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

1
Observational Study

BMJ Open Respir Res
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. 2025 Sep 3;12(1):e002987.
doi: 10.1136/bmjresp-2024-002987.
Impact of bronchitis variability on outcomes of COPD
Joon Young Choi 1 , Yun Seok Kim 1 , Youlim Kim 2 , Hyun Lee 3 , Kyung Hoon Min 4 , Hyunjung Kim 5 , Chin Kook Rhee 6 , Yong Bum Park 7 , Kwang Ha Yoo 2 , Ji-Yong Moon 8
Affiliations Expand
• PMID: 40903188

• DOI: 10.1136/bmjresp-2024-002987
Abstract
Objective: This study aimed to evaluate the impact of serial bronchitic status over two consecutive years on clinical outcomes, including frequency of exacerbation and lung function decline rate.
Methods: We analysed data from 1265 participants enrolled in the Korea COPD Subgroup Study, a nationwide prospective observational chronic obstructive pulmonary disease (COPD) cohort. Bronchitic status was determined using subquestionnaires of the COPD Assessment Test at baseline and after 1 year, classifying patients into three serial bronchitic groups of persistently not bronchitic (NB), intermittently bronchitic (IB) and chronic bronchitis (CB). Annualised exacerbation rates and longitudinal lung function decline rates were analysed.
Results: The NB group consisted of 873 individuals, the IB group contained 272 and the CB group included 120. The analysis of baseline demographics showed a greater prevalence of current smokers in the CB and IB groups compared with the NB group. Patients with CB exhibited the worst baseline symptoms and lung function, while those

with IB had worse clinical features compared with those with persistently NB. Patients with

CB had the highest rate of moderate-to-severe exacerbations, followed by IB, compared with persistently NB. No significant differences in forced expiratory volume in 1 s or forced vital capacity decline rates were observed among the groups.
Conclusions: Patients with CB and IB exhibit a greater risk of exacerbations than those with NB, whereas lung function decline rates did not significantly differ between groups.
Keywords: Cough/Mechanisms/Pharmacology; Patient Outcome Assessment; Perception of Asthma/Breathlessness; Pulmonary Disease, Chronic Obstructive; Respiratory Function Test.

Conflict of interest statement
Competing interests: None declared.
Supplementary info
Publication types, MeSH termsExpand
Full text links
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2
Review

Lung
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. 2025 Sep 3;203(1):92.
doi: 10.1007/s00408-025-00844-0.
Emerging Therapeutics in COPD: Mapping Innovation to Treatable Traits
Mario Cazzola 1 , Vanessa M McDonald 2 3 , Daiana Stolz 4 , Paola Rogliani 5 , Maria Gabriella Matera 6
Affiliations Expand
• PMID: 40900345

• DOI: 10.1007/s00408-025-00844-0
Abstract
Chronic Obstructive Pulmonary Disease (COPD) is a complex, heterogeneous condition characterized by diverse clinical phenotypes and underlying pathobiological mechanisms. Traditional "one-size-fits-all" management strategies have limited effectiveness in addressing this heterogeneity. The Treatable Traits (TTs) approach represents a precision medicine paradigm that targets specific, identifiable, and modifiable traits in individual patients, regardless of diagnostic labels. This paper explores the alignment between the TTs framework and emerging pharmacological therapies, with a particular focus on anti-inflammatory agents and bronchodilators currently under investigation. Each drug category is mapped to relevant TTs, such as eosinophilic or neutrophilic inflammation, corticosteroid resistance, chronic bronchitis, and frequent exacerbations. This review highlights the importance of biomarker-driven phenotyping and real-world data in designing TT-based clinical trials. It emphasizes challenges such as trait instability over time, comorbidity clustering, and trial design heterogeneity. Moreover, we advocate for incorporating digital health tools, long-term follow-up, and cost-effectiveness analyses to ensure translational relevance. In conclusion, integrating emerging therapies with the TTs approach holds

substantial promise for personalizing COPD management, improving outcomes, and

facilitating targeted drug development.
Keywords: Chronic obstructive pulmonary disease; Anti-inflammatory agents; Bronchodilators; Emerging pharmacological therapies; Treatable traits.

