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**(copd OR "Pulmonary Disease, Chronic Obstructive"[Mesh])**

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Meta-Analysis

PLoS One

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. 2025 Jan 17;20(1):e0316842.

doi: 10.1371/journal.pone.0316842. eCollection 2025.

[Effects of antioxidant nutrients on muscle mass, strength and function in COPD patients: A meta-analysis of randomized controlled trials](#)

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Affiliations Expand

- PMID: 39823472
- DOI: [10.1371/journal.pone.0316842](#)

Abstract

**Aim: To comprehensively investigate the effects of antioxidant nutrients on muscle mass, strength and function in chronic obstructive pulmonary disease (COPD) patients.**

**Methods:** PubMed, Embase, Cochrane Library, and Web of Science were comprehensively searched from the inception to January 3, 2024. The quality of randomized controlled trials (RCTs) was measured using the Jadad scale. Weighted mean differences (WMDs) and 95% confidence intervals (CIs) were used as the effect size for measurement data. Further, subgroup analysis was conducted based on whether patients participated in lung rehabilitation plans while receiving nutritional interventions. Sensitivity analysis was performed on all outcomes.

**Results:** A total of 12 studies involving 595 patients with COPD were included, with 11 studies had high quality, and one study had low quality. For muscle mass, patients receiving antioxidant nutrients had a significantly increased lean body mass index compared with those not receiving antioxidant nutrients (pooled WMD: 0.903, 95% CI: 0.264, 1.541,  $P = 0.006$ ). For patients who did not participate in lung rehabilitation plan while receiving nutritional interventions, antioxidant nutrients brought about a significantly higher lean body mass index (pooled WMD: 1.360, 95% CI: 0.560, 2.160,  $P = 0.001$ ). For muscle strength, patients in the antioxidant nutrient intervention group had significantly higher hand grip strength (HGS) than those in the non-antioxidant nutrient intervention group (pooled WMD: 1.976, 95% CI: 1.337, 2.615,  $P < 0.001$ ). Patients receiving antioxidant nutrients had significantly greater inspiratory muscle strength (MIP) than those not receiving antioxidant nutrients (pooled WMD: 8.127, 95% CI: 2.677, 13.577,  $P = 0.003$ ).

**Conclusion:** Antioxidant nutrient intervention significantly improved HGS, MIP and lean body mass index in COPD. Clinicians should consider increasing food intake or supplementation rich in antioxidants in the treatment plan of patients with COPD.

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**Conflict of interest statement**

The authors have declared that no competing interests exist.

**Supplementary info**

**Publication types, MeSH terms, SubstancesExpand**

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**Expert Rev Respir Med**

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. 2025 Jan 16:1-18.

doi: 10.1080/17476348.2025.2452441. Online ahead of print.

## [Current perspectives on the rehabilitation of COPD patients with comorbidities](#)

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### Affiliations Expand

- PMID: 39804026
- DOI: [10.1080/17476348.2025.2452441](https://doi.org/10.1080/17476348.2025.2452441)

### Abstract

**Introduction:** Chronic obstructive pulmonary disease (COPD) is frequently accompanied by a variety of comorbidities, complicating management and rehabilitation efforts. Understanding this interplay is crucial for optimizing patient outcomes.

**Areas covered:** This review, based on the MEDLINE, Embase and Cochrane Library databases, summarizes the main research on the rehabilitation of patients with COPD, with an emphasis on relevant comorbidities, such as cardiovascular diseases, pulmonary hypertension, lung cancer, metabolic, musculoskeletal, and gastrointestinal disorders. anxiety/depression and cognitive disorders. The study highlights the importance of pre-participation assessments, ongoing monitoring and personalized rehabilitation programs. A review includes a comprehensive literature search to assess the scientific evidence on these interventions and their impact.

**Expert opinion:** The integration of cardiorespiratory rehabilitation program is essential for improving physical capacity and quality of life in COPD patients with comorbidities. While existing studies highlight positive outcomes, challenges such as interdisciplinary collaboration and access to rehabilitation services remain. Future strategies must prioritize personalized and integrated approaches programs combining pharmacological optimization and a close monitoring during cardiopulmonary rehabilitation to significantly reduce hospital readmissions and mortality, even in patients with complex multimorbidities. Continued research is necessary to refine rehabilitation protocols and better understand the complexities of managing COPD alongside cardiac conditions.

**Keywords:** COPD; Cardiac comorbidities; cardiorespiratory; pre-participation assessment; rehabilitation.

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Aust Crit Care

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. 2025 Jan 15;38(3):101151.

doi: 10.1016/j.aucc.2024.101151. Online ahead of print.

[Short- and long-term outcomes of pulmonary emphysema patients on mechanical ventilation admitted to the intensive care unit for acute respiratory failure: A retrospective observational study](#)

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Affiliations Expand

- PMID: 39817936
- DOI: [10.1016/j.aucc.2024.101151](https://doi.org/10.1016/j.aucc.2024.101151)

Abstract

**Introduction:** Acute respiratory failure is a leading cause of admission to the intensive care unit (ICU), with mortality rates remaining stagnant despite advances in resuscitation techniques. Comorbidities, notably chronic obstructive pulmonary disease, significantly impact ICU patient outcomes. Pulmonary emphysema, commonly associated with chronic obstructive pulmonary disease, poses a significant risk, yet its influence on ICU mortality remains understudied.

**Objectives:** The aim of this study was to assess the short- and long-term outcomes of ICU patients with pulmonary emphysema requiring mechanical ventilation for acute respiratory failure, evaluating the impact of emphysema severity.

**Methods:** A single-centre retrospective cohort study was conducted from 2015 to 2021. Patients with pulmonary emphysema requiring invasive ventilation were included. Emphysema severity was assessed using chest computed tomography scans. Data on mortality, length of stay, and ventilator-free days were collected. Statistical analyses were performed to identify factors associated with outcomes.

**Results:** Of the 89 included patients, 31.5% died during their ICU stay, with a 39.3% mortality within 12 months postdischarge. Emphysema severity did not significantly

correlate with mortality or ventilator-free days. Chronic heart failure emerged as a significant predictor of ICU and in-hospital mortality.

**Conclusions:** Emphysema severity does not appear to independently affect mortality in intubated ICU patients with acute respiratory failure. However, mortality rates remain high, warranting further investigation into contributing factors. Our findings underline the complexity of managing critically ill patients with pulmonary emphysema and emphasise the need for comprehensive patient assessment and personalised treatment approaches.

**Keywords:** Acute disease; Intensive care units; Long-term care; Mechanical ventilation; Pulmonary emphysema; Respiratory insufficiency.

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Conflict of interest statement

Declaration of competing interests The authors declare no conflicts of interest.

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BMC Pulm Med

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. 2025 Jan 15;25(1):20.

doi: 10.1186/s12890-025-03492-5.

[CAD-Q \(COPD-Asthma Differentiation Questionnaire\): Performance of a new diagnostic score to differentiate between COPD and asthma in adults](#)

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Affiliations Expand

- PMID: 39815228

- PMID: [PMC11734519](#)
- DOI: [10.1186/s12890-025-03492-5](#)

## Abstract

**Background:** Chronic obstructive pulmonary disease (COPD) and asthma are the two most prevalent chronic respiratory diseases, significantly impacting public health. Utilizing clinical questionnaires to identify and differentiate patients with COPD and asthma for further diagnostic procedures has emerged as an effective strategy to address this issue. We developed a new diagnostic tool, the COPD-Asthma Differentiation Questionnaire (CAD-Q), to differentiate between COPD and asthma in adults.

**Methods:** A cross-sectional study with diagnostic test analysis was done. Relevant clinical variables for diagnosing COPD and asthma were identified through crude Odds Ratios (OR) and a logistic regression model provided adjusted ORs. The CAD-Q, including sensitivity, specificity, predictive values, likelihood ratios, and ROC-curve, was compared to the LFQ, CDQ, PUMA, "Could it be COPD," and COPD-PS questionnaires.

**Results:** 235 (52.9%) patients had COPD and 209 (47.1%) had asthma. A score  $\geq 20$  on the CAD-Q questionnaire showed a ROC-curve of 70% (95% CI: 65-75;  $p < 0.001$ ) with a sensitivity of 83.8% (95% CI: 81.1-86.6), specificity of 47.8% (95% CI: 44.1-51.6), positive predictive value of 37.8% (95% CI: 34.2-41.5), negative predictive value of 88.7% (95% CI: 86.3-91), LR + of 1.61 (95% CI: 1.447-1.786), LR - of 0.34 (95% CI: 0.304-0.376) for diagnosing COPD. When comparing CAD-Q with other questionnaires for differentiating COPD and asthma, CAD-Q and CDQ had the highest sensitivity (83.8% and 77.9%). PUMA and "Could it be COPD" had the highest specificity (62.7% and 62.6%). CAD-Q and COPD-PS showed the highest negative predictive values (88.7% and 62.1%). CAD-Q, LFQ, and CDQ had the highest a ROC-curve (70%, 66%, and 66%).

**Conclusion:** The CAD-Q questionnaire effectively discriminated between COPD and asthma, outperforming previous tools. These findings support further research and refinement of diagnostic tools and call for validation in diverse clinical settings.

**Keywords:** Asthma; COPD; Diagnostic accuracy; Primary care; Questionnaire.

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## Conflict of interest statement

**Declarations.** Ethics approval and consent to participate: The study was conducted in accordance with the principles of the current Helsinki Declaration, as well as local, regional, and international regulations pertaining to clinical research, including Colombian Law on Biomedical Research. Ethical approval was obtained from the Medical Ethics Committee of the Clínica Universidad de La Sabana (approval number 20220602). The studies were conducted in accordance with the local legislation and institutional requirements. The ethics committee/institutional review board waived the requirement of written informed consent for participation

from the participants or the participants' legal guardians/next of kin because this study is a retrospective study. Consent to participate: Not applicable. Consent to publish: Not applicable. Competing interests: The authors declare no competing interests.

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Supplementary info

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Am J Respir Crit Care Med

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. 2025 Jan 15.

doi: [10.1164/rccm.202407-1287RL](https://doi.org/10.1164/rccm.202407-1287RL). Online ahead of print.

[Blood Eosinophil Count Stability in COPD and the Eosinophilic Exacerbator Phenotype](#)

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- PMID: 39813681
- DOI: [10.1164/rccm.202407-1287RL](https://doi.org/10.1164/rccm.202407-1287RL)

*No abstract available*

Keywords: COPD; Eosinophils; Exacerbations; Type II inflammation.

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Multicenter Study

Sleep Breath

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. 2025 Jan 15;29(1):79.

doi: [10.1007/s11325-024-03242-7](https://doi.org/10.1007/s11325-024-03242-7).

[Time course of hospitalizations in patients with heart failure and chronic obstructive pulmonary disease around sleep-disordered-breathing diagnosis](#)

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Affiliations Expand

- PMID: 39812882
- PMCID: [PMC11735569](#)
- DOI: [10.1007/s11325-024-03242-7](https://doi.org/10.1007/s11325-024-03242-7)

Abstract

**Purpose:** In heart failure (HF) and chronic obstructive pulmonary disease (COPD) populations, sleep-disordered breathing (SDB) is associated with impaired health outcomes. We evaluated whether in patients with HF, concomitant HF and COPD or COPD, the number of hospitalizations would be reduced in the year after testing for SDB with and without treatment initiation compared to the year before.

**Methods:** We performed a multicentre retrospective study of 390 consecutive sleep-clinic patients who had a primary diagnosis of chronic HF, HF and COPD or COPD and a secondary diagnosis of SDB. The date of SDB-testing was defined as the index date. Data on healthcare utilization was extracted for the 12-month period prior to and after this date.

**Results:** The initiation of adaptive servoventilation (ASV) and non-invasive ventilation (NIV) treatment resulted in a statistically significant reduction in the number of hospitalisations. While continuous positive airway pressure (CPAP) treatment also demonstrated a reduction in hospitalisations, the observed effect did not reach the level of statistical significance. After accounting for demographics and comorbidities in multivariable regression analyses, only NIV was significantly associated with a reduction in hospitalizations, while CPAP or ASV were not. NIV appears to be underutilized in COPD.

**Conclusions:** Our data indicate, that patients with HF or COPD and concomitant SDB may benefit from the initiation of appropriate PAP-therapy. Whether treating SDB in HF- and COPD-patients influences healthcare utilization merits further investigation.

**Keywords:** COPD; Inpatient treatment; Outcome; Overlap syndrome; Sleep apnea.

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#### Conflict of interest statement

**Declarations. Ethical approval:** All procedures performed in studies involving human participants were in accordance with the ethical standards of the four participating sleep centres in France and Germany - namely University Medical Centre Regensburg, Bethanien Hospital Solingen, Charité Berlin and University Medical Centre Grenoble Alpes - and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The study was approved by each institution's Research Ethics Committee. **Informed consent:** Informed consent was obtained from all individual participants included in the study. **Conflict of interest:** Michael Arzt received consulting and lecture fees from ResMed, Philips Respironics, NRI, Bresotec, Boehringer-Ingelheim, Novartis, JAZZ pharmaceuticals and Bayer. Michael Arzt is supported by Else-Kroener Fresenius Foundation (2018\_A159). Maria Tafelmeier is supported by Else-Kroener-Foundation (2020\_EKEA.25). Jean-Louis Pepin is supported by the French National Research Agency in the framework of the "Investissements d'avenir" program (ANR-15-IDEX-02) and the "e-health and integrated care and trajectories medicine and MIAI artificial intelligence" Chairs of excellence from the Grenoble Alpes University Foundation and MIAI @ university Grenoble Alpes (ANR-19-P3IA-0003).

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Monaldi Arch Chest Dis

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. 2025 Jan 14.

doi: 10.4081/monaldi.2025.3159. Online ahead of print.

[Mucus production and chronic obstructive pulmonary disease, a possible treatment target: zooming in on N-acetylcysteine](#)

[Federico Baraldi](#)<sup>1</sup>, [Tommaso Bigoni](#)<sup>2</sup>, [Maria Pia Foschino Barbaro](#)<sup>3</sup>, [Claudio Micheletto](#)<sup>4</sup>, [Giulia Scioscia](#)<sup>5</sup>, [Alessandro Vatrella](#)<sup>6</sup>, [Alberto Papi](#)<sup>1</sup>

Affiliations Expand

- PMID: 39810570
- DOI: [10.4081/monaldi.2025.3159](https://doi.org/10.4081/monaldi.2025.3159)

Free article

Abstract

Mucus hypersecretion is a trait of chronic obstructive pulmonary disease (COPD) associated with poorer outcomes. As it may be present before airway obstruction, its early treatment may have a preventive role. This narrative review of the literature presents the role of mucus dysfunction in COPD, its pathophysiology, and the rationale for the use of N-acetylcysteine (NAC). NAC can modify mucus rheology, improving clearance and reducing damage induced MUC5AC expression. It exerts a direct and indirect (glutathione replenishment) antioxidant mechanism; it interferes with inflammatory molecular pathways, including inhibition of nuclear factor- $\kappa$ B activation in epithelial airway cells and reduction in the expression of cytokine tumor necrosis factor  $\alpha$ , interleukin (IL)-6, and IL-10. Some clinical experiences suggest that the adjunctive use of NAC may reduce symptoms and improve outcomes for patients with COPD. In conclusion, NAC may be a candidate drug for the early treatment of subjects at risk of COPD development.

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Int Health

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. 2025 Jan 14:ihae091.

doi: 10.1093/inthealth/ihae091. Online ahead of print.

