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

1

Am J Respir Crit Care Med

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. 2025 Feb 28.

doi: 10.1164/rccm.202412-2447LE. Online ahead of print.

[Reply to Sohal: Vascular Pruning in Smokers, Patients with Small Airway Disease and Early COPD](#)

[Sylvia Verbanck¹](#), [Pieter Boonen²](#), [Jef Vandemeulebroucke³](#), [Wilfried Cools⁴](#), [Raúl San José Estépar⁵](#), [Eef Vanderhelst⁶](#)

Affiliations Expand

- PMID: 40020241
- DOI: [10.1164/rccm.202412-2447LE](https://doi.org/10.1164/rccm.202412-2447LE)

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Am J Respir Crit Care Med

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. 2025 Feb 28.

doi: 10.1164/rccm.202411-2325LE. Online ahead of print.

[Vascular Pruning in Smokers, Patients with Small Airway Disease and Early COPD](#)

[Sukhwinder Singh Sohal](#)¹

Affiliations Expand

- PMID: 40020240
- DOI: [10.1164/rccm.202411-2325LE](#)

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Am J Respir Crit Care Med

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. 2025 Feb 28.

doi: 10.1164/rccm.202404-0834RL. Online ahead of print.

[Indoor Air Pollution, CT Airway-to-Lung Ratio and Lung Function Decline: Analyses from SPIROMICS AIR](#)

[Sarath Raju^{1,2}](#), [Han Woo³](#), [Coralynn Sack⁴](#), [Eric A Hoffman⁵](#), [Joel D Kaufman⁶](#), [Igor Barjaktarevic⁷](#), [R Graham Barr⁸](#), [Alejandro Comellas^{9,10}](#), [Christopher B Cooper¹¹](#), [Robert Paine 3rd¹²](#), [Benjamin M Smith^{13,14}](#), [Nadia N Hansel³](#)

Affiliations Expand

- PMID: 40019825
- DOI: [10.1164/rccm.202404-0834RL](#)

No abstract available

Keywords: chronic obstructive pulmonary disease; copd; dysanapsis; indoor air pollution.

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Monaldi Arch Chest Dis

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. 2025 Feb 28.

doi: 10.4081/monaldi.2025.3226. Online ahead of print.

[Comments on "Hematological and clinical profiling of chronic obstructive pulmonary disease: a comprehensive study"](#)

[Hinpetch Daungsupawong¹](#), [Viroj Wiwanitkit²](#)

Affiliations Expand

- PMID: 40019467
- DOI: [10.4081/monaldi.2025.3226](#)

Abstract

Dear Editor, This is a response to the article "Hematological and clinical profiling of chronic obstructive pulmonary disease: a comprehensive study". This observational cross-sectional study of chronic obstructive pulmonary disease patients sheds light on the association between hematological profiles and clinical parameters; however, some elements and techniques warrant additional consideration...

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Eur Clin Respir J

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. 2025 Feb 26;12(1):2470499.

doi: 10.1080/20018525.2025.2470499. eCollection 2025.

[Gut microbiota in chronic obstructive pulmonary disease varies by CT-verified emphysema status](#)

[Anders Ørskov Rotevatn](#)^{1,2}, [Tomas Mikal Eagan](#)^{1,2}, [Solveig Tangedal](#)^{1,2}, [Gunnar Reksten Husebø](#)^{1,2}, [Kristoffer Ostridge](#)^{3,4}, [Rune Nielsen](#)^{1,2}

Affiliations Expand

- PMID: 40017817
- PMCID: [PMC11866649](#)
- DOI: [10.1080/20018525.2025.2470499](#)

Abstract

Background and aim: The association of the gut microbiota to chronic obstructive pulmonary disease (COPD) phenotypes is underexplored. We aimed to compare

stool samples from patients with COPD and subjects without COPD and relate findings to emphysema status, exacerbation rate, blood eosinophil levels, symptom score, and lung function.

Methods: We report findings from a single-centre case-control study with 62 current and former smoking patients with COPD and 49 subjects without COPD. DNA was extracted from stool samples, and the V3V4-region of the bacterial 16S-rRNA gene was sequenced. Emphysema was defined based on thoracic computed tomography (CT thorax) low attenuating areas \geq / $<$ 10% at threshold -950 and -910 Hounsfield units, respectively. Differential abundance of taxa was evaluated using Analysis of Composition of Microbes with Bias Correction (ANCOM-BC). Beta diversity was compared using a distance-based permanova-test.

Results: The genus *Veillonella* was decreased and a genus belonging to class *Clostridia* was increased in COPD compared with controls without COPD. The composition of microbes (beta diversity) differed in emphysema compared to controls, and 27 genera were differentially abundant in emphysema vs. controls. Nine of these genera belonged to the family *Lachnospiraceae*. Lung function, blood counts and COPD assessment test score correlated with several genera's relative abundance. Of the genera showing significant correlation to lung function, nine belonged to the family *Lachnospiraceae*.

Conclusion: The gut microbiota in COPD differs from that in healthy individuals, even more so in emphysema. In particular, future studies should look into the mechanisms and therapeutic potential of dysbiosis affecting the family *Lachnospiraceae*.

Keywords: COPD; Lachnospiraceae; Microbiota; emphysema; microbiome.

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Conflict of interest statement

Dr. Rotevatn reports grants from Boehringer Ingelheim and the Endowment of Timber Merchant A. Delphin during the conduction of the study and honoraria for a presentation from AstraZeneca. Dr. Eagan reports grants from Helse Vest and Bergen Medical Research Foundation during the conduction of the study, personal grants from GlaxoSmithKline, and honoraria from Boehringer Ingelheim and AstraZeneca outside the submitted work. Dr. Husebø reports participation on advisory board by AstraZeneca outside the submitted work. Dr. Ostridge is an employee of AstraZeneca and holds AstraZeneca employee stocks/stock options. Dr. Nielsen reports grants from the Endowment of Timber Merchant A. Delphin, AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline and Novartis during the conduction of the study. Dr. Tangedal reports no conflict of interest.

- [48 references](#)
- [7 figures](#)

Supplementary info

Associated data, Grants and fundingExpand

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Review

COPD

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. 2025 Dec;22(1):2441184.

doi: 10.1080/15412555.2024.2441184. Epub 2025 Feb 27.

[Knowledge Domain and Emerging Trends in the Treatment of Patients with Chronic Obstructive Pulmonary Disease Combined with Respiratory Failure: A Scientometric Review Based on CiteSpace Analysis](#)

[Yabing Chen](#)¹, [Jiale Sang](#)¹, [Lingbo Fu](#)¹, [Ying Zhang](#)¹

Affiliations Expand

- PMID: 40017029
- DOI: [10.1080/15412555.2024.2441184](https://doi.org/10.1080/15412555.2024.2441184)

Abstract

Objective: To analyze the status of research on treating chronic obstructive pulmonary disease (COPD) combined with respiratory failure internationally to reveal its development trends through visualization methods and to provide a reference and suggestions for future research directions.

Methods: Literature on the treatment of COPD combined with respiratory failure published from the year of inception of the Web of Science database to December 31, 2023, was searched. CiteSpace 6.2.R7 software was used to visualize and analyze the published articles. A bibliometric analysis of the publications, keyword co-occurrence analysis, keyword clustering analysis, and keyword emergence analysis were performed to draw a correlation map and analyze the results.

Results: A total of 369 articles were analyzed. An overall increasing trend was observed in the number of publications. The network of researchers was relatively dense, and a core team was clearly observed. The researchers' affiliations were mainly European universities and hospitals, and close cooperation between institutions was observed. The keyword analysis obtained high-frequency keywords such as "noninvasive ventilation", "mechanical ventilation", and "positive pressure ventilation". The keyword clustering analysis revealed 10 clusters, and the keyword emergence analysis yielded 20 keywords.

Conclusions: The focus of attention internationally has been on respiratory failure classification and types of ventilation support, such as high-flow oxygenation and noninvasive positive pressure ventilation. Future directions should include clinical research on high-flow oxygen administration to improve patient prognosis and the application of extracorporeal carbon dioxide removal technology to enhance patients' quality of life.

Keywords: Bibliometrics; CiteSpace; chronic obstructive pulmonary disease; respiratory failure; respiratory stimulant; therapy; visualization.

Supplementary info

Publication types, MeSH termsExpand

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BMC Sports Sci Med Rehabil

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. 2025 Feb 27;17(1):28.

doi: 10.1186/s13102-025-01074-w.

[Effectiveness of high-intensity interval training in rehabilitation nursing for mild-to-moderate stable COPD patients: a randomized controlled clinical trial](#)

[Xiaojie Wang](#)^{#1}, [Jingwei Lu](#)^{#2}, [Jianming Niu](#)³, [Xiaoliang Zhang](#)⁴, [Meng Li](#)⁵

Affiliations Expand

- PMID: 40016830
- DOI: [10.1186/s13102-025-01074-w](https://doi.org/10.1186/s13102-025-01074-w)

Free article

Abstract

Objective: The current study was conducted to explore the clinical impact of high-intensity interval training (HIIT) in rehabilitation nursing on improving cardiopulmonary function and exercise capacity in COPD patients.

Methods: A total of thirty-one COPD patients underwent HIIT, while an equal number underwent moderate-intensity continuous training (MICT) were included in this randomized controlled clinical study. The randomization method used was stratified block randomization, stratified by center. During the 6 months follow-up period, the clinical data, including cardiopulmonary exercise testing (CPET) results, cardiopulmonary function index, quality of life, and follow-up outcomes, were collected before and after the interventions. The therapeutic effects of the two groups were compared.

Results: After the intervention, the HIIT group exhibited significantly higher peak power, exercise test duration, anaerobic threshold, peak oxygen uptake, peak ventilation, FEV1/FVC ratio, FEV1% of expected value, LVEF (%), and SF-36 scores compared to the MICT group ($P < 0.05$). Moreover, LVEDD was significantly lower in the HIIT group compared to the MICT group ($P < 0.05$). At the 6-month follow-up, the incidence of COPD acute exacerbation in the HIIT group was significantly lower than in the MICT group ($P < 0.05$).

Conclusion: Implementation of HIIT in rehabilitation nursing effectively improved cardiopulmonary function and exercise capacity in COPD patients during clinical treatment, highlighting its promising application potential.

Trial registration: This study was previously registered at Chinese Clinical Trial Registry (Date 11/05/2022 Number ChiCTR2200059764).

Keywords: Cardiopulmonary function; Chronic obstructive pulmonary disease; High-intensity interval training; Moderate-intensity continuous training; Rehabilitation nursing.

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Conflict of interest statement

Declarations. Ethics approval and consent to participate: The current study was conducted in accordance with the Helsinki Declaration of the World Medical Association and approved by the Ethics Committee of Second Affiliated Hospital of Harbin Medical University. Informed consent was obtained from all the study subjects before enrollment. **Consent for publication:** Not applicable. **Competing interests:** The authors declare no competing interests.

- [24 references](#)

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Lung

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. 2025 Feb 27;203(1):37.

doi: [10.1007/s00408-025-00792-9](https://doi.org/10.1007/s00408-025-00792-9).

[Differences in Blood Eosinophil Level During Stable Disease and During Exacerbation of COPD and Exacerbation Risks](#)

[Wang Chun Kwok](#)^{#1}, [Terence Chi Chun Tam](#)^{#1}, [Chi Hung Chau](#)², [Fai Man Lam](#)², [James Chung Man Ho](#)³

Affiliations Expand

- PMID: 40016611
- DOI: [10.1007/s00408-025-00792-9](https://doi.org/10.1007/s00408-025-00792-9)

Abstract

Background: Although blood eosinophil count (BEC) has been extensively studied as a biomarker in chronic obstructive pulmonary disease (COPD), there remain challenges and controversy in using a single reading. It has not been determined whether the difference in BEC between baseline and that during an acute exacerbation of COPD (AECOPD) has any role in predicting subsequent AECOPD.

Methods: A prospective study was conducted to investigate the possible role of differences in BEC from baseline to that during AECOPD to predict future AECOPD risk. The BEC difference was expressed as absolute eosinophil difference: BEC at index moderate-to-severe exacerbation (E_i) - baseline BEC (E_0).

Results: Among 348 Chinese patients with COPD, 158 who experienced an index moderate-to-severe AECOPD were analyzed. Using the cut-off of 105 cells/ μ L for absolute eosinophil difference as determined by receiver operating characteristic (ROC) analysis, patients with absolute eosinophil difference \geq 105 cells/ μ L had a

shorter time to subsequent AECOPD with adjusted hazard ratio (aHR) of 1.68 (95% CI = 1.02-2.74; p = 0.040). They also had a higher annual number of subsequent AECOPD ($2.49 \pm 2.84/\text{year}$ vs $1.58 \pm 2.44/\text{year}$, p = 0.023). Similar findings were shown in the subgroup with stable-state baseline BEC < 300 cells/ μL .

Conclusion: Greater difference in BEC between baseline and upon moderate-to-severe AECOPD might be associated with shorter time to next AECOPD, as well as more episodes of subsequent AECOPD.

Keywords: COPD; COPD exacerbation; Eosinophil; Eosinophil difference; Phenotype.

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Conflict of interest statement

Declarations. Competing Interests: The authors declare no competing interests.
Ethical Approval and Consent to Participate: The study was approved by the Institutional Review Board of the University of Hong Kong and Hospital Authority Hong Kong West Cluster. Informed consent was obtained from all participants.
Declaration of Generative AI and AI-Assisted Technologies in the Writing Process: During the preparation of this work the authors did not use any AI tools/service.

- [36 references](#)

Supplementary info

MeSH terms, SubstancesExpand

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Sci Rep

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. 2025 Feb 27;15(1):7064.

doi: 10.1038/s41598-025-91762-x.

[Using machine learning to predict deterioration of symptoms in COPD patients within a telemonitoring program](#)

[Javier Moraza](#)^{1,2}, [Cristóbal Esteban-Aizpiri](#)³, [Amaia Aramburu](#)^{1,2}, [Pedro García](#)³, [Fernando Sancho](#)⁴, [Sergio Resino](#)⁵, [Leyre Chasco](#)^{1,2}, [Francisco José Conde](#)⁶, [José Antonio Gutiérrez](#)⁶, [Dabi Santano](#)⁷, [Cristóbal Esteban](#)^{8,9,10,11}

Affiliations Expand

- PMID: 40016298
- DOI: [10.1038/s41598-025-91762-x](https://doi.org/10.1038/s41598-025-91762-x)

Free article

Abstract

COPD exacerbations have a profound clinical impact on patients. Accurately predicting these events could help healthcare professionals take proactive measures to mitigate their impact. For over a decade, telePOC, a telehealthcare program, has collected data that can be utilized to train machine learning models to anticipate COPD exacerbations. The objective of this study is to develop a machine learning model that, based on a patient's history, predicts the probability of an exacerbation event within the next 3 days. After cleaning and harmonizing the different subsets of data, we split the data along the temporal axis: one subset for model training, another for model selection, and another for model evaluation. We then trained a gradient tree boosting approach as well as neural network-based approaches. After conducting our analysis, we found that the CatBoost algorithm yielded the best results, with an area under the precision-recall curve of 0.53 and an area under the ROC curve of 0.91. Additionally, we assessed the significance of the input variables and discovered that breathing rate, heart rate, and SpO2 were the most informative. The resulting model can operate in a 50% recall and 50% precision regime, which we consider has the potential to be useful in daily practice.

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Conflict of interest statement

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

- [21 references](#)

Supplementary info

MeSH terms, Grants and funding Expand

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nature portfolio 

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Tuberc Respir Dis (Seoul)

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. 2025 Feb 27.

doi: 10.4046/trd.2024.0182. Online ahead of print.

[Effects of Vaccination on Acute Exacerbation of Chronic Obstructive Pulmonary Disease: A Nationwide Population-Based Cohort Study](#)

[Sang Hyuk Kim^{1,2}, Hyun Lee³, Min Ji Kim^{4,5}, Min Gu Kang^{4,5}, Jong Seung Kim^{4,5,6}, Jong Geol Jang⁷, Youlim Kim⁸, Hyeon-Kyoung Koo⁹, Chin Kook Rhee¹⁰, Kyung Hoon Min², Yong Il Hwang¹¹, Deog Kyeom Kim¹², Yong Bum Park¹³, Ji-Yong Moon⁸; Korean COPD Study Group](#)

Affiliations Expand

- PMID: 40015289
- DOI: [10.4046/trd.2024.0182](https://doi.org/10.4046/trd.2024.0182)

Free article

Abstract

Background: Coronavirus 2019 (COVID-19) vaccination appears to have potential benefits for patients with chronic obstructive pulmonary disease (COPD). However, limited information is available on whether COVID-19 vaccination reduces acute exacerbation of COPD (AECOPD).

Methods: In the present study, 41,606 individuals with COPD were enrolled using the Korean National Health Insurance System-severe acute respiratory syndrome coronavirus 2 (NHIS SARS-CoV-2) database from 2020-2021. A total of 3,602 individuals were included in the analytical cohort through 1:1 propensity score (PS) matching between vaccinated and unvaccinated individuals. The risk of AECOPD was assessed using a Cox proportional hazards regression analysis. A post hoc analysis assessed the impact of COVID-19 on AECOPD in vaccinated and unvaccinated individuals, adjusting for differences between infected and uninfected groups.

Results: During the study period, the incidence of exacerbation was lower in vaccinated individuals (1,683/10,000 PY) than in unvaccinated individuals (3,410/10,000 PY). In the Cox proportional hazards regression model, the risk of AECOPD was significantly lower in vaccinated individuals compared to unvaccinated individuals (hazard ratio [HR] = 0.55, 95% confidence interval [CI] = 0.41-0.72). In the post hoc analysis, COVID-19 was associated with an increased risk of AECOPD among unvaccinated individuals after adjustment (adjusted HR = 2.06,

95% CI = 1.28-3.33). In contrast, among vaccinated individuals, the risk of AECOPD did not differ significantly between those infected and uninfected with COVID-19 (adjusted HR = 1.35, 95% CI = 0.42-4.36).

Conclusion: COVID-19 vaccination may reduce the risk of AECOPD in individuals with COPD.

Keywords: COVID-19; chronic obstructive pulmonary disease; exacerbation; respiratory disease; vaccination; vaccination recommendation.

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Int Clin Psychopharmacol

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. 2025 Feb 28.

doi: 10.1097/YIC.0000000000000585. Online ahead of print.

[Selective serotonin reuptake inhibitors and quality of life: a meta-analysis of randomized placebo-controlled trials](#)

[Dimy Fluyau](#)¹, [Vasanth Kattalai Kailasam](#)², [Paul Kim](#)¹, [Neelambika Revadiqar](#)³

Affiliations Expand

- PMID: 40014013
- DOI: [10.1097/YIC.0000000000000585](https://doi.org/10.1097/YIC.0000000000000585)

Abstract

The benefit of selective serotonin reuptake inhibitors (SSRIs) in improving quality of life (QoL) has been investigated in randomized-controlled trials (RCTs) with equivocal results. This study explored whether SSRIs could improve QoL in individuals with medical, psychiatric, and neuropsychiatric conditions. RCTs were searched in PubMed, Embase, Scopus, Ovid, and Google Scholar. Data were synthesized via a meta-analysis. Subgroup and meta-regression analyses were

performed. The sample size was 9,070. Compared with placebo, SSRIs showed statistically significant improvements in QoL in cancer (d = 0.30), major depressive disorder (d = 0.27), premenstrual dysphoric disorder (d = 0.38), type 2 diabetes mellitus (d = 0.48), persistent depressive disorder (d = 0.32), and menopausal symptoms (d = 0.40). Paroxetine exhibited the highest effect size. No significant improvements were noted in chronic obstructive pulmonary disease (d = 0.65, P = 0.09), congestive heart failure (d = 0.46, P = 0.27), and irritable bowel syndrome (d = 0.26, P = 0.127). The reduction in depressive symptoms improved QoL. Small-study effects, high attrition rates, and demographic imbalances are limiting factors to recommend SSRIs to improve QoL. Future research should focus on QoL domains and pharmacological properties of each SSRI.

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BMC Pulm Med

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. 2025 Feb 26;25(1):92.

doi: 10.1186/s12890-025-03562-8.

[Quantitative CT and COPD: cluster analysis reveals five distinct subtypes with varying exacerbation risks](#)

[Chusheng Peng](#)¹, [Zizheng Chen](#)^{1,2}, [Haobin Zhou](#)¹, [Chaoyue Dai](#)¹, [Haolei Yuan](#)¹, [Yuan Gao](#)¹, [Fengyan Wang](#)², [Zhenyu Liang](#)³

Affiliations Expand

- PMID: 40011880
- PMCID: [PMC11863429](#)

- DOI: [10.1186/s12890-025-03562-8](https://doi.org/10.1186/s12890-025-03562-8)

Abstract

Background: The heterogeneity of chronic obstructive pulmonary disease (COPD) is increasingly recognized. To characterize the heterogeneity of COPD, we aimed to identify subtypes related to quantitative CT by using principal component analysis (PCA) and cluster analysis.

Methods: The data of 1879 participants in the SPIROMICS study were obtained from the NHLBI Biologic Specimen and Data Repository Information Coordinating Center. A combination of PCA and k-means clustering was used to analyze the data from these participants in the SPIROMICS study. We randomly split the samples into training and validation sets. Clusters were evaluated for their relationship with acute exacerbation risk throughout the entire follow-up period. The results of the training set were confirmed in the validation set. To avoid sampling errors, we conducted 10 random sampling cycles. Normalized mutual information (NMI) was applied in every cycle to evaluate the stability of clustering.

Results: We identified five clusters related to quantitative CT characterized as follows: (1) male-dominated low disease impact cluster, (2) obesity with relatively high symptom burden cluster, (3) airway wall lesion cluster, (4) lung upper region zone-predominant emphysema cluster, (5) severe emphysema cluster. There are significant differences in acute exacerbation risk among these five clusters.

Conclusions: Cluster analysis identified 5 clusters related to quantitative CT of all participants in the SPIROMICS cohort with significant differences in baseline characteristics and acute exacerbation risk. The stability of clustering results was validated through NMI in 10 sampling cycles. In addition, dimensionality reduction results showed high reproducibility in different studies.

Keywords: Chronic obstructive pulmonary disease; Cluster analysis; Disease axes; Longitudinal outcomes.

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Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study was approved by the Ethics Review Committee of The First Affiliated Hospital of Guangzhou Medical University (ES-2023-046-01). The procedures used in this study adhere to the tenets of the Declaration of Helsinki. All SPIROMICS sites that enrolled patients obtained informed consent from patients. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

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

Supplementary info

MeSH terms, Grants and funding [Expand](#)

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Respirology

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. 2025 Feb 26.

doi: 10.1111/resp.70003. Online ahead of print.

[Respiratory Muscle Strength as a Predictor of Exacerbations in Patients With Chronic Obstructive Pulmonary Disease](#)

[Yuichiro Furukawa](#)^{1,2}, [Atsushi Miyamoto](#)², [Kazuhisa Asai](#)², [Masaya Tsutsumi](#)², [Kaho Hirai](#)², [Takahiro Ueda](#)², [Erika Toyokura](#)^{1,2}, [Misako Nishimura](#)², [Kanakano Sato](#)², [Kazuhiro Yamada](#)², [Tetsuya Watanabe](#)², [Tomoya Kawaguchi](#)²

Affiliations Expand

- PMID: 40009650
- DOI: [10.1111/resp.70003](#)

Abstract

Background and objective: Chronic obstructive pulmonary disease (COPD) is closely related to skeletal muscle dysfunction, and the evaluation of respiratory muscle function has recently been recommended. We aimed to investigate the effects of respiratory muscle dysfunction on clinical outcomes.

Methods: We retrospectively reviewed the medical records of patients with COPD whose respiratory muscle strength was measured between June 2015 and December 2021. We then analysed the effects of respiratory muscle strength on moderate-to-severe exacerbations after adjusting for confounding factors, including sex, age, forced expiratory volume in 1-s percent predicted, hand grip strength, and skeletal muscle mass index. We also compared the temporal relationship between respiratory and systemic skeletal muscle dysfunctions.

Results: Respiratory muscle weakness (RMW) was observed in 48.1% (100) of the 208 patients. Low percent predicted maximal inspiratory pressure was an independent risk factor for moderate-to-severe exacerbations within 1 year in the Cox regression analysis (adjusted hazard ratio per 1 standard deviation increase, 0.521; 95% confidence interval, 0.317-0.856). Approximately half of the patients already exhibited RMW at the mild systemic skeletal muscle dysfunction, while those with sarcopenia had higher RMW rates. More patients with RMW experienced progressive systemic skeletal muscle dysfunction within 1 year compared to those without RMW.

Conclusion: Lower respiratory muscle strength is associated with an increased risk of exacerbation. Respiratory muscle function could serve as a marker of disease status and early prognosis in COPD.

Keywords: chronic obstructive pulmonary disease; exacerbation; respiratory muscle strength; respiratory sarcopenia; sarcopenia; skeletal muscle.

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Lancet Child Adolesc Health

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. 2025 Mar;9(3):172-183.

doi: 10.1016/S2352-4642(25)00001-X.

[Trajectories of airflow limitation from childhood to early adulthood: an analysis of six population-based birth cohorts](#)

[Anhar Ullah](#)¹, [Raquel Granell](#)², [Lesley Lowe](#)³, [Sara Fontanella](#)¹, [Hasan Arshad](#)⁴, [Clare S Murray](#)³, [Steve Turner](#)⁵, [John W Holloway](#)⁶, [Angela Simpson](#)³, [Graham Roberts](#)⁴, [Gang Wang](#)⁷, [Jadwiga A Wedzicha](#)⁸, [Rosa Faner](#)⁹, [Hans Jacob L Koefoed](#)¹⁰, [Judith M Vonk](#)¹¹, [Alvar Agusti](#)¹², [Gerard H](#)

Affiliations Expand

- PMID: 39978992
- DOI: [10.1016/S2352-4642\(25\)00001-X](https://doi.org/10.1016/S2352-4642(25)00001-X)

Free article

Abstract

Background: Lung function during childhood is an important predictor of subsequent health and disease. Understanding patterns of lung function and development of airflow limitation through childhood is necessary to inform lung function trajectories in relation to health and chronic airway disease. We aimed to derive trajectories of airflow limitation from childhood (age 5-8 years) into early adulthood (age 20-26 years) using repeated spirometry data from birth cohorts.

Methods: In this study, we drew forced expiratory volume in 1 s (FEV₁) and forced vital capacity (FVC) data from six population-based birth cohorts: the UK-based Avon Longitudinal Study of Parents and Children (ALSPAC), Isle of Wight cohort (IOW), Manchester Asthma and Allergy Study (MAAS), and Aberdeen Study of Eczema and Asthma (SEATON) as well as the Swedish Child (Barn), Allergy, Milieu, Stockholm, Epidemiological survey (BAMSE) and the Dutch Prevention and Incidence of Asthma and Mite Allergy (PIAMA) cohort. For the discovery analysis, we pooled data from ALSPAC, IOW, MAAS, and BAMSE with spirometry data recorded at middle childhood (age 8-10 years), adolescence (age 15-18 years), and early adulthood (age 20-26 years). For the replication analysis, we pooled middle childhood and adolescence spirometry data from PIAMA and SEATON. We used latent class trajectory modelling to derive trajectory classes based on joint modelling of FEV₁ and FEV₁/FVC ratio regression residuals ascertained from all age groups. The final model was selected using the lowest Bayesian information criterion. Participants were assigned to the trajectory with the highest posterior probability. Weighted random-effect multinomial logistic regression models were used to investigate factors associated with joining each trajectory, the results of which are reported as relative risk ratios (RRRs) with 95% CIs.