Conflict of interest statement
Declarations. Conflict of Interest: The authors declare no competing interests. Clinical Trial Number: Not applicable.
• 81 references
Supplementary info
Publication types, MeSH terms, SubstancesExpand
Full text links
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3
J Nurs Res
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. 2025 Sep 4.
doi: 10.1097/jnr.0000000000000698. Online ahead of print.
# Pulmonary Rehabilitation Exercise Package for Enhancing Health in Elderly COPD Patients With Frailty: An Experimental Study
Lin-Yu Liao 1 , Huan-Hwa Chen 2 , Fenju Chen 3 , Shunt-Chen Yang 4
Affiliations Expand
• PMID: 40900147

• DOI: 10.1097/jnr.0000000000000698
Abstract
Background: Frailty may result in decreased physical functioning and worsen the prognosis of chronic diseases. Chronic obstructive pulmonary disease (COPD) is associated with an increased risk of concurrent frailty. Although pulmonary rehabilitation has demonstrated improvements in COPD outcomes, its impact on patients with frailty and COPD remains unclear.
Purpose: This study was designed to examine the effects of the pulmonary rehabilitation exercise package (PREP) on frailty, dyspnea, lower extremity muscular endurance (LEME), and walking ability (WA) in older adult COPD patients with frailty.
Methods: A single-blind experimental design was used to study 100 elderly COPD patients with frailty, randomly assigned to either the experimental or control group. The experimental group (EG) received the PREP intervention, while the control group (CG) received routine care. The Clinical Frail Scale (CFS) was used to measure frailty, the Modified Medical Research Council scale was used to measure dyspnea, LEME was measured using the 30-second chair stand test, and functional exercise capacity (i.e., walking ability or WA) was measured using the 6-minute walk distance. All measurements were taken at three time points: baseline (preintervention), 1 week postintervention, and 1 month postintervention. Between-group and within-group differences and variations in repeated measurements over time were compared using independent t tests, paired t tests, and generalized estimating equations (GEE).
Results: A total of 91 participants completed the study, with 9 participants lost to follow-up. No significant between-group differences were found at baseline in terms of

characteristics, frailty, dyspnea, LEME, and WA. Applying difference-in-differences, the EG outperformed the CG in terms of dyspnea and WA at both 1-week and 1-month follow-ups, while the EG significantly outperformed the CG on all measures at the 1-month follow-up.

Within-group comparisons also revealed significant improvements in the EG compared with the CG. Using GEE to examine the interaction, the EG demonstrated significantly better improvements in dyspnea, LEME, and WA than the CG at the 1-month mark. Conclusions/implications for future practice: The results show that PREP has the potential to significantly improve health in older adults with frailty and COPD by addressing frailty, dyspnea, LEME, and WA. PREP may be implemented as a subacute health care model to manage COPD-related debilitation in hospital settings.
Keywords: COPD; frail; pulmonary rehabilitation exercise.

Conflict of interest statement
The authors declare no conflicts of interest.
• 37 references
Full text links
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4
Trials
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. 2025 Sep 2;26(1):335.
doi: 10.1186/s13063-025-09032-0.
Study protocol: COPD-eosinophil-guided reduction of inhaled corticosteroids (COPERNICOS) : A randomized, double-blinded, multicenter, four-arm intervention clinical trial on eosinophil-guided time-updated person-specific reduction of inhaled corticosteroid therapy and prophylactic low dose Azithromycin therapy in patients with severe or very severe chronic obstructive pulmonary disease (COPD)
Christian Rønn # 1 , Barbara Bonnesen # 2 , Imane Achir Alispahic 2 , Louise Lindhardt Tønnesen 2 , Jakob Lyngby Kjærgaard 2 , Mia Moberg 3 , Charlotte Suppli Ulrik 4 3 , Zitta Barrella Harboe 4 5 , Andrea Browatzki 5 , Torben Tranborg Jensen 6 , Christian N Meyer 4 7 , Uffe Bodtger 7 , Elisabeth Bendstrup 8 9 , Sofie Lock Johansson 10 , Diana Utech Kaiser 11 , Charlotte Hyldgaard 12 , Jørgen Vestbo 13 , Pradeesh Sivapalan # 2 4 , Jens-Ulrik Stæhr Jensen # 2 4
Affiliations Expand
• PMID: 40898355