[The effect of addressing the top 10 global causes of death on life expectancy in 2019: a global and regional analysis](#)

[Fatemeh Shahbazi](#)<sup>1,2,3</sup>, [Samad Moslehi](#)<sup>4</sup>, [Zahra Mirzaei](#)<sup>5</sup>, [Younes Mohammadi](#)<sup>1,6</sup>

Affiliations Expand

- PMID: 39807031
- DOI: [10.1093/inthealth/ihae091](#)

Abstract

**Background:** The life expectancy (LE) index reflects health changes in society, highlighting trends in health quality and quantity. This study focused on analysing the impact of the top 10 causes of death on the global increase in LE in 2019.

**Methods:** Data on the top 10 causes of death in 2019 were obtained from the Global Burden of Disease website and a period life table was used to assess how eliminating these causes would impact LE.

**Results:** At the global level, eliminating deaths from ischaemic heart disease, stroke, chronic obstructive pulmonary disease, lower respiratory infections, neonatal conditions, lung cancers, Alzheimer's disease, diarrheal diseases, diabetes mellitus and kidney diseases resulted in an increase in LE at birth of 2.44, 1.64, 0.75, 0.80, 4.06, 0.48, 0.36, 0.52, 0.36 and 0.35 y, respectively.

**Conclusions:** The analysis reveals a gender gap in LE influenced by specific causes of death and regional differences. Therefore, public health policies should be customized for each area to target reductions in deaths that significantly improve LE.

**Keywords:** cause of death; global health; life expectancy; mortality; public health.

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**ERJ Open Res**

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. 2025 Jan 13;11(1):00532-2024.

doi: 10.1183/23120541.00532-2024. eCollection 2025 Jan.

[Remote monitoring of patients with COPD disease using a tablet system: a randomised crossover study of quality-of-life measurements](#)

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**Affiliations** Expand

- PMID: 39811558
- PMCID: [PMC11726541](#)
- DOI: [10.1183/23120541.00532-2024](#)

**Abstract**

**Background:** Remote patient monitoring (RPM) has been evaluated in COPD, but with varying results. We aimed to evaluate whether a tablet system that monitors

disease-related parameters in patients with COPD could influence physical and mental health-related quality of life, compared with usual care (UC).

**Methods:** 70 patients with Global Initiative for Chronic Obstructive Lung Disease (GOLD) group D COPD (61% women, aged 71±8 years, forced expiratory volume in 1 s % predicted 41±13%, COPD Assessment Test (CAT) 19±7 points) were recruited at the COPD centre in Gothenburg, Sweden, and randomised to a tablet-based RPM system or UC for a 26-week period, after which they crossed over to the alternative management for another 26 weeks. The Short Form-12 (SF-12) (primary outcome), CAT, modified Medical Research Council (mMRC) Dyspnoea Scale, EuroQol-5 Dimensions (EQ-5D) and Hospital Anxiety and Depression Scale (HADS) were evaluated at four visits. Exacerbations were continuously reported, as was adherence to RPM.

**Results:** 59 patients completed the study: 28 patients randomised to start with UC and 31 randomised to start with RPM. The changes in the SF-12 Physical Component Summary (PCS) (UC: -1.17±6.90 *versus* RPM: -1.06±8.15) and Mental Component Summary (MCS) (UC: 0.63±11.14 *versus* RPM: -0.63±8.15), as well as in CAT, the mMRC scale, the EQ-5D, HADS anxiety, HADS depression and number of exacerbations, were similar in both intervention periods. Neither the 26-week UC period nor the intervention significantly affected the measured outcomes. There was a 95% adherence rate during RPM.

**Conclusions:** A 26-week tablet-based RPM system that monitors CAT, oxygen saturation, blood pressure, pulse, weight and physical activity, connected to a case manager, is feasible and safe, but did not influence health-related quality of life in patients with COPD GOLD D.

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#### Conflict of interest statement

**Conflict of interest:** A. Andersson reports payment or honoraria for lectures, presentations, manuscript writing or educational events from AstraZeneca, Boehringer Ingelheim, Chiesi, and Teva for lectures in pulmonary medicine and for the production of educational materials in pulmonary medicine outside the submitted work. **Conflict of interest:** L.E.G.W. Vanfleteren reports support for the present study from the Västra Götaland region in Sweden related to healthcare transformation and digitalisation (Budget för 2018 års genomförande av omställningen av hälso- och sjukvården, Diarienummer HS 2018-00460) and from the Swedish government and country council ALF grant (ALFGBG-824371); grants from the Swedish Heart Lung Foundation, Kamprad Stiftelse and AstraZeneca; payment or honoraria for lectures, presentations, manuscript writing or educational events from AstraZeneca, GSK, Chiesi, Pulmonx, Grifols and Novartis; support for attending meetings from the Menarini Foundation; and participation on a data safety monitoring board or advisory board with AstraZeneca. L.E.G.W. Vanfleteren was an associate editor of this journal at the time the article was accepted. **Conflict of interest:** The remaining authors have nothing to disclose.

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. 2025 Jan 13;11(1):00216-2024.

doi: 10.1183/23120541.00216-2024. eCollection 2025 Jan.

[Barriers to and enablers of physical activity and its association with daily steps after hospitalisation for a COPD exacerbation: what patients say matters](#)

[Beatriz Valeiro](#)<sup>1</sup>, [Esther Rodríguez](#)<sup>1,2</sup>, [Jaume Ferrer](#)<sup>1,2</sup>, [Alejandro Pasarín](#)<sup>3</sup>, [Jordi Ibañez](#)<sup>4</sup>, [María Antonia Ramon](#)<sup>2,5,6</sup>

Affiliations Expand

- PMID: 39811552
- PMCID: [PMC11726703](#)
- DOI: [10.1183/23120541.00216-2024](#)

Abstract

**Introduction:** Exacerbations of COPD decrease physical activity. Physical activity interventions after these events are desirable but have had mixed results. Understanding the barriers to and enablers of physical activity may help to improve the results of these interventions. We aimed to assess the barriers to and enablers of physical activity after COPD exacerbation and their association with daily steps.

**Methods:** We carried out a cross-sectional analysis of patients with COPD enrolled during a hospitalisation for an exacerbation. Physical activity was measured with an accelerometer for 7 days after discharge. Patients completed an *ad hoc* 6-point Likert scale questionnaire about 13 barriers to and nine enablers of physical activity. We analysed the association between each item and patients' daily step counts.

**Results:** 46 patients with a mean±sd forced expiratory volume in 1 s of 48.6±15.9% predicted completed the assessments. They were 65±10 years old, spent 8±2 days

hospitalised and walked  $5633 \pm 3314$  steps·day<sup>-1</sup> after discharge. The patients who reported "breathlessness" as a barrier ( $\geq 2$  out of 6 points on the Likert scale) took statistically fewer daily steps (median (25th-75th centile) 3813 steps·day<sup>-1</sup> (2664-5639 steps·day<sup>-1</sup>) *versus* 5549 steps·day<sup>-1</sup> (3692-9984 steps·day<sup>-1</sup>),  $p=0.034$ ). There was a similar finding for those who reported "low mood" as a barrier ( $\geq 2$  out of 6 points) (3813 steps·day<sup>-1</sup> (2456-5471 steps·day<sup>-1</sup>) *versus* 5426 steps·day<sup>-1</sup> (3612-8942 steps·day<sup>-1</sup>),  $p=0.047$ ). If they considered "physical activity as healthy" as an enabler, they walked statistically more (5085 steps·day<sup>-1</sup> (3538-8703 steps·day<sup>-1</sup>) *versus* 2760 steps·day<sup>-1</sup> (2271-5298 steps·day<sup>-1</sup>),  $p=0.031$ ).

**Conclusion:** Some barriers to and enablers of physical activity reported by patients after a COPD exacerbation relate to daily steps. Assessing physical activity barriers and enablers could be useful to improve future physical activity interventions after these events.

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Conflict of interest statement

Conflict of interest: None declared.

- [36 references](#)
- [2 figures](#)

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. 2025 Jan 13;11(1):00537-2024.

doi: 10.1183/23120541.00537-2024. eCollection 2025 Jan.

[Inhaled alpha-1 antitrypsin \(AAT\) restores lower respiratory tract protease-antiprotease homeostasis and reduces inflammation in AAT-deficient individuals: a randomised phase 2 study](#)

[Mark Brantly](#)<sup>1</sup>, [James Stocks](#)<sup>2</sup>, [Jorge Lascano](#)<sup>1</sup>, [Tammy Flagg](#)<sup>1</sup>, [Ann M Jeffers](#)<sup>2</sup>, [Shuzi Z Owens](#)<sup>2</sup>, [Torry A Tucker](#)<sup>2</sup>, [Megan Devine](#)<sup>2</sup>, [Noga Alagem](#)<sup>3</sup>, [Naveh Tov](#)<sup>3</sup>

## Affiliations Expand

- PMID: 39811545
- PMCID: [PMC11726588](#)
- DOI: [10.1183/23120541.00537-2024](#)

## Abstract

**Background:** Alpha-1 antitrypsin (AAT)-deficient individuals have a greater risk for developing COPD than individuals with normal AAT levels.

**Methods:** This was a double-blind, randomised, parallel group, placebo-controlled trial to examine the safety and tolerability of "Kamada-AAT for Inhalation" (inhaled AAT) in subjects with AAT deficiency, and to explore its effect on AAT and biomarkers in the lung epithelial lining fluid (ELF). 36 patients with severe AAT deficiency were randomised 2:1 to receive 80 mg or 160 mg inhaled AAT or placebo once daily for 12 weeks. The primary outcomes were AAT and antineutrophil elastase capacity (ANEC) in bronchoalveolar lavage and plasma after treatment. Secondary outcomes included safety, levels of normal M-type AAT in the plasma and concentrations of AAT, neutrophil elastase (NE), AAT-NE complexes and neutrophil count in the ELF.

**Results:** 12 weeks of active treatment significantly increased AAT, ANEC and AAT-NE complexes in the ELF. Mean antigenic AAT levels in the ELF were restored to  $5.2 \pm 2.3 \mu\text{M}$  in the 80 mg arm and to  $17.7 \pm 2 \mu\text{M}$  in the 160 mg arm. Both doses significantly restored AAT antiprotease activity within the lung and reduced NE levels. M-specific AAT levels in plasma increased in a dose-dependent manner. A clinically meaningful reduction in ELF neutrophil % was observed in the 80 mg arm. AAT for inhalation was well tolerated.

**Conclusions:** Inhaled AAT restores protease-antiprotease homeostasis and may represent a safe and effective therapy.

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## Conflict of interest statement

**Conflict of interest:** N. Tov and N. Alagem are Kamada employees. All other authors have no conflict of interest to declare.

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

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Am J Respir Crit Care Med

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. 2025 Jan 13.

doi: 10.1164/rccm.202410-2041ED. Online ahead of print.

[Navigating the Progression of COPD](#)

[Carrie Pistenmaa<sup>1</sup>](#), [George R Washko<sup>2</sup>](#)

Affiliations Expand

- PMID: 39805088
- DOI: [10.1164/rccm.202410-2041ED](https://doi.org/10.1164/rccm.202410-2041ED)

*No abstract available*

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Expert Rev Respir Med

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. 2025 Jan 13.

doi: 10.1080/17476348.2025.2453652. Online ahead of print.

[Towards the integrated care of COPD, asthma and bronchiectasis: description and objectives of a treatable trait-based complex obstructive airway disease unit](#)

[Borja G Cosio<sup>1</sup>](#), [Alexandre Palou<sup>1</sup>](#), [Meritxell López<sup>1</sup>](#), [Ruth Engonga<sup>1</sup>](#), [Josep Luis Valera<sup>1</sup>](#), [Nuria Toledo-Pons<sup>1</sup>](#)

Affiliations Expand

- PMID: 39801214
- DOI: [10.1080/17476348.2025.2453652](#)

Abstract

**Introduction:** Expert management of Complex Obstructive Airway Diseases (COAD) requires knowledge, resources and skills that are commonly shared in the management of the different conditions usually included in the acronym, namely asthma, bronchiectasis and Chronic Obstructive Pulmonary Disease (COPD). We discuss the basis to shift the paradigm of single-disease management into a holistic approach and describe its potential benefits.

**Areas covered:** The prevalence and significance of the overlap between the different conditions is reviewed. Literature search on the topic of treatable traits in airway diseases is analyzed, with special emphasis in the role of an expert nurse and the multidisciplinary team approach for the management of asthma, bronchiectasis and COPD. Finally, we describe the experience and organization of a COAD unit addressing desirable clinical outcomes and patient related outcome measures.

**Expert opinion:** The division among different airway diseases generates confusion when the diseases present features common to various airway conditions. We describe here how a holistic approach of the airway disease process based on treatable traits regardless the diagnostic label reverts in a more efficient use of resources and better clinical outcomes. The role of an expert respiratory nurse and a multidisciplinary team are key areas for improvement.

**Keywords:** Severe COPD; biologic therapy; bronchiectasis; respiratory infections; severe asthma; treatable traits.

Full text links



**"Multimorbidity"[Mesh Terms] OR  
Multimorbidity[Text Word]**

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PLoS One

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. 2025 Jan 15;20(1):e0312873.

doi: 10.1371/journal.pone.0312873. eCollection 2025.

[The co-occurrence of multimorbidity and polypharmacy among middle-aged and older adults in Canada: A cross-sectional study using the Canadian Longitudinal Study on Aging \(CLSA\) and the Canadian Primary Care Sentinel Surveillance Network \(CPCSSN\)](#)

[Kathryn Nicholson](#)<sup>1,2</sup>, [Jennifer Salerno](#)<sup>2,3</sup>, [Sayem Borhan](#)<sup>3</sup>, [Benoit Cossette](#)<sup>4</sup>, [Dale Guenter](#)<sup>2</sup>, [Meredith Vanstone](#)<sup>2</sup>, [John Queenan](#)<sup>5</sup>, [Michelle Greiver](#)<sup>6</sup>, [Michelle Howard](#)<sup>2</sup>, [Amanda L Terry](#)<sup>1,7,8</sup>, [Tyler Williamson](#)<sup>9</sup>, [Lauren E Griffith](#)<sup>3</sup>, [Martin Fortin](#)<sup>10</sup>, [Saverio Stranges](#)<sup>1,7,11,12</sup>, [Dee Mangin](#)<sup>2,13</sup>

Affiliations Expand

- PMID: 39813217
- PMCID: [PMC11734935](#)
- DOI: [10.1371/journal.pone.0312873](#)

Abstract

**Background:** There is an increasing prevalence of multiple conditions (multimorbidity) and multiple medications (polypharmacy) across many populations. Previous literature has focused on the prevalence and impact of these health states separately, but there is a need to better understand their co-occurrence.

**Methods and findings:** This study reported on multimorbidity and polypharmacy among middle-aged and older adults in two national datasets: the Canadian Longitudinal Study on Aging (CLSA) and the Canadian Primary Care Sentinel Surveillance Network (CPCSSN). Using consistent methodology, we conducted a cross-sectional analysis of CLSA participants and CPCSSN patients aged 45 to 85 years as of 2015. When multimorbidity was defined as two or more conditions, the prevalence was 66.7% and 52.0% in the CLSA and CPCSSN cohorts, respectively. The prevalence of polypharmacy was 14.9% in the CLSA cohort and 22.6% in the CPCSSN cohort when defined as five or more medications. Using the same cut-points, the co-occurrence of multimorbidity and polypharmacy was similar between the two cohorts (CLSA: 14.3%; CPCSSN: 13.5%). Approximately 20% of older adults (65 to 85 years) were living with both multimorbidity and polypharmacy (CLSA: 21.4%; CPCSSN: 18.3%), as compared to almost 10% of middle-aged adults (45 to 64 years) living with this co-occurrence (CLSA: 9.2%; CPCSSN: 9.9%). Across both cohorts and age groups, females had consistently higher estimates of multimorbidity, polypharmacy and the co-occurrence of multimorbidity and polypharmacy.