Findings: The discovery population included 8114 participants: 4710 from ALSPAC, 808 from IOW, 586 from MAAS, and 2010 from BAMSE and was modelled into one of four lung function trajectories that showed normal airflow (6555 [80.8%] of 8114 people), persistent airflow obstruction (1280 [15.8%]), worsening airflow obstruction (161 [2.0%]), and improved airflow obstruction (118 [1.5%]). Both improvement in and worsening airflow obstruction by early adulthood were seen from all initial severity levels. Whereas improvement in airflow obstruction was more prominent between middle childhood and adolescence (57.8%) than between adolescence and early adulthood (13.4%), worsening airflow obstruction was more prominent between adolescence and early adulthood (61.5%) than between middle childhood and adolescence (32.6%). Among current wheezers, higher BMI was associated with a lower relative risk of joining the trajectory with improvement in airflow obstruction (RRR 0.69 [95% CI 0.49-0.95]), whereas among non-wheezers, higher BMI increased

the relative risk of being in the improved airflow obstruction trajectory (1.38 [1.04-1.85]). A higher BMI at first lung function assessment was associated with a higher relative risk of joining the trajectory for improvement in airflow obstruction trajectory in participants with low birthweight and no current asthma diagnosis (RRR 2.44 [1.17-5.12]); by contrast, higher BMI is associated with a lower relative risk of joining the trajectory with improvement in airflow obstruction among those with low birthweight and current asthma diagnosis (0.37 [0.18-0.76]). Results in replication cohorts (n=1337) were consistent with those in the discovery cohort.

Interpretation: Worsening and improvement in airflow limitation from school age to adulthood might occur at all ages and all airflow obstruction severity levels. Interventions to optimise healthy weight, including tackling overweight and obesity (particularly among children with wheezing) as well as treating underweight among non-wheezers, could help to improve lung health across the lifespan.

Funding: UK Medical Research Council and CADSET European Respiratory Society Clinical Research Collaboration.

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Conflict of interest statement

Declaration of interests AC reports personal fees from Sanofi, La Roche-Posay, and Reacta Healthcare. EM has received consulting fees from ALK and AstraZeneca and lecture fees from ALK, AstraZeneca, Chiesi, and Sanofi. GHK reports grant support from the Netherlands Lung Foundation, TEVA the Netherlands, GSK, Vertex, Ubbo Emmius Foundation, the EU (H2020), and Zon-MW and lecture and advisory fees from GSK, AstraZeneca, and Pure-IM, paid to their institution. AA reports research grants, consulting fees, and lecture honoraria from GlaxoSmithKline, AstraZeneca, Menarini, Chiesi, and Sanofi and unpaid roles as Chair of the Board of Directors of GOLD and co-chair of CADSET. RF reports grants, paid to her institution, for research projects from ISC-III, AstraZeneca, GSK, and Menarini; fees for participation in the Novelty study scientific community and for being co-chair from AstraZeneca; and fees for speaking at symposiums from AstraZeneca and Chiesi. JAW report grants from Astra Zeneca, Boehringer, Chiesi, GSK, Novartis, Genentech, and 37Clinical, paid to her institution; fees for advisory boards from AstraZeneca, Epiendo, GSK, Gilead, Novartis, Pieris, Pulmatrix, and Empiricio; and speaker fees from AstraZeneca, GSK, Boehringer, Recipharm, and Novartis. GR reports funding, paid to his institution, from the Medical Research Council and follow-up funding for the Isle of Wight birth cohort from David Hide Asthma & Allergy Research Centre. AS reports grants or contracts from the UK National Institute for Health and Care Research and JP Muton Charitable Foundation, paid to her institution. JWH reports grants from the Medical Research Council UK, paid to their institution. All other authors declare no competing interests.

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. 2025 Mar;25(1):102055.

doi: 10.1016/j.jebdp.2024.102055. Epub 2024 Nov 20.

[**IMPAIRED ORAL HEALTH-RELATED QUALITY OF LIFE IN INDIVIDUALS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE: A SYSTEMATIC REVIEW**](#)

[Nishath Sayed Abdul¹](#), [Sahana Shivakumar²](#), [Nitin V Muralidhar³](#), [Reshma Amin⁴](#), [Rocco Franco⁵](#), [Maria Maddalena Marrapodi⁶](#), [Marco Ciccì⁷](#), [Giuseppe Minervini⁸](#)

Affiliations Expand

- PMID: 39947780
- DOI: [10.1016/j.jebdp.2024.102055](#)

Free article

Abstract

Background: Chronic obstructive pulmonary disease (COPD) has been associated with various health implications, including potential effects on oral health and Oral Health-Related Quality of Life (OHRQoL). Understanding the relationship between COPD and dental health is crucial for optimizing patient care and well-being. This review aims to assess the existing literature on the impact of COPD on oral health and OHRQoL.

Methods: The review process followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. A comprehensive search was conducted in the databases, resulting in 304 records. Data extraction was done by 2 reviewers separately. Data extraction variables included study ID, sample, age, gender ratio, type of study, respiratory evaluation, OHRQoL assessment, and

inferences. Newcastle Ottawa scale was employed to assess the methodological quality of the included studies.

Results: The final selection included 3 studies eligible for qualitative synthesis. OHIP-5 and OHIP-14 were used to assess OHRQoL. These studies provided valuable insights into the association between COPD and dental health. OHRQoL was negatively impacted among COPD sufferers. In addition, COPD patients demonstrated significantly fewer teeth and higher plaque index (PI) as compared to control cohorts. The risk of bias was low in the included studies. But the literature available was scarce, which warrants further longitudinal studies with a larger sample size in this regard.

Conclusion: The evidence from the selected studies suggests a significant association between COPD and various dental health parameters, as well as their impact on OHRQoL. Dental health assessments should be integrated into COPD management to better understand disease severity and exacerbation risk. An interdisciplinary approach involving both respiratory and oral health professionals is crucial for comprehensive patient care. Future research should explore the underlying mechanisms and conduct longitudinal studies to establish causal relationships. These findings contribute to our understanding of the complex interplay between COPD and oral health and have implications for improving patient outcomes and quality of life.

Keywords: Chronic obstructive pulmonary disease; Oral health impact profile; Oral health-related quality of life; Plaque index; Respiratory condition; Spirometry.

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. 2025 Mar:238:107987.

doi: 10.1016/j.rmed.2025.107987. Epub 2025 Feb 5.

[Investigating the risk factors for the coexistence of insomnia and its exacerbation in AECOPD](#)

[Qiangqian Gao](#)¹, [Hongbin Zhu](#)²

Affiliations Expand

- PMID: 39921070
- DOI: [10.1016/j.rmed.2025.107987](#)

Free article

Abstract

Aim: Explore the risk factors contributing to insomnia and its severity in patients experiencing Acute Exacerbation of Chronic Obstructive Pulmonary Disease (AECOPD).

Methods: The study included 155 patients with AECOPD from Chaohu Hospital, Anhui Medical University, treated between September 2022 and October 2023. Patients were categorized into insomnia groups (mild, moderate, severe) and a comparison group based on Insomnia Severity Index Scale (ISI) scores. Sleep quality and severity were assessed using the Pittsburgh Sleep Quality Index (PSQI), CAT score, and mMRC classification. Clinical data, pathology, and results from various laboratory tests were collected. Details of current admission treatment, including ventilator usage, medication types, and administration methods, were documented for group comparisons.

Results: This study included 155 AECOPD patients, with over 70 % identified as high-risk for obstructive sleep apnea (OSA). Among them, 87 were in the insomnia group and 68 in the comparison group. The insomnia group comprised 46 mild, 36 moderate, and 5 severe cases. Female patients, those with lower education, shorter smoking history, higher CAT and PSQI scores, more frequent hospital admissions, and those using oral or intravenous glucocorticoids were more likely to experience insomnia. In the moderate insomnia subgroup, patients had higher CAT and PSQI scores and longer hospitalization than the mild insomnia group. No significant differences were found in the use of quinolones, glucocorticoid administration, ventilator use, or resuscitation behaviors among insomnia severity levels.

Conclusion: Insomnia coexisting with AECOPD is prevalent, with the patient's gender, educational level, smoking history, severity of clinical symptoms, and the type of treatment influencing their sleep status.

Keywords: AECOPD; Exacerbation; Insomnia; Risk factors; Sleep quality.

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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 Mar:238:107968.

doi: 10.1016/j.rmed.2025.107968. Epub 2025 Jan 28.

[Assessment of online YouTube videos as a source of information and instruction for pulmonary rehabilitation](#)

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Affiliations Expand

- PMID: 39884588
- DOI: [10.1016/j.rmed.2025.107968](https://doi.org/10.1016/j.rmed.2025.107968)

Free article

Abstract

Background/objectives: Pulmonary rehabilitation (PR) benefits individuals with chronic respiratory conditions beyond COPD; however, the quality of online resources has not been evaluated. The aims of this study were to assess the

content, quality, and comprehensibility of YouTube videos that provide PR to individuals with chronic lung diseases other than COPD.

Methods: A search was conducted on YouTube for videos related to PR on non-COPD conditions, with the first 350 videos screened for eligibility (2004-2024). Videos were assessed for content based on predefined scoring matrix derived from PR guidelines, evaluated for their quality using the modified DISCERN tool and Global Quality Scale (GQS), and assessed for their understandability and actionability using the Patient Education Materials and Assessment Tool. Engagement metrics including viewing rate and interaction index were also analyzed.

Results: Of the 59 videos included, there was significant heterogeneity in PR content (i.e. aerobic, strength training, flexibility, etc.). 83 % of the videos were published following the onset of COVID-19 pandemic (March 2020), and 85 % of the videos were not directed at specific disease states. Video quality was moderate, with median modified DISCERN and GQS of 3 IQR[3-4] and 3 IQR[2-4] out of 5, respectively. Mean understandability and actionability were above the 70 % threshold. Engagement metrics revealed that median video views were 2857 (IQR[637-10,729]), but engagement was low (1.4 % IQR[1.0-2.7]).

Conclusion: The study highlights variability in PR content and moderate quality of videos, with reasonable comprehensibility. There is a need for more standardized and disease-specific PR online video resources for non-COPD states.

Keywords: Chronic lung disease; Exercise training; Online health information; Online videos; Patient education; Pulmonary rehabilitation.

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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 Mar:238:107967.

doi: 10.1016/j.rmed.2025.107967. Epub 2025 Jan 27.

[Evaluation of online videos and websites on inspiratory muscle training for individuals with chronic lung disease](#)

[Sahar Sohrabipour¹](#), [Ahmad Ibrahim²](#), [Jillian Dhawan²](#), [Omer Ahmad Choudhary¹](#), [Brandon Luu¹](#), [Josh Shore²](#), [Megha Ibrahim Masthan²](#), [Dmitry Rozenberg³](#)

Affiliations Expand

- PMID: 39880218
- DOI: [10.1016/j.rmed.2025.107967](#)

Free article

Abstract

Background: Inspiratory muscle training (IMT) is an effective rehabilitation modality for individuals with chronic lung disease. IMT can improve dyspnea, exercise capacity, and health-related quality of life. Online resources are common sources of health information for individuals. This study is the first to: 1) evaluate the content, reliability, quality, and comprehensibility of IMT-related videos and websites for individuals with chronic lung disease, and 2) determine the characteristics of these online resources.

Methods: The search term "(respiratory muscle training) OR (inspiratory muscle training)" was used to evaluate the first 200 consecutive YouTube videos and 200 Google websites on IMT for chronic lung disease management. Online resources were evaluated using validated scoring metrics: modified DISCERN tool, Global Quality Scale (GQS), and Patient Education Materials Assessment Tools (PEMAT) understandability and actionability. Content comprising key IMT components was also scored.

Results: Forty videos and fourteen websites were included, with majority uploaded by for-profit organizations. Content scores (out of 25) were low (videos 7.7 ± 4.4 ; websites 11.4 ± 5.3 , $p = 0.01$). Benefits of IMT were often highlighted, but safety considerations were infrequently mentioned. Resources scored poorly on modified DISCERN (videos 2/5 IQR[1.0-3.0]; websites 3.5/5 IQR[2.0-4.0], $p = 0.001$), and GQS scores (videos 2/5 IQR[2.0-3.0]; websites 3/5 IQR[2.8-3.3], $p = 0.003$). Online resources met the PEMAT threshold ($>70\%$) for understandability, but not actionability.

Conclusions: Online IMT resources have mainly focused on the benefits of IMT and majority were developed by for-profit organizations. There is a need for high-quality,

evidence-based online resources, as IMT is an important rehabilitation modality for chronic lung disease management.

Keywords: Chronic lung disease; Health information; Inspiratory muscle training; Obstructive lung disease; Online resources; Restrictive lung disease.

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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: Dmitry Rozenberg reports financial support was provided by Sandra Faire and Ivan Fecan Professorship, Canadian Institutes of Health Research (PJM 185763 and PJT 190091), and Temerty Faculty of Medicine at the University of Toronto. Sahar Sohrabipour reports financial support was provided by Comprehensive Research Experience for Medical Students (CREMS) program at Temerty Faculty of Medicine at the University of Toronto. If there are other authors, they 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 Mar:238:107969.

doi: 10.1016/j.rmed.2025.107969. Epub 2025 Jan 27.

[Global prevalence of fatigue in patients with chronic obstructive pulmonary disease: A systematic review and meta-analysis](#)

[Wenting Shi](#)¹, [Tao Li](#)², [Yingjie Leng](#)³, [Qinglu Li](#)³, [Nan Wang](#)³, [Guorong Wang](#)⁴

Affiliations Expand

- PMID: 39880216
- DOI: [10.1016/j.rmed.2025.107969](https://doi.org/10.1016/j.rmed.2025.107969)

Abstract

Background: Fatigue is a common symptom in patients with chronic obstructive pulmonary disease (COPD). Published studies of fatigue among patients with COPD have presented diverse findings that may reflect variations in research methods as well as actual population differences.

Objective: To estimate the worldwide prevalence of fatigue in patients with COPD and its associated epidemiological characteristics.

Methods: The Cochrane Library, Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, Web of Science, Embase, China National Knowledge Infrastructure (CNKI), Wanfang Database, China Science and Technology Journal Database (VIP), and China Biology Medicine disc (CBM) databases were searched for articles from their inception date through August 2024. The pooled prevalence of fatigue in patients with COPD and 95 % confidence interval (CI) were calculated using a random-effects model with Stata 15.0 software. Agency for Healthcare and Research and Quality (AHRQ) indicators and the Newcastle-Ottawa Scale (NOS) were used to evaluate the quality of the included studies.

Results: The 25 included studies involved 6830 patients. The meta-analysis results showed a 59 % (95 % CI: 52%-66 %) pooled prevalence of fatigue in patients with COPD. Subgroup analysis indicated that the prevalence varied significantly by region, setting, assessment tool, and publication year.

Conclusions: Fatigue is a common symptom among patients with COPD worldwide. To reduce the negative effects of fatigue in these patients, clinicians should actively explore the mechanisms of fatigue occurrence and its risk factors to provide a basis for further research.

Keywords: Chronic obstructive pulmonary disease; Fatigue; Meta-analysis; Prevalence; Systematic review.

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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 Mar;211(3):426-427.

doi: 10.1164/rccm.202412-2461ED.

[Echocardiographic Endophenotypes of Chronic Obstructive Pulmonary Disease: A Step toward Personalized Medicine](#)

[Benjamin H Freed](#)¹, [Thenappan Thenappan](#)²

Affiliations Expand

- PMID: 39879550
- DOI: [10.1164/rccm.202412-2461ED](https://doi.org/10.1164/rccm.202412-2461ED)

No abstract available

Comment on

- [Characterization and Mortality Risk of Impaired Left Ventricular Filling in Chronic Obstructive Pulmonary Disease.](#)

Abdo M, Watz H, Alter P, Kahnert K, Trudzinski F, Groth EE, Claussen M, Kirsten AM, Welte T, Jörres RA, Vogelmeier CF, Bals R, Rabe KF, Waschki B. Am J Respir Crit Care Med. 2025 Mar;211(3):477-485. doi: 10.1164/rccm.202310-1848OC. PMID: 38984876

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. 2025 Mar;58(2):91-96.

doi: 10.1007/s00391-025-02409-5. Epub 2025 Jan 27.

[Diagnosis of chronic obstructive pulmonary disease \(COPD\) in older patients : Consensus statement of the Working Group on Pneumology in Older Patients](#)

[C Stenmanns](#)¹, [N Netzer](#)², [C Münks-Lederer](#)³, [A Schlesinger](#)⁴, [S Stieglitz](#)⁵, [H Frohnhofen](#)⁶

Affiliations Expand

- PMID: 39871051
- DOI: [10.1007/s00391-025-02409-5](https://doi.org/10.1007/s00391-025-02409-5)

Abstract

in [English, German](#)

Chronic obstructive pulmonary disease (COPD) is a frequent disease from which approximately 8% of individuals aged 40 years and above suffer. The prevalence increases up to fivefold as age advances. Following an introduction including the etiology, measurement, characteristic features and classification of COPD, this article presents the consensus recommendations of the German Working Group on Pneumology in Older Patients. These include statements on the screening for frailty, dysphagia, malnutrition and cognitive impairment. The results are summarized with the final conclusion that adequate treatment of COPD can also slow the progression of cognitive decline and could potentially prevent or delay the onset of dementia.

Keywords: Classification; Cognitive impairment; Dysphagia; Frailty; Recommendations.

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Conflict of interest statement

Declarations. Conflict of interest: C. Stenmanns, N. Netzer, C. Münks-Lederer, A. Schlesinger and S. Stieglitz declare that they have no competing interests. H. Frohnhofen received speaker honoraria from Heel, Amgen, Hennig, Idorsia, Johnson&Johnson and BMS. **Ethical standards:** For this article no studies with human participants or animals were performed by any of the authors. All studies mentioned were in accordance with the ethical standards indicated in each case.

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. 2025 Mar:238:107956.

doi: 10.1016/j.rmed.2025.107956. Epub 2025 Jan 25.

[Efficacy and safety of long-acting muscarinic antagonists in COPD: A meta-analysis and meta-regression with a focus on aging](#)

[Luigino Calzetta](#)¹, [Elena Pistocchini](#)², [Rossella Laitano](#)², [Shima Gholamalishahi](#)², [Mario Cazzola](#)², [Paola Rogliani](#)²

Affiliations Expand

- PMID: 39870144
- DOI: [10.1016/j.rmed.2025.107956](https://doi.org/10.1016/j.rmed.2025.107956)

Free article

Abstract

The increasing global elderly population, projected to reach 20 % of individuals aged 65 and over by 2030, faces significant pulmonary challenges, including chronic obstructive pulmonary disease (COPD). Aging is associated with a natural decline in lung function and structural changes that exacerbate respiratory issues. COPD, characterized by chronic respiratory symptoms and airflow obstruction, presents a unique challenge in older patients due to the accelerated decline in lung function. Acetylcholine plays a pivotal role in airway dynamics through muscarinic acetylcholine receptors, particularly M₃ subtype, which mediates bronchoconstriction. The efficacy of long-acting muscarinic antagonists (LAMA) may differ in older adults, with evidence suggesting that these patients can respond favorably to LAMA treatment. This study utilized meta-analysis and meta-regression to explore the efficacy and safety of LAMA in treating COPD, while considering aging as a potential modifier. A meta-analysis of Phase III randomized controlled trials highlighted significant improvements in trough forced expiratory volume in the 1st second when LAMA were compared to placebo (PCB). Furthermore, the meta-regression revealed a trend suggesting older adults may experience enhanced benefits from LAMA therapy, particularly with once-daily regimens. Safety outcomes, including serious adverse events (SAE), cardiovascular SAE, and mortality, were not modulated by age when comparing LABA to PCB. Overall, these findings support the use of LAMA in elderly COPD patients and underscore the need for tailored treatment strategies to improve clinical outcomes in this vulnerable population.

Keywords: Ageing; COPD; Efficacy; Long-acting muscarinic antagonist; Meta-analysis; Meta-regression; Safety.

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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 Mar;11(1):81-100.

doi: 10.1007/s41030-024-00285-9. Epub 2025 Jan 27.

[Retrospective Cohort Study of Elderly Users of Single- or Multiple-Inhaler Triple Therapy for the Treatment of Asthma in the USA](#)

[Russell A Settipane¹](#), [Guillaume Germain²](#), [Francois Laliberté²](#), [Malena Mahendran²](#), [Annalise Hilts²](#), [Mei Sheng Duh³](#), [Rosirene Paczkowski⁴](#), [Emmeline Burrows⁵](#)

Affiliations Expand

- PMID: 39869154
- PMCID: [PMC11861473](#)
- DOI: [10.1007/s41030-024-00285-9](#)

Abstract

Introduction: Escalation to single- or multiple-inhaler triple therapy (SITT; MITT) is a recommended option for patients with asthma who remain uncontrolled by medium-dose inhaled corticosteroid/long-acting β_2 -agonist; however, characterization of elderly users of triple therapy is limited. This real-world cohort study describes demographics and clinical characteristics of elderly patients with asthma with and without comorbid chronic obstructive pulmonary disease (COPD) who are new users of triple therapy, and asthma treatment patterns preceding triple therapy initiation.

Methods: This retrospective cohort study used administrative claims data from the Optum Clinformatics Data Mart database. Eligible patients were ≥ 65 years of age with asthma or with asthma and comorbid COPD who initiated either triple therapy with single-inhaler fluticasone furoate/umeclidinium/vilanterol (FF/UMEC/VI; 100/62.5/25 μg) or MITT between September 18, 2017 and September 30, 2020. Demographics, clinical characteristics, healthcare resource utilization, healthcare

costs, and asthma treatment patterns were described in the 12-month period before triple therapy initiation (baseline period).

Results: In total, 15,557 patients were included. Among FF/UMEC/VI initiators with asthma (N = 635) mean age was 73.3 years and 66.6% were female. During the baseline period, > 75% of patients used controller therapy, > 92% used rescue medications, 27.9% experienced ≥ 1 asthma-related exacerbation, with mean annual exacerbation rate of 0.42, and mean all-cause healthcare costs were \$23,407. Patients with asthma initiating MITT and patients with asthma and comorbid COPD initiating FF/UMEC/VI or MITT had similar characteristics, healthcare resource utilization, healthcare costs, and asthma treatment patterns to FF/UMEC/VI initiators with asthma.

Conclusions: Triple therapy is often initiated following use of other asthma controller medications in real-world practice. Substantial rescue medication use and high disease and economic burden among this elderly patient population suggest that their asthma was not adequately controlled prior to triple therapy initiation. This retrospective study provides an early profile of elderly patients with asthma in the USA.

Keywords: Asthma treatment pattern; Elderly patients with asthma; Elderly patients with asthma and comorbid COPD; Fluticasone furoate/umeclidinium/vilanterol; Multiple-inhaler triple therapy; Real-world study; Single-inhaler triple therapy.

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Conflict of interest statement

Declarations. Conflict of Interest: Russell A. Settipane has received compensation from GSK for speaking, advisory board services, and serving as an independent contractor for clinical trial research. Guillaume Germain, Francois Laliberté, Malena Mahendran, Annalise Hilts, and Mei Sheng Duh are employees of Analysis Group, Inc., a consulting company that received research funds from GSK to conduct this study. Rosirene Paczkowski and Emmeline Burrows are employed by GSK and hold financial equities in GSK. ELLIPTA and DISKUS are owned by or licensed to the GSK Group of companies. Clinformatics is a trademark of OptumInsight, Inc. **Ethical Approval:** This study complied with all applicable laws regarding subject privacy. No direct subject contact or primary collection of individual human subject data occurred. Study results were in tabular form and aggregate analyses that omit subject identification; therefore informed consent and ethics committee or institutional review board approval are not required. Any publications and reports will not include subject identifiers. Furthermore, this study used de-identified data that complied with the requirements of the Health Insurance Portability and Accountability Act (HIPAA).

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- [4 figures](#)

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. 2025 Mar:238:107960.

doi: 10.1016/j.rmed.2025.107960. Epub 2025 Jan 27.

[Bronchodilator responsiveness of oscillometry parameters in COPD patients](#)

[Sajal De](#)¹, [Dibakar Sahu](#)²

Affiliations Expand

- PMID: 39864633
- DOI: [10.1016/j.rmed.2025.107960](https://doi.org/10.1016/j.rmed.2025.107960)

No abstract available

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. 2025 Mar;47(3):226-234.

doi: 10.1016/j.clinthera.2024.12.001. Epub 2025 Jan 4.

[Meta-Analysis of Randomized, Controlled Trials Assessing the Effectiveness and Safety of Biological Treatments in Chronic Obstructive Pulmonary Disease Patients](#)

[Khai-Chi Hu¹](#), [Min-Hsiang Chuang²](#), [Chih-Cheng Lai³](#), [Kuang-Ming Liao⁴](#)

Affiliations Expand

- PMID: 39757036
- DOI: [10.1016/j.clinthera.2024.12.001](#)

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Abstract

Anti-interleukin-5 (IL-5), anti-IL-5 receptor and anti-interleukin-4 (IL-4) have emerged as potential treatments for severe eosinophilic asthma, yet their role in treating chronic obstructive pulmonary disease (COPD) is unclear. A literature review was conducted up to May 31, 2024. Only randomized controlled trials (RCTs) assessing the clinical efficacy and adverse effects of biological treatment (anti-IL-5/ anti-IL-5 receptor /anti-IL-4) in COPD patients were included in this meta-analysis. Primary outcomes focused on COPD exacerbation risk, with secondary outcomes examining lung function, quality of life, and adverse events. Four articles comprising 6 RCTs were analyzed. Among 2837 patients receiving anti-IL-5/anti-IL-5 receptor therapies, 468 receiving anti-IL-4 therapies, and 1913 receiving placebo. Overall, biological treatment therapies collectively demonstrated a reduced risk of COPD exacerbation compared to placebo (rate ratio, 0.88; 95% CI, 0.80-0.97, $I^2 = 53%$). Specifically, dupilumab statistically significant reduction in exacerbation risk (rate ratio 0.70, 95% CI 0.58-0.84). Benralizumab showed a borderline reduction in exacerbation risk (rate ratio, 0.92; 95% CI, 0.85-1.00, $I^2 = 0%$, while Mepolizumab exhibited a trend towards lower exacerbation risk that did not reach statistical significance (rate ratio 0.90, 95% CI 0.77-1.06, $I^2 = 62%$). Subgroup analysis showed that patients with COPD and eosinophils ≥ 300 per cubic millimeter who received biological treatment may experience a reduced risk of acute exacerbation. Changes in lung function from baseline did not significantly differ between biological therapies and placebo. Analysis of St. George's Respiratory Questionnaire (SGRQ) scores indicated

significant improvements with biological therapies compared to placebo (mean difference -1.30, 95% CI -2.46 to -0.14, $I^2 = 28\%$). Biological therapies showed comparable risks of adverse events compared to placebo. This meta-analysis suggests that biological therapies may reduce the risk of acute exacerbations and improve quality of life in COPD patients compared to placebo. However, these therapies did not demonstrate significant improvements in pulmonary function. Future studies are needed to delineate the role of these biologic therapies in managing COPD exacerbations.

Keywords: Benralizumab; Biological treatments; Chronic obstructive pulmonary disease; Dupilumab; Mepolizumab.

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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: Kuang-Ming Liao reports article publishing charges was provided by Chi Mei Medical Center, Chiali. Kuang-Ming Liao reports a relationship with Chi Mei Medical Center, Chiali that includes: employment. If there are other authors, they 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 Mar 1;31(2):165-174.

doi: 10.1097/MCP.0000000000001139. Epub 2024 Nov 14.