• PMCID: PMC12403334

• DOI: 10.1186/s13063-025-09032-0
Abstract
Background: Inhaled corticosteroid (ICS) is frequently used for COPD. Based on the considerable adverse effects and the knowledge that many such patients do not gain benefit from this treatment, it remains unresolved whether ICS treatment can be managed with lower doses, or via an ICS-sparing strategy with periods with and without this medicine. The blood eosinophil count is a useful biomarker for steroid-responsive airway inflammation, and we want to investigate whether an individualized and eosinophil-guided

approach on ICS treatment reduces ICS over-treatment and side effects. High-dose (500 mg thrice weekly or 250 mg daily) long-term azithromycin has been shown to reduce acute exacerbations of COPD in selected patients. Frequent gastro-intestinal adverse effects remain a challenge, but many patients tolerate lower doses; however, the effect of the

treatment at lower doses is unknown, although many physicians prefer such doses. We want to investigate whether oral low-dose prophylactic azithromycin 250 mg three times weekly reduces acute exacerbations of COPD and improves time alive and out of hospital.
Methods: This is an ongoing, actively recruiting randomized, double-blinded, multicenter, four-arm factorial intervention clinical trial aiming to recruit 444 patients with specialist verified COPD GOLD risk class E and/or FEV1 < 30% who are currently on ICS. The patients are followed for one year and are randomized 1:1:1:1 to one of the four treatment arms: (1) eosinophil-guided ICS-sparing treatment and low-dose azithromycin, (2) eosinophil-guided ICS treatment and placebo, (3) continued ICS treatment and low-dose azithromycin, or (4) continued ICS treatment and placebo. If blood-eosinophils (measured every 3 months) are < 0.3 × 10 9  cells/L, ICS treatment will be paused in the arms with eosinophil-guided ICS-sparing treatment. Azithromycin/placebo is double-blinded and administered three times weekly. The primary endpoint is the number of hospitalization-requiring COPD exacerbations and/or death within 365 days.
Discussion: Severe ICS-adverse effects like bacterial infections should be reduced. The ICS-sparing intervention, we test, may provide a useful tool to do this safely. Azithromycin low-dose prophylaxis is practiced by many physicians. This trial will provide evidence of whether this is effective.
Trial registration: ClinTrials.gov. NCT04481555. Registered on 14 AUG 2020, https://clinicaltrials.gov/study/NCT04481555 .

Conflict of interest statement
Declarations. Ethics approval and consent to participate: The research project will be carried out in accordance with the Helsinki Declaration, the Danish Data Protection Act, the Danish Health Act, and the General Data Protection Regulation (EU) 2016/679 (GDPR). The study is approved through the CTIS and will be conducted in compliance with the Clinical Trials Regulation (EU) No 536/2014 (CTR) and with the principles of good clinical practice, as this statement is a requirement under the CTR. The study will be registered in the US Clinical Trials database ( www.clinicaltrials.gov ), which is based on guidelines defined by the Food and Drug Administration. Since study participants will not be exposed to irresponsible risks and can greatly benefit from the study's results and participation in the study, we believe that the study is scientifically and ethically sound. Participation in the trial is voluntary, and participants will not receive any form of financial compensation for participation. Participants are protected under the Personal Data Processing Act, and the study is reported to the Regional Science Ethics Committee (VEK), the Danish Medicines Agency (Lægemiddelstyrelsen), and the Danish Data Protection Agency (Videnscenter for Dataanmeldelser). The trial is covered by the patient compensation scheme. Participants can apply for compensation in accordance with Statutory Order No. 1113 of 7 November 2011 on the right of appeal and compensation in the healthcare system if participants experience unexpected damage during the trial or at inclusion. Consent for publication: Not applicable. Competing interests: Outside the submitted work: CSU has received grants from Sanofi, Boehringer Ingelheim, AstraZeneca, and Novartis; speaker fees from Orion Pharma, AstraZeneca, and TEVA; and consulting fees from Chiesi, Orion Pharma, AstraZeneca, GSK, and TEVA and has been on advisory boards for Novartis, Sanofi, GlaxoSmith Kline, Chiesi, AstraZeneca, and Boehringer Ingelheim. EB reports a grant from Boehringer Ingelheim; fees for presentations from BI and Chiesi; support for travel from Boehringer Ingelheim and Roche;