**Conclusions:** This study found that multimorbidity and polypharmacy are not interchangeable in understanding population health needs. Approximately one in five older adults in the CLSA and CPCSSN cohorts were living with both multimorbidity and polypharmacy, double the proportion in the younger cohorts. This has implications for future research, as well as health policy and clinical practice, that aim to reduce the occurrence and impact of multimorbidity and unnecessary polypharmacy to enhance the well-being of aging populations.

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#### Conflict of interest statement

The authors have no conflict of interest to disclose. The opinions expressed are the authors' own and do not reflect the views of the Canadian Longitudinal Study on Aging (CLSA) or the Canadian Primary Care Sentinel Surveillance Network (CPCSSN).

- [94 references](#)
- [2 figures](#)

#### Supplementary info

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J Gerontol A Biol Sci Med Sci

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. 2025 Jan 14:glaf009.

doi: 10.1093/gerona/glaf009. Online ahead of print.

[Cardiometabolic Multimorbidity and Dementia Onset among Middle-aged and Older Adults: Differences by Race/Ethnicity](#)

[Siting Chen](#)<sup>1</sup>, [Ana R Quiñones](#)<sup>1,2</sup>, [Corey L Nagel](#)<sup>3</sup>, [Nicholas Bishop](#)<sup>4</sup>, [Heather G Allore](#)<sup>5,6</sup>, [Jason T Newsom](#)<sup>7</sup>, [Jeffrey Kaye](#)<sup>8</sup>, [Anda Botosaneanu](#)<sup>9,10</sup>

#### Affiliations Expand

- PMID: 39806803
- DOI: [10.1093/gerona/glaf009](https://doi.org/10.1093/gerona/glaf009)

#### Abstract

**Background:** Racial/ethnic minoritized groups in the U.S. have higher prevalence of cardiometabolic multimorbidity and experience higher risk of dementia. This study evaluates the relationship between cardiometabolic multimorbidity and dementia onset according to racial/ethnic group in a nationally representative cohort of U.S. middle-aged and older adults.

**Methods:** Data from the Health & Retirement Study (1998-2018, N=7,960, mean baseline age 59.4 years) and discrete-time survival models were used to estimate differences in the risk of dementia onset, defined by Langa-Weir classification. Models included race/ethnicity (non-Hispanic White, non-Hispanic Black, Hispanic), chronic disease/multimorbidity categories (no disease, one disease, cardiovascular multimorbidity, metabolic multimorbidity, cardiometabolic multimorbidity, other multimorbidity), age, sex, education, wealth, body-mass index, and proxy status.

**Results:** Over a mean follow-up of 14.6 years, 7.7% of the participants (n=614) developed dementia. In the fully adjusted model, participants with cardiometabolic multimorbidity had the highest risk of dementia onset (HR:3.27, 95%CI: 2.06,5.21), followed by metabolic (HR:1.83, 95%CI: 1.14,2.94) and cardiovascular (HR:1.81, 95%CI: 1.24,2.64) multimorbidity, relative to participants with no disease. The risk of dementia was significantly greater among Black (HR: 6.40, 95% CI: 3.84,10.67) and Hispanic participants (HR: 4.90, 95% CI: 2.85,8.43) with cardiometabolic multimorbidity, compared to White adults with no disease.

**Conclusions:** Individuals from racial/ethnic minoritized groups have a higher risk of dementia. The risk of dementia onset was significantly greater for Black and Hispanic participants experiencing cardiometabolic multimorbidity, highlighting the value of intervening on cardiometabolic conditions among middle-age and older adults, in particular those from racial/ethnic minoritized backgrounds to reduce the risk of developing dementia.

**Keywords:** cardiovascular disease; cognition; diabetes; racial/ethnic disparities.

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Sleep

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. 2025 Jan 13:zsaf009.

doi: 10.1093/sleep/zsaf009. Online ahead of print.

[Association Between Positive Airway Pressure Therapy and Healthcare Costs Among Older Adults with Comorbid Obstructive Sleep Apnea and Common Chronic Conditions: An Actuarial Analysis](#)

[Emerson M Wickwire](#)<sup>1,2</sup>, [Chris R Fernandez](#)<sup>3</sup>, [Nhan Huynh](#)<sup>4</sup>, [Nathaniel F Watson](#)<sup>3,5</sup>, [Ian Duncan](#)<sup>4,6</sup>

Affiliations Expand

- PMID: 39803895
- DOI: [10.1093/sleep/zsaf009](#)

Abstract

**Study objectives:** To determine the association between adherence to positive airway pressure and healthcare costs among a national sample of older adults with comorbid OSA and common chronic conditions.

**Methods:** Our data source was a random sample of Medicare administrative claims for years 2016-2019. Inclusion criteria included age >65 years and new diagnosis of OSA. Exclusion criteria included evidence of prior OSA treatment during the 12 months prior to the index date, active cancer, or end-stage renal disease. OSA was defined using physician-assigned diagnostic codes. Common chronic conditions included chronic obstructive pulmonary disease, congestive heart failure, depression, hypertension, type 2 diabetes mellitus, obesity, and stroke. Based on Medicare policy, individuals were classified as adherers, non-adherers, or non-initiators. Risk adjustment was based on the CMS-HCC approach developed by the Centers for Medicaid and Medicare Service specifically to estimate anticipated costs. To examine the impact of PAP adherence on costs, we employed a weighted

DID regression framework to account for baseline variations in health status and other confounding factors.

**Results:** Participants included 28,220 Medicare beneficiaries with comorbid OSA. Of these, 45% were adherent to PAP, 10% were non-adherent, and 44% did not initiate PAP. Relative to non-initiators, beneficiaries who initiated PAP displayed \$195 reduced per-member per-month costs over 24 months. This finding remained consistent across all seven medical and psychiatric subgroups, as well as among individuals with multimorbidity.

**Conclusions:** In this national analysis of Medicare beneficiaries with common chronic conditions, PAP adherence was associated with reduced costs over 24 months.

**Keywords:** Medicare; adherence; costs; health economics; obstructive sleep apnea; older adults; positive airway pressure.

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

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J Asthma

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. 2025 Jan 17:1-11.

doi: 10.1080/02770903.2024.2449229. Online ahead of print.

[Real-world effectiveness of mepolizumab in asthma: a systematic review and meta-analysis](#)

[Danilo Di Bona<sup>1,2</sup>, Giovanni Paoletti<sup>3,4</sup>, Palma Carlucci<sup>1</sup>, Federico Spataro<sup>1</sup>, Stephen Weng<sup>5</sup>, Peter Howarth<sup>5</sup>, Giorgio W Canonica<sup>3,4</sup>](#)

Affiliations Expand

- PMID: 39812421

- DOI: [10.1080/02770903.2024.2449229](https://doi.org/10.1080/02770903.2024.2449229)

## Abstract

**Objective:** Exacerbations and suboptimal disease control are common in severe asthma with an eosinophilic phenotype (SAep). Mepolizumab, an anti-interleukin-5 monoclonal antibody, has demonstrated efficacy and safety in randomized controlled trials (RCTs). We aimed to strengthen the real-world evidence base for mepolizumab in SAep.

**Methods:** We analyzed data from Italian participants of REALITI-A, a global, real-world, prospective, observational study (primary outcome: rate of clinically significant exacerbations [CSEs]). Using these data and those from Italian real-world studies of mepolizumab (identified by systematic literature review), we performed a meta-analysis.

**Results:** In the Italian cohort of REALITI-A ( $n = 244$ ), mean CSE rate was lower 12 months post-mepolizumab initiation versus 12 months pre-mepolizumab (0.67 vs. 3.74 CSEs/patient/year; relative risk [RR], 0.18; 95% confidence interval (CI), 0.15-0.22;  $p < .001$ ). The meta-analysis included 863 patients. Mean CSE rate decreased from 4.2/patient/year at baseline to 0.71/patient/year post-mepolizumab initiation. Mean oral corticosteroid (OCS) dose reduced by 8.66 mg/day (95% CI, 6.17-11.16 mg/day;  $p < .0001$ ) from baseline (10.0 mg/day). The RR for OCS maintenance, post-versus pre-mepolizumab, was 0.37 (95% CI, 0.27-0.52;  $p < .0001$ ). A mean increase in Asthma Control Test score of 6.50 (95% CI, 5.67-7.33;  $p < .00001$ ) was observed. Proportions of patients reporting adverse events were low.

**Conclusions:** Real-world experience in this unified health care system identifies that mepolizumab has a low adverse event rate and provides consistent clinical benefits. Mepolizumab represents an important treatment option for patients with SAep.

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## iScience

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. 2024 Dec 17;28(1):111526.

doi: 10.1016/j.isci.2024.111526. eCollection 2025 Jan 17.

## [De novo generation of dual-target compounds using artificial intelligence](#)

[Kasumi Yasuda](#)<sup>1</sup>, [Francois Berenger](#)<sup>1,2</sup>, [Kazuma Amaike](#)<sup>3</sup>, [Ayaka Ueda](#)<sup>3</sup>, [Tomoya Nakagomi](#)<sup>3</sup>, [Genki Hamasaki](#)<sup>1</sup>, [Chen Li](#)<sup>1,4</sup>, [Noriko Yuyama Otani](#)<sup>1,4</sup>, [Kazuma Kaitoh](#)<sup>1,4</sup>, [Koji Tsuda](#)<sup>2</sup>, [Kenichiro Itami](#)<sup>3,5</sup>, [Yoshihiro Yamanishi](#)<sup>1,4</sup>

### Affiliations Expand

- PMID: 39801837
- PMCID: [PMC11721219](#)
- DOI: [10.1016/j.isci.2024.111526](#)

### Abstract

Drugs that interact with multiple therapeutic targets are potential high-value products in polypharmacology-based drug discovery, but the rational design remains a formidable challenge. Here, we present artificial intelligence (AI)-based methods to design the chemical structures of compounds that interact with multiple therapeutic target proteins. The molecular structure generation is performed by a fragment-based approach using a genetic algorithm with chemical substructures and a deep learning approach using reinforcement learning with stochastic policy gradients in the framework of generative adversarial networks. Using the proposed methods, we designed the chemical structures of compounds that would interact with two therapeutic targets of bronchial asthma, i.e., adenosine A2a receptor (ADORA2A) and phosphodiesterase 4D (PDE4D). We then synthesized 10 compounds and evaluated their bioactivities via the binding assays of 39 target human proteins, including ADORA2A and PDE4D. Three of the 10 synthesized compounds successfully interacted with ADORA2A and PDE4D with high specificity.

**Keywords:** Bioinformatics; Biological sciences; Natural sciences; Pharmacoinformatics.

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### Conflict of interest statement

The authors declare no competing interests.

- [104 references](#)
- [6 figures](#)

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J Asthma

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. 2025 Jan 17:1-6.

doi: 10.1080/02770903.2025.2451691. Online ahead of print.

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

[Bruno Sposato<sup>1</sup>](#), [Marco Scalese<sup>2</sup>](#), [Gianna Camiciottoli<sup>3</sup>](#), [Giovanna Elisiana Carpagnano<sup>4</sup>](#), [Corrado Pelaia<sup>5</sup>](#), [Pierachille Santus<sup>6</sup>](#), [Girolamo Pelaia<sup>7</sup>](#), [Paolo Cameli<sup>8</sup>](#), [Elena Bargagli<sup>8</sup>](#), [Leonardo Gianluca Lacerenza<sup>9</sup>](#), [Dejan Radovanovic<sup>6 10</sup>](#), [Paola Rogliani<sup>11</sup>](#), [Mauro Maniscalco<sup>12 13</sup>](#), [Simonetta Masieri<sup>14</sup>](#), [Carlo Cavaliere<sup>15</sup>](#), [Angelo Guido Corsico<sup>16</sup>](#), [Nicola Scichilone<sup>17</sup>](#), [Stefano Baglioni<sup>18</sup>](#), [Antonio Perrella<sup>1</sup>](#), [Pierluigi Paggiaro<sup>19</sup>](#), [Alberto Ricci<sup>20</sup>](#)

Affiliations Expand

- PMID: 39783623
- DOI: [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  $\geq 25$  ppb. In each group we evaluated the changes in pulmonary function (FEV<sub>1</sub>% and FEF<sub>25-75</sub>%), 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:** FEV<sub>1</sub> 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  $\geq 25$  ppb ( $p = 0.012$ ). Also, FEF<sub>25-75</sub>% 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  $\geq 25$  respectively ( $p = 0.05$ ). Conversely, ACT ( $4.4 \pm 4.2$  vs  $5.9 \pm 4.6$ ;  $p = 0.147$ ), exacerbation changes ( $-2.46 \pm 1.5$

vs  $-2.9 \pm 1.6$ ;  $p = 0.137$ ) 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  $\geq 25$  ( $p = 0.06$ ). Multivariate analysis adjusted for all confounding factors also confirmed the relationship between FeNO  $\geq 25$  and improvement in FEV<sub>1</sub>%/FEF<sub>25-75</sub>% ( $\beta = 8.372$ ,  $p = 0.013$  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 $\alpha$ ; benralizumab; biologic; mepolizumab; real-life; response.

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J Asthma

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. 2025 Jan 16:1-11.

doi: 10.1080/02770903.2025.2453812. Online ahead of print.

[Machine Learning Models For Preventative Mobile Health Asthma Control](#)

[Alan Wong](#)

- PMID: 39817404
- DOI: [10.1080/02770903.2025.2453812](https://doi.org/10.1080/02770903.2025.2453812)

Abstract

**Introduction**Asthma attacks are set off by triggers such as pollutants from the environment, respiratory viruses, physical activity and allergens. The aim of this research is to create a machine learning model using data from mobile health technology to predict and appropriately warn a patient to avoid such triggers.**Methods**Lightweight machine learning models, XGBoost, Random Forest, and LightGBM were trained and tested on cleaned asthma data with a 70-30 train-test split. The models were measured on Precision Score, Accuracy Score, Recall Score, F1 Score and model speed.**Results**The best model, XGBoost, obtained an Accuracy score of 0.902, Recall score of 0.904, Precision score of 0.835, and F1 score of 0.860 and a model training speed of 14 seconds.**Conclusion**As proved by the XGBoost model, predicting asthma triggers can be a viable option for asthma control using machine learning. In addition, the actionable information of triggers, allows patients to make behavior changes. However there will still need to be work testing the system in a mobile health system.

**Keywords:** Asthma; Asthma Monitoring; Asthma Prediction; Machine Learning; Personalized Healthcare.

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Editorial

Eur Respir J

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. 2025 Jan 16;65(1):2401357.

doi: 10.1183/13993003.01357-2024. Print 2025 Jan.

