal washes, and the control group.

Conclusion: This network meta-analysis confirms that intrapolyp steroid injections have a favorable safety and efficacy profile as a viable management option for CRSwNP. The injections showed comparable efficacy with oral steroids and demonstrated certain advantages over other treatments, such as nasal sprays and washes. Further research with larger sample sizes and standardized protocols are needed. *Laryngoscope*, 135:1872-1883, 2025.

Keywords: intrapolyp steroid injection; nasal polyp; rhinosinusitis; systematic review; systemic steroid.

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15

Ann Allergy Asthma Immunol

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. 2025 Jun;134(6):685-693.e5.

doi: 10.1016/j.anai.2024.10.015. Epub 2024 Oct 19.

[Quantifying corticosteroid burden in chronic rhinosinusitis with nasal polyps: A retrospective US database study](#)

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Affiliations Expand

- PMID: 39428097
- DOI: [10.1016/j.anai.2024.10.015](https://doi.org/10.1016/j.anai.2024.10.015)

Free article

Abstract

Background: Real-world burden data on systemic corticosteroid (SCS) use in chronic rhinosinusitis with nasal polyps (CRSwNP) are limited.

Objective: To describe the real-world burden of SCS in CRSwNP.

Methods: This retrospective cohort study included commercial/Medicare Advantage with Part D health plan members from the Optum Research Database with a first medical claim (index) for CRSwNP (January 2015-July 2020). Primary outcomes/variables included SCS use, health care resource utilization, and costs during the 12-month follow-up period. Outcomes were analyzed overall (N = 21,172) and stratified by baseline comorbid asthma status and sinus surgeries during follow-up.

Results: Overall, 64.7% and 41.0% of patients used all-cause and CRSwNP-related SCS, respectively, and 36.0% had ≥ 1 oral corticosteroid (OCS) burst (≥ 20 mg for 3-28 days); SCS use was higher in patients with asthma and those with a NP-related surgery (1, 2, and ≥ 3) vs without. The mean (SD) all-cause cumulative oral corticosteroid dose was 303.3 (675.0) mg/year and 23.5% had a cumulative annual dose ≥ 400 mg; these values were higher (P < .001) in patients with vs without comorbid asthma (514.9 [956.1] vs 247.5 [567.0]; 36.9% vs 19.9%). All-cause and CRSwNP health care resource utilization and costs increased with increasing number of surgeries; mean (SD) all-cause total medical costs were \$14,472 (38,915),

\$26,909 (40,800), \$29,816 (41,677), and \$31,558 (37,143) with 0, 1, 2, and ≥3 surgeries, respectively.

Conclusion: These data highlight the significant burden of SCS use in CRSwNP, particularly in patients with comorbid asthma, and suggest a need to reduce SCS exposure.

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chronic cough

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. 2025 May 28:16:20406223251336036.

doi: 10.1177/20406223251336036. eCollection 2025.

[Predictive factors for neuromodulator response in patients with nonacid gastroesophageal reflux-induced chronic cough: a retrospective data analysis](#)

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Affiliations Expand

- PMID: 40443760
- PMCID: [PMC12120281](#)
- DOI: [10.1177/20406223251336036](#)

Abstract

Background: Nonacid gastroesophageal reflux-induced cough (GERC) remains understudied, with limited research on effective treatment options. Recently, neuromodulators such as gabapentin and baclofen have shown promise in managing nonacid GERC.

Objectives: This study aimed to identify factors associated with response to neuromodulator therapy in nonacid GERC.

Study design: A retrospective study.

Methods: We analyzed medical records of patients diagnosed with nonacid GERC who received gabapentin or baclofen as an add-on therapy enrolled between December 2019 and January 2024. Retrospective analysis of general information, cough-related questionnaires, MII-pH parameters, and other assessments was conducted to establish a regression analysis model for identifying multiple factors associated with neuromodulator response.