has participated on Data Safety Monitoring Boards or advisory boards for AbbVie and Boehringer Ingelheim. JV has received consulting fees from AstraZeneca for serving on a trial steering committee, and has received payment or honoraria for presenting at meetings from ALK-Abello, AstraZeneca, Boehringer Ingelheim, Chiesi, GSK, and Teva.
• 25 references

• 2 figures
Supplementary info
Publication types, MeSH terms, Substances, Associated dataExpand
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Cite
5
Review

Subst Abuse Treat Prev Policy
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. 2025 Sep 2;20(1):34.
doi: 10.1186/s13011-025-00673-7.
Tobacco and asthma: presenting the world health organization (WHO) tobacco knowledge summary
Wenying Lu 1 , Sarah Rylance 2 , Kerstin Schotte 3 , Rebekka Aarsand 4 , Elizaveta Lebedeva 5 , Werner Bill 6 , Jing Han 2 , David Cl Lam 7 , Joan B Soriano 8 , Arzu Yorgancioglu 9 , Sukhwinder Singh Sohal 10
Affiliations Expand
• PMID: 40898330

• PMCID: PMC12406344

• DOI: 10.1186/s13011-025-00673-7
Abstract
The WHO recently published a Tobacco Knowledge Summary (TKS) which is prepared with the objective to summarize the current evidence on the association between tobacco use and asthma. This is also intended as an advocacy tool to widely include health care professionals in the fight for tobacco control and prevention of tobacco related adverse health effects. This article expands on the evidence outlined in the TKS, providing a more comprehensive and clinically focused analysis, aimed at lung-specialist audience. It emphasizes six key messages aimed at guiding healthcare providers and governments in advocating for the health of people living with asthma and the broader population: (1) Babies born to mothers who smoke have smaller lungs and an increased risk of developing asthma during childhood. Pregnant women should receive targeted support to quit tobacco use. (2) Children exposed to second-hand tobacco smoke have an increased risk of developing asthma. (3) Smoking during adolescence and adulthood increases the risk of developing asthma and exacerbates the condition, as well as causing other lung diseases such as chronic obstructive pulmonary disease (COPD) and lung cancer. (4) For people living with asthma, smoking worsens symptoms and can make treatment with medications less effective. All smokers with asthma should be supported to quit smoking. (5) E-cigarettes, heated tobacco products and other nicotine-delivery devices likely also carry risks. Governments should implement effective tobacco control measures to protect

all individuals, including those who are vulnerable. (6) The tobacco and nicotine industries' aggressive tactics in the marketing of their products specifically target children, adolescents and young adults. Protecting youth from these harmful tactics is a top priority.
Keywords: Asthma; Smoking and vaping; Smoking cessation; Tobacco control.

Conflict of interest statement

Declarations. Ethics declarations: Not applicable. Consent to publish: Not applicable. Disclaimer: The authors alone are responsible for the views expressed in this article and they do not necessarily represent the views, decisions, or policies of the institutions with which they are affiliated. Conflict of interest: Declaration of competing interests: Dr Sohal reports honorarium for lectures from Chiesi, travel support from Chiesi, AstraZeneca, Boehringer Ingelheim and GSK, and research grants from Boehringer Ingelheim and Lung Therapeutics, outside the submitted work; and has served on the small airway advisory board for Chiesi Australia for which an honorarium has been received. Dr Sohal has served as Chair for the Chiesi Advisory Board for Centre of Excellence in Oscillometry, for which an honorarium was received.