[Viewpoint: defining adherence phenotype and endotypes to personalise asthma management](#)

[Amy Hai Yan Chan](#)<sup>1,2</sup>, [Heather Hoch De Keyser](#)<sup>3</sup>, [Rob Horne](#)<sup>2</sup>, [Stanley J Szeffler](#)<sup>3</sup>

Affiliations Expand

- PMID: 39603674

- DOI: [10.1183/13993003.01357-2024](https://doi.org/10.1183/13993003.01357-2024)

**No abstract available**

#### **Conflict of interest statement**

**Conflicts of interest:** A.H.Y. Chan reports research grants from Health Research Council of New Zealand, Auckland Medical Research Foundation, Asthma UK, University of Auckland, Oakley Mental Health Foundation, Chorus Ltd, World Health Organization and Hong Kong University, outside the submitted work and all paid to her institution (the University of Auckland); A.H.Y. Chan previously held the Robert Irwin Postdoctoral Fellowship; A.H.Y. Chan also reports consultancy fees from AcademyeX and Spoonful of Sugar Ltd, travel support from AstraZeneca, and was previously on the Board of Asthma NZ, and is a member of the Respiratory Effectiveness Group (REG), the Scientific Advisory Board for Asthma Respiratory Foundation NZ and the working group lead for the European Respiratory Society Clinical Research Collaboration “CONNECT”. H.H. De Keyser reports using the Propeller Health Digital Monitoring platforms which were discounted for use in research, and also had funding to study medication use with Electronic Medication Monitors from the National Institutes of Health, National Heart, Lung and Blood Institute. R. Horne reports grants/research support from AstraZeneca, and honoraria/consultation fees from AbbVie, Amgen, Astellas, AstraZeneca, Biogen, Erasmus, Idec, Gilead Sciences, GlaxoSmithKline, Janssen, Merck Sharp Dohme, Novartis, Pfizer, Roche, Shire Pharmaceuticals and TEVA; R. Horne is founder and shareholder of a UCL business company (Spoonful of Sugar Ltd), providing consultancy on supporting patients with medicines and treatment-related behaviours to healthcare policy makers, providers and industry; R. Horne is also supported by the National Institute for Health Research (NIHR, Collaboration for Leadership in Applied Health Research and Care (CLAHRC), North Thames at Bart's Health NHS Trust and Asthma UK (AUKCAR). The views expressed are those of the author(s) and not necessarily those of the NHS, the NIHR or the Department of Health. S.J. Szeffler has consulted for Eli Lilly, Regeneron and Sanofi, and has received research support from the National Heart, Lung and Blood Institute of the National Institutes of Health and the Colorado Department of Public Health and Environment Cancer, Cardiovascular and Pulmonary Disease Program.

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. 2025 Jan 15;25(1):166.

doi: [10.1186/s12889-024-21266-2](https://doi.org/10.1186/s12889-024-21266-2).

[The association between type 2 diabetes and asthma incidence: a longitudinal analysis considering genetic susceptibility](#)

[Fei Chen<sup>1</sup>](#), [Ying Yang<sup>1</sup>](#), [Liping Yu<sup>1</sup>](#), [Lulu Song<sup>1</sup>](#), [Cong Zhang<sup>1</sup>](#), [Yifan He<sup>1</sup>](#), [Lili Wu<sup>1</sup>](#), [Wanlu Ma<sup>1</sup>](#), [Bo Zhang<sup>2</sup>](#)

Affiliations Expand

- PMID: 39815260
- PMCID: [PMC11734334](#)
- DOI: [10.1186/s12889-024-21266-2](#)

Abstract

**Background:** The prevalence of type 2 diabetes (T2D) and asthma is rising, yet evidence regarding the relationship between T2D and asthma, particularly in the context of genetic predispositions, remains limited.

**Methods:** This study utilized data from the UK Biobank longitudinal cohort, involving 388,775 participants. A polygenic risk score (PRS) for asthma was derived from genome-wide association studies summary. Cox regression models were used to assess the association between T2D and asthma, incorporating the asthma PRS.

**Results:** Over a median follow-up of 13.62 years, 10,211 asthma cases were documented. After adjusting for age, sex, current smoking status, and other confounding variables, T2D was significantly associated with an increased risk of developing asthma (Hazard Ratios [HR] 1.16, 95% confidence interval [CI] 1.06-1.26). This association remained significant after further adjustments for genetic susceptibility to asthma. Furthermore, T2D increased the risk of developing asthma across both high and low genetic risk groups.

**Conclusions:** T2D is associated with an increased risk of developing asthma, irrespective of genetic susceptibility. These findings underscore the importance of incorporating glucose regulation strategies into asthma prevention efforts.

**Keywords:** Asthma; Polygenetic risk score; Type 2 diabetes.

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### Conflict of interest statement

**Declarations. Ethics approval and consent to participate:** This study was performed under UK Biobank application number 98577. Participants of UK Biobank gave written informed consent before taking part. **Consent for publication:** Not applicable. **Competing interests:** The authors declare no competing interests.

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. 2025 Jan 15;25(1):20.

doi: 10.1186/s12890-025-03492-5.

[CAD-Q \(COPD-Asthma Differentiation Questionnaire\): Performance of a new diagnostic score to differentiate between COPD and asthma in adults](#)

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- PMID: 39815228
- PMCID: [PMC11734519](#)

- DOI: [10.1186/s12890-025-03492-5](https://doi.org/10.1186/s12890-025-03492-5)

## Abstract

**Background:** Chronic obstructive pulmonary disease (COPD) and asthma are the two most prevalent chronic respiratory diseases, significantly impacting public health. Utilizing clinical questionnaires to identify and differentiate patients with COPD and asthma for further diagnostic procedures has emerged as an effective strategy to address this issue. We developed a new diagnostic tool, the COPD-Asthma Differentiation Questionnaire (CAD-Q), to differentiate between COPD and asthma in adults.

**Methods:** A cross-sectional study with diagnostic test analysis was done. Relevant clinical variables for diagnosing COPD and asthma were identified through crude Odds Ratios (OR) and a logistic regression model provided adjusted ORs. The CAD-Q, including sensitivity, specificity, predictive values, likelihood ratios, and ROC-curve, was compared to the LFQ, CDQ, PUMA, "Could it be COPD," and COPD-PS questionnaires.

**Results:** 235 (52.9%) patients had COPD and 209 (47.1%) had asthma. A score  $\geq 20$  on the CAD-Q questionnaire showed a ROC-curve of 70% (95% CI: 65-75;  $p < 0.001$ ) with a sensitivity of 83.8% (95% CI: 81.1-86.6), specificity of 47.8% (95% CI: 44.1-51.6), positive predictive value of 37.8% (95% CI: 34.2-41.5), negative predictive value of 88.7% (95% CI: 86.3-91), LR + of 1.61 (95% CI: 1.447-1.786), LR - of 0.34 (95% CI: 0.304-0.376) for diagnosing COPD. When comparing CAD-Q with other questionnaires for differentiating COPD and asthma, CAD-Q and CDQ had the highest sensitivity (83.8% and 77.9%). PUMA and "Could it be COPD" had the highest specificity (62.7% and 62.6%). CAD-Q and COPD-PS showed the highest negative predictive values (88.7% and 62.1%). CAD-Q, LFQ, and CDQ had the highest a ROC-curve (70%, 66%, and 66%).

**Conclusion:** The CAD-Q questionnaire effectively discriminated between COPD and asthma, outperforming previous tools. These findings support further research and refinement of diagnostic tools and call for validation in diverse clinical settings.

**Keywords:** Asthma; COPD; Diagnostic accuracy; Primary care; Questionnaire.

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## Conflict of interest statement

**Declarations.** Ethics approval and consent to participate: The study was conducted in accordance with the principles of the current Helsinki Declaration, as well as local, regional, and international regulations pertaining to clinical research, including Colombian Law on Biomedical Research. Ethical approval was obtained from the Medical Ethics Committee of the Clínica Universidad de La Sabana (approval number 20220602). The studies were conducted in accordance with the local legislation and institutional requirements. The ethics committee/institutional review board waived the requirement of written informed consent for participation from the participants or the participants' legal guardians/next of kin because this study is a retrospective study. Consent to participate: Not applicable. Consent to

publish: Not applicable. Competing interests: The authors declare no competing interests.

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. 2025 Jan 15;25(1):7.

doi: 10.1186/s12894-024-01686-3.

[Asthma-associated prostate enlargement and bladder smooth muscle hypercontractility: unveiling a potential link to LUTS](#)

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Affiliations Expand

- PMID: 39815216
- PMCID: [PMC11737256](#)
- DOI: [10.1186/s12894-024-01686-3](#)

Abstract

**Background:** In male patients, benign prostate hyperplasia (BPH) and overactive bladder (OAB) secondary to BPH are the primary causes of Lower Urinary Tract Symptoms (LUTS). Recent clinical studies have reported an increased risk of LUTS, particularly severe LUTS conditions, in male asthmatic patients. However, the potential link and mechanism remain unclear. In this study, we investigated the structural and molecular characteristics of the prostate, and the structural and functional characteristics of the bladder in an asthma rat model.

**Methods:** An asthma model was induced in rats through the intraperitoneal injection of ovalbumin. Prostate and bladder tissue structure was examined with Hematoxylin and Eosin (H&E) and Masson's trichrome (MT) staining, respectively. Prostatic smooth muscle contraction-related and synthesis-related protein levels were assessed using western blotting. Detrusor contractions were examined in an organ bath.

**Results:** Prostate epithelial thickness was significantly increased in asthmatic rats, accompanied by changes in molecular markers, including increased expression of desmin and tropomyosin and decreased expression of vimentin in the prostate tissue. The bladder wall structure and bladder weight were similar in both the asthma and control groups. Acetylcholine induced concentration-dependent bladder smooth muscle contractions, which were significantly enhanced in strips from asthmatic rats, however, acetyl- $\beta$ -methylcholine and carbachol induced concentration-dependent bladder smooth muscle contractions were similar in both groups.

**Conclusions:** Our findings suggest a potential association between asthma and LUTS, with asthma possibly contributing to organ-specific changes, including prostate enlargement and increased smooth muscle contraction in the prostate and bladder. These results provide evidence for a biological connection between asthma and LUTS, laying a promising foundation for exploring new therapeutic strategies to manage LUTS in patients with asthma.

**Keywords:** Asthma; Benign prostate hyperplasia; Lower urinary tract symptoms; Overactive bladder; Smooth muscle contraction.

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**Conflict of interest statement**

**Declarations.** Ethics approval and consent to participate: All animal experiments were carried out in accordance with national standards and protocols approved by the Animal Ethical and Welfare Committee (AEWC) of Guangzhou Miles Biosciences Co. Ltd (No. IACUC-MIS20230043). Consent for publication: Not applicable.

**Competing interests:** The authors declare no competing interests.

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. 2025 Jan 15.

doi: [10.2169/internalmedicine.4737-24](https://doi.org/10.2169/internalmedicine.4737-24). Online ahead of print.

[Case of Life-threatening Asthma Exacerbation Successfully Treated with Benralizumab](#)

[Suzuka Matsuoka](#)<sup>1</sup>, [Kenichiro Kudo](#)<sup>1</sup>, [Mayu Goda](#)<sup>1</sup>, [Tomoyoshi Inoue](#)<sup>1</sup>, [Toki Kitano](#)<sup>1</sup>, [Yuto Sasano](#)<sup>1</sup>, [Keiichi Fujiwara](#)<sup>1</sup>

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- PMID: 39814383
- DOI: [10.2169/internalmedicine.4737-24](https://doi.org/10.2169/internalmedicine.4737-24)

Free article

Abstract

A 52-year-old Japanese man with a history of childhood asthma presented at our emergency department with progressive dyspnea. Despite subcutaneous adrenaline injections, salbutamol nebulization, and intravenous methylprednisolone, the carbon dioxide partial pressure (pCO<sub>2</sub>) increased to 110 mmHg. The patient was intubated, and mechanical ventilation was initiated because of severe respiratory failure. Severe bronchospasm frequently occurs despite appropriate treatment. Therefore, we decided to administer biologics. After the administration of a single dose of benralizumab, his respiratory condition improved, with normalization of pCO<sub>2</sub>, tidal volume, and airway resistance. We successfully extubated the patient two days after the administration of benralizumab.

**Keywords:** benralizumab; biologics; intensive care unit; life-threatening asthma exacerbation.

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. 2025 Jan 15;62(1):44-48.

doi: 10.1007/s13312-025-3356-8.

[Clinical and Laboratory Characteristics and Comorbidities in Asthma Endotypes in Children](#)

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- PMID: 39754430
- DOI: [10.1007/s13312-025-3356-8](#)

Abstract

**Objective:** To estimate the proportion of eosinophilic and non-eosinophilic (NEA) endotypes in pediatric asthma, and to compare the clinical, and laboratory characteristics, and different comorbidities between the two endotypes in the children.

**Methods:** Children aged 5 to 14 years of age with clinical and/or laboratory-confirmed asthma attending the pediatric outpatient department of a tertiary care hospital in Eastern India between October 1, 2023 and March 31, 2024, were included in this cross-sectional study. Complete hemogram, absolute eosinophil count (AEC), IgE, and pulmonary function tests were performed in all patients. Comorbidities associated with asthma were recorded. All patients were managed as per the Global Initiative for Asthma (GINA) guidelines.

**Results:** Of 150 patients, 133 (88.7%) patients belonged to eosinophilic asthma and 17 (11.3%) belonged to NEA endotypes. A family history of allergy and/or asthma was observed in 83 (55%) participants. Allergic rhinitis (59.3%), exposure to cold (42%), and anxiety (26.7%) were common comorbidities associated with asthma.

Prematurity and urticaria were significantly associated with NEA. On regression analysis, the odds of urticaria among the NEA endotype were about 3.7 times higher than the EA endotype, adjusted odds ratio (95% CI) of 4 (1.3, 12.6), P value = 0.02. Other comorbidities, sociodemographic, clinical, and lung function values were similar in both endotypes of asthma.

**Conclusion:** Eosinophilic asthma is the commonest asthma endotype and allergic rhinitis is the commonest comorbidity observed in children. Comorbidities associated with asthma in children are usually similar in both endotypes except for urticaria which is higher in NEA.

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. 2025 Jan 15:265:120445.

doi: 10.1016/j.envres.2024.120445. Epub 2024 Nov 23.

[Association of environmental pollutants with asthma and allergy, and the mediating role of oxidative stress and immune markers in adolescents](#)

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Affiliations Expand

- PMID: 39586518
- PMCID: [PMC11672208](#)
- DOI: [10.1016/j.envres.2024.120445](#)

Free PMC article

## Abstract

**Background:** Asthma and allergic diseases are among the common causes of morbidity and mortality globally. Various environmental pollutants are linked to the development of asthma and allergic diseases. Evidence on the role of oxidative stress and immune markers in the association of environmental pollutants with asthma and allergy is scant. We examined cross-sectional associations between environmental pollutants and asthma and allergy, investigated mixture effects and possible mediation by oxidative stress or immune markers.

**Methods:** We used data from the Flemish Environment and Health Study 2016-2020 (FLEHS IV), including 409 adolescents aged 13-16 years. Fifty-four pollutants, including metals, phthalates, Di(isononyl) cyclohexane-1,2-dicarboxylate (DINCH), bisphenols, currently used and legacy pesticides, flame retardants, per- and polyfluoroalkyl substances (PFAS), polyaromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs) were analyzed. Outcomes were self-reported asthma, rhinitis, eczema, allergies, respiratory infection, and airway inflammation, measured through fractional exhaled nitric oxide (FeNO). Single pollutant models using multiple regression analysis and multipollutant models using Bayesian Kernel Machine Regression (BKMR) were fitted. As sensitivity analysis, Bayesian model averaging (BMA) and elastic net (ENET) models were also performed. For Bayesian models, posterior inclusion probabilities (PIP) were used to identify the most important chemicals. Mediation analysis was performed to investigate the role of oxidative stress, measured by urinary 8-hydroxy-2'-deoxyguanosine (8-OHdG), and immune markers (eosinophils, basophils, InterLeukin 8, InterLeukin 6, and Interferon- $\gamma$  in blood).