Results: In this retrospective cohort study, data from 184 patients were analyzed, with 106 (57.6%) classified as responders and 78 (42.4%) as nonresponders. Clinical factors significantly associated with neuromodulator efficacy included gender (OR = 4.324, $p = 0.027$), age (OR = 0.803, $p = 0.002$), and exposure to cough-aggravating factors (OR = 6.345, $p < 0.001$). Furthermore, multiple regression analysis further identified specific Hull Airway Reflux Questionnaire (HARQ) items-"Cough with certain foods" (OR = 2.523, $p = 0.034$), "Cough with eating" (OR = 4.445, $p < 0.001$), and "Cough brought on by singing or speaking" (OR = 5.003, $p = 0.007$)-as significant predictors. Additionally, Medication Adherence Questionnaire (MAQ) items such as "Forgetfulness" (OR = 0.257, $p = 0.005$) and "Stopping medication when "feeling better" (OR = 0.787, $p = 0.017$) were also identified as significant predictors of treatment response.

Conclusion: Neuromodulators can relieve nonacid GERC in patients unresponsive to standard anti-reflux therapy. Factors such as male gender, younger age, less exposure to cough irritants, and higher HARQ and lower MAQ scores can effectively predict the efficacy of neuromodulators.

Keywords: baclofen; chronic cough; gabapentin; neuromodulator; nonacid GERC; predictive factors.

Plain language summary

Predictive factors for neuromodulator response in patients with nonacid gastroesophageal reflux-induced chronic cough Why was the study done? Nonacid gastroesophageal reflux-induced cough (GERC) remains a topic of discussion, with limited research on effective treatment options. Recently, neuromodulators such as gabapentin and baclofen have shown promise in managing nonacid GERC. This study aimed to identify factors associated with response to neuromodulator therapy (specifically baclofen and gabapentin) in nonacid GERC. What did the researchers do? This study reviewed the medical records of 184 patients treated with baclofen and gabapentin from 2019 to 2024. Patients were categorized into two groups: those who experienced relief from their cough ("responders") and those who did not ("non-responders"). Statistical analyses were then applied to various factors to identify potential predictors of a patient's likelihood to benefit from neuromodulators. What did the researchers find? The study found that younger patients, men, and those with less exposure to cough-aggravating factors (like certain odors or

irritants) were more likely to respond positively to treatment. Additional predictors included whether a patient's cough was triggered by specific factors, such as eating, particular foods, or activities like talking or singing. Forgetfulness and stopping medication when feeling better were associated with a lower likelihood of treatment success. Overall, these findings suggest that neuromodulators may be effective for individuals with nonacid GERD, and certain factors can help predict who might benefit the most from this treatment.

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Monaldi Arch Chest Dis

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. 2025 May 26.

doi: 10.4081/monaldi.2025.3396. Online ahead of print.

[Beyond breathlessness: unveiling chronic cough in interstitial lung diseases. A pilot Portuguese cohort](#)

[Flávia Ferreira](#)¹, [Ana Machado](#)², [Vânia Fernandes](#)³, [Tiago Alfaro](#)⁴, [Alda Marques](#)², [Ana Oliveira](#)⁵

Affiliations Expand

- PMID: 40421491
- DOI: [10.4081/monaldi.2025.3396](https://doi.org/10.4081/monaldi.2025.3396)

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Abstract

Dear Editor, Chronic cough, lasting at least 8 weeks, is a prevalent symptom in individuals with interstitial lung disease, posing significant physical, psychological, and social challenges....

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Tuberc Respir Dis (Seoul)

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. 2025 May 26.

doi: 10.4046/trd.2025.0031. Online ahead of print.

Unbalanced Associations Between Physical, Psychological, and Social Domains of the Leicester Cough Questionnaire: Network and Mediation analyses

[Jieun Kang¹](#), [Jiyeon Kang²](#), [Sung Jun Chung²](#), [Hyung Koo Kang²](#), [Sung-Soon Lee²](#), [Yun-Jeong Jeong³](#), [Ji-Yong Moon⁴](#), [Deog Kyeom Kim⁵](#), [Jin Woo Kim⁶](#), [Seung Hun Jang⁷](#), [Jae-Woo Kwon⁸](#), [Byung-Jae Lee⁹](#), [Hyeon-Kyoung Koo²](#)

Affiliations Expand

- PMID: 40415566
- DOI: [10.4046/trd.2025.0031](https://doi.org/10.4046/trd.2025.0031)

Free article

Abstract

Background: The Leicester Cough Questionnaire (LCQ) is a validated tool for assessing cough-related impairments across three domains: physical, psychological, and social. This study explored the interrelationships among the physical, psychological, and social domains of chronic cough using the LCQ.