• 89 references

• 1 figure

Supplementary info

Publication types, MeSH terms, Substances, Grants and fundingExpand

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Eur J Intern Med

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. 2025 Sep 1:106499.

doi: 10.1016/j.ejim.2025.106499. Online ahead of print.

Addressing polymorbidity in chronic obstructive pulmonary disease: an opportunity to improve outcomes

David M Mannino 1

Affiliations Expand

• PMID: 40897632

• DOI: 10.1016/j.ejim.2025.106499

No abstract available

Conflict of interest statement

Declaration of competing interest DM is a consultant to Astra-Zeneca, Chiesi, Lilly, Amgen, Roche, GlaxoSmithKline, Regeneron, Genentech, Up to Date, and the COPD Foundation, and a Medical Expert for the Schlesinger Law Firm.

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EClinicalMedicine

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doi: 10.1016/j.eclinm.2025.103433. eCollection 2025 Sep.

Impact of pulmonary rehabilitation programme design on effectiveness in COPD: a systematic review and component network meta-analysis

Thomas J C Ward 1 2 3 , Lorna Latimer 1 2 3 , Enya Daynes 1 2 3 , Suzanne C Freeman 4 , Sarah Ward 2 , Jiaqing Xu 1 3 , Muhammed Haris 1 , Majda Bakali 5 , Sophie Reap 1 , Mamoon Iqbal 1 2 3 , Lin Wang 1 3 , Akash Mavilakandy 1 , Aarinola Olaiya 2 , Hnin Aung 1 2 3 , Theresa C

Harvey-Dunstan 6 , Sally J Singh 1 2 3 , Neil J Greening 1 2 3 , Rachael A Evans 1 2 3 , Michael C Steiner 1 2 3 , Alex J Sutton 4
Affiliations Expand
• PMID: 40896469

• PMCID: PMC12396583

• DOI: 10.1016/j.eclinm.2025.103433
Abstract
Background: Pulmonary rehabilitation (PR) is a key treatment for chronic obstructive pulmonary disease (COPD) recommended by all guidelines. However, programmes vary widely and the optimal combination of components to maximise benefits and efficiency remains unknown. We aimed to use the novel technique of component network meta-analysis (cNMA) to investigate the relative contribution of 1) exercise modality and intensity, 2) non-exercise components, 3) type of supervision, and 4) programme duration of PR for people with COPD.
Methods: MEDLINE, EMBASE, CINAHL, and Cochrane databases searched in October 2023 with no date or language restrictions. We included randomised controlled trials (RCTs) which included an intervention involving exercise for people with COPD. We present outcomes of exercise capacity, breathlessness and health related quality of life (HRQoL). Screening and eligibility were assessed by two independent reviewers. cNMA, a technique developed to investigate complex interventions such as PR, was conducted to examine the contribution of single components within diverse multicomponent interventions controlling for cohort demographics. PROSPERO: CRD42022322058.
Findings: We included 337 RCTs with 18,911 participants and 227 intervention components. In-person supervision enhanced gains in exercise capacity (Standardised mean difference (SMD) 0.41, 95% CrI 0.20; 0.63), HRQoL (0.43 95% CrI 0.19; 0.68) and breathlessness (0.31 95% CrI 0.04; 0.58) over exercise training alone with moderate to high certainty. Remote supervision increased gains in exercise capacity (0.40 95% CrI 0.08; 0.73) with trends towards improvements in HRQoL and breathlessness, with low certainty. Aerobic training appeared to be most effective for all outcomes at high or very high intensity but with low certainty. Addition of structured education did not improve any outcome. Psychological interventions led improvements in exercise capacity (0.37 95% CrI 0.01; 0.73, low certainty) and HRQoL (0.54 95% CrI 0.18; 0.91, moderate certainty). There was trend towards improvements in breathlessness with addition of breathing exercises (0.26 95% CrI -0.04; 0.56, low certainty). Programme duration did not impact outcomes. For outcomes of exercise capacity, HRQoL and breathlessness there were 60%, 63% and 59% studies at high risk of bias respectively.
Interpretation: This large-scale analysis of over 300 randomised PR trials found the strongest effects for in-person supervised and prescribed aerobic exercise training with less certainty for the benefit of other commonly used PR components and delivery methods.