**Results:** In single pollutant models, FeNO was significantly higher by 20% (95% CI: 6, 36%) and 13% (95% CI: 2, 25%) per interquartile range (IQR) fold in mono-n-butyl phthalate (MnBP) and mono-benzyl phthalate (MBzP), respectively. In BKMR analysis, the group PIPs indicated phthalates and DINCH as the most important group (group PIP = 0.509), with MnBP being the most important pollutant within that group (conditional PIP = 0.564; %change = 28%; 95%CI: 6, 54%). Similar patterns were observed in all multipollutant models. Eosinophil count mediated 37.8% ( $p = 0.018$ ) and 27.9% ( $p = 0.045$ ) of the association between MBzP and FeNO, and the association between MnBP and FeNO, respectively. 8-OHdG plays a significant mediating role in the association of 2,4-Dichlorophenoxyacetic acid (2,4-D) (55.4%), 3,5,6-Trichloro-2-pyridinol (TCPY) (48.1%), and 1-Naphthylamine (1-NAP) (32.7%) with rhinitis, while the total effects of these chemicals on rhinitis were not statistically significant.

**Conclusions:** This study found associations between phthalates, MnBP and MBzP, and elevated FeNO, which appeared to be mediated by eosinophil count. 8-OHdG plays a significant mediating role in the association between 2,4-D, TCPY, and 1-NAP with rhinitis, while their direct effects remain non-significant. Use of inflammatory and oxidative stress markers can enhance the understanding of inflammatory processes in asthma and allergic diseases due to environmental pollutants.

**Keywords:** Adolescents; Airway inflammation; Allergy; Asthma; Human biomonitoring; Immune biomarkers; Mixture; Oxidative stress.

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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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. 2025 Jan 14;105(2):155-162.

doi: [10.3760/cma.j.cn112137-20240530-01229](https://doi.org/10.3760/cma.j.cn112137-20240530-01229).

[\[Characteristics of type 2 inflammation in nocturnal asthma and evaluation of the effectiveness of inhaled corticosteroids combination therapy\]](#)

[Article in Chinese]

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Affiliations Expand

- PMID: 39806892
- DOI: [10.3760/cma.j.cn112137-20240530-01229](https://doi.org/10.3760/cma.j.cn112137-20240530-01229)

## Abstract

in [English, Chinese](#)

**Objective:** To investigate the characteristics of type 2 inflammation in patients with nocturnal asthma, and analyze the improvement of asthma symptoms after the use of inhaled corticosteroids (ICS) combined with different long-acting bronchodilators. **Methods:** Data of 231 asthma patients who first visited the Respiratory and Critical Care Medical Clinic of Nanfang Hospital of Southern Medical University from January 2020 to June 2023 and had positive bronchodilator tests (BDT), were retrospectively analyzed. These patients were divided into nocturnal asthma group and non-nocturnal asthma group based on the presence or absence of nocturnal symptoms. According to fractional exhaled nitric oxide (FeNO) levels, patients were divided into type 2 inflammatory group [FeNO $\geq$ 20 ppb ( $\times 10^{-12}$ )] and non-type 2 inflammatory group (FeNO $<$ 20 ppb). Patients were further divided into ICS+long-acting $\beta$ 2 agonist (LABA) group and ICS+LABA+long-acting anticholinergic agent (LAMA) group based on medication regimens. Patients were followed-up at the 3rd, 6th, and 12th months after enrollment to evaluate the patient's asthma control test (ACT) questionnaire, actual medication status and number of acute attacks. The clinical characteristics, treatment and prognosis of different groups were compared. **Results:** A total of 231 asthma patients were included, including 152 males and 79 females, with a age [ $M(Q_1, Q_3)$ ] of 52 (42, 60) years. There were 144 cases (62.3%) in the nocturnal asthma group and 87 cases (37.7%) in the non-nocturnal asthma group. Among the 144 patients with nocturnal asthma, 133 patients completed FeNO testing, of which 95 were classified into the type 2 inflammation group and 38 to the non-type 2 inflammation group. The eosinophil (EOS) count and FeNO level in the nocturnal asthma group were both higher than those in the non-nocturnal asthma group [(0.45 $\pm$ 0.40)  $\times 10^9/L$  vs (0.25 $\pm$ 0.20) $\times 10^9/L$ , 38 (18, 82) vs 29 (15, 48) ppb, both  $P<0.05$ ]. Baseline ACT score was lower in nocturnal asthma group than in non-nocturnal asthma group [16 (14, 18) vs 21 (19, 23) scores,  $P<0.001$ ]. There was no significant difference in the forced expiratory volume in one second (FEV<sub>1</sub>), forced vital capacity (FVC), and peak expiratory flow (PEF) in the two groups (both  $P>0.05$ ). During the follow-up at the 3rd, 6th, and 12th months, the improvement values of ACT scores ( $\Delta$ ACT) in the nocturnal asthma group were higher than the non-nocturnal asthma group [5 (3, 7) vs 2 (1, 3), 7 (4, 9) vs 3 (1, 4) and 7 (6, 9) vs 3 (1, 5) scores, all  $P<0.05$ ]. The EOS count [0.40 (0.29, 0.80) $\times 10^9/L$  vs 0.20 (0.12, 0.29) $\times 10^9/L$ ] and percentage [5.10% (3.55%, 9.10%) vs 2.20% (1.65%, 3.85%)] of the type 2 inflammation group were both higher than the non-type 2 inflammation group (both  $P<0.05$ ). In the nocturnal asthma group, there was no significant difference in  $\Delta$ ACT between ICS+LABA and ICS+LABA+LAMA groups (both  $P>0.05$ ). **Conclusions:** Patients with nocturnal asthma have more pronounced type 2 inflammation and the symptoms are often not well controlled or even worse. After one year of combined therapy with ICS, significant improvements in asthma symptoms can be observed. But there is no significant difference in symptom improvement among different medication regimens in the nocturnal asthma group.

Supplementary info

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Meta-Analysis

JAMA

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. 2025 Jan 14;333(2):143-152.

doi: 10.1001/jama.2024.22700.

[Inhaled Reliever Therapies for Asthma: A Systematic Review and Meta-Analysis](#)

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Affiliations Expand

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- PMCID: PMC11519786 (available on 2025-04-28)
- DOI: [10.1001/jama.2024.22700](#)

Abstract

**Importance:** The optimal inhaled reliever therapy for asthma remains unclear.

**Objective:** To compare short-acting  $\beta$  agonists (SABA) alone with SABA combined with inhaled corticosteroids (ICS) and with the fast-onset, long-acting  $\beta$  agonist formoterol combined with ICS for asthma.

**Data sources:** The MEDLINE, Embase, and CENTRAL databases were searched from January 1, 2020, to September 27, 2024, without language restrictions.

**Study selection:** Pairs of reviewers independently selected randomized clinical trials evaluating (1) SABA alone, (2) ICS with formoterol, and (3) ICS with SABA (combined or separate inhalers).

**Data extraction and synthesis:** Two reviewers independently extracted data and assessed risk of bias. Random-effects meta-analyses synthesized outcomes. GRADE (Grading of Recommendations Assessment, Development, and Evaluation) was used to evaluate the certainty of evidence.

**Main outcomes and measures:** Asthma symptom control (5-item Asthma Control Questionnaire; range, 0-6, lower scores indicate better asthma control; minimum important difference [MID], 0.5 points), asthma-related quality of life (Asthma Quality of Life Questionnaire; range, 1-7, higher scores indicate better quality of life; MID, 0.5 points), risk of severe exacerbations, and risk of serious adverse events.

**Results:** A total of 27 randomized clinical trials (N = 50 496 adult and pediatric patients; mean age, 41.0 years; 20 288 male [40%]) were included. Compared with SABA alone, both ICS-containing relievers were associated with fewer severe exacerbations (ICS-formoterol risk ratio [RR], 0.65 [95% CI, 0.60-0.72]; risk difference [RD], -10.3% [95% CI, -11.8% to -8.3%]; ICS-SABA RR, 0.84 [95% CI, 0.73-0.95]; RD, -4.7% [95% CI, -8.0% to -1.5%]) with high certainty. Compared with SABA alone, both ICS-containing relievers were associated with improved asthma control (ICS-formoterol RR improvement [MID] in total score, 1.07 [95% CI, 1.04-1.10]; RD, 4.1% [95% CI, 2.3%-5.9%]; ICS-SABA RR, 1.09 [95% CI, 1.03-1.15]; RD, 5.4% [95% CI, 1.8%-8.5%]) with high certainty. In an indirect comparison with ICS-SABA, ICS-formoterol was associated with fewer severe exacerbations (RR, 0.78 [95% CI, 0.66-0.92]; RD, -5.5% [95% CI, -8.4% to -2.0%]) with moderate certainty. Compared with SABA alone, ICS-formoterol (RD, -0.6% [95% CI, -1.3% to 0%]) was not associated with increased risk of serious adverse events (high certainty) and ICS-SABA (RD, 0% [95% CI, -1.1% to 1.2%]) was not associated with increased risk of serious adverse events (moderate certainty).

**Conclusions and relevance:** In this network meta-analysis of patients with asthma, ICS combined with formoterol and ICS combined with SABA were each associated with reduced asthma exacerbations and improved asthma control compared with SABA alone.

#### **Conflict of interest statement**

**Conflict of Interest Disclosures:** Dr O'Byrne reported receiving grants from AstraZeneca; personal fees from AstraZeneca and Teva during the conduct of the study; grants from GSK, Merck, and Jasper Therapeutics; and personal fees from GSK outside the submitted work. Dr Chipps reported receiving consulting fees from AstraZeneca, Boehringer Ingelheim, Genentech, GSK, Novartis, and Sanofi-Regeneron outside the submitted work. Dr Sumino reported receiving grants from National Institutes of Health (NIH); and personal fees from AstraZeneca and Kyorin Pharmaceutical outside the submitted work. Dr Nyenhuis reported receiving consulting fees from Avillion, GSK, and PRIME Education; grants from NIH and Asthma and Allergy Foundation of America; and book royalties from Wolters Kluwer and Springer outside the submitted work. Dr Israel reported receiving personal fees from Amgen, Arrowhead Pharmaceuticals, AstraZeneca, GSK, Merck, Regeneron, Sanofi, Teva, Apogee Therapeutics, Yuhan, Leerink Partners, Jasper Therapeutics, Generate:Biomedicines, and UpToDate; nonfinancial support from Genentech, Sun

Pharma, Laurel Pharmaceuticals, Om Pharma, Nestlé, CSL Behring, and Sanofi-Regeneron; and grants from Genentech, Amgen, GSK, AstraZeneca, Avillion, Gossamer Bio, NIH, and Patient-Centered Outcomes Research Institute outside the submitted work. Dr Oppenheimer reported receiving consulting fees from Aquestive Therapeutics, ARS Pharmaceuticals, and GSK; speaking honoraria from Sanofi-Regeneron; and advisory board honoraria from AstraZeneca, Amgen, Sanofi-Regeneron, and GSK outside the submitted work. Dr Hoyte reported receiving speaker and advisory board honoraria from AstraZeneca and Genentech; advisory board honoraria from Sanofi and Teva; steering committee advisory honoraria from GSK; having family who owns stock in Merck and Amgen; and nonfinancial support from Teva and AstraZeneca for writing assistance outside the submitted work. Dr Press reported receiving grants from NIH (R01 and K24) and Agency for Healthcare Research and Quality (R01); and consulting fees from Humana outside the submitted work. Dr Sue-Wah-Sing reported receiving speaking honoraria from AstraZeneca. Dr Winders reported receiving personal fees from AstraZeneca, GSK, Sanofi-Regeneron, and Roche for serving as a speaker and advisor outside the submitted work. Dr Rank reported receiving grants from National Institute on Minority Health and Health Disparities (2U54MD012388-06) and National Heart, Lung, and Blood Institute (U24 HL138998) outside the submitted work. Dr Bacharier reported receiving personal fees from AstraZeneca, Sanofi-Regeneron, Avillion, Vertex, DBV Technologies, Aravax, GSK, Genentech, Recludix, and Kinaset outside the submitted work; book royalties from Elsevier; and being on the science committee at Global Initiative for Asthma. Dr Mosnaim reported receiving grants from Teva, Novartis, GSK, Sanofi-Regeneron, Genentech, AstraZeneca, and Incyte; personal fees from Teva, Novartis, Sanofi-Regeneron, Genentech, AstraZeneca, Aptar, Abbott, Chiesi, Gemic, and Jasper Therapeutics; and nonfinancial support from Teva, Novartis, GSK, Sanofi-Regeneron, Genentech, and Chiesi outside the submitted work. Dr Chu reported receiving grants from Joint Task Force on Practice Parameters, the Canadian Institutes of Health Research, and McMaster University (all provided full academic and editorial independence for the work) during the conduct of the study. No other disclosures were reported.

- [39 references](#)

Supplementary info

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. 2025 Jan 14;9(1):143-150.

doi: 10.1182/bloodadvances.2023010808.

[Respiratory phenotype and health care utilization patterns by adults with sickle cell disease](#)

[Atu Agawu<sup>1</sup>, Nii Nortey<sup>2</sup>, Charleen Jacobs<sup>2</sup>, Alexis Zebrowski<sup>2,3</sup>, Michelle P Lin<sup>2,3,4</sup>, Jeffrey Glassberg<sup>2</sup>](#)

Affiliations Expand

- PMID: 39368809
- DOI: [10.1182/bloodadvances.2023010808](#)

Abstract

Adults with sickle cell disease (SCD) and asthma have increased mortality and health care utilization; however, there are individuals with respiratory symptoms (including cough and wheeze) without asthma. These individuals may have similar patterns of increased mortality and health care utilization. To characterize the association between respiratory phenotype and health care utilization by adults with SCD. Cross-sectional study of adults with SCD presenting for emergency and inpatient hospital care from 2012 to 2014 in Florida, Iowa, and New York using state-level health care utilization databases. Outcomes of interest included all-cause, SCD-related acute, painful episode, and acute chest syndrome-related care. Respiratory phenotype was defined as SCD + asthma, SCD + respiratory symptoms, and SCD + none. We built multivariable logistic regression and negative binomial regression models to evaluate the association adjusting for demographics, social determinant of health proxies, year of care, and state. Of 29 952 identified individuals, 3.4% had intermittent respiratory symptoms, and a larger proportion (15.6%) had asthma. There was a high rate of inpatient hospitalizations (43%) and emergency department visits (60%). Individuals with asthma had a higher annual risk of inpatient hospitalizations (48% vs 37%) but lower annual risk of an emergency department visit (62% vs 86%) than individuals with intermittent respiratory symptoms. The pattern of increased health care utilization among individuals with intermittent respiratory symptoms was consistent across each utilization type. In this large cohort of adults with SCD, we identified some with intermittent respiratory symptoms who had significantly increased health care utilization. This warrants further evaluation to understand potential etiologies and interventions.

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. 2025 Jan 13:107940.

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[The impact of blood eosinophil count and FeNO on benralizumab effectiveness in clinical practice: An ORBE II subanalysis](#)

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Affiliations Expand

- PMID: 39814271
- DOI: [10.1016/j.rmed.2025.107940](https://doi.org/10.1016/j.rmed.2025.107940)

Abstract

**Background:** The ORBE II study showed the real-world effectiveness of benralizumab in severe eosinophilic asthma (SEA). This subgroup analysis aimed to characterize patients and outcomes based on baseline blood eosinophil count (BEC) and/or fractional exhaled nitric oxide (FeNO) levels.

**Methods:** In this analysis of the ORBE II retrospective study, SEA patients receiving benralizumab were categorized into subgroups based on individual or combined BEC/FeNO levels, according to the following thresholds: high BEC (hiBEC):  $\geq 300$

cells/ $\mu$ L; low BEC (loBEC): <300 cells/ $\mu$ L; high FeNO (hiFeNO):  $\geq$ 50 ppb; low FeNO (loFeNO): <50 ppb. Baseline and up to 1 year of follow-up data are described.