Methods: Adult patients with chronic cough from 16 respiratory centers who completed the LCQ and diagnostic workup were retrospectively analyzed. Spearman's rank correlation analysis was conducted to evaluate the correlations among LCQ items across the physical, psychological, and social domains. Causal mediation analysis decomposed the total effect between domains into direct and indirect effects mediated by the third domain. Findings from the mediation analysis were further validated in an independent cohort.

Results: Network analysis of the LCQ items revealed distinct characteristics for each domain. The items in the physical domain demonstrated weaker intra- and inter-domain correlations compared to those in the psychological and social domains. In contrast, strong correlations were observed between the items in the psychological and social domains. Mediation analysis demonstrated that direct effects from one domain to another varied across the three domains. The total estimated effects of the physical domain on the social and psychological domains were predominantly mediated by the psychological (76.1%) and social domains (67.1%), respectively. However, the physical domain had a minimal mediating effect on the psychological and social domains, contributing only 12.8% and 18.0%, respectively.

Conclusions: Given the strong correlations and impacts of the psychological and social domains, a comprehensive assessment including psychosocial influences should be considered for managing chronic cough.

Keywords: Leicester Cough Questionnaire; chronic cough; mediation analysis; network analysis; quality of life.

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Editorial

Am J Respir Crit Care Med

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. 2025 Jun;211(6):908-910.

doi: 10.1164/rccm.202503-0636ED.

Camlipixant: A New Hope for Refractory Chronic Cough?

[Imran Satia](#)^{1,2}, [Stuart B Mazzone](#)³

Affiliations Expand

- PMID: 40315139
- DOI: [10.1164/rccm.202503-0636ED](https://doi.org/10.1164/rccm.202503-0636ED)

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Review

Otolaryngol Clin North Am

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. 2025 Jun;58(3):485-496.

doi: 10.1016/j.otc.2025.01.004. Epub 2025 Mar 26.

[Chronic Cough and Pulmonary Manifestations of Laryngopharyngeal Reflux Disease](#)

[Aaron J Jaworek](#)¹, [Thomas L Carroll](#)²

Affiliations Expand

- PMID: 40148169
- DOI: [10.1016/j.otc.2025.01.004](https://doi.org/10.1016/j.otc.2025.01.004)

Abstract

Laryngopharyngeal reflux plays an important role in respiratory diseases such as chronic cough, asthma, chronic obstructive pulmonary disease, interstitial lung disease, and lung transplantation, among others. In cases of refractory chronic cough, reflux testing (hypopharyngeal-esophageal multichannel intraluminal impedance with dual-PH sensor and high-resolution esophageal manometry) will assist the clinician in determining whether additional reflux treatment steps should be undertaken. It is important to consider all mechanisms of reflux pathophysiology to yield the optimal result in the management of a patient with chronic respiratory disease.

Keywords: Chronic cough; Gastroesophageal reflux disease; Laryngopharyngeal reflux; Pulmonary; Refractory chronic cough; Respiratory.

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Conflict of interest statement

Disclosures T.L. Carroll is a consultant for Pentax Medical, Ambu and GSK. He has received stock options from and is on the scientific advisory board for Sofregen Medical and N-Zyme Biomedical. He receives royalties from Plural Publishing. A.J. Jaworek is a consultant for Smith + Nephew.

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Review

Curr Opin Support Palliat Care

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. 2025 Jun 1;19(2):103-110.

doi: 10.1097/SPC.0000000000000753. Epub 2025 Mar 25.