[Initiation of home noninvasive ventilation in hypercapnic chronic obstructive pulmonary disease: when, where, and how?](#)

[Spyridon Fortis](#)^{1,2}, [Kathleen F Sarmiento](#)^{3,4}

Affiliations Expand

- PMID: 39699122
- DOI: [10.1097/MCP.0000000000001139](https://doi.org/10.1097/MCP.0000000000001139)

Abstract

Purpose of review: This review aims to highlight the importance of timely initiation of home noninvasive ventilation (homeNIV) for patients with chronic hypercapnic respiratory failure (CHRF) due to chronic obstructive pulmonary disease (COPD). As emerging evidence continues to show substantial benefits in reducing mortality and hospitalizations, it's crucial to identify which patients will benefit most and to provide clear guidance on implementing homeNIV effectively.

Recent findings: Recent research supports the use of high intensity homeNIV for CHRF secondary to COPD, showing marked reductions in hospitalizations and mortality. However, despite its proven benefits, homeNIV is underutilized, often due to significant barriers related to payor policies and gaps in knowledge by those most likely to be evaluating and managing patients with advanced COPD. The literature also reveals ongoing debate about the optimal timing and setting for starting homeNIV, whether in outpatient clinics or directly after hospital discharge.

Summary: The evidence suggests that homeNIV should be more widely used, with a focus on early initiation and careful titration to normalize PaCO₂ over time. By addressing the barriers to its broader use, we can improve outcomes for patients with CHRF due to COPD.

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. 2025 Mar;211(3):452-463.

doi: 10.1164/rccm.202406-1254CI.

[Is Disease Stability an Attainable Chronic Obstructive Pulmonary Disease Treatment Goal?](#)

[Dave Singh](#)¹, [MeiLan K Han](#)², [Surya P Bhatt](#)³, [Marc Miravittles](#)⁴, [Chris Compton](#)⁵, [Stefanie Kolterer](#)⁶, [Tharishini Mohan](#)⁵, [Suneal K Sreedharan](#)⁵, [Lee Tombs](#)⁷, [David M G Halpin](#)⁸

Affiliations Expand

- PMID: 39680953
- DOI: [10.1164/rccm.202406-1254CI](https://doi.org/10.1164/rccm.202406-1254CI)

Abstract

Chronic obstructive pulmonary disease (COPD) is a heterogeneous lung condition characterized by progressive airflow obstruction. Despite advancements in diagnosis and treatment, the disease burden remains high; although clinical trials have shown improvements in outcomes such as exacerbations, quality of life, and lung function, improvement may not be attainable for many patients. For patients who do experience improvement, it is challenging to set management goals given the progressive nature of COPD. We therefore propose disease stability as an appropriate and attainable treatment goal. Other disease areas have developed definitions of no disease activity or remission, which provide relevant information for defining and achieving stability for patients with COPD. Disease stability builds on related concepts already defined in COPD, such as clinical control and clinically important deterioration. Current components that could form part of a disease stability definition include exacerbations, health status (including quality of life and symptoms), and lung function. Considerations should be given to intervals over which stability is defined and assessed, appropriate thresholds, and defining a composite. Ensuring a holistic approach, objective measurements, and harmonious, clear communication between patients and physicians can further support establishing disease stability. Here we propose a preliminary definition of disease stability, informed by existing research in COPD. Further research will be needed to validate the framework for use in clinical and research settings. Exploring disease

stability as a goal, however, is an opportunity to develop and validate an attainable treatment target to advance the standard of care for patients with COPD.

Keywords: COPD; disease management; treatment outcome.

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. 2025 Mar;42(3):e15475.

doi: 10.1111/dme.15475. Epub 2024 Dec 6.

[Glucocorticoid treatment and new-onset hyperglycaemia and diabetes in people living with chronic obstructive pulmonary disease: A systematic review and meta-analysis](#)

[Rajna Golubic¹, Hudson Mumbole¹, Mouhamad Hussein Ismail², Alwyn Choo³, Olivia Baker², Karyna Atha⁴, Sarah Chew Sue Mei², Arjun Raj⁵, Preethu Anand^{2,5}, Nwe Oo Aung⁶, Niraj S Kumar^{7,8}, Tulika Nahar^{8,9}, Ruth L Coleman¹, Jeremy W Tomlinson¹, Najib Rahman¹⁰, Rishi Caleyachetty¹¹, Amanda Adler¹](#)

Affiliations Expand

- PMID: 39642210
- PMCID: [PMC11823367](#)

- DOI: [10.1111/dme.15475](https://doi.org/10.1111/dme.15475)

Abstract

Introduction: In people living with chronic obstructive pulmonary disease (COPD), we aimed to estimate: (1) the prevalence of glucocorticoid-induced hyperglycaemia (GIH); (2) whether the prevalence of GIH varies by age, baseline diabetes status, treatment duration, ascertainment of glycaemia, definition of hyperglycaemia, study design and year of publication; and (3) the relative risk (RR) of new-onset hyperglycaemia in exposed vs non-exposed to systemic glucocorticoids.

Methods: We searched electronic databases until 9 November 2023 for randomised controlled trials and observational studies including adults diagnosed with COPD, with or without diabetes at baseline, using systemic glucocorticoids equivalent to prednisolone ≥ 5 mg/day for ≥ 3 days if exposed. Hyperglycaemia was defined as a blood glucose above a study-specific cut-off. We extracted data on study and participant characteristics, exposure and outcome. We performed random-effects meta-analysis to calculate pooled prevalence estimate of GIH. Prevalence was expressed as the proportion of people who developed hyperglycaemia among all exposed to systemic glucocorticoids during follow-up. We calculated RR of new-onset hyperglycaemia in exposed vs non-exposed to systemic glucocorticoids from eight studies.

Results: Of 25,806 citations, we included 18 studies comprising 3642 people of whom 3125 received systemic glucocorticoids and 1189 developed hyperglycaemia. Pooled prevalence of GIH was 38.6% (95%CI 29.9%-47.9%) with significant heterogeneity, $I^2 = 96\%$ ($p < 0.010$), which was partially explained by differences in study design. Pooled RR = 2.39 (95%CI 1.51-3.78). Publication bias was present.

Conclusion: The prevalence of GIH was 38.6%. Being treated with systemic glucocorticoids for COPD was associated with 2.4 times higher risk of new-onset hyperglycaemia versus no glucocorticoid treatment.

Keywords: clinical diabetes; diabetes; other complications; systematic review.

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Conflict of interest statement

All authors declare no conflict of interest.

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. 2025 Mar 1;31(2):156-164.

doi: 10.1097/MCP.0000000000001144. Epub 2024 Dec 2.

[Goals of chronic obstructive pulmonary disease management: a focused review for clinicians](#)

[Sairam Raghavan¹, Umur Hatipoğlu, Loutfi S Aboussouan](#)

Affiliations Expand

- PMID: 39620703
- DOI: [10.1097/MCP.0000000000001144](#)

Abstract

Purpose of review: The diagnosis of chronic obstructive pulmonary disease (COPD) encompasses heterogeneous pathophysiological mechanisms which can shape an individual patient's experience. This paper reviews available therapeutic options for the clinician intending to individualize care toward patient goals.

Recent findings: The contemporary targeted interventions for COPD include the novel phosphodiesterase inhibitor ensifentrine, the interleukin-4 receptor (IL4R alpha subunit) antibody dupilumab, augmentation therapy for alpha-1 antitrypsin deficiency. Other interventions promoting physical and mental well being include re-envisioned pulmonary rehabilitation, self-management, targeting of comorbidities such as sarcopenia, and virtual health coaching interventions to expand patient access. Opioids did not relieve dyspnea and did not change total step count.

Summary: Advances in precision therapy are complemented by the discovery of novel pathophysiology pathways and behavioral and rehabilitation interventions as a holistic view of COPD management emerges. The management of COPD continues to evolve with new tools including precision medicine and individualized

care. Comorbidities remain important determinants of health, yet their prevalence and impact are underestimated.

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. 2025 Mar 1;31(2):106-116.

doi: 10.1097/MCP.0000000000001142. Epub 2024 Nov 28.

[Food for thought: optimal diet in patients with asthma and chronic obstructive pulmonary disease](#)

[Motahareh Vameghestahbanati](#)¹, [Carolyn J Wang](#)², [Don D Sin](#)^{2,3}

Affiliations Expand

- PMID: 39607023
- DOI: [10.1097/MCP.0000000000001142](#)

Abstract

Purpose of review: Nutritional intake plays a major role in the management of lung health. This review provides the latest perspective on how dietary choices can

modulate lung function in patients with chronic obstructive pulmonary disease (COPD) and asthma.

Recent findings: The pathophysiology of COPD and asthma is driven by oxidative stress and inflammation of the airways, which is exacerbated by modifiable risk factors such as cigarette smoking and diet. Various foods can influence patient symptoms; highly processed foods increase the production of reactive oxygen species that augment airway inflammation, whereas foods rich in antioxidants, fiber and protein combat oxidative stress and muscle wastage. Patients with COPD or asthma are at increased risk of developing metabolic comorbidities, including cachexia and obesity that complicate disease phenotypes, leading to greater symptom severity. While clinical findings suggest a role for antioxidant and macronutrient support of lung function, comprehensive translational and clinical studies are necessary to better understand the mechanisms underlying nutrient interaction and lung structure-function.

Summary: Understanding the nutritional requirements that protect lung health and support weight management in COPD and asthma is imperative to providing personalized dietary recommendations and reducing patient morbidity.

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. 2025 Mar 1;31(2):117-125.

doi: 10.1097/MCP.0000000000001140. Epub 2024 Nov 21.

[Abnormal spirometry in individuals with a smoking history and no known obstructive lung disease: current understanding and clinical implications](#)

[Kevin Tong](#)¹, [Matthew Moll](#)^{2,3,4,5}, [Emily S Wan](#)^{2,4,5}

Affiliations Expand

- PMID: 39569648
- DOI: [10.1097/MCP.0000000000001140](https://doi.org/10.1097/MCP.0000000000001140)

Abstract

Purpose of review: Recent recognition of the importance of abnormal spirometry without obstruction has generated interest in its epidemiology, risk factors, longitudinal outcomes, and clinical implications.

Recent findings: Preserved ratio impaired spirometry (PRISm), defined as an forced expiratory volume in 1 s (FEV₁) / forced vital capacity (FVC) ≥ 0.7 with an FEV₁ $< 80\%$ predicted, has a high prevalence globally (2.4-16.7%) and is more common in individuals with metabolic comorbidities, smoking history, female sex, and higher BMI. PRISm is associated with increased respiratory symptoms and poor clinical outcomes such as increased all-cause mortality and cardiovascular events compared to normal spirometry. Longitudinal studies show substantial subsets of individuals with PRISm will transition to other spirometric categories, including progression to obstruction. Individuals with PRISm are heterogeneous; recent investigations have focused on subtyping PRISm based on spirometric features or pathobiologically-based phenotypes.

Summary: PRISm is a common spirometric abnormality which is robustly associated with negative outcomes. However, current knowledge gaps with respect to heterogeneity, specific etiologies, and longitudinal progression preclude the development of universal evidence-based diagnostic and management strategies. At present, clinicians are advised to focus on risk factor modification (e.g., diabetes, obesity) and the identification of actionable traits (e.g. emphysema, interstitial lung abnormalities) among patients with PRISm.

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doi: [10.1164/rccm.202410-1922LE](https://doi.org/10.1164/rccm.202410-1922LE).

[Cardiovascular Events in Chronic Obstructive Pulmonary Disease: Squeezing ETHOS Dry for Clinical Evidence at Risk of Type I Error](#)

[Luigino Calzetta](#)¹, [Paola Rogliani](#)²

Affiliations Expand

- PMID: 39566086
- DOI: [10.1164/rccm.202410-1922LE](https://doi.org/10.1164/rccm.202410-1922LE)

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. 2025 Mar 1;31(2):98-105.

doi: 10.1097/MCP.0000000000001141. Epub 2024 Nov 20.

[Impact of occupational exposures in patients with chronic obstructive pulmonary disease: current understanding and knowledge gaps](#)

[Quinn Bongers¹, Alejandro P Comellas](#)

Affiliations Expand

- PMID: 39564609
- DOI: [10.1097/MCP.0000000000001141](#)

Abstract

Purpose of review: Chronic obstructive pulmonary disease (COPD) is thought of as a disease caused by tobacco exposure, but numerous occupational exposures have been identified as risk factors for development of disease and exacerbations, although these remain underappreciated and underdiagnosed. We highlight evidence of occupational exposures and how they relate to COPD, while also looking at gaps in how the changing workplace might affect the occupational COPD landscape.

Recent findings: Historical exposures linked to COPD included inorganic dusts like coal and silica and organic dusts like cotton and wood. Other data associated agricultural exposures, cleaning agents, air pollution, and construction work with COPD. As the workplace has evolved to include more work from home and growing industries like ridesharing and delivery, items like radon and indoor and outdoor air quality must be factored into the equation as occupational exposures with the potential to cause COPD and increase its morbidity. Despite this, causal conclusions with many risk factors are challenging due to the complex interaction between patient susceptibilities and environmental factors, both occupation-related and nonoccupation related.

Summary: Additional studies are needed, not only to better evaluate occupational exposures and COPD pathogenesis, but also to look at more solution-oriented areas like precision medicine and interventions targeting a healthier workplace.

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. 2025 Mar 1;31(2):175-181.

doi: 10.1097/MCP.0000000000001130. Epub 2024 Oct 23.

[Pulmonary embolism work-up in chronic obstructive pulmonary disease exacerbations: what is the best strategy for clinicians?](#)

[David Jiménez](#)^{1 2 3}, [Laurent Bertoletti](#)^{4 5 6 7}, [Behnood Bikdeli](#)^{8 9 10}

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- PMID: 39469884
- DOI: [10.1097/MCP.0000000000001130](https://doi.org/10.1097/MCP.0000000000001130)

Abstract

Purpose of review: Acute exacerbations of chronic obstructive pulmonary disease (COPD) are important events in the natural course of COPD, as they increase morbidity and mortality. Acute pulmonary embolism may mimic the symptoms of COPD exacerbations. However, the exact prevalence of pulmonary embolism in unexplained exacerbations of COPD is unclear based on the current data. This review provides a practical approach to patients with COPD complaining of worsening respiratory symptoms.

Recent findings: A randomized clinical trial has shown that a routine pulmonary embolism diagnostic work-up does not improve care of patients with acute exacerbations of COPD. However, review of the recent literature suggests that a nonnegligible proportion of otherwise unexplained exacerbations of COPD may be caused by pulmonary embolism. To date, nevertheless, there are limited studies developing and validating clinical models that might aid in the identification of patients requiring additional tests for the diagnosis of pulmonary embolism.

Summary: Until new evidence becomes available, we believe that a routine diagnostic strategy for pulmonary embolism is not appropriate for patients with acute exacerbations of COPD. Recommendations for routine pulmonary embolism diagnostic work-up necessitate further development of prognostic models and conduct of clinical trials that assess important health outcomes.

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doi: 10.1164/rccm.202408-1618LE.

[Home Noninvasive Ventilation Should Start at Home](#)

[Peter J Wijkstra](#)^{1,2}, [Anda Hazenberg](#)^{1,2}, [Marieke L Duiverman](#)^{1,2}

Affiliations Expand

- PMID: 39405557

- DOI: [10.1164/rccm.202408-1618LE](https://doi.org/10.1164/rccm.202408-1618LE)

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. 2025 Mar;211(3):518-519.

doi: [10.1164/rccm.202408-1567LE](https://doi.org/10.1164/rccm.202408-1567LE).

[Timing of Noninvasive Ventilation Initiation for Chronic Hypercapnic Respiratory Failure of Chronic Obstructive Pulmonary Disease](#)

[Umur Hatipoğlu^{1,2}](#), [Jason Dean³](#), [Loutfi Sami Aboussouan⁴](#)

Affiliations Expand

- PMID: 39405550
- DOI: [10.1164/rccm.202408-1567LE](https://doi.org/10.1164/rccm.202408-1567LE)

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. 2025 Mar-Apr;54(2):159-166.

doi: 10.1067/j.cpradiol.2024.08.008. Epub 2024 Aug 14.

[Multidetector computed tomography imaging planning for bronchoscopy stent and valve placement in the treatment of COPD, air leaks, and airway stenosis](#)

[Miriana Mariussi¹, Paula Terra Amaral², Eduardo Kaiser Ururahy Nunes Fonseca², Gustavo Teles², Priscila Mina Falsarella³, Rodrigo Caruso³, Marcia Jacomelli³, Rodrigo Gobbo Garcia³](#)

Affiliations Expand

- PMID: 39168765
- DOI: [10.1067/j.cpradiol.2024.08.008](#)

Abstract

Bronchoscopy using a flexible bronchoscope is considered a safe procedure and has been used for diagnosing and treating airway and parenchymal lung diseases. Bronchoscopic interventions in selected patients with emphysema, airway stenosis, and air leaks provide new treatment options. The application of multidetector computed tomography (MDCT) planning prior to bronchoscopy is comprehensively addressed. Using MDCT scan for pre-procedural planning, ensures precise navigation and device placement during bronchoscopy, ultimately improving patient outcomes. Radiological features can be correlated with bronchoscopy findings, linking MDCT images with direct bronchoscopy observations. This educational statement provides a comprehensive overview of the integration of computed tomography and bronchoscopy in managing different pulmonary conditions treated with endobronchial valve and airway stent placement, focusing on key aspects to enhance understanding and application in clinical practice. Emphasis is placed on their role in treating airway stenosis (AS), air leaks, and chronic obstructive pulmonary disease (COPD), highlighting the conditions under which these

procedures are most beneficial. It explores how MDCT imaging contributes to the diagnosis and treatment planning of these conditions and the correct interpretation of MDCT image findings during follow-up after the procedure.

Keywords: Air leaks; Airway stents; Airways stenosis; Bronchoscopy; Chronic obstructive pulmonary disease; Computed tomography; Endobronchial valves.

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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 Mar;211(3):477-485.

doi: 10.1164/rccm.202310-1848OC.

[Characterization and Mortality Risk of Impaired Left Ventricular Filling in Chronic Obstructive Pulmonary Disease](#)

[Mustafa Abdo](#)^{1,2}, [Henrik Watz](#)^{3,2}, [Peter Alter](#)^{2,4}, [Kathrin Kahnert](#)^{2,5}, [Franziska Trudzinski](#)^{2,6}, [Espen E Groth](#)^{1,2}, [Martin Claussen](#)¹, [Anne-Marie Kirsten](#)^{3,2}, [Tobias Welte](#)^{2,7}, [Rudolf A Jörres](#)^{2,8}, [Claus F Vogelmeier](#)^{2,4}, [Robert Bals](#)^{2,9}, [Klaus F Rabe](#)^{1,2}, [Benjamin Waschki](#)^{1,2,10,11}

Affiliations Expand

- PMID: 38984876

- DOI: [10.1164/rccm.202310-1848OC](https://doi.org/10.1164/rccm.202310-1848OC)

Abstract

Rationale: In chronic obstructive pulmonary disease (COPD), impaired left ventricular (LV) filling might be associated with coexisting heart failure with preserved ejection fraction (HFpEF) or due to reduced pulmonary venous return indicated by small LV size. **Objectives:** We investigated the all-cause mortality associated with small LV or HFpEF and clinical features discriminating between both patterns of impaired LV filling in patients with COPD. **Methods:** We performed transthoracic echocardiography (TTE) in patients with stable COPD from the COSYCONET (COPD and Systemic Consequences and Comorbidities Network) cohort to define small LV as LV end-diastolic diameter below the normal range and HFpEF features according to recommendations of the European Society of Cardiology. We assessed the ratio of early to late ventricular filling velocity (E/A), ratio of early mitral inflow velocity to annular early diastolic velocity (E/e'), serum N-terminal pro-brain natriuretic peptide, high-sensitivity troponin I, airflow limitation (FEV₁), lung hyperinflation (residual volume), and gas transfer capacity (Dl_{CO}) and discriminated patients with small LV from those with HFpEF features or no relevant cardiac dysfunction as per TTE (normal^{TTE}). The primary outcome was all-cause mortality after 4.5 years. **Measurements and Main Results:** In 1,752 patients with COPD, the frequency of small LV, HFpEF features, and normal^{TTE} was 8%, 16%, and 45%, respectively. Patients with small LV or HFpEF features had higher all-cause mortality rates than patients with normal^{TTE}: hazard ratio, 2.75 (95% confidence interval, 1.54-4.89) and 2.16 (95% confidence interval, 1.30-3.61), respectively. Small LV remained an independent predictor of all-cause mortality after adjusting for confounders including exacerbation frequency and measures of residual lung volume, Dl_{CO}, or FEV₁. Compared with normal^{TTE}, patients with small LV had reduced LV filling, as indicated by lowered E/A. Yet, in contrast to patients with HFpEF features, patients with small LV had normal LV filling pressure (E/e') and lower concentrations of N-terminal pro-brain natriuretic peptide and high-sensitivity troponin I. **Conclusions:** In COPD, both small LV and HFpEF features are associated with increased all-cause mortality and represent two distinct patterns of impaired LV filling. Clinical trial registered with www.clinicaltrials.gov ([NCT01245933](https://doi.org/10.1164/rccm.202310-1848OC)).

Keywords: COPD; emphysema; heart failure with preserved ejection fraction; lung hyperinflation; ventricular underfilling.

Comment in

- [Echocardiographic Endophenotypes of Chronic Obstructive Pulmonary Disease: A Step toward Personalized Medicine.](#)

Freed BH, Thenappan T. *Am J Respir Crit Care Med.* 2025 Mar;211(3):426-427. doi: 10.1164/rccm.202412-2461ED. PMID: 39879550 No abstract available.

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. 2025 Feb 26:15:26335565251323748.

doi: 10.1177/26335565251323748. eCollection 2025 Jan-Dec.

[Implementation of the virtual transitional care stroke intervention for older adults with stroke and multimorbidity: A qualitative descriptive study](#)

[Maureen Markle-Reid](#)^{1,2,3,4}, [Kathryn Fisher](#)^{1,3,4}, [Kimberly M Walker](#)⁵, [Jill I Cameron](#)⁶, [David Dayler](#)³, [Rebecca Fleck](#)⁷, [Amiram Gafni](#)^{2,3}, [Rebecca Ganann](#)^{1,3,4}, [Ken Hajas](#)³, [Barbara Koetsier](#)³, [Robert Mahony](#)³, [Chris Pollard](#)⁸, [Jim Prescott](#)³, [Tammy Rooke](#)⁹, [Carly Whitmore](#)^{1,3,4}

Affiliations Expand

- PMID: 40013060
- PMCID: [PMC11863252](#)
- DOI: [10.1177/26335565251323748](#)

Abstract

Background: Older adults with stroke and multimorbidity experience frequent care transitions, which are often poorly coordinated and fragmented. We conducted a pragmatic randomized controlled trial (RCT) to test the implementation and effectiveness of the Transitional Care Stroke Intervention (TCSI), a 6-month, multi-component, evidence-informed intervention to support older adults with stroke and multimorbidity using outpatient stroke rehabilitation services. The TCSI was designed to support self-management, improve health outcomes, and enhance the quality and experience of care transitions.

Objective: To explore the facilitators and challenges to implementing the TCSI, from the perspective of healthcare providers (HCPs) (n = 12) and Managers (n = 3).

Methods: Data collection and analysis were guided by the Consolidated Framework for Implementation Research (CFIR). Data were collected from study documents, individual and group interviews conducted with HCPs and a Care Coordinator, and surveys from managers. Data were analyzed using thematic analysis.

Results: Intervention implementation was facilitated by: a) strong collaborative and interdependent HCP team relationships, b) dedicated resources (funding, staffing) to support intervention delivery, c) training and ongoing support, customized to individual HCP needs, d) organizational readiness, strong leadership, and effective champions, e) structures to facilitate virtual information-sharing, and f) regular monitoring of intervention implementation. Implementation challenges included: a) COVID-19 related challenges (staff turnover, community service disruptions), b) poor communication with community service providers, c) documentation burden (intervention-related), and d) virtual care delivery.

Conclusions: This research enhances understanding of the diversity of factors influencing implementation of the TCSI, and the conditions under which implementation is more likely to succeed.

Keywords: Older adults; implementation; multimorbidity; stroke rehabilitation; transitional care intervention.

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Conflict of interest statement

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Arch Public Health

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. 2025 Feb 27;83(1):55.

doi: 10.1186/s13690-025-01528-0.

[Healthy ageing for older adult people with intellectual disability: a scoping review](#)

[Nadia El Mrayyan](#) ^{#1,2}, [Marianne Holmgren](#) ¹, [Gerd Ahlström](#) ^{#3}

Affiliations Expand

- PMID: 40012010
- PMCID: [PMC11866571](#)
- DOI: [10.1186/s13690-025-01528-0](#)

Abstract

Background: The increasing longevity of people with intellectual disability creates a need for a healthy-ageing perspective, translated into evidence-based interventions in this multi-morbidity group. Accordingly, the aim of this scoping review was to identify, summarise and analyse the empirical research on healthy ageing in older adults with intellectual disability.

Methods: This review was based on the PRISMA 2020 guidelines for Scoping Reviews (PRISMA-ScR) and a PICO protocol (Patient/population, Intervention, Comparison/control, and Outcome). Empirical studies in English were included if they concerned older adults with intellectual disability with an average age of at least 45 and were based on a clearly expressed healthy-ageing perspective. An information specialist conducted a search in 11 databases with no geographical or temporal restrictions. Two independent researchers performed study selection, quality assessment and data extraction. Disagreements were resolved in consultation with a third researcher. A textual narrative synthesis was based on PICO domains and the seven research questions.

Results: The 11 studies were all from developed countries and had different designs: qualitative, mixed-method and one systematic review. Only three studies highlighted the term "healthy ageing", most used synonymous terms. Eight studies focused on healthy ageing on the individual level, three on the organisational and societal level. The intervention studies in the systematic review were mainly nonrandomised, concerned interventions varying in intensity and duration, considered different research questions and employed different outcome measures.

Conclusions: The findings highlight a major knowledge gap concerning evidence-based interventions with a healthy-ageing perspective in the case of older adults with intellectual disability. There is an urgent need to initiate healthy-ageing studies in developing countries, where such people are even more vulnerable to stigma and discrimination than those in developed countries. Our findings confirm the need to scale up healthy-ageing interventions in line with the WHO's ambition to develop evidence-based approaches to optimise the functional capacity of all older people, including older adults with intellectual disability, by 2030.

Registration: The study is registered in the International Prospective Register of Systematic Reviews (PROSPERO), CRD42022337211 (13 June 2022).

Keywords: Active ageing; Ageing in place; Developmental disability; Evidence-based practice; Healthy ageing; Intellectual disability; Intervention studies; Older adults; Scoping review; Successful ageing.

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Conflict of interest statement

Declarations. Ethics approval and consent to participate: The studies selected in the review had ethics approval. Not applicable for this study. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

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J Am Heart Assoc

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. 2025 Feb 26:e034514.

doi: 10.1161/JAHA.123.034514. Online ahead of print.

[Multimorbidity Is Associated With Symptom Severity and Disease Progression in Patients with Paroxysmal Atrial Fibrillation-Data From the RACE V Study](#)

[Colinda van Deutekom](#)¹, [Martijn E van de Lande](#)¹, [Rajiv Rama](#)¹, [Bao-Oanh Nguyen](#)¹, [Robert G Tieleman](#)², [Vanessa Weberndörfer](#)^{3,4}, [Martin E W Hemels](#)⁵, [Mirko de Melis](#)⁶, [Ulrich Schotten](#)^{4,7}, [Dominik Linz](#)^{3,4}, [Harry J G M Crijns](#)^{3,4}, [Isabelle C van Gelder](#)¹, [Michiel Rienstra](#)¹; [RACE V Investigators](#)

Affiliations [Expand](#)

- PMID: 40008502

- DOI: [10.1161/JAHA.123.034514](https://doi.org/10.1161/JAHA.123.034514)

Free article

Abstract

Background: Multimorbidity is common among patients with atrial fibrillation (AF) and is associated with worse outcomes. We aimed to investigate the association between multimorbidity, AF progression and AF symptom severity in patients with paroxysmal AF.