**Results:** Most patients with available data were classified as hiBEC (72.6%) and 38.3% as hiFeNO. The distribution according to combined baseline BEC and FeNO levels revealed a heterogeneous patient population. Although common SEA features were shared among subgroups, some distinct characteristics were observed, including elevated allergic asthma prevalence in hiBEC/loFeNO patients, high obesity prevalence and fewer non-smokers in loBEC/loFeNO patients, remarkable severe exacerbation rates in loBEC/hiFeNO patients [5.5 SD (6.0)], and more severe symptoms in the hiBEC/loBEC subgroup. All subgroups showed benefits following benralizumab treatment, with super-responder rates ranging from 68.2% to 83.3% and clinical remission rates reaching 70.0%. Particularly good responses were noted in hiBEC/hiFeNO patients.

**Conclusions:** This study shows the variability of T2 biomarkers in ORBE II SEA patients, emphasizing the prevalence of high BEC values. While benralizumab benefits were important regardless of BEC, high BEC predicted good outcomes and FeNO had less influence on treatment effectiveness.

**Keywords:** Benralizumab; FeNO; ORBE II; asthma exacerbations; blood eosinophils; real world; responders; severe eosinophilic asthma.

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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:IG-M reports personal fees and non-financial support from AstraZeneca, GSK, Novartis, Sanofi and Teva. AM-M reports personal fees and non-financial support from AstraZeneca, Novartis, GSK and Sanofi. RA-E reports personal fees and non-financial support from AstraZeneca, GSK, Novartis, Sanofi and Teva. RD-C reports personal fees and non-financial support from AstraZeneca, GSK and Sanofi. JLV-G reports personal fees from AstraZeneca, GSK and Sanofi, and non-financial support from AstraZeneca. JL-ST, EL, JN, CA, MAG and GN are employees of AstraZeneca. AP-G reports personal fees and non-financial support from AstraZeneca, GSK, Novartis, Sanofi and Teva.

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. 2025 Jan 13;11(1):00448-2024.

doi: 10.1183/23120541.00448-2024. eCollection 2025 Jan.

### [IL1RL1 variant may affect the response to type 2 biologics in patients with severe asthma](#)

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#### Affiliations Expand

- PMID: 39811553
- PMCID: [PMC11726575](#)
- DOI: [10.1183/23120541.00448-2024](#)

#### Abstract

**Background:** Asthma is a heterogeneous disease with variable response to treatment. Genetic backgrounds are involved in the severity of type 2 asthma, but their effects on responses to biologics remain unknown. This study aimed to clarify the role of genetic factors in response to biologics in patients with severe asthma.

**Methods:** Adults with severe asthma receiving biologics were enrolled in this multicentre, observational, real-world study. The responses to biologics were evaluated using Physicians' Global Evaluation of Treatment Effectiveness (GETE). Optimal biologic for each patient was also determined based on the best GETE score for the biologic used or currently used biologic. Three single nucleotide polymorphisms (*IL1RL1*, rs1420101; *IL4RA*, rs8832; and *TSLP* rs1837253) were examined.

**Results:** Among the 113 patients analysed, 53 (46.9%) had an excellent GETE score for at least one biologic. These patients with an excellent GETE score for at least one biologic, particularly for benralizumab, had the risk genotype of rs1420101 more frequently than the remaining patients, independent of the clinical demographics. Regarding the optimal biologic for each patient, anti-IL-5 drugs were optimal for patients with the rs1420101 TT or rs8832 GG genotype. Furthermore, dupilumab was similarly effective, regardless of the risk genotypes examined in this study.

**Conclusion:** *IL1RL1* rs1420101 TT genotype and/or *IL4RA* rs8832 GG genotype may predict an excellent or optimal response to biologic therapy in each patient,

particularly to anti-interleukin-5 targeted therapy. The elucidation of genetic predisposition may improve the management of severe asthma in the era of biologics.

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#### Conflict of interest statement

**Conflict of interest:** H. Matsumoto reports lecture fees from AstraZeneca, GSK, Sanofi, Novartis and Kyorin unrelated to the submitted work, and is an associate editor of this journal. H. Sunadome reports grants from Philips Japan, ResMed, Fukuda Denshi and Fukuda Lifetec Keiji unrelated to the submitted work. T. Oguma reports receiving lecture fees from AstraZeneca and GlaxoSmithKline unrelated to the submitted work. K. Morita reports receiving lecture fees from AstraZeneca, Novartis Pharmaceuticals, Sanofi and GlaxoSmithKline unrelated to the submitted work. Y. Tohda reports receiving study funding from AstraZeneca, grants from Boehringer Ingelheim, Kyorin Pharmaceutical and Taiho, consulting fees from AstraZeneca, and lecture fees from AstraZeneca K.K., Kyorin Pharmaceutical Co., Ltd, Boehringer Ingelheim Co., Ltd, Daiichi Sankyo Co., Ltd, Sanofi K.K. and GlaxoSmithKline K.K unrelated to the submitted work. T. Hirai reports receiving lecture fees from AstraZeneca K.K., Sanofi K.K. and GSK plc unrelated to the submitted work. The rest of the authors declare that they have no relevant conflicts of interest.

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#### Comparative Study

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. 2025 Jan 13;26(1):12.

doi: 10.1186/s12931-024-03084-7.

## [Comparative analysis of real-world data on the efficacy and safety of and adherence to ICS/LABA combinations in asthma management](#)

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### Affiliations Expand

- PMID: 39806413
- PMCID: [PMC11730512](#)
- DOI: [10.1186/s12931-024-03084-7](#)

### Abstract

**Background:** Choosing effective devices (inhaled corticosteroid [ICS]-long-acting  $\beta$ 2 agonist [LABA] combination inhalers) as maintenance treatment is critical for managing patients with asthma. We aimed to compare ICS/LABA combination efficacy, safety, and adherence across inhaler types and components in patients newly diagnosed with asthma.

**Methods:** Utilizing South Korea's National Health Insurance Service data, we conducted a population-based cohort study involving patients aged 18-80 years, newly diagnosed with asthma who received ICS/LABA combination therapy between January 2016 and December 2020. Outcomes assessed included treatment adherence, asthma exacerbations, hospitalizations, emergency-department visits, mortality, and safety outcomes within 3-month and 1-year post-index periods.

**Results:** Overall, 13,850 eligible patients were included, with subgroups categorized and compared according to inhaler type and component (metered dose inhalers [MDIs] vs. dry powder inhalers [DPIs], budesonide vs. fluticasone, and formoterol vs. salmeterol). Efficacy and safety profiles did not significantly differ across device types or ICS/LABA combination components during the 3-month and 1-year follow-up periods. However, the DPI group exhibited a significantly higher mean proportion of days covered ( $0.67 \pm 0.23$  vs.  $0.62 \pm 0.23$ ;  $P < 0.001$ ) and a lower risk of discontinuation (adjusted hazard ratio, 0.867; 95% confidence interval, 0.804-0.927;  $P < 0.001$ ) than did the MDI group, with no significant differences observed between the other subgroups.

**Conclusions:** The choice of inhaler device (MDI vs. DPI) and specific ICS/LABA combination components does not significantly impact efficacy and safety profiles in patients newly diagnosed with asthma. However, DPI use may be associated with improved adherence. These results provide valuable insights for clinicians in selecting appropriate and individually tailored inhaler therapies in real-world settings.

**Keywords:** Adherence; Asthma; Efficacy and safety; ICS/LABA combinations; Inhaler types; Real-world outcomes.

## Conflict of interest statement

**Declarations. Ethics approval and consent to participate:** This study was approved by the Institutional Review Board of the Chungnam National University Hospital (IRB No. 2022-04-114). As this was a retrospective study, written informed consent was not required. **Consent for publication:** All authors have read and consented to the publication of this manuscript. This study does not include any identifying images or other personal or clinical details of participants that compromise anonymity, and therefore, patient consent for publication is not required. **Competing interests:** The authors declare no competing interests.

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. 2025 Jan 13.

doi: 10.1055/a-2515-1402. Online ahead of print.

## [Factor VIIa - antithrombin complexes are increased in asthma: relation to the exacerbation-prone asthma phenotype](#)

[Stanislawa Bazan-Socha](#)<sup>1</sup>, [Lucyna Mastalerz](#)<sup>2</sup>, [Agnieszka Cybulska](#)<sup>2</sup>, [Lech Zareba](#)<sup>3</sup>, [Bogumil Jakiela](#)<sup>4</sup>, [Michał Tomasz Zabczyk](#)<sup>5</sup>, [Teresa Iwaniec](#)<sup>6</sup>, [Anetta Undas](#)<sup>7</sup>

## Affiliations Expand

- PMID: 39805288

- DOI: [10.1055/a-2515-1402](https://doi.org/10.1055/a-2515-1402)

## Abstract

**Background:** Asthma is associated with a prothrombotic state. Plasma factor VIIa-antithrombin complex concentrations (FVIIa-AT) indirectly reflect the interaction of tissue factor (TF) with FVII. Since TF is a key initiator of coagulation in vivo, we hypothesized that FVIIa-AT are higher in asthma.

**Methods:** In 159 clinically stable adult asthma patients and 62 controls, we determined FVIIa-AT in plasma and analyzed their relation to circulating inflammatory and prothrombotic markers together with the total plasma potential for fibrinolysis (clot lysis time, CLT) and thrombin generation. We recorded clinical outcomes, including asthma exacerbations, during 3-year follow-up.

**Results:** Asthma patients were characterized by 38.5% higher FVIIa-AT ( $p < 0.001$ ), related to bronchial obstruction (FEV1:  $r = -0.397$ ,  $p < 0.001$ ), asthma severity ( $r = 0.221$ ,  $p = 0.005$ ) and duration ( $r = 0.194$ ,  $p = 0.015$ ) compared to controls. FVIIa-AT showed weak positive associations with C-reactive protein ( $r = 0.208$ ,  $p = 0.009$ ), fibrinogen ( $r = 0.215$ ,  $p = 0.007$ ), and CLT ( $r = 0.303$ ,  $p < 0.001$ ) but not with thrombin generation parameters. In the follow-up (data obtained from 151 patients), we documented 151 severe asthma exacerbations in 51 (33.8%) patients, including 33 (21.9%) with  $\geq 2$  such events. Exacerbation-prone asthma phenotype was related to 13.1% higher FVIIa-AT ( $p = 0.012$ ), along with asthma severity and control ( $p < 0.003$ , both). High FVIIa-AT (that is  $\geq 100.1$  pmol/l), defined on receiver operating characteristic curves, was linked to exacerbation-prone asthma phenotype (odds ratio 1.85; 95%CI: 1.23-2.80,  $p = 0.003$ ) and shorter time to first exacerbation ( $p = 0.023$ ).

**Conclusions:** This study is the first to show that FVIIa-AT are higher in asthma in relation to its severity and may help identify individuals at risk of the exacerbation-prone asthma phenotype.

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## Conflict of interest statement

The authors declare that they have no conflict of interest.

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. 2025 Jan 13.

doi: 10.1080/17476348.2025.2453652. Online ahead of print.

[Towards the integrated care of COPD, asthma and bronchiectasis: description and objectives of a treatable trait-based complex obstructive airway disease unit](#)

[Borja G Cosio](#)<sup>1</sup>, [Alexandre Palou](#)<sup>1</sup>, [Meritxell López](#)<sup>1</sup>, [Ruth Engonga](#)<sup>1</sup>, [Josep Luis Valera](#)<sup>1</sup>, [Nuria Toledo-Pons](#)<sup>1</sup>

Affiliations Expand

- PMID: 39801214
- DOI: [10.1080/17476348.2025.2453652](#)

Abstract

**Introduction:** Expert management of Complex Obstructive Airway Diseases (COAD) requires knowledge, resources and skills that are commonly shared in the management of the different conditions usually included in the acronym, namely asthma, bronchiectasis and Chronic Obstructive Pulmonary Disease (COPD). We discuss the basis to shift the paradigm of single-disease management into a holistic approach and describe its potential benefits.

**Areas covered:** The prevalence and significance of the overlap between the different conditions is reviewed. Literature search on the topic of treatable traits in airway diseases is analyzed, with special emphasis in the role of an expert nurse and the multidisciplinary team approach for the management of asthma, bronchiectasis and COPD. Finally, we describe the experience and organization of a COAD unit addressing desirable clinical outcomes and patient related outcome measures.

**Expert opinion:** The division among different airway diseases generates confusion when the diseases present features common to various airway conditions. We describe here how a holistic approach of the airway disease process based on treatable traits regardless the diagnostic label reverts in a more efficient use of resources and better clinical outcomes. The role of an expert respiratory nurse and a multidisciplinary team are key areas for improvement.

**Keywords:** Severe COPD; biologic therapy; bronchiectasis; respiratory infections; severe asthma; treatable traits.

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ACS Biomater Sci Eng

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. 2025 Jan 13;11(1):682-691.

doi: 10.1021/acsbiomaterials.4c01377. Epub 2024 Dec 1.

[A Dynamic Breathing Lung Chip for Precise Evaluation of Inhaled Drug Efficacy and Airway Epithelial Responses](#)

[Chao-Yu Liu<sup>1</sup>](#), [Ying-Ru Chen<sup>1</sup>](#), [Hsuan-Yu Mu<sup>1</sup>](#), [Jen-Huang Huang<sup>1</sup>](#)

Affiliations Expand

- PMID: 39616618
- PMCID: [PMC11733924](#)
- DOI: [10.1021/acsbiomaterials.4c01377](#)

Abstract

Inhaled therapy has become a crucial treatment option for respiratory diseases like asthma, cystic fibrosis, and chronic obstructive pulmonary disease (COPD), delivering drugs directly to bronchial and alveolar tissues. However, traditional static *in vitro* cell models, while valuable for studying pharmacokinetics (PK) and pharmacodynamics (PD), fall short in replicating the dynamic nature of physiological breathing. In this study, we present a breathing lung chip model that integrates a dynamic breathing mechanism with an air-liquid interface (ALI) culture environment to overcome these limitations. The platform replicates key aspects of lung physiology, including a functional airway interface, cyclic breathing motion, and medium circulation. Using the Calu-3 cell line to model airway epithelium, our experiments show that the incorporation of breathing motion significantly enhances the efficacy of inhaled drug delivery and cellular uptake, resulting in improved treatment outcomes compared to direct exposure of the drug. While further research is needed to explore its full potential, this platform holds promise for advancing inhaled drug screening and respiratory disease research.

**Keywords:** airway-on-a-chip; breathing lung; dynamic breathing; inhaled drug efficacy; respiratory.

#### Conflict of interest statement

The authors declare no competing financial interest.

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- [6 figures](#)

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Respirology

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. 2025 Jan 12.

doi: 10.1111/resp.14876. Online ahead of print.

[Heterogeneity of reduced FEV<sub>1</sub> in early adulthood: A looking forward, looking backwards analysis](#)

[Nuria Olvera](#)<sup>1,2,3</sup>, [Alvar Agusti](#)<sup>1,2,3,4</sup>, [Judith M Vonk](#)<sup>5,6</sup>, [Gang Wang](#)<sup>7,8</sup>, [Jenny Hallberg](#)<sup>7,9</sup>, [H Marike Boezen](#)<sup>#5,6</sup>, [Maarten van den Berge](#)<sup>6,10</sup>, [Erik Melén](#)<sup>7,9</sup>, [Rosa Faner](#)<sup>1,2,11</sup>

Affiliations [Expand](#)

- PMID: 39800892
- DOI: [10.1111/resp.14876](#)

Abstract

**Background:** Some individuals never achieve normal peak FEV<sub>1</sub> in early adulthood. It is unknown if this is due to airflow limitation and/or lung restriction.