[Cough and dyspnea management in pulmonary fibrosis](#)

[Allard van Veelen](#)¹, [Marlies S Wijsenbeek](#), [Thomas Koudstaal](#)

Affiliations Expand

- PMID: 40132204
- PMCID: [PMC12084021](#)
- DOI: [10.1097/SPC.0000000000000753](#)

Abstract

Purpose of the review: Pulmonary fibrosis (PF) is characterized by relentless scarring of the lungs, declining lung function, and increasing symptom burden. In PF, dyspnea and cough are the most common symptoms, severely impacting quality of life. This review highlights recent advances in understanding their mechanisms and explores evolving strategies for management of these symptoms.

Recent findings: Advances in non-pharmacologic approaches, including hand-held fans, dyspnea services and pulmonary rehabilitation are playing a vital role in dyspnea management. Opioids, while effective in reducing exertional dyspnea in controlled settings, show limited benefit for daily life breathlessness and are associated with significant adverse events, highlighting the need for cautious, individualized use. For refractory cough, promising studies are investigating the role of opioids and neuromodulatory therapies. Non-pharmacologic approaches, including speech therapy, and behavioral interventions,

provide complementary approaches. A multidisciplinary approach and individualized care plans to address the multifactorial nature of dyspnea and cough are key.

Summary: Effective management of dyspnea and cough can importantly improve patients' quality of life. Further research is required to refine treatment protocols, optimize palliative care interventions, and identify and test novel therapeutics. Translation of these findings into clinical practice requires a focus on evidence-based, patient-centered care.

Keywords: chronic cough; dyspnea; palliative care; pulmonary fibrosis; symptom management.

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Conflict of interest statement

There are no conflicts of interest.

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Am J Respir Crit Care Med

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. 2025 Jun;211(6):1072-1075.

doi: 10.1164/rccm.202501-0093RL.

[Camlipixant in Refractory Chronic Cough: A Phase 2a, Randomized Controlled Trial \(RELIEF\)](#)

[Jaclyn A Smith¹](#), [Alyn H Morice²](#), [Surinder S Birring³](#), [Sean M Parker⁴](#), [Paul A Marsden¹](#), [John R Holcomb⁵](#), [Mandel Sher⁶](#), [Bruce M Prenner⁷](#), [Gary Steven⁸](#), [Kevin J Carroll⁹](#), [Sylvain Lanouette¹⁰](#), [Denis Garceau¹⁰](#), [Laurent Harvey¹⁰](#), [Catherine M Bonuccelli¹¹](#)

Affiliations Expand

- PMID: 40043304
- DOI: [10.1164/rccm.202501-0093RL](https://doi.org/10.1164/rccm.202501-0093RL)

No abstract available

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Clinical Trial

Am J Respir Crit Care Med

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. 2025 Jun;211(6):1038-1048.

doi: [10.1164/rccm.202409-1752OC](https://doi.org/10.1164/rccm.202409-1752OC).

[Camlipixant in Refractory Chronic Cough: A Phase 2b, Randomized, Placebo-controlled Trial \(SOOTHE\)](#)

[Jaclyn A Smith](#)¹, [Surinder S Birring](#)², [Michael S Blaiss](#)³, [Lorcan McGarvey](#)⁴, [Alyn H Morice](#)⁵, [Mandel Sher](#)⁶, [Kevin J Carroll](#)⁷, [Margaret Garin](#)⁸, [Sylvain Lanouette](#)⁹, [Joan Shaw](#)⁸, [Ronghua Yang](#)⁸, [Catherine M Bonuccelli](#)⁸

Affiliations Expand

- PMID: 40043302
- DOI: [10.1164/rccm.202409-1752OC](https://doi.org/10.1164/rccm.202409-1752OC)