Methods and results: The RACE V (Reappraisal of AF: Interaction Between Hypercoagulability, Electrical Remodeling, and Vascular Destabilization in the Progression of AF) study included patients with paroxysmal AF and continuous rhythm monitoring. Multimorbidity was defined as ≥ 2 comorbidities (heart failure, hypertension, diabetes, coronary heart disease, kidney dysfunction, moderate or severe mitral valve regurgitation, or obesity). AF symptom severity was assessed via the University of Toronto AF Severity Scale questionnaire. The associations between multimorbidity, AF progression, and AF symptom severity were determined using logistic regression analyses. Median age was 65 (58-71) years and 179 of 417 patients (43%) were women, with a median of 1 (1-2) comorbidities. Median follow-up was 2.2 (1.6-2.8) years. Multimorbidity was associated with AF progression (odds ratio [OR], 2.02 [95% CI, 1.10-3.72], $P=0.024$) and increased AF symptom severity (OR, 2.67 [95% CI, 1.79-3.99], $P<0.001$). There was a positive dose-response relation between the number of comorbidities and AF progression (OR, 1.40 [95% CI, 1.09-1.79], $P=0.008$), as well as AF symptom severity (OR, 1.64 [95% CI, 1.35-1.99], $P<0.001$). These results remained significant after adjusting for age.

Conclusions: In patients with paroxysmal AF, multimorbidity was associated with AF progression and AF symptom severity. The risk of AF progression and AF symptom severity increased with every additional comorbidity.

Registration: URL: clinicaltrials.gov. Unique Identifier: [NCT02726698](https://clinicaltrials.gov/ct2/show/study/NCT02726698).

Keywords: atrial fibrillation; comorbidities; multimorbidity; progression; symptom severity.

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Metabolism

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. 2025 Mar:164:156126.

doi: 10.1016/j.metabol.2024.156126. Epub 2024 Dec 29.

[Identifying proteins and pathways associated with multimorbidity in 53,026 adults](#)

[Yi-Lin Chen](#)¹, [Jia You](#)², [Yu Guo](#)¹, [Yi Zhang](#)¹, [Bing-Ran Yao](#)¹, [Ji-Jing Wang](#)³, [Shi-Dong Chen](#)¹, [Yi-Jun Ge](#)¹, [Liu Yang](#)¹, [Xin-Rui Wu](#)¹, [Bang-Sheng Wu](#)¹, [Ya-Ru Zhang](#)¹, [Qiang Dong](#)¹, [Jian-Feng Feng](#)⁴, [Mei Tian](#)⁵, [Wei Cheng](#)⁶, [Jin-Tai Yu](#)⁷

Affiliations Expand

- PMID: 39740741
- DOI: [10.1016/j.metabol.2024.156126](https://doi.org/10.1016/j.metabol.2024.156126)

Abstract

Background and aims: Multimorbidity, the coexistence of multiple chronic diseases, is a rapidly expanding global health challenge, carrying profound implications for patients, caregivers, healthcare systems, and society. Investigating the determinants and drivers underlying multiple chronic diseases is a priority for disease management and prevention.

Method: This prospective cohort study analyzed data from the 53,026 participants in the UK Biobank from baseline (2006 to 2010) across 13.3 years of follow-up. Using Cox proportional hazards regression model, we characterized shared and unique associations across 38 incident outcomes (31 chronic diseases, 6 system mortality and all-cause mortality). Furthermore, ordinal regression models were used to assess the association between protein levels and multimorbidity (0-1, 2, 3-4, or ≥ 5 chronic diseases). Functional and tissue enrichment analysis were employed for multimorbidity-associated proteins. The upstream regulators of above proteins were identified.

Results: We demonstrated 972 (33.3 %) proteins were shared across at least two incident chronic diseases after Bonferroni correction ($P < 3.42 \times 10^{-7}$, 93.3 % of those had consistent effects directions), while 345 (11.8 %) proteins were uniquely linked to a single chronic disease. Remarkably, GDF15, PLAUR, WFDC2 and AREG were positively associated with 20-24 incident chronic diseases (hazards ratios: 1.21-3.77) and showed strong associations with multimorbidity (odds ratios: 1.33-1.89). We further identified that protein levels are explained by common risk factors, especially renal function, liver function, inflammation, and obesity, providing potential intervention targets. Pathway analysis has underscored the pivotal role of

the immune response, with the top three transcription factors associated with proteomics being NFKB1, JUN and RELA.

Conclusions: Our results enhance the understanding of the biological basis underlying multimorbidity, offering biomarkers for disease identification and novel targets for therapeutic intervention.

Keywords: Chronic diseases; Multimorbidity; Plasma proteins.

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Conflict of interest statement

Declaration of competing interest The authors declared no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

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Arch Gerontol Geriatr

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. 2025 Mar:130:105726.

doi: 10.1016/j.archger.2024.105726. Epub 2024 Dec 15.

[Multimorbidity clusters and their contribution to well-being among the oldest old: Results based on a nationally representative sample in Germany](#)

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- PMID: 39700712

- DOI: [10.1016/j.archger.2024.105726](https://doi.org/10.1016/j.archger.2024.105726)

Free article

Abstract

Aim: Our aim was to identify multimorbidity clusters and, in particular, to examine their contribution to well-being outcomes among the oldest old in Germany.

Methods: Data were taken from the large nationally representative D80+ study including community-dwelling and institutionalized individuals aged 80 years and over residing in Germany (n = 8,773). The mean age was 85.6 years (SD: 4.1). Based on 21 chronic conditions, latent class analysis was carried out to explore multimorbidity (≥ 2 chronic conditions) clusters. Widely used tools were applied to quantify well-being outcomes.

Results: Approximately nine out of ten people aged 80 and over living in Germany were multimorbid. Four multimorbidity clusters were identified: relatively healthy class (30.2 %), musculoskeletal class (44.8 %), mental illness class (8.6 %), and high morbidity class (16.4 %). Being part of the mental disorders cluster was consistently linked to reduced well-being (in terms of low life satisfaction, high loneliness and lower odds of meaning in life), followed by membership in the high morbidity cluster.

Conclusions: Four multimorbidity clusters were detected among the oldest old in Germany. Particularly belonging to the mental disorders cluster is consistently associated with low well-being, followed by belonging to the high morbidity cluster. This stresses the need for efforts to target such vulnerable groups, pending future longitudinal research.

Keywords: Depression; High morbidity; Latent class analysis; Life satisfaction; Loneliness; Mental health; Mental illness; Multimorbidity clusters; Multimorbidity patterns; Multiple chronic conditions; Oldest old.

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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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Am J Prev Med

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. 2025 Mar;68(3):611-615.

doi: 10.1016/j.amepre.2024.11.003. Epub 2024 Dec 12.

[Multimorbidity Trajectories From Early to Middle Adulthood and Physical Activity](#)

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Affiliations Expand

- PMID: 39577673
- PMCID: PMC11830553 (available on 2026-03-01)
- DOI: [10.1016/j.amepre.2024.11.003](https://doi.org/10.1016/j.amepre.2024.11.003)

Abstract

Introduction: Multimorbidity is associated with lower physical function in older adults. Less is known about multimorbidity and physical activity earlier in the life course. This study examined multimorbidity trajectories across adulthood with physical activity and explores if multimorbidity accelerates age-related activity decline.

Methods: Data are from Coronary Artery Risk Development in Young Adults (CARDIA), an ongoing prospective cohort of participants recruited when they were aged 18-30 years. Six multimorbidity trajectories from baseline (1985-1986) through year 30 follow-up exam (2015-2016; ages 48-60 years) were based on age of disease onset and rate of accumulating additional conditions: mid-20s-fast, mid-20s-slow, late-20s-slow, mid-30s-fast, mid-40s-fast, and early-50s-slow. Activity was device-measured at year 30 and year 35 (2021-2023; ages 53-65). Multivariable linear models were used to estimate differences in activity by multimorbidity trajectory at year 30 and change (%) from year 30 to year 35. Data were collected through June 2023 and analyzed in May 2024.

Results: The sample included 1,425 CARDIA adults at year 30 (mean age 55.1 years) with 749 (mean age 61.3 years) wearing the device again at year 35. Compared with early-50s-slow, mid-20s-slow ($\beta=-14.1$; 95% CI= -24.6, -3.6) and mid-30s-fast ($\beta=-14.2$; 95% CI= -26.2, -2.2) had lower light-intensity physical activity and mid-20s-fast ($\beta=-$

5.1; 95% CI= -9.6, -0.6) and late-20s-fast (β =-9.5; 95% CI= -14.1, -4.9) had lower moderate-to-vigorous physical activity. There were significant differences in 5-year behavior change across multimorbidity trajectories.

Conclusions: Early onset and faster accumulation of chronic conditions was associated with lower activity in midlife. Lower intensity activity for people with multimorbidity may be a feasible target for healthy aging.

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

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Allergy

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. 2025 Feb 28.

doi: 10.1111/all.16502. Online ahead of print.

[EAACI Guidelines on Environmental Science for Allergy and Asthma-Recommendations on the Impact of Indoor Air Pollutants on the Risk of New-Onset Asthma and on Asthma-Related Outcomes](#)

[Ioana Agache](#)¹, [Isabella Annesi-Maesano](#)², [Lorenzo Cecchi](#)³, [Benedetta Biagioni](#)⁴, [Fan Chung](#)⁵, [Gennaro D'Amato](#)^{6,7}, [Athanasios Damialis](#)⁸, [Stefano Del Giacco](#)⁹, [Javier Dominguez Ortega](#)¹⁰, [Carmen Galán](#)¹¹, [Stefanie Gilles](#)^{12,13}, [Stephen Holgate](#)¹⁴, [Mohamed Jeebhay](#)¹⁵, [Stelios Kazadzis](#)¹⁶, [Kari Nadeau](#)¹⁷, [Nikos G Papadopoulos](#)^{18,19}, [Santiago Quirce](#)¹⁰, [Joaquin Sastre](#)¹³, [Claudia Traidl-Hoffmann](#)^{12,20}, [Jolanta Walusiak-Skorupa](#)²¹, [Magdalena Zemelka-Wiacek](#)²², [Marek Jutel](#)^{22,23}, [Cezmi A Akdis](#)²⁴

Affiliations Expand

- PMID: 40018799

- DOI: [10.1111/all.16502](https://doi.org/10.1111/all.16502)

Abstract

The EAACI Guidelines used the GRADE approach to evaluate the impact of major indoor air pollutants (dampness and mould, cleaning agents, volatile organic compounds and pesticides) on the risk of new-onset asthma and on asthma-related outcomes. The guideline also acknowledges the synergies among indoor air pollutants and other components of the indoor exposome (allergens, viruses, endotoxins). Very low to low certainty of evidence was found for the association between exposure to indoor pollutants and increased risk of new-onset asthma and asthma worsening. Only for mould exposure there was moderate certainty of evidence for new-onset asthma. Due to the quality of evidence, conditional recommendations were formulated on the risk of exposure to all indoor pollutants. Recommendations are provided for prevention, patient care and mitigation in a framework supporting rational decisions for healthcare professionals and patients to individualize and improve asthma management. For policymakers and regulators this evidence-informed guideline supports setting legally binding standards and goals for indoor air quality at international, national and local levels. Asthma management counselled by the current EAACI guidelines can improve asthma-related outcomes but community and governmental measures for improved indoor air quality are needed to achieve significant impact.

Keywords: asthma; environmental science; guidelines; indoor air pollutants; indoor environment.

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Review

Brain Behav

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. 2025 Mar;15(3):e70048.

doi: 10.1002/brb3.70048.

[Prevalence and risk of cognitive impairment among patients with asthma: A systematic review and meta-analysis](#)

[Ganesh Bushi](#)^{1,2}, [Mahalaqua Nazli Khatib](#)³, [Shilpa Gaidhane](#)⁴, [Renuka Jyothi S](#)⁵, [Manish Srivastava](#)⁶, [Apurva Koul](#)⁷, [M Ravi Kumar](#)⁸, [Quazi Syed Zahiruddin](#)⁹, [Sarvesh Rustagi](#)¹⁰, [Sanjit Sah](#)^{11,12}, [Hashem Abu Serhan](#)¹³, [Muhammed Shabil](#)^{14,15}

Affiliations Expand

- PMID: 40017059
- DOI: [10.1002/brb3.70048](#)

Abstract

Background: Asthma, a prevalent chronic respiratory condition, is hypothesized to influence cognitive health; however, the precise nature of this association remains unclear. This systematic review and meta-analysis aimed to elucidate the prevalence and risk of cognitive impairment in individuals with asthma.

Methods: A comprehensive literature search was performed in databases such as PubMed, EMBASE, and Web of Science, spanning publications up to December 25, 2023. This search aimed to identify studies that assessed cognitive impairment in patients with asthma. We used the random effects model in the R v4.3 software for the meta-analysis to evaluate the prevalence and risk of cognitive decline, including dementia and Alzheimer's disease, among asthma patients. To ensure robustness and validity, the quality of the studies was assessed using Newcastle-Ottawa scale.

Results: Twelve studies met the inclusion criteria, of these 10 were eligible for meta-analysis. The pooled prevalence of cognitive impairment in patients with asthma was 16.3%. The analysis also revealed an increased hazard ratio of 1.47 (95% confidence interval [1.09; 1.84]) for cognitive impairment in patients with asthma compared to the control group (individuals without asthma). Significant heterogeneity and publication bias were observed across the studies. The results underscored the substantial correlation between asthma and heightened risks of cognitive decline, dementia, and Alzheimer's disease.

Conclusion: This review found a notable association between asthma and an increased risk of cognitive decline, including dementia and Alzheimer's disease. These findings highlight the importance of integrating cognitive health assessments into asthma care. Further research is required to understand this relationship and develop effective treatments. Emphasizing a holistic approach to asthma management, these findings highlight the need to consider both respiratory and cognitive health for comprehensive patient care.

Keywords: Alzheimer's disease; asthma; cognitive decline; dementia; meta-analysis; systematic review.

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Review

Immunol Rev

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. 2025 Mar;330(1):e70010.

doi: 10.1111/imr.70010.

[Chronic Inflammation in Asthma: Looking Beyond the Th2 Cell](#)

[Simone E M Olsthoorn](#)¹, [Anneloes van Krimpen](#)¹, [Rudi W Hendriks](#)¹, [Ralph Stadhouders](#)¹

Affiliations Expand

- PMID: 40016948
- DOI: [10.1111/imr.70010](#)

Abstract

Asthma is a common chronic inflammatory disease of the airways. A substantial number of patients present with severe and therapy-resistant asthma, for which the underlying biological mechanisms remain poorly understood. In most asthma patients, airway inflammation is characterized by chronic activation of type 2 immunity. CD4⁺ T helper 2 (Th2) cells are the canonical producers of the cytokines

that fuel type 2 inflammation: interleukin (IL)-4, IL-5, IL-9, and IL-13. However, more recent findings have shown that other lymphocyte subsets, in particular group 2 innate lymphoid cells (ILC2s) and type 2 CD8⁺ cytotoxic T (Tc2) cells, can also produce large amounts of type 2 cytokines. Importantly, a substantial number of severe therapy-resistant asthma patients present with chronic type 2 inflammation, despite the high sensitivity of Th2 cells for suppression by corticosteroids—the mainstay drugs for asthma. Emerging evidence indicates that ILC2s and Tc2 cells are more abundant in severe asthma patients and can adopt corticosteroid-resistance states. Moreover, many severe asthma patients do not present with overt type 2 airway inflammation, implicating non-type 2 immunity as a driver of disease. In this review, we will discuss asthma pathophysiology and focus on the roles played by ILC2s, Tc2 cells, and non-type 2 lymphocytes, placing special emphasis on severe disease forms.

Keywords: ILC2; Tc2 cell; Th2 cell; asthma; cytokines; type 2 inflammation.

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. 2025 Feb 27;15(1):7007.

doi: 10.1038/s41598-025-91756-9.

[Impact of asthma control on quality of life among palestinian children](#)

[Ali Aldirawi](#)^{1,2}, [Ahmad R Al-Qudimat](#)³, [Tamara Al Rawwad](#)⁴, [Fadwa Alhalaiqa](#)⁵, [Abdallah Alwawi](#)⁶, [Yan Jin](#)², [Samer Abuzerr](#)⁷, [Eman Hammad](#)⁸, [Lina Rjoub](#)⁹

Affiliations Expand

- PMID: 40016531
- DOI: [10.1038/s41598-025-91756-9](https://doi.org/10.1038/s41598-025-91756-9)

Free article

Abstract

Asthma is a chronic respiratory disease that significantly affects children, impacting their health-related quality of life. This study aimed to explore the relationship between asthma control and quality of life among pediatric asthma patients in the West Bank, Palestine. A descriptive, cross-sectional study was conducted among 220 pediatric patients with asthma and their mothers, recruited from four governmental hospitals. Data were collected using self-administered questionnaires that included demographic information, an asthma control test, and the Pediatric Asthma Quality of Life questionnaire. The final analysis included 182 children with a mean age of 8 years. The results showed that 71.9% of the children had uncontrolled asthma, with poor health-related quality of life reported by approximately 70% of this group. In contrast, only 2.7% of children with controlled asthma reported reduced quality of life. The findings indicate a strong association between asthma control and health-related quality of life. Healthcare policies should prioritize educational programs for children and their parents to improve asthma management and overall well-being.

Keywords: Asthma; Asthma control; Children; Palestine; Quality of life.

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Conflict of interest statement

Declarations. Consent for publication: NA. **Competing interests:** The authors declare no competing interests. **Ethics approval:** The study protocol was reviewed and approved by the Institutional Review Board of Central South University in China and the Palestinian Ministry of Health. All procedures performed in the study adhered to the ethical standards of the institutional research committees and the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Written informed consent was obtained electronically from the legal guardians (mothers) of all pediatric participants through an online consent form embedded within the survey. Where appropriate, children aged 7 years and above were asked to provide verbal or written assent, facilitated by their guardians, to ensure adherence to ethical standards for research involving minors. Participants received a detailed explanation of the study's objectives and procedures in a culturally appropriate manner, and sufficient time was provided to review the information. Confidentiality and privacy were maintained throughout the study. Data were collected solely for research purposes, and participation was entirely voluntary, with participants having the right to withdraw at any time without any consequences.

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Eur Respir J

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. 2025 Feb 27:2402264.

doi: 10.1183/13993003.02264-2024. Online ahead of print.

[What can lockdowns tell us about the underlying causes of asthma exacerbations?
A retrospective cohort study](#)

[Arnaud Bourdin](#)¹, [Erika Nogué](#)², [Eric Matzner-Lober](#)^{3,4}, [Nicolas Malafaye](#)², [Isabelle Vachier](#)⁵, [Sarah Skinner](#)², [Jerry Krishnan](#)⁶, [Nicolas Molinari](#)³

Affiliations Expand

- PMID: 40015749
- DOI: [10.1183/13993003.02264-2024](https://doi.org/10.1183/13993003.02264-2024)

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Curr Opin Allergy Clin Immunol

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. 2025 Feb 28.

doi: 10.1097/ACI.0000000000001067. Online ahead of print.

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

[Baharudin Abdullah](#)¹, [Farah Dayana Zahedi](#)², [Pongsakorn Tantilipikorn](#)³

Affiliations Expand

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

Abstract

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

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

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

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Lung India

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. 2025 Mar 1;42(2):175-176.

doi: 10.4103/lungindia.lungindia_483_24. Epub 2025 Feb 27.

[Effect of long-term inhaled corticosteroids therapy on cognitive function in patients with bronchial asthma and chronic obstructive pulmonary disease](#)

[Swapnil N Deshmukh](#)¹, [Navothna Somireddy](#), [Manosri Mandadi](#)

Affiliations Expand

- PMID: 40013646
- DOI: [10.4103/lungindia.lungindia_483_24](#)

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Allergy Asthma Proc

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. 2025 Mar 1;46(2):105-108.

doi: 10.2500/aap.2025.46.250004.

[Early clinical improvement of anosmia and sinus nitric oxide in chronic rhinosinusitis with nasal polyps subjects treated with dupilumab](#)

[Miguel J Lanz](#), [Claudia P Eisenlohr](#), [Lianet Herrera Cepeda](#)

- PMID: 40011990
- DOI: [10.2500/aap.2025.46.250004](#)

Abstract

Background/Objective: Patients with chronic rhinosinusitis with nasal polyps (CRSwNP) have a high morbidity of anosmia, yet there are few noninvasive biomarkers to measure treatment response. Nitric oxide (NO) is found in the paranasal sinuses at 100 times higher levels than in the lungs and is vital for antimicrobial and/or mucociliary activities and vasodilatory properties. Dupilumab has been shown to improve anosmia in 2 weeks as measured by the University of Pennsylvania Smell Identification Test (UPSIT), 22-item Sinonasal Outcome Test (SNOT-22), and Loss of Smell (LoS) scoring. We examined the use of NO in various collection methods to monitor anosmia improvement with dupilumab treatment. **Methods:** Adults with CRSwNP confirmed by computer tomography or endoscopy consented to receive dupilumab 300 mg every two weeks for 16 weeks. Subjects with polyposis despite treatment with steroids and/or a history of sinus surgery were recruited. Measurements of sinus NO (sNO) from the nostril while humming, nasal NO (nNO) while breath-holding, and fractional exhaled nitric oxide (FeNO) while exhaling were collected at baseline and at 1, 2, 4, 8, 12, 16 weeks. Olfactory impairment was measured by using the UPSIT, SNOT-22, and LoS scoring at every visit. **Results:** Sixteen adults, with a mean (range) age of 43 years (25-53 years) were predominantly women (12/16). Baseline mean (range) sNO values of 434 ppb (203-665 ppb) significantly increased at 2 weeks to a mean (range) of 1150 ppb (684-1616 ppb) ($p < 0.05$). Significant improvements in the UPSIT, SNOT-22, and LoS scores were found at 2 weeks; a weak correlation of the sNO level with the UPSIT and SNOT-22 scores was noted. No significant changes in the FeNO or nNO values were found. Significant improvement was found specifically with anosmia by the end of 2 weeks. **Conclusion:** Our small pilot study revealed increased sNO levels in the sinuses as early as 2 weeks after the initial dupilumab administration. Thus, in patients with CRSwNP without asthma, the sNO value has the potential to be used as a noninvasive, objective biomarker for early treatment improvement in anosmia.

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. 2025 Mar-Apr;39(2):1182-1189.

doi: 10.21873/invivo.13922.

[Chronic Kidney Disease Following Cardiac Arrest Manifesting as Dyspnoea and Peripheral Oedema in Cardiovascular Multimorbidity: Case Analysis and Brief Literature Review](#)

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Affiliations Expand

- PMID: 40010965
- DOI: [10.21873/invivo.13922](#)

Abstract

Background/aim: Chronic kidney disease (CKD) contributes significantly to morbidity, mortality, and healthcare costs. CKD is not only an independent risk factor for cardiovascular disease (CVD) but also a severe complication for patients with CVD, impacting substantially their prognosis and quality of life.

Case report: A 79-year-old male with a complex medical history, including asthma, hypertension, myocardial infarction, ischaemic heart disease, and recent atrial fibrillation, presented with new-onset exertional breathlessness and peripheral

oedema following cardiac arrest and pacemaker insertion. Investigations, including medication reviews conducted shortly after in an outpatient setting, revealed severe renal impairment with creatinine levels at 250 $\mu\text{mol/l}$ (reference range for adult males: 59-104), representing an initial acute kidney injury (AKI) that did not resolve and resulted in the diagnosis of stage 4 CKD (eGFR 25 ml/min/1.73 m²). The patient was treated with furosemide, dapagliflozin, and adjusted doses of ramipril and edoxaban. Following treatment, the patient's symptoms ameliorated and renal function slightly improved (eGFR 27 ml/min/1.73 m²).

Conclusion: This case highlights the importance of individualised treatment for patients with CKD alongside complex cardiovascular multi-morbidity. The administration of dapagliflozin and furosemide, together with careful adjustments to ramipril, were instrumental in stabilising the patient's renal function and alleviating symptoms. This case demonstrates how a multifaceted approach, continuous monitoring, and patient education are essential for achieving optimal outcomes in patients with CKD and cardiovascular comorbidities.

Keywords: AKI; CKD; CVD; Chronic kidney disease; acute kidney injury; cardiac arrest; cardiovascular disease; differential diagnosis; pacemaker; peripheral oedema; shortness of breath.

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Int Arch Allergy Immunol

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. 2025 Feb 26:1-24.

doi: 10.1159/000544872. Online ahead of print.

[Impact of Nasal Glucocorticoid Therapy on Exhaled Nitric Oxide and Symptom Relief in Chronic Rhinosinusitis with Nasal Polyps: A Randomized Prospective Study](#)

[Yizhen Jia](#), [Junhao Tu](#), [Binxiang Tang](#), [Fan Jiang](#), [Qing Luo](#), [Jing Ye](#)

- PMID: 40010321
- DOI: [10.1159/000544872](#)

Abstract

Introduction Chronic Rhinosinusitis with Nasal Polyps (CRSwNP) is a widespread inflammatory disease, classified into Eosinophilic (EosCRSwNP) and non-Eosinophilic (non-EosCRSwNP) types. Nitric oxide (NO) plays a role in pathophysiological processes, with changing levels in airway diseases like asthma and CRS. Intranasal corticosteroids (INCS) are first-line treatments for CRSwNP, providing anti-inflammatory and immunomodulatory effects pre- and post-endoscopic sinus surgery (ESS). This study examines the influence of nasal steroids on nasal exhaled nitric oxide (FnNO) post-ESS in EosCRSwNP and non-EosCRSwNP patients and assesses the prognostic value of FnNO measurement for different CRSwNP types. **Methods** This randomized, open-label, prospective study included 20 healthy controls, 30 EosCRSwNP patients, and 35 non-EosCRSwNP patients. All CRSwNP subjects underwent ESS following FnNO determination. Post-surgery, both endotypes were randomly assigned to nasal steroid or normal saline groups, receiving budesonide spray or saline irrigation for 90 days. FnNO, nasal endoscopy, and VAS scores were assessed on days 15, 45, and 90. **Results** This study found pre-ESS FnNO levels to be lower in CRSwNP patients (181.2 ± 142.0 ppb) compared to controls (330.5 ± 98.7 ppb, $p < 0.001$), and further reduced in non-EosCRSwNP (144.7 ± 91.2 ppb) compared to EosCRSwNP patients (223.3 ± 147.8 ppb, $p < 0.05$). Post-ESS, EosCRSwNP patients responded better to nasal steroids, with FnNO levels returning to normal within 90 days of intervention ($p > 0.05$). No significant correlation was found between post-ESS FnNO levels, changes in Lund-Kennedy endoscopy scores, CT Lund-Mackay paranasal sinus scores, and postoperative prognosis in CRSwNP patients. **Conclusion** The determination of FnNO is helpful for the differential diagnosis of EosCRSwNP, which is more sensitive to nasal spray glucocorticoid, and the use of nasal spray glucocorticoid post-ESS is helpful for early and rapid recovery of FnNO. FnNO measurement could not be used as an indicator to assess the recovery status of the postoperative surgical area.

S. Karger AG, Basel.

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. 2025 Dec;57(1):2470954.

doi: 10.1080/07853890.2025.2470954. Epub 2025 Feb 26.