**Methods:** To investigate this, we: (1) looked forward in 19,791 participants in the Dutch Lifelines general population cohort aged 25-35 years with 5-year follow-up; and (2) looked backwards in 2032 participants in the Swedish BAMSE birth cohort with spirometry at 24 years of age but also at 16 and/or 8 years.

**Results:** (1) In Lifelines 8.5% of participants had reduced FEV<sub>1</sub> at 25-35 years, 68% due to Preserved Ratio Impaired Spirometry ('PRISm') and 32% to airflow limitation ('low-limited'); besides, 3.8% participants with normal FEV<sub>1</sub> showed airflow-limitation ('normal-limited'). Low-limited and normal-limited, but not PRISm, reported higher smoking exposures and asthma diagnosis than normal ( $p < 0.05$ ). At 5-year follow-up, 91.2% of participants remained in the same group, and FEV<sub>1</sub> decline was similar in normal and normal-limited participants, but statistically smaller ( $p < 0.05$ ) in PRISm and low-limited; (2) these observations were largely reproduced in BAMSE at 24 years of age; and, (3) in BAMSE, low-limited or PRISm individuals were already identifiable at 8-16 years of age.

**Conclusion:** Low peak FEV<sub>1</sub> in early adulthood is most often due to PRISm and results in a significant burden of respiratory symptoms. Only low-limited and normal-limited, but not PRISm, associate with a doctor diagnosis of asthma, and FEV<sub>1</sub> decline was statistically different in PRISm indicating a need for differentiated clinical approaches. These spirometric abnormalities can be already identified in childhood and adolescence.

**Keywords:** PRISm; chronic bronchitis; emphysema; lung function trajectories; pre-COPD; smoking.

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. 2025 Jan 12.

doi: 10.1111/imm.13898. Online ahead of print.

[Efficacy of Subcutaneous, Sublingual and Oral Immunotherapy for Allergens: A Comparative Study](#)

[Maria Zofia Lisiecka](#)<sup>1</sup>

Affiliations Expand

- PMID: 39800671
- DOI: [10.1111/imm.13898](https://doi.org/10.1111/imm.13898)

Abstract

The purpose of this study was to compare the efficacy and safety of subcutaneous, sublingual, oral specific immunotherapy in patients who suffer from allergic conditions to pollen from trees, grasses and weeds, house dust mites and *Alternaria alternata* spores. A literature search was performed separately for each type of allergen and each administration route of the drug. As a result, it was found that all administration routes were quite effective. However, each type of immunotherapy was most effective for certain allergens. Subcutaneous and sublingual immunotherapy have proven effective for aeroallergens such as pollen from grass, trees, weeds and house dust mites. Despite this, subcutaneous immunotherapy had a number of disadvantages in the form of the duration of treatment and a greater prevalence of side effects. Some authors suggest that for allergies to house dust mites, the most effective method of immunotherapy was the subcutaneous method of administration, compared with sublingual and nasal. Sublingual therapy was safe enough for all types of allergens under study, however, to achieve the same effect as the subcutaneous method of administration. In addition, oral immunotherapy has been shown to be effective for food allergies with obvious symptoms of gastrointestinal disorders. In addition, oral immunotherapy is the only approved treatment for allergies in the elderly, due to the low risk of side effects. The time-accelerated and dosage-enhanced immunotherapy was also effective and safe. These data prove the effectiveness and safety of each administration route of specific allergens for specific immunotherapy in patients suffering from allergic rhinitis, bronchial asthma and even atopic dermatitis.

Keywords: aetiological treatment; allergic rhinitis; alternative treatment; immunoglobulin; sensitisation.

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- [65 references](#)

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

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J Asthma

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. 2025 Jan 17:1-10.

doi: 10.1080/02770903.2024.2449231. Online ahead of print.

[Association and mechanism of montelukast on sleep disorders: insights from NHANES 2005-2018 data analysis and a network pharmacology study](#)

[Xingke Zhu<sup>1</sup>](#), [Qing Lv<sup>1</sup>](#)

Affiliations Expand

- PMID: 39817694
- DOI: [10.1080/02770903.2024.2449231](https://doi.org/10.1080/02770903.2024.2449231)

Abstract

**Background:** Studies have suggested associations between montelukast and increased risks of sleep disorders, including overall sleeping problems and insomnia. However, the results of observational studies are not consistent. Understanding these associations is crucial, particularly in patients solely diagnosed with allergic rhinitis, where montelukast use remains prevalent.

**Objective:** This study aimed to assess whether montelukast exposure is associated with sleep disorders and elucidate the possible molecular mechanism.

**Method:** We conducted a cross-sectional study of 16,520 adults from the National Health and Nutrition Examination Survey (NHANES) 2005-2018. Multivariable regression was used to evaluate the association between montelukast exposure and sleep disorder. Network pharmacology was conducted to identify the mechanisms of montelukast on sleep disorders.

**Results:** Montelukast exposure had a higher prevalence of sleep disorders (25.28%). In a multivariable logistic regression model adjusted for sociodemographic, behavioral, and health characteristics, montelukast exposure was associated with sleep disorders (odds ratio [OR]: 1.72; confidence interval [CI]: 1.32-2.26). Network pharmacology was identified 39 intersection targets and 17 core targets of montelukast on sleep disorders. The Kyoto Encyclopedia of Genes and Genomes (KEGG) enrichment analysis suggested montelukast mainly works through multiple pathways in chemical carcinogenesis-receptor activation, cancer, estrogen signaling pathway, etc.

**Conclusions:** The study implies a potential positive association between long-term montelukast exposure and sleep disorders through multi-faceted mechanisms. It is suggested that attention be given to the possibility of sleep disorders in patients undergoing prolonged montelukast therapy.

**Keywords:** NHANES; Sleep disorders; cross-sectional study; montelukast.

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Am J Rhinol Allergy

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. 2025 Jan 15:19458924251313495.

doi: 10.1177/19458924251313495. Online ahead of print.

[The Significance of Fractional Exhaled Nitric Oxide, Fractional Nasal Exhaled Nitric Oxide and Lung Function Tests in Children with Moderate-to-Severe Allergic Rhinitis](#)

[Wanying Li<sup>1</sup>, Wanyu Jia<sup>1</sup>, Xiaowen Yi<sup>1</sup>, Peng Li<sup>1</sup>, Chunlan Song<sup>1</sup>](#)

Affiliations Expand

- PMID: 39814345
- DOI: [10.1177/19458924251313495](https://doi.org/10.1177/19458924251313495)

Abstract

**Purpose:** Fractional nasal exhaled NO (FnNO), fractional exhaled NO (FeNO) and lung function tests were performed in children with moderate-to-severe persistent allergic rhinitis (AR) to investigate the significance of the above indices in the assessment and diagnosis of children with AR.

**Methods:** A total of 135 children with persistent AR were selected and divided into moderate-to-severe and mild groups; serum total immunoglobulin E (IgE),

peripheral blood eosinophil counts (EOS), FnNO, FeNO, and lung function tests were performed.

**Results:** Children in the moderate-to-severe group had increased levels of FnNO and FeNO and decreased levels of forced expiratory flow at 75% of forced vital capacity as a percentage of the predicted value (FEF75%) and maximum mid-term expiratory flow as a percentage of the predicted value (MMEF%). IgE in children with AR was positively correlated with FeNO and FnNO and negatively correlated with FEF75%. EOS was positively correlated with FnNO. FeNO was negatively correlated with FEF75% and forced expiratory flow at 50% of forced vital capacity as a percentage of the predicted value (FEF50%). FnNO was negatively correlated with FEF75%, FEF50%, and MMEF%.

**Conclusion:** FnNO, FeNO, and pulmonary function tests may help assess disease severity and level of disease control in children with persistent AR.

**Keywords:** allergic rhinitis; fractional exhaled nitric oxide; fractional nasal exhaled nitric oxide; lung function; small airway function.

**Conflict of interest statement**

**Declaration of Conflicting Interests**The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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**Indian Pediatr**

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. 2025 Jan 15;62(1):44-48.

doi: 10.1007/s13312-025-3356-8.

[Clinical and Laboratory Characteristics and Comorbidities in Asthma Endotypes in Children](#)

[Gautam Kumar](#)<sup>1</sup>, [Saroj Kumar Tripathy](#)<sup>2</sup>, [Sarthak Das](#)<sup>3</sup>, [Archana Malik](#)<sup>4</sup>, [V Vinayagamorthy](#)<sup>5</sup>

## Affiliations Expand

- PMID: 39754430
- DOI: [10.1007/s13312-025-3356-8](https://doi.org/10.1007/s13312-025-3356-8)

## Abstract

**Objective:** To estimate the proportion of eosinophilic and non-eosinophilic (NEA) endotypes in pediatric asthma, and to compare the clinical, and laboratory characteristics, and different comorbidities between the two endotypes in the children.

**Methods:** Children aged 5 to 14 years of age with clinical and/or laboratory-confirmed asthma attending the pediatric outpatient department of a tertiary care hospital in Eastern India between October 1, 2023 and March 31, 2024, were included in this cross-sectional study. Complete hemogram, absolute eosinophil count (AEC), IgE, and pulmonary function tests were performed in all patients. Comorbidities associated with asthma were recorded. All patients were managed as per the Global Initiative for Asthma (GINA) guidelines.

**Results:** Of 150 patients, 133 (88.7%) patients belonged to eosinophilic asthma and 17 (11.3%) belonged to NEA endotypes. A family history of allergy and/or asthma was observed in 83 (55%) participants. Allergic rhinitis (59.3%), exposure to cold (42%), and anxiety (26.7%) were common comorbidities associated with asthma. Prematurity and urticaria were significantly associated with NEA. On regression analysis, the odds of urticaria among the NEA endotype were about 3.7 times higher than the EA endotype, adjusted odds ratio (95% CI) of 4 (1.3, 12.6), P value = 0.02. Other comorbidities, sociodemographic, clinical, and lung function values were similar in both endotypes of asthma.

**Conclusion:** Eosinophilic asthma is the commonest asthma endotype and allergic rhinitis is the commonest comorbidity observed in children. Comorbidities associated with asthma in children are usually similar in both endotypes except for urticaria which is higher in NEA.

## Supplementary info

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## Environ Res

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. 2025 Jan 15:265:120445.

doi: 10.1016/j.envres.2024.120445. Epub 2024 Nov 23.

[Association of environmental pollutants with asthma and allergy, and the mediating role of oxidative stress and immune markers in adolescents](#)

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Affiliations Expand

- PMID: 39586518
- PMCID: [PMC11672208](#)
- DOI: [10.1016/j.envres.2024.120445](#)

Free PMC article

Abstract

**Background:** Asthma and allergic diseases are among the common causes of morbidity and mortality globally. Various environmental pollutants are linked to the development of asthma and allergic diseases. Evidence on the role of oxidative stress and immune markers in the association of environmental pollutants with asthma and allergy is scant. We examined cross-sectional associations between environmental pollutants and asthma and allergy, investigated mixture effects and possible mediation by oxidative stress or immune markers.

**Methods:** We used data from the Flemish Environment and Health Study 2016-2020 (FLEHS IV), including 409 adolescents aged 13-16 years. Fifty-four pollutants, including metals, phthalates, Di(isononyl) cyclohexane-1,2-dicarboxylate (DINCH), bisphenols, currently used and legacy pesticides, flame retardants, per- and polyfluoroalkyl substances (PFAS), polyaromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs) were analyzed. Outcomes were self-reported asthma, rhinitis, eczema, allergies, respiratory infection, and airway inflammation, measured through fractional exhaled nitric oxide (FeNO). Single pollutant models using multiple regression analysis and multipollutant models using Bayesian Kernel Machine Regression (BKMR) were fitted. As sensitivity analysis, Bayesian model averaging (BMA) and elastic net (ENET) models were also performed. For Bayesian models, posterior inclusion probabilities (PIP) were used to identify the most important chemicals. Mediation analysis was performed to investigate the role of oxidative stress, measured by urinary 8-hydroxy-2'-deoxyguanosine (8-OHdG), and immune markers (eosinophils, basophils, InterLeukin 8, InterLeukin 6, and Interferon- $\gamma$  in blood).

**Results:** In single pollutant models, FeNO was significantly higher by 20% (95% CI: 6, 36%) and 13% (95% CI: 2, 25%) per interquartile range (IQR) fold in mono-n-butyl phthalate (MnBP) and mono-benzyl phthalate (MBzP), respectively. In BKMR analysis, the group PIPs indicated phthalates and DINCH as the most important group (group PIP = 0.509), with MnBP being the most important pollutant within that group (conditional PIP = 0.564; %change = 28%; 95%CI: 6, 54%). Similar patterns were observed in all multipollutant models. Eosinophil count mediated 37.8% (p = 0.018) and 27.9% (p = 0.045) of the association between MBzP and FeNO, and the association between MnBP and FeNO, respectively. 8-OHdG plays a significant mediating role in the association of 2,4-Dichlorophenoxyacetic acid (2,4-D) (55.4%), 3,5,6-Trichloro-2-pyridinol (TCPY) (48.1%), and 1-Naphthylamine (1-NAP) (32.7%) with rhinitis, while the total effects of these chemicals on rhinitis were not statistically significant.

**Conclusions:** This study found associations between phthalates, MnBP and MBzP, and elevated FeNO, which appeared to be mediated by eosinophil count. 8-OHdG plays a significant mediating role in the association between 2,4-D, TCPY, and 1-NAP with rhinitis, while their direct effects remain non-significant. Use of inflammatory and oxidative stress markers can enhance the understanding of inflammatory processes in asthma and allergic diseases due to environmental pollutants.

**Keywords:** Adolescents; Airway inflammation; Allergy; Asthma; Human biomonitoring; Immune biomarkers; Mixture; Oxidative stress.

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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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. 2025 Jan 14:1-21.

doi: 10.1159/000543366. Online ahead of print.

[Posterior nasal nerve neurolysis in addition to radiofrequency ablation of the inferior turbinates for patients with chronic rhinitis](#)

[Chien-Yu Huang, Jyun-Yi Liao, Han-Lo Teng, Bor-Hwang Kang, Yaoh-Shiang Lin, Jun-Wei Hsieh](#)

- PMID: 39809226
- DOI: [10.1159/000543366](#)

#### Abstract

**Introduction:** This study aimed to evaluate the outcome of radiofrequency ablation of the inferior turbinates (RFIT) combined with posterior nasal nerve neurolysis (RPN3) in comparison with RFIT alone in the treatment of patients with chronic rhinitis unresponsive to pharmacological therapy.

**Methods:** A retrospective cohort study was conducted on adult and adolescent patients with chronic rhinitis who demonstrated a poor response to medication. Patients with a total 24-hour reflective total nasal symptom score (rTNSS) of  $\geq 5$ , rhinorrhea score of  $\geq 2$ , and congestion score of  $\geq 2$  were included. The treatment outcomes of patients who underwent RPN3 and RFIT alone were assessed. The primary endpoint was the change from baseline in 12-h reflective total nasal symptom score (rTNSS), nasal obstruction symptom evaluation scores (NOSE), and the response rate defined as rTNSS improved  $\geq 30\%$  during follow-ups.

**Results:** A total of 64 patients were included (45 males, 70.3%). Overall, 49 patients underwent RPN3, and 15 patients underwent RFIT alone. The rTNSS had improved by 78.4% and 65.8% in RPN3 and RFIT groups, respectively (both  $p < 0.001$ ). The NOSE score had improved by 92.89% and 86.81% in the RPN3 and RFIT groups (both  $p < 0.001$ ), respectively. Patients in the RPN3 group demonstrated statistically significantly better results after three months than patients in the RFIT alone group ( $p < 0.05$ ). The response rate was 98% in the RPN3 group after 3 months.