Abstract

Rationale: There is no broadly accessible treatment for patients with refractory chronic cough, a disease characterized by chronic cough that persists despite treatment for other cough-related etiologies or has no identified underlying cause. **Objectives:** SOOTHE ([NCT04678206](#)), a phase 2b, randomized, placebo-controlled trial, evaluated the efficacy and safety of P2X3 antagonist camlipixant in adults with refractory chronic cough (cough duration, ≥ 1 yr; baseline awake cough frequency, ≥ 25 coughs/h). **Methods:** After a single-blind, 16-day placebo run-in, patients were randomized (1:1:1:1) to receive camlipixant 12.5, 50, or 200 mg twice daily or placebo for 4 weeks. The primary endpoint was change from baseline to Day 28 in objective 24-hour cough frequency. Secondary endpoints included cough severity and cough-related quality of life. **Measurements and Main Results:** Overall, 310 patients were randomized. A statistically significant reduction in placebo-adjusted 24-hour cough frequency was seen in the 50 mg (-34.4%; 95% confidence interval, -50.5 to -13.3; $P = 0.0033$) and 200 mg (-34.2%; 95% confidence interval, -50.7 to -12.2; $P = 0.0047$) camlipixant arms. All camlipixant arms showed a trend for greater improvement in cough severity visual analog scale and Leicester Cough Questionnaire scores over placebo. Camlipixant was well tolerated with no serious treatment-emergent adverse events reported. Taste alteration occurred in 4.8-6.5% of patients in camlipixant arms (vs. 0% with placebo); these were usually mild-moderate. **Conclusions:** Camlipixant treatment reduced cough frequency and improved patient-reported outcomes in patients with refractory chronic cough, with an acceptable safety profile. Clinical trial registered with www.clinicaltrials.gov ([NCT04678206](#)).

Keywords: P2X3 antagonists; chronic cough; refractory chronic cough; therapeutics.

Supplementary info

Publication types, MeSH terms, Associated data, Grants and fundingExpand

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9

Randomized Controlled Trial

J Asthma

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. 2025 Jun;62(6):1041-1051.

doi: 10.1080/02770903.2025.2455416. Epub 2025 Feb 3.

[The efficacy and safety of Fluticasone Furoate/Umeclidinium/vilanterol \(FF/UMEC/VI\) on cough symptoms in adult patients with asthma, a randomized double-blind, placebo-controlled, parallel group study: Chronic Cough in Asthma \(COCOA\) study](#)

[Etsuko Tagaya](#)¹, [Jun Shinada](#)², [Hiroyuki Nagase](#)³, [Junko Terada-Hirashima](#)⁴, [Masayuki Hojo](#)⁴, [Naruhiko Sugihara](#)⁵, [Osamitsu Yagi](#)¹, [Mayoko Tsuji](#)¹, [Tomohiro Akaba](#)¹, [Katsunori Masaki](#)⁶, [Koichi Fukunaga](#)⁶, [Hiroyuki Ohbayashi](#)⁷, [Kaoru Chiba](#)⁸, [Soichiro Hozawa](#)⁹, [Ryo Atsuta](#)¹⁰, [Yasuhiro Aoki](#)¹¹, [Hisato Hiranuma](#)¹², [Yasuhiro Gon](#)¹², [Akihiko Tanaka](#)¹³

Affiliations Expand

- PMID: 39874464
- DOI: [10.1080/02770903.2025.2455416](https://doi.org/10.1080/02770903.2025.2455416)

Free article

Abstract

Background: Persistent cough bothers many patients with asthma because it worsens their quality of life; therefore, it must be remedied immediately. The efficacy of triple therapy as a first-line treatment for cough remains unclear. To evaluate the effectiveness and safety of the triple therapy against persistent cough, the clinical effect of regular treatment with fluticasone furoate/umeclidinium/vilanterol (FF/UMEC/VI) or placebo in adult patients with asthma was investigated.

Methods: This randomized, double-blind, placebo-controlled, parallel-group multicenter trial recruited asthma patients with persistent cough from hospitals and primary care clinics between June 2022 and December 2023. Participants were randomly given FF/UMEC/VI 200/62.5/25 µg or placebo for 6 wk. The primary endpoint was the average change in the cough symptom score from baseline to week 6. Secondary outcomes were effectiveness on cough-related disease burdens (asthma control questionnaire [ACQ]-5, Leicester cough questionnaire [LCQ] and nighttime awakening). Furthermore, lung function and adverse events were evaluated.