[Childhood respiratory risk profiles associate with lung function and COPD among the old population](#)

[Chenyuan Qin](#)¹, [Jian Gao](#)², [Xingqiang Sang](#)³, [Min Liu](#)¹, [Jue Liu](#)^{1 4 5 6}

Affiliations Expand

- PMID: 40009521
- PMCID: [PMC11866643](#)
- DOI: [10.1080/07853890.2025.2470954](#)

Abstract

Background: Childhood, often characterized by multiple concurrent risk factors, holds significant influence over long-term respiratory outcomes, with the intricate interplay among these factors representing an intriguing but underexplored avenue for research. We aimed to determine if respiratory risk factors during childhood affect lung function and chronic obstructive pulmonary disease (COPD) in old age.

Methods: Participants were drawn from the Health and Retirement Study cohort. Latent class analysis (LCA) was applied with six variables used to develop the early-life respiratory risk profiles. Linear regressions and logistic regressions were used to assess the associations between childhood respiratory risk profiles and lung function, including peak expiratory flow (PEF) value, PEF value <80% of the predicted value and COPD.

Results: A total of 12,296 participants (5017 males and 7279 females) with an average age of 68 years were recruited. We identified six distinct childhood respiratory risk profiles: (1) 'Asthma and respiratory disorders in early childhood' ($n = 241$, 1.96%), (2) 'Unexposed or least exposed' ($n = 3874$, 31.51%), (3) 'Smokers at home' ($n = 7609$, 61.88%), (4) 'Ear problems and respiratory disorders in early childhood' ($n = 162$, 1.32%), (5) 'Allergic conditions and respiratory disorders in early childhood' ($n = 220$, 1.79%) and (6) 'Allergic conditions and respiratory disorders in later childhood' ($n = 190$, 1.55%). Profile 2 served as the reference. The

highest reduction of PEF was seen for profile 1 (-30.07 L/min), followed by profile 6 (-22.24 L/min) and profile 5 (-18.47 L/min). Profile 6, profile 3 and profile 1 related to 1.98-, 1.52- and 1.66-fold increased risks of diminished PEF values, respectively. The highest risk of COPD was observed in profile 5 (aOR = 4.16, 95% CI: 3.75-4.57), followed by profile 6 (aOR = 4.10, 3.69-4.51), profile 4 (aOR = 3.70, 3.25-4.15), profile 1 (aOR = 3.46, 3.07-3.85) and profile 3 (aOR = 1.41, 1.25-1.57).

Conclusions: People exposed to early-life respiratory challenges experienced larger declines in lung function and increased risks of COPD later in life. Our findings underscore the importance of early-life respiratory health in shaping lung function trajectories.

Keywords: COPD; Respiratory risk; latent class analysis; lung function; old people; peak expiratory flow.

Conflict of interest statement

No potential conflict of interest was reported by the author(s).

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

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Immunol Rev

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. 2025 Mar;330(1):e70011.

doi: 10.1111/imr.70011.

[T1-T2 Interplay in the Complex Immune Landscape of Severe Asthma](#)

[Marc Gauthier](#)¹, [Sagar L Kale](#)¹, [Anuradha Ray](#)^{1,2}

Affiliations Expand

- PMID: 39991821
- PMCID: [PMC11849004](#)
- DOI: [10.1111/imr.70011](#)

Abstract

Asthma is orchestrated by an aberrant immune response involving a complex interplay between multiple inflammatory cell types. An increase in Th2 cells in the asthmatic airway is a hallmark of asthma, and biologics blocking their effector functions have been life-changing for many severe asthma patients who poorly respond to immunosuppression by corticosteroids. However, studies in the past decade have highlighted not only other cell types that also produce Th2 cytokines boosting the Type 2/T2 phenotype but also a heightened IFN- γ response, primarily from T cells, referred to as a Type 1/T1 immune response. Data derived from studies of immune cells in the airways and mouse models of severe asthma suggest a role of IFN- γ in corticosteroid resistance, airway hyperreactivity, and also airway remodeling via effects on other cell types including mast cells, eosinophils, airway epithelial cells, and airway smooth muscle cells. The simultaneous presence of T1 and T2 immune responses is detectable in the sickest of asthma patients in whom corticosteroids suppress the T2 but not the T1 response. This article has reviewed our current understanding of the complex T1-T2 interplay in severe asthma highlighting mediators that impact both arms which may be targeted alone or in combination for disease alleviation.

Keywords: immune response; severe asthma; type 1; type 2.

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Conflict of interest statement

Anuradha Ray completed a speaker agreement with Regeneron Pharmaceuticals. Marc Gauthier is a Principal Investigator of a study sponsored by Regeneron Pharmaceuticals.

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

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. 2025 Mar;330(1):e70007.

doi: 10.1111/imr.70007.

[Integrative Roles of Pro-Inflammatory Cytokines on Airway Smooth Muscle Structure and Function in Asthma](#)

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Affiliations Expand

- PMID: 39991781
- PMCID: [PMC11848829](#)
- DOI: [10.1111/imr.70007](#)

Abstract

Asthma has become more appreciated for its heterogeneity with studies identifying type 2 and non-type 2 phenotypes/endotypes that ultimately lead to airflow obstruction, airway hyperresponsiveness, and remodeling. The pro-inflammatory environment in asthma influences airway smooth muscle (ASM) structure and function. ASM has a vast repertoire of inflammatory receptors that, upon activation, contribute to prominent features in asthma, notably immune cell recruitment and activation, hypercontractility, proliferation, migration, and extracellular matrix protein deposition. These pro-inflammatory responses in ASM can be mediated by both type 2 (e.g., IL-4, IL-13, and TSLP) and non-type 2 (e.g., TNF α , IFN γ , IL-17A, and

TGFβ) cytokines, highlighting roles for ASM in type 2 and non-type 2 asthma phenotypes/endotypes. In recent years, there has been considerable advances in understanding how pro-inflammatory cytokines promote ASM dysfunction and impair responsiveness to asthma therapy, corticosteroids and long-acting β2-adrenergic receptor agonists (LABAs). Transcriptomic analyses on human ASM cells and tissues have expanded our knowledge in this area but have also raised new questions regarding ASM and its role in asthma. In this review, we discuss how pro-inflammatory cytokines, corticosteroids, and LABAs affect ASM structure and function, with particular focus on changes in gene expression and transcriptional programs in type 2 and non-type 2 asthma.

Keywords: airway inflammation; airway smooth muscle; asthma; corticosteroids; long-acting β2-AR agonists.

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Conflict of interest statement

The authors declare no conflicts of interest.

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- [4 figures](#)

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Lancet Child Adolesc Health

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. 2025 Mar;9(3):172-183.

doi: 10.1016/S2352-4642(25)00001-X.

[Trajectories of airflow limitation from childhood to early adulthood: an analysis of six population-based birth cohorts](#)

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- DOI: [10.1016/S2352-4642\(25\)00001-X](https://doi.org/10.1016/S2352-4642(25)00001-X)

Free article

Abstract

Background: Lung function during childhood is an important predictor of subsequent health and disease. Understanding patterns of lung function and development of airflow limitation through childhood is necessary to inform lung function trajectories in relation to health and chronic airway disease. We aimed to derive trajectories of airflow limitation from childhood (age 5-8 years) into early adulthood (age 20-26 years) using repeated spirometry data from birth cohorts.

Methods: In this study, we drew forced expiratory volume in 1 s (FEV₁) and forced vital capacity (FVC) data from six population-based birth cohorts: the UK-based Avon Longitudinal Study of Parents and Children (ALSPAC), Isle of Wight cohort (IOW), Manchester Asthma and Allergy Study (MAAS), and Aberdeen Study of Eczema and Asthma (SEATON) as well as the Swedish Child (Barn), Allergy, Milieu, Stockholm, Epidemiological survey (BAMSE) and the Dutch Prevention and Incidence of Asthma and Mite Allergy (PIAMA) cohort. For the discovery analysis, we pooled data from ALSPAC, IOW, MAAS, and BAMSE with spirometry data recorded at middle childhood (age 8-10 years), adolescence (age 15-18 years), and early adulthood (age 20-26 years). For the replication analysis, we pooled middle childhood and adolescence spirometry data from PIAMA and SEATON. We used latent class trajectory modelling to derive trajectory classes based on joint modelling of FEV₁ and FEV₁/FVC ratio regression residuals ascertained from all age groups. The final model was selected using the lowest Bayesian information criterion. Participants were assigned to the trajectory with the highest posterior probability. Weighted random-effect multinomial logistic regression models were used to investigate factors associated with joining each trajectory, the results of which are reported as relative risk ratios (RRRs) with 95% CIs.

Findings: The discovery population included 8114 participants: 4710 from ALSPAC, 808 from IOW, 586 from MAAS, and 2010 from BAMSE and was modelled into one of four lung function trajectories that showed normal airflow (6555 [80.8%] of 8114 people), persistent airflow obstruction (1280 [15.8%]), worsening airflow obstruction (161 [2.0%]), and improved airflow obstruction (118 [1.5%]). Both improvement in and worsening airflow obstruction by early adulthood were seen from all initial severity levels. Whereas improvement in airflow obstruction was more prominent between middle childhood and adolescence (57.8%) than between adolescence and early adulthood (13.4%), worsening airflow obstruction was more prominent

between adolescence and early adulthood (61.5%) than between middle childhood and adolescence (32.6%). Among current wheezers, higher BMI was associated with a lower relative risk of joining the trajectory with improvement in airflow obstruction (RRR 0.69 [95% CI 0.49-0.95]), whereas among non-wheezers, higher BMI increased the relative risk of being in the improved airflow obstruction trajectory (1.38 [1.04-1.85]). A higher BMI at first lung function assessment was associated with a higher relative risk of joining the trajectory for improvement in airflow obstruction trajectory in participants with low birthweight and no current asthma diagnosis (RRR 2.44 [1.17-5.12]); by contrast, higher BMI is associated with a lower relative risk of joining the trajectory with improvement in airflow obstruction among those with low birthweight and current asthma diagnosis (0.37 [0.18-0.76]). Results in replication cohorts (n=1337) were consistent with those in the discovery cohort.

Interpretation: Worsening and improvement in airflow limitation from school age to adulthood might occur at all ages and all airflow obstruction severity levels. Interventions to optimise healthy weight, including tackling overweight and obesity (particularly among children with wheezing) as well as treating underweight among non-wheezers, could help to improve lung health across the lifespan.

Funding: UK Medical Research Council and CADSET European Respiratory Society Clinical Research Collaboration.

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Conflict of interest statement

Declaration of interests AC reports personal fees from Sanofi, La Roche-Posay, and Reacta Healthcare. EM has received consulting fees from ALK and AstraZeneca and lecture fees from ALK, AstraZeneca, Chiesi, and Sanofi. GHK reports grant support from the Netherlands Lung Foundation, TEVA the Netherlands, GSK, Vertex, Ubbo Emmius Foundation, the EU (H2020), and Zon-MW and lecture and advisory fees from GSK, AstraZeneca, and Pure-IM, paid to their institution. AA reports research grants, consulting fees, and lecture honoraria from GlaxoSmithKline, AstraZeneca, Menarini, Chiesi, and Sanofi and unpaid roles as Chair of the Board of Directors of GOLD and co-chair of CADSET. RF reports grants, paid to her institution, for research projects from ISC-III, AstraZeneca, GSK, and Menarini; fees for participation in the Novelty study scientific community and for being co-chair from AstraZeneca; and fees for speaking at symposiums from AstraZeneca and Chiesi. JAW report grants from Astra Zeneca, Boehringer, Chiesi, GSK, Novartis, Genentech, and 37Clinical, paid to her institution; fees for advisory boards from AstraZeneca, Epiendo, GSK, Gilead, Novartis, Pieris, Pulmatrix, and Empiricio; and speaker fees from AstraZeneca, GSK, Boehringer, Recipharm, and Novartis. GR reports funding, paid to his institution, from the Medical Research Council and follow-up funding for the Isle of Wight birth cohort from David Hide Asthma & Allergy Research Centre. AS reports grants or contracts from the UK National Institute for Health and Care Research and JP Muton Charitable Foundation, paid to her institution. JWH reports grants from the Medical Research Council UK, paid to their institution. All other authors declare no competing interests.

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Review

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. 2025 Mar;22(3):211-242.

doi: 10.1038/s41423-025-01261-2. Epub 2025 Feb 17.

[Type 2 immunity in allergic diseases](#)

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- DOI: [10.1038/s41423-025-01261-2](https://doi.org/10.1038/s41423-025-01261-2)

Abstract

Significant advancements have been made in understanding the cellular and molecular mechanisms of type 2 immunity in allergic diseases such as asthma, allergic rhinitis, chronic rhinosinusitis, eosinophilic esophagitis (EoE), food and drug allergies, and atopic dermatitis (AD). Type 2 immunity has evolved to protect against parasitic diseases and toxins, plays a role in the expulsion of parasites and larvae from inner tissues to the lumen and outside the body, maintains microbe-rich

skin and mucosal epithelial barriers and counterbalances the type 1 immune response and its destructive effects. During the development of a type 2 immune response, an innate immune response initiates starting from epithelial cells and innate lymphoid cells (ILCs), including dendritic cells and macrophages, and translates to adaptive T and B-cell immunity, particularly IgE antibody production. Eosinophils, mast cells and basophils have effects on effector functions. Cytokines from ILC2s and CD4+ helper type 2 (Th2) cells, CD8 + T cells, and NK-T cells, along with myeloid cells, including IL-4, IL-5, IL-9, and IL-13, initiate and sustain allergic inflammation via T cell cells, eosinophils, and ILC2s; promote IgE class switching; and open the epithelial barrier. Epithelial cell activation, alarmin release and barrier dysfunction are key in the development of not only allergic diseases but also many other systemic diseases. Recent biologics targeting the pathways and effector functions of IL4/IL13, IL-5, and IgE have shown promising results for almost all ages, although some patients with severe allergic diseases do not respond to these therapies, highlighting the unmet need for a more detailed and personalized approach.

Keywords: Alarmins; allergic diseases; biologics; epithelial barrier; type 2 immunity.

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Conflict of interest statement

Competing interests: S.S. is currently a salaried employee of Seed Health, a probiotic retailer. R.D. is a cofounder and CEO in Seed Health. W.V. has received research grants from PROMEDICA Stiftung, Switzerland, and EoE Stiftung, Switzerland, and consulting fees from Mabyllon AG, Switzerland. M.S. has received research grants from the Swiss National Science Foundation (SNSF nr 310030_189334/1 and 320030E_224154), GSK, Novartis, Stiftung vorm. Bündner Heilstätte Arosa, Thermofisher and OM Pharma, speaker's fee from AstraZeneca and consults for Roche. She is a member-at-large of the European Academy of Allergy and Clinical Immunology (EAACI) and EAACI Educational Events Committee Chair. O.P. received research grants from MINECO, Ministerio de Ciencia e Innovación, CAM, Inmunotek S.L., Novartis, and AstraZeneca and fees for giving scientific lectures or participation in Advisory Boards from AstraZeneca, Pfizer, GlaxoSmithKline, Inmunotek S.L., Novartis and Sanofi-Genzyme. K.C.N. reports grants from the National Institute of Allergy and Infectious Diseases (NIAID), National Heart, Lung, and Blood Institute (NHLBI), and from the National Institute of Environmental Health Sciences (NIEHS), other from the Immune Tolerance Network (ITN), other from National Institutes of Health (NIH) clinical research centers, during the conduct of the study; other from IgGenix, other from Seed Health, other from ClostraBio, other from Cour, other from Alladapt, other from Excellergy, other from Red Tree Ventures, other from Regeneron, other from Latitude, outside the submitted work. In addition, K.C.N. has the following patents: "Mixed allergen composition and methods for using the same", "Granulocyte-based methods for detecting and monitoring immune system disorders", and "Methods and Assays for Detecting and Quantifying Pure Subpopulations of White Blood Cells in Immune System Disorders". M.A. has received research grants from the Swiss National Science Foundation, Bern; research grants from Stanford University; Leading House for the Latin American Region; and Seed Money Grants. She is a Scientific Advisory Board member of Stanford University-Sean Parker Asthma Allergy Center,

CA; an Advisory Board member of the LEO Foundation Skin Immunology Research Center, Copenhagen; and a Scientific Co-Chair of the World Allergy Congress (WAC) Istanbul, 2022, Scientific Programme Committee Chair, EAACI. C.A.A. has received research grants from the Swiss National Science Foundation, European Union (EU CURE, EU Syn-Air-G), Novartis Research Institutes (Basel, Switzerland), Stanford University (Redwood City, Calif), Seed Health (Boston, USA), AO Research Institute (Davos, Switzerland) and SciBase (Stockholm, Sweden). He is the cochair for the EAACI Guidelines on Environmental Science in Allergic Diseases and Asthma; Chair of the EAACI Epithelial Cell Biology Working Group. Serves on the Advisory Boards of Sanofi/Regeneron (Bern, Switzerland, New York, USA), Stanford University Sean Parker Asthma Allergy Center (CA, USA), Novartis (Basel, Switzerland), GlaxoSmithKline (Zurich, Switzerland), Bristol-Myers Squibb (New York, USA), Seed Health (Boston, USA) and SciBase (Stockholm, Sweden). C.A.A. is the Editor-in-Chief of Allergy. I.O., Y.M., D.Y., Y.P., S.A., M.L., P.D'A., C.B., H.B., B.Z., C.Z., O.G.V., O.A., A.K., A.G.-S., J.-F.L., L.S., M.Y., S.R.S., U.R., A.J.K., M.B.I, and M.M.-F. declare no relevant conflicts of interest.

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Review

Respir Med

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. 2025 Mar:238:107962.

doi: 10.1016/j.rmed.2025.107962. Epub 2025 Feb 5.

[Local and systemic adverse effects of inhaled corticosteroids - Does ciclesonide differ from other inhaled corticosteroids?](#)

[Thera Gram Ottesen](#)¹, [Alma Holm Rovsing](#)¹, [Charlotte Suppli Ulrik](#)²

Affiliations Expand

- PMID: 39921068
- DOI: [10.1016/j.rmed.2025.107962](https://doi.org/10.1016/j.rmed.2025.107962)

Free article

Abstract

Background and aim: The pharmacological profile of ciclesonide suggests that it may be associated with fewer local and systemic adverse effects compared to other inhaled corticosteroids. The aim of this systematic review is to provide an update on the current evidence of the local and systemic adverse effects of ciclesonide for the treatment of asthma compared to other inhaled corticosteroids.

Methods: Systematic review performed in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses-guidelines. The search was last updated in September 2024. The search algorithm consisted of the following Medical Subject Headings (MeSH) terms: (ciclesonide) AND (asthma).

Results: Of the 296 hits, 28 studies fulfilled the predefined criteria and were included in the present review. A total of 15 out of 25 studies addressing local adverse effects showed insignificant differences between ciclesonide and the comparative inhaled corticosteroid. Of these 15 studies, 13 were randomized controlled trials (RCTs). Seven RCTs reported a reduced risk of local adverse effects associated with ciclesonide-treatment. One observational study found ciclesonide treated patients more likely to have been treated for oropharyngeal candidiasis compared to patients treated with another inhaled corticosteroid. Twelve studies investigated systemic adverse effects of CIC vs. other inhaled corticosteroid. Of the nine trials measuring urine cortisol suppression compared to baseline, seven found no suppression in the ciclesonide treated groups in contrast to a significant suppression in the comparative inhaled corticosteroid treated groups. On the contrary, two trials found no suppression in either treatment group. Two of three studies assessing HPA-axis function by plasma cortisol response to corticotropin-releasing factor reported no difference between ciclesonide and fluticasone propionate, whereas one found significantly reduced response with fluticasone treatment, but not with ciclesonide. One study assessed the risk of developing signs of cataract and found no significant difference between ciclesonide and other inhaled corticosteroids, and another investigated patient reported adverse effects and found superiority in CIC to FP in terms of reducing "vision deterioration".

Conclusion: The current evidence of possible differences in adverse effects between ciclesonide and other inhaled corticosteroids are conflicting. However, there is some evidence in favor of fewer local adverse effects in ciclesonide treated patients and, additionally, ciclesonide treatment is either more favorable or similar to other inhaled corticosteroids with regard to systemic adverse effects.

Keywords: Asthma; Ciclesonide; Inhaled corticosteroids; Local adverse effects; Safety; Systemic adverse effects.

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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: TGO and AHR have no conflicts of interest to report. CSU has received fees for talks, advisory boards etc. from AstraZeneca, GSK, Sanofi, Chiesi, TEVA, Boehringer Ingelheim, Pfizer, Roche, Hikma Pharmaceuticals, Covis Pharma, Takeda, TFF Pharmaceuticals, Orion Pharma, Regeneron, IQVIA, Novartis, Novo Nordisk and Berlin Chemie outside the submitted work.

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Randomized Controlled Trial

Respir Med

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. 2025 Mar:238:107966.

doi: 10.1016/j.rmed.2025.107966. Epub 2025 Jan 28.

[Comparing mesh and compressor nebulizers in pulmonary function test in pediatric asthma attacks: A double-blind randomized comparative clinical trial](#)

[Berker Okay¹](#), [Halil Ugur Hatipoglu²](#), [Zeynep Uze Okay²](#), [Kamil Sahin²](#), [Adem Yasar³](#)

Affiliations Expand

- PMID: 39884589
- DOI: [10.1016/j.rmed.2025.107966](https://doi.org/10.1016/j.rmed.2025.107966)

Abstract

Objective: Asthma is a prevalent global health issue, especially affecting children in numerous countries. Our study aimed to determine the most effective nebulizer type by comparing the effects of mesh nebulizers (MNs) and compressor nebulizers (CNs) on spirometry tests in pediatric asthma attacks.

Methods: The prospective, double-blind, randomized comparative study was conducted with patients aged 7-15 presenting with asthma attacks. The participating patients were divided into two groups by randomization: those using CNs and those using MNs. A pulmonary function test was performed before and after giving the patients three doses of salbutamol inhaler at 20-minute intervals, and changes in the test were recorded.

Results: The increase in peripheral oxygen saturation was higher in the MN group, although this difference was not statistically significant ($p = 0.391$). However, statistically significant differences were observed in the decrease in respiratory rate (RR;/min; $p = 0.002$) and the increase in heart rate (/min; $p = 0.022$). The respiratory function test indicated a higher change in forced vital capacity (FVC) and peak expiratory flow in the MN group than the CN group, although this difference was not statistically significant ($p = 0.258$ and 0.256). However, statistically significant changes were observed in the forced expiratory volume in 1 second (FEV1) and forced expiratory flow at 25%-75% of FVC (FEF25-75; $p = 0.001$ and 0.043).

Conclusion: MNs show superior improvement in vital signs and pulmonary function, particularly in RR, FEV1, and FEF25-75. MNs may be preferred for more effective treatment despite heart rate elevation.

Keywords: Asthma; Child; Nebulizers; Pulmonary function test.

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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 article.

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Pulm Ther

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. 2025 Mar;11(1):81-100.

doi: 10.1007/s41030-024-00285-9. Epub 2025 Jan 27.

[Retrospective Cohort Study of Elderly Users of Single- or Multiple-Inhaler Triple Therapy for the Treatment of Asthma in the USA](#)

[Russell A Settipane¹](#), [Guillaume Germain²](#), [Francois Laliberté²](#), [Malena Mahendran²](#), [Annalise Hilts²](#), [Mei Sheng Duh³](#), [Rosirene Paczkowski⁴](#), [Emmeline Burrows⁵](#)

Affiliations Expand

- PMID: 39869154
- PMCID: [PMC11861473](#)
- DOI: [10.1007/s41030-024-00285-9](#)

Abstract

Introduction: Escalation to single- or multiple-inhaler triple therapy (SITT; MITT) is a recommended option for patients with asthma who remain uncontrolled by medium-dose inhaled corticosteroid/long-acting β_2 -agonist; however, characterization of elderly users of triple therapy is limited. This real-world cohort study describes demographics and clinical characteristics of elderly patients with asthma with and without comorbid chronic obstructive pulmonary disease (COPD) who are new users of triple therapy, and asthma treatment patterns preceding triple therapy initiation.

Methods: This retrospective cohort study used administrative claims data from the Optum Clinformatics Data Mart database. Eligible patients were ≥ 65 years of age with asthma or with asthma and comorbid COPD who initiated either triple therapy with single-inhaler fluticasone furoate/umeclidinium/vilanterol (FF/UMEC/VI; 100/62.5/25 μg) or MITT between September 18, 2017 and September 30, 2020. Demographics, clinical characteristics, healthcare resource utilization, healthcare costs, and asthma treatment patterns were described in the 12-month period before triple therapy initiation (baseline period).

Results: In total, 15,557 patients were included. Among FF/UMEC/VI initiators with asthma (N = 635) mean age was 73.3 years and 66.6% were female. During the baseline period, > 75% of patients used controller therapy, > 92% used rescue medications, 27.9% experienced ≥ 1 asthma-related exacerbation, with mean annual exacerbation rate of 0.42, and mean all-cause healthcare costs were \$23,407. Patients with asthma initiating MITT and patients with asthma and comorbid COPD initiating FF/UMEC/VI or MITT had similar characteristics, healthcare resource utilization, healthcare costs, and asthma treatment patterns to FF/UMEC/VI initiators with asthma.

Conclusions: Triple therapy is often initiated following use of other asthma controller medications in real-world practice. Substantial rescue medication use and high disease and economic burden among this elderly patient population suggest that their asthma was not adequately controlled prior to triple therapy initiation. This retrospective study provides an early profile of elderly patients with asthma in the USA.

Keywords: Asthma treatment pattern; Elderly patients with asthma; Elderly patients with asthma and comorbid COPD; Fluticasone furoate/umeclidinium/vilanterol; Multiple-inhaler triple therapy; Real-world study; Single-inhaler triple therapy.

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Conflict of interest statement

Declarations. Conflict of Interest: Russell A. Settipane has received compensation from GSK for speaking, advisory board services, and serving as an independent contractor for clinical trial research. Guillaume Germain, Francois Laliberté, Malena Mahendran, Annalise Hilts, and Mei Sheng Duh are employees of Analysis Group, Inc., a consulting company that received research funds from GSK to conduct this study. Rosirene Paczkowski and Emmeline Burrows are employed by GSK and hold financial equities in GSK. ELLIPTA and DISKUS are owned by or licensed to the GSK Group of companies. Clinformatics is a trademark of OptumInsight, Inc. **Ethical Approval:** This study complied with all applicable laws regarding subject privacy. No direct subject contact or primary collection of individual human subject data occurred. Study results were in tabular form and aggregate analyses that omit subject identification; therefore informed consent and ethics committee or institutional review board approval are not required. Any publications and reports will not include subject identifiers. Furthermore, this study used de-identified data that complied with the requirements of the Health Insurance Portability and Accountability Act (HIPAA).

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- [4 figures](#)

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Review

Respir Med

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. 2025 Mar:238:107957.

doi: 10.1016/j.rmed.2025.107957. Epub 2025 Jan 21.

[Challenges in treating patients with comorbid asthma and bronchiectasis](#)

[Mario Cazzola](#)¹, [Luigino Calzetta](#)², [Maria Gabriella Matera](#)³, [Paola Rogliani](#)⁴, [Vincenzo Patella](#)⁵

Affiliations Expand

- PMID: 39848410
- DOI: [10.1016/j.rmed.2025.107957](https://doi.org/10.1016/j.rmed.2025.107957)

Free article

Abstract

The management of patients with overlapping asthma and bronchiectasis requires a tailored approach, starting with a comprehensive assessment of the patient's clinical profile, including the severity of asthma and the extent of bronchiectasis. Inhaled corticosteroids (ICS) are often recommended, but their use should be carefully monitored because of the risk of increased infection. If asthma is well controlled and bronchiectasis remains stable, a gradual reduction in the dose of ICS may be considered. Adjunctive therapies such as macrolides, which have anti-inflammatory and antimicrobial effects, or leukotriene receptor antagonists (LTRAs) may be beneficial. However, LTRAs should be used with caution in patients with bronchiectasis. Long-acting muscarinic antagonists (LAMA), especially in combination with ICS and long-acting beta-agonists (LABA), can improve bronchodilation and reduce inflammation. Although triple therapy (ICS/LABA/LAMA) is promising, its efficacy in bronchiectasis has not yet been confirmed by randomised controlled trials (RCTs). Ongoing monitoring is essential to adjust treatment as the patient's condition evolves. Preventive measures, including vaccination and regular sputum cultures, are important to minimize the risk of infection. Further research and RCTs are needed to better understand the role of

dual bronchodilators and triple therapy in the management of overlapping asthma-bronchiectasis.