**Conclusions:** The proposed RPN3 alleviated rhinitis symptoms, which demonstrated a high response rate with a superior symptom control rate than RFIT alone in chronic rhinitis with severe rhinorrhea and nasal congestion cases.

S. Karger AG, Basel.

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Immunology

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. 2025 Jan 12.

doi: 10.1111/imm.13898. Online ahead of print.

[Efficacy of Subcutaneous, Sublingual and Oral Immunotherapy for Allergens: A Comparative Study](#)

[Maria Zofia Lisiecka<sup>1</sup>](#)

Affiliations Expand

- PMID: 39800671
- DOI: [10.1111/imm.13898](#)

Abstract

The purpose of this study was to compare the efficacy and safety of subcutaneous, sublingual, oral specific immunotherapy in patients who suffer from allergic conditions to pollen from trees, grasses and weeds, house dust mites and *Alternaria alternata* spores. A literature search was performed separately for each type of allergen and each administration route of the drug. As a result, it was found that all administration routes were quite effective. However, each type of immunotherapy was most effective for certain allergens. Subcutaneous and sublingual immunotherapy have proven effective for aeroallergens such as pollen from grass, trees, weeds and house dust mites. Despite this, subcutaneous immunotherapy had a number of disadvantages in the form of the duration of treatment and a greater prevalence of side effects. Some authors suggest that for allergies to house dust mites, the most effective method of immunotherapy was the subcutaneous method of administration, compared with sublingual and nasal. Sublingual therapy was safe enough for all types of allergens under study, however, to achieve the same effect as the subcutaneous method of administration. In addition, oral immunotherapy has been shown to be effective for food allergies with obvious symptoms of gastrointestinal disorders. In addition, oral immunotherapy is the only approved treatment for allergies in the elderly, due to the low risk of side effects. The time-accelerated and dosage-enhanced immunotherapy was also

effective and safe. These data prove the effectiveness and safety of each administration route of specific allergens for specific immunotherapy in patients suffering from allergic rhinitis, bronchial asthma and even atopic dermatitis.

**Keywords:** aetiological treatment; allergic rhinitis; alternative treatment; immunoglobulin; sensitisation.

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- [65 references](#)

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## chronic cough

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Review

Expert Rev Respir Med

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. 2025 Jan 15:1-10.

doi: 10.1080/17476348.2025.2453657. Online ahead of print.

[Challenges of symptom management in interstitial lung disease: dyspnea, cough, and fatigue](#)

[Amy Pascoe](#)<sup>1</sup>, [Anne E Holland](#)<sup>1</sup>, [Natasha Smallwood](#)<sup>1,2</sup>

Affiliations Expand

- PMID: 39800565
- DOI: [10.1080/17476348.2025.2453657](https://doi.org/10.1080/17476348.2025.2453657)

Abstract

**Introduction:** Interstitial lung disease (ILD) is a broad group of conditions characterized by fibrosis of the lung parenchyma. Idiopathic pulmonary fibrosis (IPF) is the most common subvariant. IPF is marked by considerable symptom burden of dyspnea, cough and fatigue that is often refractory to optimal disease-directed treatment.

**Areas covered:** In this narrative review, we searched MEDLINE for articles related to the current evidence regarding management of chronic dyspnea, cough, and fatigue as three of the most prevalent and distressing symptoms associated with IPF and other ILDs. Each symptom shares common features of multi-factorial etiology and a lack of safe and effective pharmacological therapies. Both corticosteroids and opioids have been utilized in this context, yet there is insufficient evidence of therapeutic benefit and considerable risk of harms. Whilst some may benefit from symptom-directed pharmacological management, usage must be carefully monitored. Use of non-pharmacological strategies, such as breathing techniques and speech therapy represent low risk and low-cost option, yet broader validation of these therapies' effectiveness is needed.

**Expert opinion:** Symptom management in IPF and other ILDs requires an iterative and individualized approach. Leveraging the expertise of multidisciplinary teams within an integrated care setting is an important opportunity to maximize health outcomes.

**Keywords:** Cough; dyspnea; fatigue; idiopathic pulmonary fibrosis; interstitial lung disease.

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. 2025 Jan 15:1-12.

doi: 10.1080/03007995.2024.2433252. Online ahead of print.

[Experiencing chronic cough symptoms for 3 years is associated with increased rates of healthcare resource use and higher healthcare costs in the United States compared to resolved chronic cough](#)

[Xuehua Ke](#)<sup>1</sup>, [Helen Ding](#)<sup>1</sup>, [Yezhou Sun](#)<sup>1</sup>, [Daisuke Goto](#)<sup>1</sup>, [Prajakta Waghmare](#)<sup>2</sup>, [Mingyue Li](#)<sup>3</sup>

## Affiliations Expand

- PMID: 39606816
- DOI: [10.1080/03007995.2024.2433252](https://doi.org/10.1080/03007995.2024.2433252)

## Abstract

**Objective:** Chronic cough (CC) symptoms can persist as refractory or unexplained CC (RCC). We sought to characterize the clinical and economic burden of RCC.

**Methods:** In this retrospective US cohort study using data from Optum's de-identified CDM Database (01/2015-03/2022), CC was identified as  $\geq 1$  CC diagnosis or  $\geq 3$  cough events (with  $\geq 8$  weeks and  $\leq 120$  days between the first and third events and  $\geq 3$  weeks between any two events). The index date was set as the earliest date of meeting the CC definition. The baseline period was defined as the 364 days prior to and including the index date. Adults with CC at baseline who met CC requirements ( $\geq 1$  CC diagnosis, or  $\geq 2$  cough events occurring  $\geq 8$  weeks but  $\leq 120$  days apart) in both follow-up year 2 and follow-up year 3 were defined as having "3-year chronic cough" (3YCC), a proxy measure of RCC, and compared to adults with CC at baseline who did not meet CC requirements in follow-up years 2 and 3 (non-3YCC). A propensity score weighting approach was used to adjust for baseline differences between the 3YCC and non-3YCC groups to compare clinical characteristics and healthcare resource use and costs in the two groups during the follow-up period.

**Results:** At baseline, the 3YCC group ( $N = 3,338$ ) had significantly more comorbidities and higher all-cause healthcare resource use and costs than the non-3YCC group ( $N = 43,122$ ) in unweighted analyses. After weighting, the groups ( $N = 3,338$  with 3YCC and  $N = 3,145$  without) were compared during a 3-year follow-up period. The 3YCC group had significantly more comorbidities, higher levels of all-cause healthcare resource use, and higher all-cause healthcare costs during the follow-up period compared to the non-3YCC group, after adjusting for baseline differences. For example, the mean total healthcare costs (in 2022 US dollars) were significantly higher among the 3YCC group than the non-3YCC group in each follow-up year, at \$49,454 versus \$42,144 in follow-up year 1, \$49,339 versus \$36,939 in follow-up year 2, and \$51,737 versus \$36,503 in follow-up year 3 ( $p < .001$  for each comparison).

**Conclusions:** After adjusting for baseline differences, persistent symptoms of CC were associated with significantly higher comorbidity, healthcare resource use, and healthcare costs compared to CC that resolved. Effective treatments for RCC would thus be expected to result in improved health as well as substantial healthcare cost offsets.

**Keywords:** Chronic cough; administrative claims database; clinical and economic burden; healthcare costs; healthcare resource use; refractory or unexplained chronic cough.

Plain language summary

Chronic cough (CC), defined as daily cough for  $\geq 8$  weeks, is a common condition that negatively affects physical and mental health, work, and participation in other daily activities. CC that continues following treatment of a diagnosed underlying condition is termed refractory chronic cough, while ongoing symptoms of CC in cases where no underlying condition can be identified are classified as unexplained chronic cough. Due to difficulties in differentiating between these conditions, they are often grouped together based on their shared characteristic of CC that persists for an extended period of time. In this study, we adopted a previously published approach and studied the clinical and economic burden of refractory and unexplained chronic cough using a nationwide US administrative claims database and found that, after adjusting for baseline differences, persistent symptoms of CC were associated with significantly higher comorbidity, healthcare resource use, and healthcare costs compared to CC that resolved.

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. 2025 Jan 13;11(1):00221-2024.

doi: 10.1183/23120541.00221-2024. eCollection 2025 Jan.

[Chronic Cough Patient Perspective: questionnaire validation and symptom impact](#)

[Fulvio Braido](#)<sup>1,2,3</sup>, [Maria Giulia Candelieri](#)<sup>2,3</sup>, [Benedetta Bondi](#)<sup>2</sup>, [Enrico Arnaboldi](#)<sup>2</sup>, [Matteo Bruno](#)<sup>2</sup>, [Nicole Colombo](#)<sup>2</sup>, [Cesare de Tommaso](#)<sup>2</sup>, [Omar Fassio](#)<sup>2</sup>, [Melissa Ferraris](#)<sup>2</sup>, [Sofia Martinelli](#)<sup>2</sup>, [Laura Melissari](#)<sup>2</sup>, [Ludovica Napoli](#)<sup>2</sup>, [Federica Terracciano](#)<sup>2</sup>, [Chiara Folli](#)<sup>2</sup>, [Ilaria Baiardini](#)<sup>2</sup>

Affiliations Expand

- PMID: 39811549
- PMCID: [PMC11726591](#)

- DOI: [10.1183/23120541.00221-2024](https://doi.org/10.1183/23120541.00221-2024)

## Abstract

**Background:** Chronic cough (CC) is underevaluated and underreported. The introduction of a tool that is easy to complete, score and interpret and with the psychometric properties requested for use in individual patients could improve clinical practice.

**Objective:** This cross-sectional study aimed to validate the Chronic Cough Patient Perspective (CCPP) for assessing CC in daily practice.

**Methods:** A provisional CCPP was created by iteratively reducing the Chronic Cough Impact Questionnaire (CCIQ). Its psychometric properties were tested in CC patients at baseline (visit 1) and after 1 month (visit 2).

**Results:** The reduction process yielded an 8-item provisional version, subsequently validated in 150 patients (36.33% males, mean age  $50 \pm 16.9$  years). Exploratory factor analysis revealed a one-dimensional structure, with one item being deleted as it did not align with the extracted dimension. The 7-item version of the CCPP showed a strong correlation with the CCIQ ( $r=0.902$  at visit 1,  $r=0.932$  at visit 2) and internal consistency (Cronbach's alpha values: 0.85 at visit 1, 0.93 at visit 2); discriminant and convergent validity were satisfactory. The reliability, assessed in 21 patients with no change in CC (Global Rating Scale=0), was high (concordance correlation coefficient=0.815; interclass coefficient=0.823). A score  $\leq 5$  indicates optimal health-related quality of life (HRQoL) attainment, with a minimum important difference of 3. The mean CCPP score was  $20.5 \pm 6.24$  at enrolment, and only 37.33% of the participants achieved an optimal HRQoL at visit 2.

**Conclusion:** The CCPP exhibited good psychometric properties suitable for clinical use, providing a valid, reliable and standardised assessment of CC's impact on HRQoL.

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Conflict of interest statement

Conflict of interest: The authors have no conflict of interest to declare.

- [39 references](#)

Full text links

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

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Comparative Study

J Bras Pneumol

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. 2025 Jan 13;50(6):e20240301.

doi: 10.36416/1806-3756/e20240301. eCollection 2025.

### [Outcomes of segmentectomy versus lobectomy in adults with non-cystic fibrosis bronchiectasis](#)

[José de Sá Moraes Neto<sup>1</sup>](#), [Isabele Alves Chirichela<sup>1</sup>](#), [Alessandro Wasum Mariani<sup>1</sup>](#), [Ricardo Mingarini Terra<sup>1</sup>](#), [Paulo Manuel Pêgo Fernandes<sup>1</sup>](#)

#### Affiliations Expand

- PMID: 39813502
- PMCID: [PMC11665309](#)
- DOI: [10.36416/1806-3756/e20240301](#)

#### Abstract

**Objective:** Surgical resection remains the gold standard treatment for bronchiectasis in patients who present with hemoptysis or suppuration, as well as in those who do not respond to clinical treatment. We sought to investigate the efficacy of sublobar resection (segmentectomy) and compare it with that of lobar resection (lobectomy) in patients with non-cystic fibrosis bronchiectasis.

**Methods:** Patients undergoing lobectomy or segmentectomy between 2019 and 2023 were included in the study. We analyzed intraoperative complications and postoperative outcomes, including length of hospital stay, length of ICU stay, and disease recurrence.

**Results:** There was no significant difference between the lobectomy and segmentectomy groups regarding the occurrence of intraoperative complications such as bleeding > 1000 ml, cardiogenic shock, and ventilatory instability ( $p > 0.999$ ). However, the frequency of complications was significantly lower in the segmentectomy group than in the lobectomy group ( $p = 0.016$ ). Hospital stays were longer in the lobectomy group than in the segmentectomy group (16 days vs. 5 days;  $p = 0.027$ ), as were ICU stays (7 days vs. 1 day;  $p = 0.006$ ). There was no significant difference between the lobectomy and segmentectomy groups regarding the recurrence rate ( $p = 0.541$ ).

**Conclusions:** Early identification of bronchiectasis patients who are candidates for surgical resection is essential because those who are identified as such early on are candidates for parenchyma-sparing resections, which are similar to lobar resections in terms of disease control and lead to shorter hospital stays and better postoperative outcomes.

## Conflict of interest statement

CONFLICTS OF INTEREST: None declared.

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- [1 figure](#)

## Supplementary info

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## Expert Rev Respir Med

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. 2025 Jan 13.

doi: 10.1080/17476348.2025.2453652. Online ahead of print.

[Towards the integrated care of COPD, asthma and bronchiectasis: description and objectives of a treatable trait-based complex obstructive airway disease unit](#)

[Borja G Cosio<sup>1</sup>](#), [Alexandre Palou<sup>1</sup>](#), [Meritxell López<sup>1</sup>](#), [Ruth Engonga<sup>1</sup>](#), [Josep Luis Valera<sup>1</sup>](#), [Nuria Toledo-Pons<sup>1</sup>](#)

## Affiliations Expand

- PMID: 39801214
- DOI: [10.1080/17476348.2025.2453652](https://doi.org/10.1080/17476348.2025.2453652)

## Abstract

**Introduction:** Expert management of Complex Obstructive Airway Diseases (COAD) requires knowledge, resources and skills that are commonly shared in the management of the different conditions usually included in the acronym, namely asthma, bronchiectasis and Chronic Obstructive Pulmonary Disease (COPD). We

**discuss the basis to shift the paradigm of single-disease management into a holistic approach and describe its potential benefits.**

**Areas covered:** The prevalence and significance of the overlap between the different conditions is reviewed. Literature search on the topic of treatable traits in airway diseases is analyzed, with special emphasis in the role of an expert nurse and the multidisciplinary team approach for the management of asthma, bronchiectasis and COPD. Finally, we describe the experience and organization of a COAD unit addressing desirable clinical outcomes and patient related outcome measures.

**Expert opinion:** The division among different airway diseases generates confusion when the diseases present features common to various airway conditions. We describe here how a holistic approach of the airway disease process based on treatable traits regardless the diagnostic label reverts in a more efficient use of resources and better clinical outcomes. The role of an expert respiratory nurse and a multidisciplinary team are key areas for improvement.

**Keywords:** Severe COPD; biologic therapy; bronchiectasis; respiratory infections; severe asthma; treatable traits.

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