Results: The decrease from baseline in the cough symptom score at week 6 was significantly greater in the FF/UMEC/VI group than in the placebo group ($p = 0.006$). The ACQ-5 scores showed a greater decrease in the FF/UMEC/VI group than in the placebo group. The change from baseline in morning and evening FEV₁ increased in the FF/UMEC/VI group as with the results of peak expiratory flow. No significant adverse events associated with FF/UMEC/VI were noted.

Conclusions: In asthma patients with persistent cough, FF/UMEC/VI showed an early response and a significant effect on cough and lung function for 6 wk of treatment.

This study is registered with jRCTs031210412.

Keywords: Asthma; clinical study; cough; triple therapy.

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10

Review

Ann Allergy Asthma Immunol

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. 2025 Jun;134(6):639-648.

doi: 10.1016/j.anai.2024.12.021. Epub 2024 Dec 24.

[Therapeutic and mechanistic advances in chronic cough](#)

[Anju T Peters](#)¹, [Ken W Altman](#)², [Peter Dicpinigaitis](#)³, [Matthew G Drake](#)⁴, [Imran Satia](#)⁵, [Gayatri B Patel](#)⁶

Affiliations Expand

- PMID: 39722320
- DOI: [10.1016/j.anai.2024.12.021](https://doi.org/10.1016/j.anai.2024.12.021)

Abstract

Cough is one of the most common reasons patients seek medical care in the outpatient setting. Chronic cough (CC) in adults is defined as a cough lasting more than 8 weeks, with a global prevalence of approximately 10%. CC significantly impairs quality of life, affecting physical, social, and psychological well-being. In most cases, CC is attributed to 1 or more of the following 3 key conditions: upper airway cough syndrome, gastroesophageal or laryngopharyngeal reflux, and asthma or non-asthmatic eosinophilic bronchitis—assuming a normal chest x-ray result and no use of angiotensin-converting enzyme inhibitors. If the cough persists despite thorough guideline-based evaluation and treatment, it is classified as refractory CC (RCC). RCC is thought to arise from neuronal dysregulation involving both peripheral and central mechanisms, termed cough hypersensitivity syndrome. This is typically characterized by a tickle or itch sensation in the throat, leading to an urge to cough in response to seemingly harmless stimuli. Current treatment options for RCC include "off-label" use of centrally acting neuromodulators and speech therapy. In addition, a new peripherally acting oral P2×3 receptor antagonist, gefapixant, has been approved in the European Union, United Kingdom, Switzerland, and Japan, though not in the United States or Canada. Emerging treatments hold promise for improving management in the future.

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"bronchiectasis"[MeSH Terms] OR bronchiectasis[Text Word]

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ERJ Open Res

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. 2025 Jun 2;11(3):01079-2024.

doi: 10.1183/23120541.01079-2024. eCollection 2025 May.

[Dual Bronchodilators in Bronchiectasis Study: a randomised controlled trial](#)

[Nina Wilson](#)¹, [Miranda Morton](#)², [Tara Homer](#)³, [Ann Breeze Konkoth](#)¹, [Richard Joyce](#)², [Anneka Kershaw](#)², [Hazel Wilde](#)², [Alison Liddle](#)², [James Wason](#)¹, [Laura Ternent](#)³, [Maria Allen](#)⁴, [Robert Lord](#)⁵, [John Steer](#)⁶, [Graham Devereux](#)⁷, [James D Chalmers](#)⁸, [Adam T Hill](#)⁹, [Charles S Haworth](#)¹⁰, [John R Hurst](#)¹¹, [Anthony De Soyza](#)^{4 12}

Affiliations Expand

- PMID: 40470153
- PMCID: [PMC12134924](#)
- DOI: [10.1183/23120541.01079-2024](#)

Abstract

This study comparing exacerbations rates for dual bronchodilator therapy, triple therapy and placebo in bronchiectasis cannot provide definitive evidence. However, results suggest signs of efficacy: a larger trial may provide valuable clinical evidence. <https://bit.ly/4fuuHHX>.