Keywords: Asthma; Bronchiectasis; Overlap; Treatment.

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Conflict of interest statement

Declaration of competing interest We have no relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript. This includes employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties. Furthermore, we declare that this manuscript was not funded/sponsored, and no writing assistance was utilised in its production.

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Clin Ther

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. 2025 Mar;47(3):226-234.

doi: 10.1016/j.clinthera.2024.12.001. Epub 2025 Jan 4.

[Meta-Analysis of Randomized, Controlled Trials Assessing the Effectiveness and Safety of Biological Treatments in Chronic Obstructive Pulmonary Disease Patients](#)

[Khai-Chi Hu¹, Min-Hsiang Chuang², Chih-Cheng Lai³, Kuang-Ming Liao⁴](#)

Affiliations Expand

- PMID: 39757036
- DOI: [10.1016/j.clinthera.2024.12.001](https://doi.org/10.1016/j.clinthera.2024.12.001)

Free article

Abstract

Anti-interleukin-5 (IL-5), anti-IL-5 receptor and anti-interleukin-4 (IL-4) have emerged as potential treatments for severe eosinophilic asthma, yet their role in treating chronic obstructive pulmonary disease (COPD) is unclear. A literature review was conducted up to May 31, 2024. Only randomized controlled trials (RCTs) assessing the clinical efficacy and adverse effects of biological treatment (anti-IL-5/ anti-IL-5 receptor /anti-IL-4) in COPD patients were included in this meta-analysis. Primary outcomes focused on COPD exacerbation risk, with secondary outcomes examining lung function, quality of life, and adverse events. Four articles comprising 6 RCTs were analyzed. Among 2837 patients receiving anti-IL-5/anti-IL-5 receptor therapies, 468 receiving anti-IL-4 therapies, and 1913 receiving placebo. Overall, biological treatment therapies collectively demonstrated a reduced risk of COPD exacerbation compared to placebo (rate ratio, 0.88; 95% CI, 0.80-0.97, $I^2 = 53%$). Specifically, dupilumab statistically significant reduction in exacerbation risk (rate ratio 0.70, 95% CI 0.58-0.84). Benralizumab showed a borderline reduction in exacerbation risk (rate ratio, 0.92; 95% CI, 0.85-1.00, $I^2 = 0%$, while Mepolizumab exhibited a trend towards lower exacerbation risk that did not reach statistical significance (rate ratio 0.90, 95% CI 0.77-1.06, $I^2 = 62%$). Subgroup analysis showed that patients with COPD and eosinophils ≥ 300 per cubic millimeter who received biological treatment may experience a reduced risk of acute exacerbation. Changes in lung function from baseline did not significantly differ between biological therapies and placebo. Analysis of St. George's Respiratory Questionnaire (SGRQ) scores indicated significant improvements with biological therapies compared to placebo (mean difference -1.30, 95% CI -2.46 to -0.14, $I^2 = 28%$). Biological therapies showed comparable risks of adverse events compared to placebo. This meta-analysis suggests that biological therapies may reduce the risk of acute exacerbations and improve quality of life in COPD patients compared to placebo. However, these therapies did not demonstrate significant improvements in pulmonary function. Future studies are needed to delineate the role of these biologic therapies in managing COPD exacerbations.

Keywords: Benralizumab; Biological treatments; Chronic obstructive pulmonary disease; Dupilumab; Mepolizumab.

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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: Kuang-Ming Liao reports article publishing charges was provided by Chi Mei Medical Center, Chiali. Kuang-Ming Liao reports a relationship with Chi Mei Medical Center, Chiali that includes: employment. If there are other authors, they 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 Mar;211(3):530.

doi: 10.1164/rccm.202411-2236LE.

[Limitations in the Study of Vitamin D Supplementation and Severe Asthma Exacerbations](#)

[Kuan-Po Cheng](#)¹, [James Cheng-Chung Wei](#)^{2 3 4 5}

Affiliations Expand

- PMID: 39680958
- DOI: [10.1164/rccm.202411-2236LE](https://doi.org/10.1164/rccm.202411-2236LE)

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. 2025 Mar;211(3):531-532.

doi: 10.1164/rccm.202411-2311LE.

[Reply to Cheng and Wei: Limitations in the Study of Vitamin D Supplementation and Severe Asthma Exacerbations](#)

[Franziska J Rosser](#)¹, [Yueh-Ying Han](#)¹, [Juan C Celedón](#)¹

Affiliations Expand

- PMID: 39680956
- DOI: [10.1164/rccm.202411-2311LE](https://doi.org/10.1164/rccm.202411-2311LE)

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. 2025 Mar;11(1):7-24.

doi: 10.1007/s41030-024-00280-0. Epub 2024 Dec 11.

[Eosinophilic Chronic Obstructive Pulmonary Disease. What Do We Know So Far?](#)

[Konstantinos Bartziokas](#)¹, [Andriana I Papaioannou](#)², [Nikoletta Rovina](#)², [Georgia Papaiakevou](#)³, [Stelios Loukides](#)⁴, [Paschalis Steiropoulos](#)⁵

Affiliations Expand

- PMID: 39661227
- PMCID: [PMC11861475](#)
- DOI: [10.1007/s41030-024-00280-0](#)

Abstract

The latest advances in asthma treatment have highlighted the significance of eosinophilia and the possible role of some pro-eosinophilic mediators, like interleukins (IL) IL-5, IL-4/IL-13, and IL-33 in the disease's pathogenesis. Considering that a subgroup of patients with chronic obstructive pulmonary disease (COPD) may have blood eosinophilia akin to that seen in asthma, numerous studies in the last decade have suggested that eosinophilic COPD is a separate entity. While the exact role of blood eosinophils in the pathophysiology of COPD remains unclear, eosinophilia seems to increase the effectiveness of corticosteroid therapy. Currently, monoclonal antibodies targeting the interleukins (IL-5, IL-4, IL-13, and IL-33) or their receptors are being investigated in patients with COPD belonging in T2-high endotype. This review focuses on the mechanisms of eosinophilia in COPD, the effects of eosinophilia on disease outcome, and examines the most recent data on the use of peripheral blood eosinophilia in treating patients with COPD. Finally, we emphasize the current implication of monoclonal antibodies in COPD in the context of eosinophilic airway inflammation.

Keywords: COPD; Corticosteroid; Eosinophils; Exacerbations; Monoclonal antibodies.

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Conflict of interest statement

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Comparative Study

Am J Respir Crit Care Med

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. 2025 Mar;211(3):464-476.

doi: 10.1164/rccm.202407-1288OC.

[Comparison of Race-Neutral versus Race-Specific Spirometry Equations for Evaluation of Child Asthma](#)

[Amy L Non](#)¹, [Xiuhong Li](#)², [Miranda R Jones](#)², [Emily Oken](#)³, [Tina Hartert](#)⁴, [Nathan Schoettler](#)⁵, [Diane R Gold](#)^{6,7,8}, [Sima Ramratnam](#)⁹, [Eric M Schauburger](#)⁹, [Kelan Tantisira](#)¹⁰, [Leonard B Bacharier](#)¹¹, [Douglas J Conrad](#)¹², [Kecia N Carroll](#)¹³, [Flory L Nkoy](#)¹⁴, [Heike Luttmann-Gibson](#)⁶, [Frank D Gilliland](#)¹⁵, [Carrie V Breton](#)¹⁵, [Meyer Kattan](#)¹⁶, [Robert F Lemanske Jr](#)⁹, [Augusto A Litonjua](#)¹⁷, [Cynthia T McEvoy](#)¹⁸, [Katherine Rivera-Spoljaric](#)¹⁹, [Christian Rosas-Salazar](#)²⁰, [Christine L M Joseph](#)^{21,22}, [Meredith Palmore](#)², [Patrick H Ryan](#)^{23,24}, [Alexandra R Sitarik](#)^{21,22}, [Anne Marie Singh](#)⁹, [Rachel L Miller](#)²⁵, [Edward M Zoratti](#)²⁶, [Dennis Ownby](#)²⁷, [Carlos A Camargo Jr](#)²⁸, [Judy L Aschner](#)^{29,30}, [Annemarie Stroustrup](#)³¹, [Shohreh F Farzan](#)¹⁵, [Margaret R Karagas](#)³², [Daniel J Jackson](#)⁹, [James E Gern](#)⁹

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- PMID: 39642347

- DOI: [10.1164/rccm.202407-1288OC](https://doi.org/10.1164/rccm.202407-1288OC)

Abstract

Rationale: Race-based estimates of pulmonary function in children could influence the evaluation of asthma in children from racial and ethnic minoritized backgrounds. **Objectives:** To determine if race-neutral (Global Lung Function Initiative [GLI]-Global) versus race-specific (GLI-Race-Specific) reference equations differentially impact spirometry evaluation of childhood asthma. **Methods:** The analysis included 8,719 children aged 5 to <12 years from 27 cohorts across the United States grouped by parent-reported race and ethnicity. We analyzed how the equations affected FEV₁, FVC, and FEV₁/FVC z-scores. We used multivariable logistic models to evaluate associations between z-scores calculated with different equations and asthma diagnosis, emergency department visits, and hospitalization. **Measurements and Main Results:** For Black children, the GLI-Global versus GLI-Race-Specific equations estimated significantly lower z-scores for FEV₁ and FVC but similar values for FEV₁/FVC, thus increasing the proportion of children classified with low FEV₁ by 14%. Although both equations yielded strong inverse relationships between FEV₁ and FEV₁/FVC z-scores and asthma outcomes, these relationships varied across racial and ethnic groups ($P < 0.05$). For any given FEV₁ or FEV₁/FVC z-score, asthma diagnosis and emergency department visits were higher among Black and Hispanic than among White children ($P < 0.05$). For FEV₁, GLI-Global equations estimated asthma outcomes that were more uniform across racial and ethnic groups. **Conclusions:** Parent-reported race and ethnicity influenced relationships between lung function and asthma outcomes. Our data show no advantage to race-specific equations for evaluating childhood asthma, and the potential for race-specific equations to obscure lung impairment in disadvantaged children strongly supports using race-neutral equations.

Keywords: asthma; children; race and ethnicity; spirometry.

Comment in

- [Moving Away from Segregated Lung Function Equations: Effects of Transitioning to Race-Neutral References in Children.](#)

Krupp NL, Forno E. *Am J Respir Crit Care Med.* 2025 Mar;211(3):424-425. doi: 10.1164/rccm.202412-2473ED. PMID: 39879548 No abstract available.

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. 2025 Mar 1;31(2):106-116.

doi: 10.1097/MCP.0000000000001142. Epub 2024 Nov 28.

[Food for thought: optimal diet in patients with asthma and chronic obstructive pulmonary disease](#)

[Motahareh Vameghestahbanati](#)¹, [Carolyn J Wang](#)², [Don D Sin](#)^{2,3}

Affiliations Expand

- PMID: 39607023
- DOI: [10.1097/MCP.0000000000001142](#)

Abstract

Purpose of review: Nutritional intake plays a major role in the management of lung health. This review provides the latest perspective on how dietary choices can modulate lung function in patients with chronic obstructive pulmonary disease (COPD) and asthma.

Recent findings: The pathophysiology of COPD and asthma is driven by oxidative stress and inflammation of the airways, which is exacerbated by modifiable risk factors such as cigarette smoking and diet. Various foods can influence patient symptoms; highly processed foods increase the production of reactive oxygen species that augment airway inflammation, whereas foods rich in antioxidants, fiber and protein combat oxidative stress and muscle wastage. Patients with COPD or asthma are at increased risk of developing metabolic comorbidities, including cachexia and obesity that complicate disease phenotypes, leading to greater symptom severity. While clinical findings suggest a role for antioxidant and macronutrient support of lung function, comprehensive translational and clinical studies are necessary to better understand the mechanisms underlying nutrient interaction and lung structure-function.

Summary: Understanding the nutritional requirements that protect lung health and support weight management in COPD and asthma is imperative to providing personalized dietary recommendations and reducing patient morbidity.

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Editorial

Am J Respir Cell Mol Biol

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. 2025 Mar;72(3):231-232.

doi: 10.1165/rcmb.2024-0517ED.

[Cough-Variant Asthma: The Asthma Phenotype No One Coughs About](#)

[Elizabeth Corteselli](#)¹, [Neil Alexis](#)¹

Affiliations Expand

- PMID: 39565184
- DOI: [10.1165/rcmb.2024-0517ED](#)

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Comment on

- [Sputum Metabolomic Signature and Dynamic Change of Cough Variant Asthma.](#)

Chen Z, Jin K, Huang K, Chen Z, Lu H, Lin M, Long L, Xie J, Wang M, Lai K, Wei Y, Yi F. Am J Respir Cell Mol Biol. 2025 Mar;72(3):285-296. doi: 10.1165/rcmb.2024-0219OC. PMID: 39393348

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Review

J Asthma

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. 2025 Mar;62(3):386-403.

doi: [10.1080/02770903.2024.2417989](https://doi.org/10.1080/02770903.2024.2417989). Epub 2024 Oct 31.

[Asthma identified as a major risk factor for recurrent respiratory tract infections in children: a meta-analysis of 29 studies](#)

[Xiang Wang](#)¹, [Kaiwen Zheng](#)¹, [Quan Zhang](#)²

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- PMID: [39417592](https://pubmed.ncbi.nlm.nih.gov/39417592/)
- DOI: [10.1080/02770903.2024.2417989](https://doi.org/10.1080/02770903.2024.2417989)

Abstract

Background: Recurrent respiratory tract infections (RRTIs) in children represent a significant clinical challenge. Although some studies have identified potential risk factors, a comprehensive and systematic overview is lacking.

Objective: This analysis is carried out to provide more advanced evidence to guide future prevention and health care.

Methods: This study (PROSPERO: CRD42024576464) was conducted in accordance with PRISMA guidelines. PubMed, Embase, Web of Science, and the Cochrane

Library were searched for relevant studies published in English. Subgroup analysis, sensitivity analysis, and publication bias assessments were performed. Data analysis was conducted using Stata 17, and GRADE was employed to assess the quality of evidence. The risk factors identified in the positive results were discussed qualitatively.

Results: A total of 29 studies covering 639,078 children were included. Some risk factors: asthma (OR = 3.08, 2.06-4.62), breastfeeding <6 months (OR = 1.26, 1.04-1.52), DCC: day care center (OR = 1.50, 1.16-1.93), have siblings (OR = 1.26, 1.00-1.59), ETS: Environmental tobacco smoke (OR = 1.13, 1.00-1.27), snoring (OR = 1.49, 1.16-1.93) got positive result.

Conclusion: This analysis identifies several key risk factors for RRTIs in children, providing enhanced evidence for prevention and management strategies. In particular, asthma warrants closer attention, given its strong association with respiratory infections in pediatrics.

Keywords: Recurrent respiratory infection; asthma; child; meta-analysis; respiratory infection; risk factors.

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. 2025 Mar;72(3):285-296.

doi: 10.1165/rcmb.2024-0219OC.

[Sputum Metabolomic Signature and Dynamic Change of Cough Variant Asthma](#)

[Zhe Chen](#)^{1,2}, [Kehan Jin](#)³, [Kangping Huang](#)³, [Zhiyin Chen](#)², [Hankun Lu](#)², [Mingtong Lin](#)², [Li Long](#)⁴, [Jiaxing Xie](#)², [Mengzhao Wang](#)⁵, [Kefang Lai](#)², [Yuxi Wei](#), [Fang Yi](#)²

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- PMID: 39393348
- DOI: [10.1165/rcmb.2024-0219OC](https://doi.org/10.1165/rcmb.2024-0219OC)

Abstract

Cough variant asthma (CVA), a common reason for chronic cough, is a globally prevalent and burdensome condition. The heterogeneity of CVA and a lack of knowledge concerning the exact molecular pathogenesis has hampered its clinical management. This study presents the first sputum metabolome of patients with CVA, revealing the dynamic change during treatment and exploring biomarkers related to the occurrence and treatment response of CVA. We found that arginine biosynthesis, purine metabolism, and pyrimidine metabolism pathways were enriched in CVA compared with healthy controls. Part of the metabolic disturbances could be reversed by antiasthmatic medication. The levels of dipeptides/tripeptides (alanyl tyrosine, Gly-Tyr-Ala, Ala-Leu, and Thr-Leu) were significantly associated with sputum neutrophil or eosinophil percentages in patients with CVA. Differential metabolites before treatment between effective and ineffective treatment groups were enriched in purine metabolism, thiamine metabolism, and arginine metabolism. 2-Isopropylmalate was downregulated in CVA and increased after treatment, and the effective treatment group had a lower 2-isopropylmalate level before treatment. Random forest and logistic regression models identified glutathione, thiamine phosphate, alanyl tyrosine, and 2'-deoxyadenosine as markers for distinguishing CVA from healthy controls (all areas under the curve >0.8). Thiamine phosphate might also be promising for predicting therapy responsiveness (area under the curve, 0.684). These findings imply that disturbed mitochondrial energy metabolism and imbalanced oxidation-reduction homeostasis probably underlay the metabolic pathogenesis of CVA.

Keywords: chronic cough; cough variant asthma; induced sputum; mitochondrial energy metabolism.

Comment in

- [Cough-Variant Asthma: The Asthma Phenotype No One Coughs About.](#)

Corteselli E, Alexis N. *Am J Respir Cell Mol Biol.* 2025 Mar;72(3):231-232. doi: 10.1165/rcmb.2024-0517ED. PMID: 39565184 No abstract available.

Supplementary info

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J Asthma

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. 2025 Mar;62(3):465-480.

doi: 10.1080/02770903.2024.2409991. Epub 2024 Oct 12.

[Assessing prospective molecular biomarkers and functional pathways in severe asthma based on a machine learning method and bioinformatics analyses](#)

[Ya-Da Zhang](#)¹, [Yi-Ren Chen](#)¹, [Wei Zhang](#)², [Bin-Qing Tang](#)¹

Affiliations Expand

- PMID: 39392250
- DOI: [10.1080/02770903.2024.2409991](https://doi.org/10.1080/02770903.2024.2409991)

Abstract

Background: Severe asthma, which differs significantly from typical asthma, involves specific molecular biomarkers that enhance our understanding and diagnostic capabilities. The objective of this study is to assess the biological processes underlying severe asthma and to detect key molecular biomarkers.

Methods: We used Weighted Gene Co-Expression Network Analysis (WGCNA) to detect hub genes in the GSE143303 dataset and indicated their functions and regulatory mechanisms using Kyoto Encyclopedia of Genes and Genomes (KEGG) pathway analysis and Gene Ontology (GO) annotations. In the GSE147878 dataset, we used Gene Set Enrichment Analysis (GSEA) to determine the regulatory directions of gene sets. We detected differentially expressed genes in the GSE143303 and GSE64913 datasets, constructed a Least Absolute Shrinkage and Selection Operator (LASSO) regression model, and validated the model using the GSE147878 dataset and real-time quantitative PCR (RT-qPCR) to confirm the molecular biomarkers.

Results: Using WGCNA, we discovered modules that were strongly correlated with clinical features, specifically the purple module ($r = 0.53$) and the midnight blue module ($r = -0.65$). The hub genes within these modules were enriched in pathways related to mitochondrial function and oxidative phosphorylation. GSEA in the GSE147878 dataset revealed significant enrichment of upregulated gene sets associated with oxidative phosphorylation and downregulated gene sets related to asthma. We discovered 12 commonly regulated genes in the GSE143303 and GSE64913 datasets and developed a LASSO regression model. The model corresponding to lambda.min selected nine genes, including TFCP2L1, KRT6A,

FCER1A, and CCL5, which demonstrated predictive value. These genes were significantly upregulated or under expressed in severe asthma, as validated by RT-qPCR.

Conclusion: Mitochondrial abnormalities affecting oxidative phosphorylation play a critical role in severe asthma. Key molecular biomarkers like TFCP2L1, KRT6A, FCER1A, and CCL5, are essential for detecting severe asthma. This research significantly enhances the understanding and diagnosis of severe asthma.

Keywords: Bioinformatics; machine learning; mitochondria; molecular biomarkers; severe asthma.

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30

J Asthma

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. 2025 Mar;62(3):533-540.

doi: 10.1080/02770903.2024.2414351. Epub 2024 Oct 16.

["I can't breathe, I can't catch my breath:" the impact of school staff storytelling on asthma management](#)

[Paige Hardy¹](#), [Andrea A Pappalardo¹](#)

Affiliations Expand

- PMID: 39382247
- DOI: [10.1080/02770903.2024.2414351](https://doi.org/10.1080/02770903.2024.2414351)

Abstract

Objective: A qualitative data analysis was conducted to better understand experiences of asthma exacerbation among school staff through thematic analysis of stories of children in respiratory distress.

Methods: Qualitative thematic analysis was performed on 40 virtual or in-person interviews conducted with 44 staff from districts participating in a stock inhaler pilot program. Transcripts were iteratively coded by five coders. Stories of instances when a stock inhaler may have been helpful were subject to additional thematic analysis by one coder.

Results: Forty-five stories across 27 interviews were identified. Major themes were split into "Provocation" and "Outcomes of Asthma Incident." "Educational and Communication Factors" in asthma exacerbations were discussed more often than environmental ones. Outcomes were divided into "Disposition" (with 14 participants choosing to describe incidents where emergency services were contacted), "Emotional Response," and "School Response." "Trauma for Students" was mentioned only by school nurses.

Conclusions: Stock inhaler programming can alleviate helplessness, reduce trauma, and avoid costly hospital visits. Personal narratives can be a powerful tool for understanding unique needs and developing tailored, sustainable interventions for individual districts. These stories are incredibly persuasive in convincing other schools, districts, lawmakers, and other stakeholders to implement stock inhaler programming.

Keywords: Asthma; health policy; implementation science; personal narratives; qualitative research; school health services; school nursing.

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Review

J Asthma

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. 2025 Mar;62(3):365-375.

doi: 10.1080/02770903.2024.2414342. Epub 2024 Oct 18.

[Pioglitazone and asthma: a review of current evidence](#)

[Georgios I Barkas](#)¹, [Nikolaos D Karakousis](#)^{2,3}, [Konstantinos I Gourgoulialis](#)², [Zoe Daniil](#)², [Nikolaos Papanas](#)⁴, [Ourania S Kotsiou](#)^{1,2}

Affiliations Expand

- PMID: 39373513
- DOI: [10.1080/02770903.2024.2414342](https://doi.org/10.1080/02770903.2024.2414342)

Abstract

Objective: This review aims to present existing evidence on the impact of pioglitazone, a thiazolidinedione class anti-diabetic drug, on asthma control and lung function, providing a comprehensive understanding of its potential as a treatment for asthma.

Data sources: The review draws upon data from preclinical animal studies and clinical trials investigating the effects of pioglitazone on asthma, focusing on its role in reducing airway inflammation, hyperreactivity, and remodeling, and its impact on pulmonary function.

Study selections: Relevant studies were selected based on their examination of pioglitazone's therapeutic effects in asthma, including both animal models and clinical trials involving human asthma patients.

Results: Animal studies have suggested that pioglitazone could alleviate inflammation, airway hyperreactivity, and airway remodeling, thereby improving pulmonary function in asthma. However, clinical trials have not demonstrated significant therapeutic benefits, with minimal improvements observed in asthma control and lung function, and the presence of notable side effects.

Conclusion: Despite promising preclinical data, the efficacy of pioglitazone in treating human asthma remains unproven, with safety concerns and limited clinical benefits observed in trials. Further research is needed to assess the safety and effectiveness of pioglitazone in asthma treatment and to explore its impact on other inflammatory mechanisms.

Keywords: Asthma; airway inflammation; diabetes mellitus; pioglitazone; thiazolidinediones.

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Comparative Study

J Asthma

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. 2025 Mar;62(3):500-507.

doi: 10.1080/02770903.2024.2410424. Epub 2024 Oct 1.

[Single inhaler combination inhaled corticosteroid-formoterol as both maintenance and reliever \(SMART\) compared with a step up of treatment with fixed-dose inhaled corticosteroid-long-acting \$\beta\$ 2-agonist maintenance with a short-acting \$\beta\$ 2-agonist as reliever in adolescents and adults with poorly controlled asthma in Colombia: a cost-utility analysis](#)

[Carlos E Rodríguez-Martínez](#)^{1,2}, [Monica P Sossa-Briceño](#)³, [Jose A Castro-Rodriguez](#)⁴

Affiliations Expand

- PMID: 39329257
- DOI: [10.1080/02770903.2024.2410424](https://doi.org/10.1080/02770903.2024.2410424)

Abstract

Objective: The aim of the present study was to determine the cost-utility of single inhaler combination inhaled corticosteroid and a long-acting β 2-agonist (ICS/LABAs) as both maintenance and reliever (SMART) compared with a step-up maintenance treatment with a fixed medium to high dose of ICS combined with LABA and a short-acting β 2-agonist (SABA) as reliever (ICS-LABA maintenance plus SABA) among patients aged 12 years or more with poorly controlled asthma in Colombia.

Methods: A Markov-type model was developed to estimate the costs and health outcomes of a simulated cohort of patients aged 12 years or more with uncontrolled

asthma treated for 12 months. The main effectiveness data were obtained from a recent meta-analysis. The main outcome was the variable "quality-adjusted life-years" (QALYs).

Results: The base-case analysis showed that the budesonide/formoterol (BUD/FORM) SMART strategy was associated with lower overall treatment costs (US \$3,062.37 vs. \$4,462.02 average cost per patient over 12 months) and the greatest gain in QALYs (0.8511 vs. 0.8258 QALYs on average per patient over 12 months) compared with ICS-LABA maintenance plus SABA at step 4, thus leading to dominance.

Conclusions: In patients aged 12 years or more with uncontrolled asthma at GINA step 3 or 4, the BUD/FORM SMART strategy at either step 3 or 4 is cost-effective compared with the ICS-LABA maintenance plus SABA at step 4 strategy, because it shows a greater gain in QALYs at lower total treatment costs.

Keywords: Combination of corticosteroid and long-acting beta 2 agonists; cost-effectiveness; persistent asthma; quality-adjusted life-years; separate inhalers; single inhaler.

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Observational Study

J Asthma

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. 2025 Mar;62(3):456-464.

doi: 10.1080/02770903.2024.2409987. Epub 2024 Oct 9.

[Short-term Tezepelumab effectiveness in patients with severe asthma: a multicenter study](#)

[Giovanna Elisiana Carpagnano](#)¹, [Silvano Dragonieri](#)¹, [Emanuela Resta](#)², [Ernesto Lulaj](#)¹, [Francesca Montagnolo](#)¹, [Andrea Portacci](#)¹, [Pietro Magaletti](#)³, [Piera Soccio](#)³, [Donato Lacedonia](#)³, [Giulia Scioscia](#)³

Affiliations Expand

- PMID: 39325583
- DOI: [10.1080/02770903.2024.2409987](https://doi.org/10.1080/02770903.2024.2409987)

Abstract

Objective: Severe asthma presents significant management challenges, often requiring advanced treatments to control symptoms and reduce exacerbations. The use of monoclonal antibodies has revolutionized the clinical course of patients with severe asthma, showing a significant impact on exacerbations reduction, oral corticosteroids (OCS) cessation and on the improvement of lung function and quality of life. Tezepelumab, an anti-thymic stromal lymphopoietin (TSLP) monoclonal antibody, has emerged as a potential therapeutic option for these patients.