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Conflict of interest statement

Conflict of interest: N. Wilson, M. Morton and A.B. Konkoth report receiving grants from the National Institute of Health and Care Research (NIHR). J. Wason reports being funded by a NIHR Research Professorship (NIHR301614), being a panel member on NIHR Healthcare Technology Assessment Funding Committee (2020–

2024) selection panel Chair for NIHR Undergraduate Internship scheme (2024) and receiving GSK funding for a PhD studentship. L. Ternent reports receiving grants from the NIHR. J. Steer reports received grants from Chiesi, personal payments and support for attending meetings/travel from Astra Zeneca, and personal payments from UK Cardiopulmonary Taskforce. G. Devereux reports receiving grants from the NIHR. J.D. Chalmers reports receiving grants from NIHR, AstraZeneca, Boehringer Ingelheim, GSK, Zambon, Insmmed and Gilead; receiving personal fees from AstraZeneca, Boehringer Ingelheim, GSK, Zambon, Insmmed, Novartis and Cheisi; and is an associate editor of this journal. A.T. Hill reports being Chair of the British Thoracic Society Standards of Care Committee. C.S. Haworth reports receiving grants from NIHR; receiving consulting fees from 30 Technology, Astra Zeneca, CSL Behring, Chiesi, Infex, Insmmed, Janssen, LifeArc, Meiji, Mylan, Pneumagen, Shionogi, Vertex and Zambon; receiving fees for advisory and educational work from Chiesi, Insmmed, Mylan and Zambon; and holding stock/stock option in Pneumagen. J.R. Hurst reports receiving grants from AstraZeneca, and receiving fees for advisory and educational work from AstraZeneca, Boehringer Ingleheim, Chiesi, GSK, Novartis and Sanofi. A. De Soyza reports receiving grant awards from NIHR, and grant support from Astra Zeneca, Bayer, Gilead, Chiesi, Pfizer and GSK; and receiving speaker fees for bureau/advisory committee work from Astra Zeneca, Bayer, Gilead, Chiesi, Pfizer, GSK, 30 T Pharmaceuticals and Insmmed. All other authors have nothing to disclose.

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Haematologica

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. 2025 May 29.

doi: 10.3324/haematol.2025.287533. Online ahead of print.

[Chronic lymphocytic leukemia and associated chronic lung diseases](#)

[Tamar Tadmor](#)¹, [Emilia Hardak](#)², [Guy Melamed](#)³, [Hilel Alapi](#)³, [Lior Rokach](#)⁴

Affiliations Expand

- PMID: 40438985
- DOI: [10.3324/haematol.2025.287533](https://doi.org/10.3324/haematol.2025.287533)

Free article

Abstract

Infections are a significant cause of morbidity and mortality in chronic lymphocytic leukemia (CLL), with respiratory tract infections being predominant. This study evaluated the incidence of chronic lung diseases (asthma, COPD, and bronchiectasis) among 4,532 patients with CLL and their association with infection complications and outcomes. We found that bronchiectasis (5%), asthma (12.2%), and COPD (6.6%) were prevalent among CLL patients and were associated with an increased hazard ratio for pneumonia (HR = 1.7). Bronchiectasis and COPD were significantly associated with higher rates of hospitalization due to pneumonia. Preventive measures, such as Prevenar vaccination and IVIG therapy, reduced pneumonia-related hospitalizations. These findings underscore the importance of early diagnosis and management of chronic lung diseases in CLL patients.

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. 2025 May 27;11(3):00348-2024.

doi: 10.1183/23120541.00348-2024. eCollection 2025 May.

[Anxiety, depression, physical disease parameters and health-related quality of life in the BronchUK national bronchiectasis cohort](#)

[Anthony De Soyza](#)¹, [Tess Saunders](#)², [Georgina Wild](#)¹, [Phil Mawson](#)¹, [Martin Kelly](#)³, [Stuart Elborn](#)⁴, [Adam T Hill](#)⁵, [Tim Gatheral](#)⁶, [Anita Sullivan](#)⁷, [Charles Haworth](#)⁸, [John R Hurst](#)⁹, [Jeremy Brown](#)⁹, [Mary Carroll](#)¹⁰, [Vidya Navaratnam](#)¹¹, [Michael Loebinger](#)¹², [Gareth Davies](#)¹³, [Henil Upadhyay](#)¹³, [Judy](#)