Methods: We conducted an observational, prospective, multicenter study including 20 patients with confirmed severe asthma according to ERS guidelines and GINA recommendations. Patients received Tezepelumab 210 mg every 4 wk due to uncontrolled asthma despite maximal inhalation treatment with ICS/LABA. Data were collected before treatment initiation (T0) and after three months from the first administration (T3).

Results: After three months of Tezepelumab treatment, we reported significant improvements in asthma symptoms and quality of life, as well as a consistent reduction in exacerbations and OCS use. We found no statistically meaningful differences among main clinical and functional outcomes according to inflammatory biomarkers, while lung function improved significantly in patients with less allergic sensitization. No serious adverse event was reported during the follow up, while the rates of mild adverse effects were comparable to those from registration trials.

Conclusion: Tezepelumab demonstrated short-term efficacy in improving asthma control and quality of life, showing a favorable safety profile. Further studies with larger sample sizes and longer follow-up would confirm these findings and identify predictors of response to Tezepelumab.

Keywords: Severe asthma; Tezepelumab; anti-TSLP; corticosteroids; exacerbations.

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34

Review

Mol Cell Biochem

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. 2025 Mar;480(3):1305-1326.

doi: 10.1007/s11010-024-05062-5. Epub 2024 Aug 8.

[Cell death crosstalk in respiratory diseases: unveiling the relationship between pyroptosis and ferroptosis in asthma and COPD](#)

[Sayak Khawas¹](#), [Neelima Sharma²](#)

Affiliations Expand

- PMID: 39112808
- DOI: [10.1007/s11010-024-05062-5](#)

Abstract

Asthma and chronic obstructive pulmonary disease (COPD) are heterogeneous obstructive diseases characterized by airflow limitations and are recognized as significant contributors to fatality all over the globe. Asthma accounts for about 4, 55,000 deaths, and COPD is the 3rd leading contributor of mortality worldwide. The pathogenesis of these two obstructive disorders is complex and involves numerous mechanistic pathways, including inflammation-mediated and non-inflammation-mediated pathways. Among all the pathological categorizations, programmed cell deaths (PCDs) play a dominating role in the progression of these obstructive diseases. The two major PCDs that are involved in structural and functional remodeling in the progression of asthma and COPD are Pyroptosis and Ferroptosis. Pyroptosis is a PCD mechanism mediated by the activation of the Nucleotide-binding domain, leucine-rich-containing family, pyrin domain-containing-3 (NLRP3) inflammasome, leading to the maturation and release of Interleukin-1 β and Interleukin-18, whereas ferroptosis is a lipid peroxidation-associated cell death. In this review, the major molecular pathways contributing to these multifaceted cell deaths have been discussed, and crosstalk among them regarding the pathogenesis of asthma and COPD has been highlighted. Further, the possible

therapeutic approaches that can be utilized to mitigate both cell deaths at once have also been illustrated.

Keywords: Asthma; COPD; Ferroptosis; Lipid peroxidation; NLRP3 inflammasome; Pyroptosis.

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Conflict of interest statement

Declarations. Competing interests: The authors declare no competing interests.
Ethical approval: Not applicable.

- [196 references](#)

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Am J Forensic Med Pathol

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. 2025 Mar 1;46(1):40-43.

doi: 10.1097/PAF.0000000000000972. Epub 2024 Jul 16.

[Association Between Cardiovascular Disease and Death by Anaphylaxis: A 20-Year Retrospective Study in Queensland, Australia](#)

[Jack Garland](#)¹, [Peter Smith](#)², [Rexson Tse](#), [Beng Ong](#), [Nathan Milne](#)

Affiliations Expand

- PMID: 39018439
- DOI: [10.1097/PAF.0000000000000972](#)

Abstract

Despite its severity, anaphylaxis carries a low mortality rate of less than 1%, making the cohort seen in the forensic pathology setting a small and unique subset of the majority of cases of anaphylaxis in the community. Clinically, cardiovascular disease has been recognized as a risk factor for fatal anaphylaxis; however, there is scant forensic pathology research investigating this risk factor, whereas autopsy textbooks emphasize physical respiratory changes seen in the broader clinical cohort. This 20-year retrospective study examined all fatal anaphylactic deaths in the state of Queensland, Australia, to document the underlying disease of the cases, tryptase levels, triggers, and postmortem findings. Our study found that cardiovascular disease was prevalent in 83.3% of cases of fatal anaphylaxis. Although asthma was prevalent in food-related fatal anaphylaxis (60%) in our cohort, it was poorly represented overall (28%), in contrast to clinical research. Additionally, only 43% of cases showed respiratory changes that were greater than mild. Our findings emphasize the difference between the clinical and postmortem anaphylaxis cohorts, and provide autopsy evidence of a potential role of cardiovascular disease in fatal anaphylaxis.

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Conflict of interest statement

The authors report no conflict of interest.

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Meta-Analysis

Am J Phys Med Rehabil

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. 2025 Mar 1;104(3):e28-e36.

doi: 10.1097/PHM.0000000000002552. Epub 2024 Jul 3.

[Effectiveness of Rehabilitation Interventions in Adults With Asthma: A Systematic Review and Meta-analysis](#)

[Elisabetta Zampogna](#)¹, [Federico Mattia Oliva](#), [Matteo Johann Del Furia](#), [Claudio Cordani](#), [Stefano Giuseppe Lazzarini](#), [Chiara Arienti](#)

Affiliations Expand

- PMID: 38958276
- DOI: [10.1097/PHM.0000000000002552](https://doi.org/10.1097/PHM.0000000000002552)

Abstract

Objective: The aim of the study is to evaluate the effectiveness of pulmonary rehabilitation programs and other rehabilitation interventions in adults with asthma.

Design: This is a systematic review and meta-analysis.

Results: MEDLINE (PubMed), Embase, Cumulative Index to Nursing & Allied Health Literature, and CENTRAL were searched from inception to 31 May 2023. PROSPERO registration number: CRD42022331440. Thirty-six randomized controlled trials were analyzed, and only 26 were pooled in the meta-analysis because of the heterogeneity of comparisons and outcomes across the studies. Pulmonary rehabilitation, compared with education associated with breathing exercises, may result in little to no difference in the Asthma Quality of Life Questionnaire (mean difference 0.01 score, 95% confidence interval = -0.48 to 0.50, 163 participants, three studies, low certainty).

Conclusions: Our findings show that pulmonary rehabilitation, compared with education associated with breathing exercises, may result in little to no difference in the impact of asthma on health-related quality of life. Overall, the certainty of evidence was low or very low preventing any firm conclusion on the effects of single or combined rehabilitation interventions.

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Conflict of interest statement

Financial disclosure statements have been obtained, and no conflicts of interest have been reported by the authors or by any individuals in control of the content of this article.

- [Cited by 1 article](#)
- [69 references](#)

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Neural Regen Res

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. 2025 Mar 1;20(3):682-694.

doi: 10.4103/NRR.NRR-D-23-02063. Epub 2024 May 13.

[Context-dependent role of sirtuin 2 in inflammation](#)

[Noemí Sola-Sevilla](#)^{1,2}, [Maider Garmendia-Berges](#)¹, [MCarmen Mera-Delgado](#)¹, [Elena Puerta](#)^{1,2}

Affiliations Expand

- PMID: 38886935
- PMCID: [PMC11433891](#)
- DOI: [10.4103/NRR.NRR-D-23-02063](#)

Abstract

Sirtuin 2 is a member of the sirtuin family nicotinamide adenine dinucleotide (NAD⁺)-dependent deacetylases, known for its regulatory role in different processes, including inflammation. In this context, sirtuin 2 has been involved in the modulation of key inflammatory signaling pathways and transcription factors by deacetylating specific targets, such as nuclear factor κ B and nucleotide-binding oligomerization domain-leucine-rich-repeat and pyrin domain-containing protein 3 (NLRP3). However, whether sirtuin 2-mediated pathways induce a pro- or an anti-inflammatory response remains controversial. Sirtuin 2 has been implicated in promoting inflammation in conditions such as asthma and neurodegenerative diseases, suggesting that its inhibition in these conditions could be a potential therapeutic strategy. Conversely, arthritis and type 2 diabetes mellitus studies suggest that sirtuin 2 is essential at the peripheral level and, thus, its inhibition in

these pathologies would not be recommended. Overall, the precise role of sirtuin 2 in inflammation appears to be context-dependent, and further investigation is needed to determine the specific molecular mechanisms and downstream targets through which sirtuin 2 influences inflammatory processes in various tissues and pathological conditions. The present review explores the involvement of sirtuin 2 in the inflammation associated with different pathologies to elucidate whether its pharmacological modulation could serve as an effective strategy for treating this prevalent symptom across various diseases.

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Conflict of interest statement

Conflicts of interest: The authors declare no conflicts of interest.

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- [2 figures](#)

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Am J Med

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. 2025 Mar;138(3):e49.

doi: 10.1016/j.amjmed.2019.02.002. Epub 2019 Feb 20.

[Advancing the Care of Severe Asthma: Differential Diagnosis, Multidisciplinary Management, and Patient Engagement](#)

[Jonathan Corren](#)¹, [Barbara P Yawn](#)²

Affiliations Expand

- PMID: 30794771

- DOI: [10.1016/j.amjmed.2019.02.002](https://doi.org/10.1016/j.amjmed.2019.02.002)

Abstract

This CME-accredited CME Snapshot™ four-part series is intended for primary care providers, including internists, family physicians, nurse practitioners, and physician assistants involved in the ongoing management of patients with severe asthma. The faculty will review freely available patient- and caregiver-directed educational resources that seek to improve shared decision-making and multidisciplinary care. (Online access: <https://asthmacmecp.elsevierresource.com/>).

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

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Review

J Asthma

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. 2025 Feb 27:1-8.

doi: 10.1080/02770903.2025.2472359. Online ahead of print.

[Causal relationships between allergic diseases and significant declines in lung function: a multivariable Mendelian randomization study](#)

[Jiannan Lin](#)¹, [Xiaoyu Zhao](#)¹, [Shuwen Lu](#)¹

Affiliations [Expand](#)

- PMID: 40013783

- DOI: [10.1080/02770903.2025.2472359](https://doi.org/10.1080/02770903.2025.2472359)

Abstract

Background: Asthma and other allergic diseases are increasing globally each year, with some patients experiencing the co-occurrence of two or more conditions, significantly impacting their quality of life. While these diseases may share certain immune mechanisms, the independent causal relationships between them and lung function remain unclear.

Objective: This study aims to investigate the independent and interactive effects of allergic asthma, atopic dermatitis, allergic rhinitis, and allergic conjunctivitis on significant declines in lung function. By elucidating the potential causal relationships between these allergic diseases and reduced lung function, we hope to provide valuable scientific evidence for managing asthma patients who are co-morbid with multiple allergic conditions.

Methods: In this study, we conducted Mendelian randomization (MR) analysis using data from the FinnGen database and the UK Biobank. We rigorously selected instrumental variables (IVs) based on established criteria and employed both univariable and multivariable MR approaches to investigate the relationship between various allergic diseases and significant declines in lung function.

Results: In univariable MR analysis, the inverse variance-weighted (IVW) method or the weighted median approach indicated a causal relationship between allergic conjunctivitis, atopic dermatitis, and allergic asthma with significant declines in lung function. However, in multivariable MR analysis, the independent effects of atopic dermatitis and allergic conjunctivitis on lung function were no longer significant. Only allergic asthma continued to show a significant causal relationship with decreased lung function (OR [95%CI]: 1.019 [1.008-1.030], $p < .001$).

Conclusions: This study suggests that while atopic dermatitis and allergic conjunctivitis may indirectly affect lung function and lead to significant declines, their independent effects are not notable when asthma is well-controlled. Therefore, clinicians should recognize that acute exacerbations of allergic diseases are unlikely to be the primary reason for significant declines in lung function among asthma patients with multiple allergic conditions, provided that their asthma is well-managed.

Keywords: Causal relationship; Mendelian randomization (MR); allergic diseases; lung function.

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Allergy Asthma Proc

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. 2025 Mar 1;46(2):105-108.

doi: 10.2500/aap.2025.46.250004.

[Early clinical improvement of anosmia and sinus nitric oxide in chronic rhinosinusitis with nasal polyps subjects treated with dupilumab](#)

[Miguel J Lanz, Claudia P Eisenlohr, Lianet Herrera Cepeda](#)

- PMID: 40011990
- DOI: [10.2500/aap.2025.46.250004](#)

Abstract

Background/Objective: Patients with chronic rhinosinusitis with nasal polyps (CRSwNP) have a high morbidity of anosmia, yet there are few noninvasive biomarkers to measure treatment response. Nitric oxide (NO) is found in the paranasal sinuses at 100 times higher levels than in the lungs and is vital for antimicrobial and/or mucociliary activities and vasodilatory properties. Dupilumab has been shown to improve anosmia in 2 weeks as measured by the University of Pennsylvania Smell Identification Test (UPSIT), 22-item Sinonasal Outcome Test (SNOT-22), and Loss of Smell (LoS) scoring. We examined the use of NO in various collection methods to monitor anosmia improvement with dupilumab treatment. **Methods:** Adults with CRSwNP confirmed by computer tomography or endoscopy consented to receive dupilumab 300 mg every two weeks for 16 weeks. Subjects with polyposis despite treatment with steroids and/or a history of sinus surgery were recruited. Measurements of sinus NO (sNO) from the nostril while humming, nasal NO (nNO) while breath-holding, and fractional exhaled nitric oxide (FeNO) while exhaling were collected at baseline and at 1, 2, 4, 8, 12, 16 weeks. Olfactory impairment was measured by using the UPSIT, SNOT-22, and LoS scoring at every visit. **Results:** Sixteen adults, with a mean (range) age of 43 years (25-53 years) were predominantly women (12/16). Baseline mean (range) sNO values of 434 ppb (203-665 ppb) significantly increased at 2 weeks to a mean (range) of 1150 ppb (684-1616 ppb) ($p < 0.05$). Significant improvements in the UPSIT, SNOT-22, and LoS scores were found at 2 weeks; a weak correlation of the sNO level with the UPSIT and SNOT-22 scores was noted. No significant changes in the FeNO or nNO values were found. Significant improvement was found specifically with anosmia by the end of 2 weeks. **Conclusion:** Our small pilot study revealed increased sNO levels in

the sinuses as early as 2 weeks after the initial dupilumab administration. Thus, in patients with CRSwNP without asthma, the sNO value has the potential to be used as a noninvasive, objective biomarker for early treatment improvement in anosmia.

Supplementary info

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Allergy Asthma Proc

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. 2025 Mar 1;46(2):e61-e69.

doi: 10.2500/aap.2025.46.240110.

[Association between allergic diseases and hypertension: Co-occurrence pattern analysis](#)

[Xueshan Cao](#)¹, [Guanqi Zhao](#)², [Huiyuan Peng](#)³, [Yuanqi Mi](#)⁴, [Mengge Zhou](#)⁵, [Yang Guo](#)³

Affiliations Expand

- PMID: 40011983
- DOI: [10.2500/aap.2025.46.240110](https://doi.org/10.2500/aap.2025.46.240110)

Abstract

Background: The hypertension risk in the co-occurrence of allergic diseases remains largely unknown. **Objective:** We aimed to investigate the association between allergic diseases co-occurrence pattern and hypertension morbidity and mortality, and to evaluate additive interaction effects between allergic diseases. **Methods:** A nationally representative population from the U.S. National Health Interview Survey 2012 was enrolled. Hypertension and five specific allergic diseases, including asthma, allergic rhinitis (AR), food allergy (FA), eczema, and

other allergy (OA), were determined. Hypertension mortality was identified until December 31, 2019. We evaluated additive interaction effects between two allergic diseases on hypertension risk: relative excess risk due to interaction (RERI) and attributable proportion of joint effect due to interaction (AP) (shown as percentages) were calculated. For modifiable lifestyle factors with significant heterogeneity in the subgroups, we examined the effect modification. Results: Totally, 34,392 participants were enrolled. Four co-occurrence patterns of two allergic diseases were associated with an increased risk of hypertension, including AR + FA (odds ratio [OR] 2.25 [95% confidence interval {CI}, 1.52-3.35]), eczema + OA (OR 1.94 [95% CI, 1.14-3.30]), AR + eczema (OR 1.76 [95% CI, 1.18-2.64]), asthma + AR (OR 1.67 [95% CI, 1.33-2.08]). Five co-occurrence patterns of three allergic diseases were associated with increased risk of hypertension. Additive interactions were seen in AR + FA (RERI, 0.65; AP, 29%), eczema + OA (RERI, 0.43; AP, 22%), AR + eczema (RERI, 0.21; AP, 12%), and asthma + AR (RERI, 0.05; AP, 3%). The significant association between asthma + FA and hypertension was only seen among participants with a body mass index (BMI) ≥ 30 kg/m² (p = 0.021). With a median follow-up of 7.5 years, one co-occurrence pattern of asthma + FA showed a significant increased risk of hypertension mortality (hazard ratio 4.32, 95% CI: 1.52-12.23), with an additive interaction was observed (RERI, 2.33; AP, 52%). Conclusion: We identified several allergic diseases co-occurrence patterns with a significantly increased risk of hypertension morbidity and mortality. Potential biologic additive effect among allergic diseases and effect modification of BMI was found. Precision primary prevention of hypertension is necessary for patients with co-occurring allergic diseases.

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. 2025 Mar;22(3):211-242.

doi: 10.1038/s41423-025-01261-2. Epub 2025 Feb 17.

Type 2 immunity in allergic diseases

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Affiliations Expand

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- DOI: [10.1038/s41423-025-01261-2](https://doi.org/10.1038/s41423-025-01261-2)

Abstract

Significant advancements have been made in understanding the cellular and molecular mechanisms of type 2 immunity in allergic diseases such as asthma, allergic rhinitis, chronic rhinosinusitis, eosinophilic esophagitis (EoE), food and drug allergies, and atopic dermatitis (AD). Type 2 immunity has evolved to protect against parasitic diseases and toxins, plays a role in the expulsion of parasites and larvae from inner tissues to the lumen and outside the body, maintains microbe-rich skin and mucosal epithelial barriers and counterbalances the type 1 immune response and its destructive effects. During the development of a type 2 immune response, an innate immune response initiates starting from epithelial cells and innate lymphoid cells (ILCs), including dendritic cells and macrophages, and translates to adaptive T and B-cell immunity, particularly IgE antibody production. Eosinophils, mast cells and basophils have effects on effector functions. Cytokines from ILC2s and CD4+ helper type 2 (Th2) cells, CD8 + T cells, and NK-T cells, along with myeloid cells, including IL-4, IL-5, IL-9, and IL-13, initiate and sustain allergic inflammation via T cell cells, eosinophils, and ILC2s; promote IgE class switching; and open the epithelial barrier. Epithelial cell activation, alarmin release and barrier dysfunction are key in the development of not only allergic diseases but also many other systemic diseases. Recent biologics targeting the pathways and effector functions of IL4/IL13, IL-5, and IgE have shown promising results for almost all ages, although some patients with severe allergic diseases do not respond to these therapies, highlighting the unmet need for a more detailed and personalized approach.

Keywords: Alarmins; allergic diseases; biologics; epithelial barrier; type 2 immunity.

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Conflict of interest statement

Competing interests: S.S. is currently a salaried employee of Seed Health, a probiotic retailer. R.D. is a cofounder and CEO in Seed Health. W.V. has received research grants from PROMEDICA Stiftung, Switzerland, and EoE Stiftung, Switzerland, and consulting fees from Mabylon AG, Switzerland. M.S. has received research grants from the Swiss National Science Foundation (SNSF nr 310030_189334/1 and 320030E_224154), GSK, Novartis, Stiftung vorm. Bündner Heilstätte Arosa, Thermofisher and OM Pharma, speaker's fee from AstraZeneca and consults for Roche. She is a member-at-large of the European Academy of Allergy and Clinical Immunology (EAACI) and EAACI Educational Events Committee Chair. O.P. received research grants from MINECO, Ministerio de Ciencia e Innovación, CAM, Inmunotek S.L., Novartis, and AstraZeneca and fees for giving scientific lectures or participation in Advisory Boards from AstraZeneca, Pfizer, GlaxoSmithKline, Inmunotek S.L., Novartis and Sanofi-Genzyme. K.C.N. reports grants from the National Institute of Allergy and Infectious Diseases (NIAID), National Heart, Lung, and Blood Institute (NHLBI), and from the National Institute of Environmental Health Sciences (NIEHS), other from the Immune Tolerance Network (ITN), other from National Institutes of Health (NIH) clinical research centers, during the conduct of the study; other from IgGenix, other from Seed Health, other from ClostraBio, other from Cour, other from Alladapt, other from Excellergy, other from Red Tree Ventures, other from Regeneron, other from Latitude, outside the submitted work. In addition, K.C.N. has the following patents: "Mixed allergen composition and methods for using the same", "Granulocyte-based methods for detecting and monitoring immune system disorders", and "Methods and Assays for Detecting and Quantifying Pure Subpopulations of White Blood Cells in Immune System Disorders". M.A. has received research grants from the Swiss National Science Foundation, Bern; research grants from Stanford University; Leading House for the Latin American Region; and Seed Money Grants. She is a Scientific Advisory Board member of Stanford University-Sean Parker Asthma Allergy Center, CA; an Advisory Board member of the LEO Foundation Skin Immunology Research Center, Copenhagen; and a Scientific Co-Chair of the World Allergy Congress (WAC) Istanbul, 2022, Scientific Programme Committee Chair, EAACI. C.A.A. has received research grants from the Swiss National Science Foundation, European Union (EU CURE, EU Syn-Air-G), Novartis Research Institutes (Basel, Switzerland), Stanford University (Redwood City, Calif), Seed Health (Boston, USA), AO Research Institute (Davos, Switzerland) and SciBase (Stockholm, Sweden). He is the cochair for the EAACI Guidelines on Environmental Science in Allergic Diseases and Asthma; Chair of the EAACI Epithelial Cell Biology Working Group. Serves on the Advisory Boards of Sanofi/Regeneron (Bern, Switzerland, New York, USA), Stanford University Sean Parker Asthma Allergy Center (CA, USA), Novartis (Basel, Switzerland), GlaxoSmithKline (Zurich, Switzerland), Bristol-Myers Squibb (New York, USA), Seed Health (Boston, USA) and SciBase (Stockholm, Sweden). C.A.A. is the Editor-in-Chief of Allergy. I.O., Y.M., D.Y., Y.P., S.A., M.L., P.D'A., C.B., H.B., B.Z., C.Z., O.G.V., O.A., A.K., A.G.-S., J.-F.L., L.S., M.Y., S.R.S., U.R., A.J.K., M.B.I, and M.M.-F. declare no relevant conflicts of interest.

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. 2025 Mar;52(1):37-45.

doi: 10.1016/j.pop.2024.09.006. Epub 2024 Dec 30.

[Rhinitis in Primary Care](#)

[Nirali Patel](#)¹, [Adity Bhattacharyya](#)²

Affiliations Expand

- PMID: 39939089
- DOI: [10.1016/j.pop.2024.09.006](https://doi.org/10.1016/j.pop.2024.09.006)

Abstract

Rhinitis affects a significant portion of the world population and increases the cost of health care by billions of dollars in treatment costs and missed days of work. Allergic rhinitis is the most common cause. Rhinitis is primarily a clinical diagnosis which can be confirmed with specific testing as indicated to ascertain causative agents. Initial treatment includes using topical agents like intranasal corticosteroids and inhaled antihistamines as the first-line therapies for both allergic rhinitis and chronic rhinitis. Therapy can evolve in a stepwise manner depending on the primary symptom complaint prior to referral for advanced therapies such as allergen immunotherapy.

Keywords: Allergic rhinitis; Diagnosis; Rhinitis; Subtypes; Treatment.

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Conflict of interest statement

Disclosure The authors have nothing to disclose.

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. 2025 Mar;39(2):118-127.

doi: 10.1177/19458924241311354. Epub 2025 Jan 10.

[The Association of TSLP and IL-4 with Patient-Reported Outcome Measures in Chronic Rhinosinusitis with Nasal Polyps](#)

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Affiliations Expand

- PMID: 39791191
- DOI: [10.1177/19458924241311354](https://doi.org/10.1177/19458924241311354)

Abstract

Background: Thymic stromal lymphopoietin (TSLP) plays an important role in mediating the type-2-inflammatory response. This study examined how TSLP and interleukin (IL)-4 levels in patients with chronic rhinosinusitis with nasal polyps (CRSwNP) correlated with clinical and postoperative outcomes.

Methods: Solid-phase sandwich ELISA was used to analyze TSLP and IL-4 levels in mucus (n = 47), plasma (n = 17), polyp (n = 30), inferior (n = 25), and middle (n = 26) turbinate tissue collected during functional endoscopic sinus surgery (FESS) in CRSwNP patients (n = 76) and controls (n = 11). Inclusion criteria includes patients with medical treatment refractory CRSwNP confirmed by endoscopy or maxillofacial

CT. Exclusion criteria include history of immunodeficiency, coagulation disorders, fungal sinusitis, or cystic fibrosis. Levels of TSLP and IL-4 were correlated with SNOT-22, UPSIT, and fractional exhaled nitric oxide (FeNO) using MannWhitney U two-tailed test and linear regression with Spearman correlation coefficient test.

Results: TSLP is elevated in the inferior turbinates (effect size = 2.695, p = 0.0007) of CRSwNP patients compared to controls. IL-4 is expressed at elevated levels in the inferior (effect size = 3.092, p < 0.0001) and middle turbinates (effect size = 2.041, p = 0.019) compared to controls. Mucus TSLP (r = 0.4013, p = 0.0153) and IL-4 (r = 0.6138, p < 0.0001) positively correlate with preoperative FeNO levels. Lower TSLP in the inferior (r = -0.5179, p = 0.0231) and middle turbinates (r = -0.5075, p = 0.0224) and lower IL-4 in the inferior turbinates (r = -0.5205, p = 0.0223) correlate with a greater improvement in SNOT-22 post-FESS.

Conclusion: TSLP and IL-4 are elevated in patients with CRSwNP and correlated with increased preoperative FeNO levels and decreased sinonasal quality of life benefit after FESS. Expression of TSLP and IL-4 may play a role in guiding postoperative expectations in patients with treatment refractory CRSwNP.

Keywords: SNOT-22; UPSIT; chronic rhinosinusitis (CRS); chronic rhinosinusitis with nasal polyps (CRSwNP); endotype; fractional exhaled nitric oxide; functional endoscopic sinus surgery; interleukin-4; patient reported outcome measures (PROMs); thymic stromal lymphopoietin (TSLP).

Conflict of interest statement

Declaration of Conflicting InterestsThe authors declare the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: S.E.L. is on the clinical trial funding and advisory boards for AstraZeneca, Genentech, GSK, Optinose, Sanofi Regeneron.

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. 2025 Mar;39(2):109-117.

doi: 10.1177/19458924241308990. Epub 2025 Jan 2.

[Chronic Rhinitis Surgery: Association Between Preoperative Severity and Response Rate](#)

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Affiliations Expand

- PMID: 39748247
- DOI: [10.1177/19458924241308990](https://doi.org/10.1177/19458924241308990)

Abstract

Background: The success rate of chronic rhinitis surgery varies depending on the patients' factor and surgical method. While outcomes for nasal obstruction differ, the association between preoperative severity of other rhinitis symptoms, such as rhinorrhea, sneezing, and nasal itching, measured via the reflective total nasal symptom score (rTNSS) remains unevaluated.