[Bradley](#)⁴, [Paul P Walker](#)¹⁴, [John Steer](#)¹⁵, [Jamie Duckers](#)¹⁶, [Jennifer Pollock](#)¹⁷, [Megan Crichton](#)¹⁷, [James D Chalmers](#)¹⁷, [Richard McNally](#)¹

Affiliations Expand

- PMID: 40432821
- PMCID: [PMC12107378](#)
- DOI: [10.1183/23120541.00348-2024](#)

Abstract

Background: Bronchiectasis is associated with psychological comorbidity and poor quality of life (QoL), yet guidelines lack focus on psychological morbidity. Using data obtained from the BronchUK database (1341 patients), we examined the link between anxiety/depression and physical disease severity, QoL and long-term outcomes in bronchiectasis.

Methods: Computed tomography-confirmed bronchiectasis patients enrolled in the BronchUK study with Hospital Anxiety and Depression Scale (HADS-A/D) data were studied. HADS-A/D scores ≥ 8 indicated anxiety/depression. QoL was measured by the St George's Respiratory Questionnaire and QoL-Bronchiectasis Questionnaire. Exacerbations during annual follow-up were analysed by negative binomial regression with time in study as an offset adjusted for age, body mass index, sex, *Pseudomonas* infection, diabetes and forced expiratory volume in 1 s (FEV₁). Cox regression determined probability of hospitalisation using time to first exacerbation.

Results: 1341 patients were included; 418 had anxiety (31%), 269 (20%) had depression and 201 (15%) had both conditions. HADS-A/D ≥ 8 was associated with worse QoL ($p < 0.0001$) and clinical severity (e.g. Bronchiectasis Severity Index, FEV₁ and Medical Research Council dyspnoea score (all $p < 0.01$)). HADS-A/D ≥ 8 each was associated with exacerbation (rate ratio (RR) 1.42, 95% CI 1.32-1.52 for HADS-A; RR 1.45, 95% CI 1.34-1.56 for HADS-D, both $p < 0.0001$) and hospitalisation risk (RR 1.58, 95% CI 1.29-1.92 for HADS-A; RR 1.76, 95% CI 1.43-2.17 for HADS-D, both $p < 0.001$). HADS-A/D ≥ 8 each predicted future hospitalisation (HR 1.30, 95% CI 0.98-1.72, $p = 0.067$ for HADS-A; HR 1.40 95% CI 1.04-1.88, $p = 0.027$ for HADS-D).

Interpretation: Anxiety and depression are common in bronchiectasis, correlate with disease severity and predict poor outcomes. Consideration of psychological comorbidities should be evaluated in routine bronchiectasis care.

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Conflict of interest statement

Conflict of interest: T. Saunders, J. Brown, A. Sullivan, M. Carroll, P. Mawson, T. Gatheral, A.T. Hill, G. Davies, J. Pollock, M. Kelly, R. McNally, G. Wild, V. Navarantnam and H. Upadhyay declare no conflict of interest in relation to this manuscript. Conflict of interest: A. De Soyza reports receiving funds from

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[Outcomes of paediatric community acquired pneumonia](#)

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Abstract

Community acquired pneumonia is among the most common causes of hospitalisation in children, despite most cases being successfully managed in ambulatory care. Empyema is the most common complication of hospitalised pneumonia, and although associated with considerable morbidity, death is rare, even in severe disease. Beyond the acute infection, there is a recognised association of paediatric lower respiratory tract infection and impaired lung function over the whole life span. Longitudinal birth cohorts highlight the deleterious effect of paediatric pneumonia on lung function and the development of chronic obstructive pulmonary disease and a near doubling of respiratory associated mortality in adults. Less clear is how to reconcile this worrisome data with most children only having mild abnormalities on spirometry in paediatric follow up. Recurrent or severe pneumonia is infrequently associated with irreversible lung injury such as bronchiectasis or bronchiolitis obliterans.

Keywords: Chest infection; Empyema; Pneumonia.

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