Objective: To evaluate the association between the response rate to surgical treatment of chronic rhinitis and preoperative severity.

Methods: A retrospective cohort study was conducted among adult patients with chronic rhinitis symptoms refractory to medication and nasal spray for over 6 months and received radiofrequency ablation of inferior turbinates with posterior nasal nerve neurolysis. The primary endpoint was the change from baseline in 24-h rTNSS and nasal obstruction symptom evaluation (NOSE) scores. Postoperative surgery response rate, rTNSS score change, and score improvement ratios were also evaluated.

Results: A total of 183 patients (110 males, 60.1%) were included in this study. After 3-month follow-up, the preoperative rTNSS was 6.51 ± 2.74 change to 1.70 ± 1.43 , and the NOSE score was 56.48 ± 19.90 change to 4.56 ± 7.74 . Both scores and all sub-scores showed significant differences when comparing preoperative, 1-month, and 3-month results ($P < 0.05-0.001$). The response rate by rTNSS for whole cohort was $78.14 \pm 41.44\%$ and $93.99 \pm 23.83\%$ at 1- and 3-month follow-up. Subgroup analyses were performed according to individual rTNSS scores and 2 in 1 score groups (ie, 1-2, 3-4, etc) and their relationship to the surgery outcomes. Both preoperative individual score and score groups were significantly associated with all post-operation outcomes ($P = 0.022$ to <0.001) in linear regression analysis.

Conclusion: Patients with more severe preoperative rhinitis symptoms are associated with better response rate, post-operation symptom score changes, and score improvement ratio.

Keywords: posterior nasal nerve neurolysis; preoperative severity; radiofrequency; response rate; rhinitis.

Conflict of interest statement

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

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. 2025 Mar;39(2):90-97.

doi: 10.1177/19458924241298817. Epub 2024 Nov 22.

[Dupilumab Treatment for Aspirin-Exacerbated Respiratory Disease in a Real-World Setting: Impact on Quality of Life and Healthcare Utilization](#)

[Jyotsna Mullur¹, Rie Maurer², Tessa Ryan³, Alanna McGill³, Jillian C Benseko³, Tanya M Laidlaw^{3,4}, Kathleen M Buchheit^{3,4}](#)

Affiliations Expand

- PMID: 39574218
- DOI: [10.1177/19458924241298817](https://doi.org/10.1177/19458924241298817)

Abstract

Background: Patients with aspirin-exacerbated respiratory disease (AERD) have difficult-to-treat asthma and chronic rhinosinusitis with nasal polyps (CRSwNP) and often require treatment with biologic therapy for asthma or CRSwNP. Healthcare utilization in patients with AERD has not been well described since the advent of respiratory biologics.

Objective: To determine real-world healthcare utilization and quality of life among patients with AERD and to understand the impact of dupilumab, a monoclonal antibody targeting the interleukin 4 receptor, on patient-reported health outcomes and healthcare utilization.

Methods: We conducted a longitudinal survey study of 98 patients with AERD recruited from the Brigham and Women's Hospital AERD registry. Patients completed online questionnaires describing their medication history, healthcare utilization, and quality of life every 3 months for 2 years.

Results: At the end of 24 months, participants who were on dupilumab at the start of the study and those who started dupilumab had a significant reduction in the number of reported poor health days in the preceding month compared to patients not on dupilumab ($P < .001$ and $P < .01$, respectively). Participants on dupilumab and those who started dupilumab also had significantly lower overall sinonasal outcome test-22 and asthma control test scores compared to those not on dupilumab over 24 months ($P < .05$ for both groups).

Conclusion: Dupilumab therapy significantly improves health-related quality of life in patients with AERD, specifically as it pertains to patient assessment of days of overall poor health and quality of life related to sinonasal and asthma symptoms.

Keywords: NSAID-exacerbated respiratory disease; aspirin sensitivity; aspirin-exacerbated respiratory disease; asthma; chronic rhinosinusitis; dupilumab; eosinophilic esophagitis; nasal polyps; quality of life; respiratory biologic.

Conflict of interest statement

Declaration of Conflicting InterestsK.B. has served on scientific advisory boards for AstraZeneca, Sanofi, Regeneron, and GlaxoSmithKline and has received consulting fees from Genentech. T.L. has served on scientific advisory boards for AstraZeneca, Eli Lilly, Regeneron, Sanofi, and GlaxoSmithKline. J.B. has served on scientific advisory boards for GlaxoSmithKline. The other authors declare no conflicts of interest.

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. 2025 Mar;134(3):201-210.

doi: 10.1177/00034894241300812. Epub 2024 Nov 19.

Prediction of Clinical Response to Dupilumab for CRSwNP Based on the Amsterdam Classification of Completeness of Endoscopic Sinus Surgery (ACCESS) Score

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Affiliations Expand

- PMID: 39563019
- DOI: [10.1177/00034894241300812](https://doi.org/10.1177/00034894241300812)

Abstract

Purpose: Although the effectiveness of molecular antibodies has been established, evidence is still lacking on objective predictors of response. The aim of this study was to assess whether the extent of previous endoscopic sinus surgeries, assessed by means of the Amsterdam Classification of Completeness of Endoscopic Sinus Surgery (ACCESS) score, may influence clinical outcomes in refractory CRSwNP patients treated with dupilumab.

Materials and methods: A consecutive sample of patients treated with dupilumab for previously operated recalcitrant CRSwNP were enrolled in the study. Every patient was required to undergo a CT scan at baseline (T0), at 3 (T1), and 12 (T2) months after treatment start. ACCESS score was calculated at baseline, whilst at every timepoint patients underwent assessment of Nasal-Polyp-Score (NPS), Lund-Kennedy-Score (LKS), and had to fill in the 22-item Sinonasal-Outcome-Test (SNOT-22) and Visual-Analog-Scales (VAS) for sinonasal symptoms. Favorable outcome was considered based on EUFOREA guidelines, namely improving at least 3 of the followings: (i) NPS; (ii) SNOT-22; (iii) VAS-olfaction; and (iv) need for systemic corticosteroids.

Results: Overall favorable outcome was achieved in 69.1% (n = 38/55) of cases at T1, while in 89.1% (n = 49/55) at T2. There were no differences in baseline characteristics between responders and non-responders at both timepoints. At T1, out of all the included variables, no statistically significant predictor of favorable outcome was observed. Conversely, at T2, ACCESS score was the only confirmed independent predictive factor of response to dupilumab treatment (OR = 0.81 [95% CI = 0.67-0.92], P = .010).

Conclusions: Our findings suggest that the extent of previous endoscopic sinus surgeries may have a role in influencing clinical outcomes in patients with refractory CRSwNP undergoing treatment with dupilumab.

Keywords: ACCESS; CRSwNP; FESS; endoscopic sinus surgery; molecular antibodies; rhinology; type-2 inflammation.

Conflict of interest statement

Declaration of Conflicting InterestsThe author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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. 2025 Mar;134(3):195-200.

doi: 10.1177/00034894241298749. Epub 2024 Nov 11.

[Enlarged Frontal Sinusotomy and Chronic Rhinosinusitis with Nasal Polyps: An Effective Strategy to Control the Disease](#)

[Tommaso Saccardo](#)^{1,2}, [Valentine Nicolas](#)², [Emilien Chebib](#)³, [Stefano Manca di Villahermosa](#)^{2,4}, [Benjamin Verillaud](#)², [Alessandro Vinciguerra](#)², [Philippe Herman](#)²

Affiliations Expand

- PMID: 39529206
- DOI: [10.1177/00034894241298749](https://doi.org/10.1177/00034894241298749)

Abstract

Introduction: Chronic rhinosinusitis with nasal polyps (CRSwNP) is a disease with a strong impact on the quality of life (QoL) which treatment is based on local intranasal corticosteroids (ICS) and iterative courses of systemic corticosteroids (SCS) in case of relapse. When medical treatment is insufficient, surgery is indicated. We investigated the impact of enlarged frontal sinusotomies (EFS: Draf IIb or Draf III) on QoL and annual SCS consumption of patients with severe uncontrolled CRSwNP.

Methods: This is a retrospective cohort study of 38 patients, who underwent EFS at Lariboisière University Hospital (CHU) in Paris, France, between 2006 and 2020. All patients were asked to complete SNOT-22 questionnaires concerning pre- and post-op status. Patients' medical and sinus surgery history as well as the number of SCS treatments per year before and after surgery were also collected.

Results: Of the 38 patients, 33 underwent a Draf III procedure and 5 a Draf IIb, with no major complications reported. Surgery resulted in a significant improvement in SNOT-22 scores (-32.7 ± 19.3 , $P < 0.001$), with 19/22 items improving significantly. The number of annual SCS treatments decreased significantly from a mean of 4.8 ± 4.3 to 0.6 ± 1.2 ($P < 0.001$). During the follow-up (mean 88 months), 95% of our patients showed a satisfying disease control and only 2 patients required revision surgery for poor disease control 5 years after EFS.

Conclusion: EFS appears to be an effective and durable therapeutic option to improve the QoL of patients with severe CRSwNP and to reduce their SCS consumption without major complications.

Keywords: Draf; chronic rhinosinusitis; corticosteroids; endoscopic sinus surgery; enlarged frontal sinusotomy; quality of life.

Conflict of interest statement

Declaration of Conflicting InterestsThe author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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. 2025 Mar;135(3):1021-1028.

doi: 10.1002/lary.31846. Epub 2024 Oct 15.

[Impact of Sinus CT Severity Score on the Outcomes of Endoscopic Sinus Surgery in Eosinophilic CRSwNP](#)

[Fenghong Chen](#)¹, [Yang Liu](#)², [Yuanyuan Guo](#)^{2,3}, [Kanghua Wang](#)³, [Chuxin Chen](#)³, [Wendong Liu](#)², [Yunping Fan](#)³, [Jianbo Shi](#)², [Zhiying Nie](#)³

Affiliations Expand

- PMID: 39404128
- DOI: [10.1002/lary.31846](#)

Abstract

Background: Eosinophilic chronic rhinosinusitis with nasal polyps (eos-CRSwNP), especially those with diffuse disease as indicated by CT scans, has high recurrence rate and low control rate after endoscopic sinus surgery (ESS). Most of them are difficult to treat.

Objective: This study sought to identify if eos-CRSwNP patients were to undergo surgery earlier, while the disease is still limited on CT, they might achieve better postoperative outcomes.

Methods: This study enrolled eos-CRSwNP patients with different degree of sinus involvement who underwent primary ESS and compared the surgical outcomes of the patients exhibiting mild sinus involvement with those displaying severe sinus involvement. The demographic data, preoperative disease severity, and surgery outcomes at 1 year postoperatively were collected. CRS control status was the primary endpoint to evaluate the outcomes.

Results: This study included 118 patients with at least one-year follow-up. The overall uncontrolled rate was 33.1% at 1 year postoperatively. The best cut-off value for CT Lund-Mackay (L-M) score was 13 to predict the uncontrolled status (AUC = 0.67). Then, patients were divided into the mild group (L-M < 13, n = 70) and the severe group (L-M ≥ 13, n = 48) according to L-M score. The follow-up data indicated that 24.3% of patients (17/70) in the mild group and 45.8% of patients (22/48) in the severe group were uncontrolled (p = 0.015). Postoperative endoscopic score in the mild group was significantly better than those in the severe group (p = 0.002).

Conclusion: ESS performed on eos-CRSwNP patients with mild sinus involvement have better postoperative outcomes at 1 year than patients with severe sinus involvement.

Level of evidence: 3 Laryngoscope, 135:1021-1028, 2025.

Keywords: CRS control status; Lund–Mackay score; endoscopic sinus surgery; eosinophilic chronic rhinosinusitis with nasal polyp; postoperative endoscopic score.

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. 2025 Mar;135(3):1015-1020.

doi: 10.1002/lary.31839. Epub 2024 Oct 10.

[Outcomes after Functional Nasal Surgery in Patients with Versus without Rhinitis Medicamentosa](#)

[Anthony P Di Ponio](#)¹, [Mohammad-Nadim Samad](#)¹, [Richard Pellizzari](#)², [Hussein Mackie](#)², [Robert H Deeb](#)¹, [John R Craig](#)¹

Affiliations Expand

- PMID: 39387236
- DOI: [10.1002/lary.31839](#)

Abstract

Objective: Topical nasal decongestants (TNDs) are used to reduce nasal soft tissue edema and obstruction. However, after frequent TND use, patients can develop rhinitis medicamentosa (RM) with rebound nasal edema and obstruction. Management of RM has centered largely on TND cessation ± intranasal corticosteroids. The purpose of this study was to compare nasal obstruction outcomes following nasal obstruction surgery in patients with versus without RM.

Methods: A retrospective case-control study was conducted with adult patients who underwent bilateral inferior turbinate reduction (ITR) with or without septoplasty and nasal valve repair. Patients with versus without RM were assessed. RM was defined as at least daily TND use for ≥4 weeks. Preoperative and postoperative Nasal Obstruction Symptom Evaluation (NOSE) scores, and long-term TND cessation rates were collected. NOSE score changes were compared between patients with versus without RM.

Results: Of the 36 RM patients, mean age was 52.0 years, and 63.9% were male. Of 116 non-RM patients, mean age was 41.6 years, and 46.6% were male. Postoperative NOSE scores were collected at a mean 972.1 days postoperatively for RM patients, and 565.0 days for non-RM patients. Mean NOSE score reductions were - 9.8 for RM and - 8.6 for non-RM patients, both of which were significant ($p < 0.0001$). NOSE score reductions were not significantly between the two groups ($p = 0.2438$). Long-term TND cessation was maintained in 86.1% of RM patients.

Conclusion: Patients with and without RM achieved similar long-term significant NOSE score reductions following nasal obstruction surgery, and 86.1% of RM patients maintained long-term TND cessation.

Level of evidence: 3 Laryngoscope, 135:1015-1020, 2025.

Keywords: decongestant; nasal surgery; rebound congestion; rhinitis medicamentosa.

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Review

J Asthma

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. 2025 Mar;62(3):376-385.

doi: 10.1080/02770903.2024.2415544. Epub 2025 Jan 2.

[Efficacy and safety of montelukast-levocetirizine combination therapy in combined allergic rhinitis and asthma syndrome: a systematic review and meta-analysis](#)

[Min Shao¹, Jianing Sun¹, Qiling Zheng¹](#)

Affiliations Expand

- PMID: 39394937
- DOI: [10.1080/02770903.2024.2415544](#)

Abstract

Objective: This meta-analysis aims to evaluate the efficacy and safety of montelukast combined with levocetirizine in the treatment of allergic rhinitis with asthma, and to provide objective and effective evidence-based medical evidence for clinical use.

Data sources: PubMed, Web of Science, Cochrane Library, WANFANG DATA, CNKI, and Chinese BioMedical Literature Database were retrieved to identify records related to montelukast combined with levocetirizine in the treatment of allergic rhinitis with asthma.

Study selections: First, the eligibility criteria were employed to screen search results. Then, two investigators independently assessed titles, abstracts, and the full text of all retrieved references to identify potentially eligible studies.

Results: As of 2024-02-03, a total of six articles were included in this meta-analysis, covering 2,950 patients with allergic rhinitis with asthma. The meta-analysis results exhibited a pooled NSS of -1.28 (95%CI: -1.64 to -0.92), suggesting that the combination of montelukast and levocetirizine was effective in the treatment of nasal symptoms of allergic rhinitis complicated with asthma. The meta-analysis of controlled trials showed that the SMD of NSS in the group of montelukast combined with levocetirizine was -2.56 (95%CI: -2.77 to -2.35). The result indicated that compared with the control group, the combination of montelukast with levocetirizine significantly improved the symptoms of allergic rhinitis.

Conclusion: In summary, this meta-analysis demonstrated the efficacy of montelukast combined with levocetirizine in the treatment of nasal symptoms in AR with asthma, indicating that the combination of montelukast with levocetirizine is

more effective in improving symptoms of allergic rhinitis than monotherapy and has good safety.

Keywords: Montelukast; allergic rhinitis; asthma syndrome; levocetirizine; meta-analysis.

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chronic cough

1

Am J Speech Lang Pathol

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. 2025 Feb 26:1-7.

doi: 10.1044/2024_AJSLP-24-00345. Online ahead of print.

[Cough Suppression Therapy in Patients With Chronic Refractory Cough and Oropharyngeal Dysphagia](#)

[ShengYing A Chen](#)¹, [Jessica F Kim](#)², [Priya Krishna](#)³, [Ethan Simmons](#)¹, [Brianna K Crawley](#)³, [Thomas Murry](#)³

Affiliations Expand

- PMID: 40009488
- DOI: [10.1044/2024_AJSLP-24-00345](https://doi.org/10.1044/2024_AJSLP-24-00345)

Abstract

Purpose: Chronic refractory cough (CRC), defined as cough lasting over 8 weeks despite medical intervention, is a prevalent condition with a number of associated comorbidities. Cough suppression therapy (CST) has been demonstrated to be a promising avenue for treating CRC by improving airway control and coordination. However, little is known about the effects of CST in CRC patients diagnosed with comorbid oropharyngeal dysphagia (DYS) despite a large subset of patients with both conditions. The purpose of this study was to determine if CST affects self-

assessment of DYS severity in patients diagnosed with both CRC and oropharyngeal DYS.

Method: The charts of 106 patients with a primary diagnosis of CRC who completed CST were reviewed. A total of 30 age- and gender-matched individuals, 15 with CRC and oropharyngeal DYS (CRC + DYS) and 15 with CRC only, were identified. All patients underwent stroboscopic examinations by an otolaryngologist and completed the Cough Severity Index and Eating Assessment Tool-10 surveys. Statistical analyses were conducted to compare pre- and posttreatment symptom severity, gender, age, race/ethnicity, and comorbidities.

Results: Self-reported severity of DYS decreased in all 15 CRC + DYS patients, and their average post-treatment score was statistically similar to that of patients with only CRC. Both groups had comparable reductions in their self-assessment of cough severity. The two groups presented no statistically significant difference in pretreatment cough severity, treatment duration, number of treatment sessions, comorbidities, age, and gender.

Conclusion: These findings suggest that CRC patients with oropharyngeal DYS and no evidence of aspiration had statistically significant improved self-assessment of swallowing disorder severity when treated with CST.

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Am J Respir Cell Mol Biol

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. 2025 Mar;72(3):285-296.

doi: 10.1165/rcmb.2024-0219OC.

[Sputum Metabolomic Signature and Dynamic Change of Cough Variant Asthma](#)

[Zhe Chen](#)^{1,2}, [Kehan Jin](#)³, [Kangping Huang](#)³, [Zhiyin Chen](#)², [Hankun Lu](#)², [Mingtong Lin](#)², [Li Long](#)⁴, [Jiaxing Xie](#)², [Mengzhao Wang](#)⁵, [Kefang Lai](#)², [Yuxi Wei](#), [Fang Yi](#)²

Affiliations Expand

- PMID: 39393348

- DOI: [10.1165/rcmb.2024-0219OC](https://doi.org/10.1165/rcmb.2024-0219OC)

Abstract

Cough variant asthma (CVA), a common reason for chronic cough, is a globally prevalent and burdensome condition. The heterogeneity of CVA and a lack of knowledge concerning the exact molecular pathogenesis has hampered its clinical management. This study presents the first sputum metabolome of patients with CVA, revealing the dynamic change during treatment and exploring biomarkers related to the occurrence and treatment response of CVA. We found that arginine biosynthesis, purine metabolism, and pyrimidine metabolism pathways were enriched in CVA compared with healthy controls. Part of the metabolic disturbances could be reversed by antiasthmatic medication. The levels of dipeptides/tripeptides (alanyl tyrosine, Gly-Tyr-Ala, Ala-Leu, and Thr-Leu) were significantly associated with sputum neutrophil or eosinophil percentages in patients with CVA. Differential metabolites before treatment between effective and ineffective treatment groups were enriched in purine metabolism, thiamine metabolism, and arginine metabolism. 2-Isopropylmalate was downregulated in CVA and increased after treatment, and the effective treatment group had a lower 2-isopropylmalate level before treatment. Random forest and logistic regression models identified glutathione, thiamine phosphate, alanyl tyrosine, and 2'-deoxyadenosine as markers for distinguishing CVA from healthy controls (all areas under the curve >0.8). Thiamine phosphate might also be promising for predicting therapy responsiveness (area under the curve, 0.684). These findings imply that disturbed mitochondrial energy metabolism and imbalanced oxidation-reduction homeostasis probably underlay the metabolic pathogenesis of CVA.

Keywords: chronic cough; cough variant asthma; induced sputum; mitochondrial energy metabolism.

Comment in

- [Cough-Variant Asthma: The Asthma Phenotype No One Coughs About.](#)

Corteselli E, Alexis N. *Am J Respir Cell Mol Biol.* 2025 Mar;72(3):231-232. doi: 10.1165/rcmb.2024-0517ED. PMID: 39565184 No abstract available.

Supplementary info

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

Review

Radiographics

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. 2025 Mar;45(3):e240156.

doi: 10.1148/rg.240156.

[Imaging of Bronchoscopic Lung Volume Reduction Using Endobronchial Valves](#)

[Yogesh S Gupta](#)¹, [Scott Simpson](#)¹, [Ryan Graham](#)¹, [Maruti Kumaran](#)¹, [Farouk Dako](#)¹, [Partha Hota](#)¹, [Chandra Dass](#)¹

Affiliations Expand

- PMID: 40014469
- DOI: [10.1148/rg.240156](#)

Abstract

Lung volume reduction is a treatment option for patients with severe emphysema and predominant chronic obstructive pulmonary disease that is refractory to medical treatment. These patients often experience symptoms associated with hyperinflation including dyspnea and exercise limitation. In recent years, bronchoscopic lung volume reduction using endobronchial valve (EBV) therapy has emerged as a U.S. Food and Drug Administration-approved and less invasive alternative to lung volume reduction surgery. The two approved one-way valves allow air to exit the lung but prohibit air from entering, with the intended goal of reducing hyperinflation. After patients meet clinical eligibility criteria, imaging has an integral role in preprocedural and postprocedural assessment. Findings from qualitative and quantitative preprocedural thin-section CT and perfusion scintigraphic analysis provides the characterization of emphysema, degree of collateral ventilation, and lung perfusion data necessary for target lobe selection, while aiding in detection of the presence of contraindications to the procedure, including suspicious pulmonary nodules, significant bronchiectasis, large bullae, and pleural adhesions. At procedure completion, chest radiography is required for assessment of complications, most commonly pneumothorax. Subsequent imaging may determine whether the procedure has successfully induced lobar atelectasis as well as the presence of additional complications such as infection and valve malposition or migration. Knowledge of EBV therapy and pertinent imaging findings is crucial in optimizing patient selection for the procedure, identifying complications, and evaluating treatment response. ©RSNA, 2025.

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Published Erratum

Respir Investig

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. 2025 Mar;63(2):224-225.

doi: 10.1016/j.resinv.2025.01.002. Epub 2025 Feb 3.

[Corrigendum to "Efficacy and safety of long-term macrolide therapy for non-cystic fibrosis bronchiectasis: A systematic review and meta-analysis" \[Respir Invest Volume 62 \(2024\) 1079-1087\]](#)

[Natsuki Nakagawa](#)¹, [Masashi Ito](#)², [Takanori Asakura](#)³, [Nobuyuki Horita](#)⁴, [Yasushi Obase](#)⁵, [Hiroshi Mukae](#)⁵

Affiliations Expand

- PMID: 39904248
- DOI: [10.1016/j.resinv.2025.01.002](https://doi.org/10.1016/j.resinv.2025.01.002)

No abstract available

Erratum for

- [Efficacy and safety of long-term macrolide therapy for non-cystic fibrosis bronchiectasis: A systematic review and meta-analysis.](#)

Nakagawa N, Ito M, Asakura T, Horita N, Obase Y, Mukae H. Respir Investig. 2024 Nov;62(6):1079-1087. doi: 10.1016/j.resinv.2024.09.004. Epub 2024 Sep 25. PMID: 39326270 Review.

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Respir Med

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. 2025 Mar:238:107957.

doi: [10.1016/j.rmed.2025.107957](https://doi.org/10.1016/j.rmed.2025.107957). Epub 2025 Jan 21.

[Challenges in treating patients with comorbid asthma and bronchiectasis](#)

[Mario Cazzola](#)¹, [Luigino Calzetta](#)², [Maria Gabriella Matera](#)³, [Paola Rogliani](#)⁴, [Vincenzo Patella](#)⁵

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- PMID: 39848410
- DOI: [10.1016/j.rmed.2025.107957](https://doi.org/10.1016/j.rmed.2025.107957)

Free article

Abstract

The management of patients with overlapping asthma and bronchiectasis requires a tailored approach, starting with a comprehensive assessment of the patient's clinical profile, including the severity of asthma and the extent of bronchiectasis. Inhaled corticosteroids (ICS) are often recommended, but their use should be carefully monitored because of the risk of increased infection. If asthma is well controlled and bronchiectasis remains stable, a gradual reduction in the dose of ICS may be considered. Adjunctive therapies such as macrolides, which have anti-

inflammatory and antimicrobial effects, or leukotriene receptor antagonists (LTRAs) may be beneficial. However, LTRAs should be used with caution in patients with bronchiectasis. Long-acting muscarinic antagonists (LAMA), especially in combination with ICS and long-acting beta-agonists (LABA), can improve bronchodilation and reduce inflammation. Although triple therapy (ICS/LABA/LAMA) is promising, its efficacy in bronchiectasis has not yet been confirmed by randomised controlled trials (RCTs). Ongoing monitoring is essential to adjust treatment as the patient's condition evolves. Preventive measures, including vaccination and regular sputum cultures, are important to minimize the risk of infection. Further research and RCTs are needed to better understand the role of dual bronchodilators and triple therapy in the management of overlapping asthma-bronchiectasis.

Keywords: Asthma; Bronchiectasis; Overlap; Treatment.

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Conflict of interest statement

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Review

Curr Opin Pulm Med

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. 2025 Mar 1;31(2):135-144.

doi: 10.1097/MCP.0000000000001131. Epub 2024 Nov 2.

[The bronchiectasis microbiome: current understanding and treatment implications](#)

[Jayanth Kumar Narayana](#)¹, [Micheál Mac Aogáin](#)^{2,3}, [Philip M Hansbro](#)⁴, [Sanjay H Chotirmall](#)^{1,5}

Affiliations Expand

- PMID: 39492755
- DOI: [10.1097/MCP.0000000000001131](https://doi.org/10.1097/MCP.0000000000001131)

Abstract

Purpose of review: Advances in DNA sequencing and analysis of the respiratory microbiome highlight its close association with bronchiectasis phenotypes, revealing fresh opportunities for diagnosis, stratification, and personalized clinical intervention. An under-recognized condition, bronchiectasis is increasingly the subject of recent large-scale, multicentre, and longitudinal clinical studies including detailed analysis of the microbiome. In this review, we summarize recent progress in our understanding of the bronchiectasis microbiome within the context of its potential use in treatment decisions.

Recent findings: Diverse microbiome profiles exist in bronchiectasis, in line with the established disease heterogeneity including treatment response. Classical microbiology has established *Pseudomonas aeruginosa* and *Haemophilus influenzae* as two microbial markers of disease, while holistic microbiome analysis has uncovered important associations with less common bacterial taxa including commensal an/or pathobiont species, including the emerging role of the fungal mycobiome, virome, and interactome. Integration of airway microbiomes with other high-dimensional biological and clinical datasets holds significant promise to determining treatable traits and mechanisms of disease related to the microbiome.

Summary: The bronchiectasis microbiome is an emerging and key area of study with significant implications for understanding bronchiectasis, influencing treatment decisions and ultimately improving patient outcomes.

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