Funding: This research was funded through a National Institute for Health and Care Research (NIHR) Applied Research Collaboration East Midlands grant (2.12) and carried out at the NIHR Leicester Biomedical Research Centre (BRC).
Keywords: Chronic respiratory disease; Exercise training; Pulmonary rehabilitation.

Conflict of interest statement
TJC Ward reports grants and personal fees from Chiesi and GlaxoSmithKline and is a member of the British Thoracic Society COPD Specialist Advisory Group. E Daynes reports personal fees from Chiesi and the Royal College of Physicians and is a member of the British Thoracic Society Pulmonary Rehabilitation Group. NJ Greening reports

personal and institutional grants and fees from Wellcome Leap, GlaxoSmithKline, Roche, Astrazeneca, Chiesi, Pulmonx, Roche, Sanofi and is chair of the British Thoracic Society COPD Specialist Advisory Group. RA Evans reports personal and institutional grants and fees from NIHR, UKRI, Wolfson Foundation, Genentec/Roche, Astrazeneca/Evidera, Moderna and is chair of the European Respiratory Society Pulmonary Rehabilitations and Chronic Care group and the Amercian Thoracic Society Pulmonary Rehabilitation Assembly. MC Steiner reports a conference travel grant from AstraZeneca and unpaid data monitoring committee roles for trials of pulmonary rehabilitation and beta blockers in COPD. All other authors have no relevant conflicts to declare.


8
Review

J Clin Invest
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. 2025 Sep 2;135(17):e194312.
doi: 10.1172/JCI194312.
Particulate matter air pollution: effects on the respiratory system
Robert B Hamanaka, Gökhan M Mutlu
• PMID: 40892514

• PMCID: PMC12404767

• DOI: 10.1172/JCI194312
Abstract
Air pollution comprises a complex mixture of gaseous and particulate components. Particulate matter (PM) air pollution is associated with 4.7 million premature deaths per year. Among modifiable risk factors, air pollution exposure contributes to 8% of disability adjusted life years and ranks above factors such as high blood pressure, smoking, and high fasting plasma glucose. As the site of entry, exposure to PM air pollution causes respiratory symptoms and is a significant cause of respiratory morbidity and mortality. In this Review, we discuss the studies that link air pollution exposure with respiratory diseases. We review the epidemiological evidence linking PM exposure and lung diseases including asthma, chronic obstructive pulmonary disease, pulmonary fibrosis, pneumonia,

acute respiratory distress syndrome, and lung cancer. We also provide an overview of current knowledge about the mechanisms by which PM exerts its biological effects leading to adverse health effects in the respiratory system.
Conflict of interest statement
Conflict of interest: The authors have declared that no conflict of interest exists.

Cite
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Ann Intern Med
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doi: 10.7326/ANNALS-25-03218-JC. Online ahead of print.
COPD diagnosed using a multidimensional algorithm was associated with some adverse clinical outcomes over 10 y
Simon O'Connor 1 ; ACP Journal Club Editorial Team at McMaster University
Affiliations Expand
• PMID: 40889368

• DOI: 10.7326/ANNALS-25-03218-JC
Abstract
GIM/FP/GP: [Formula: see text] Pulmonology: [Formula: see text].
Conflict of interest statement
Disclosures: Disclosure form is available with the article online.
Full text links
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Comparative Study

Sleep Breath
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. 2025 Sep 1;29(5):275.
doi: 10.1007/s11325-025-03426-9.
Cognitive outcomes in chronic obstructive pulmonary disease (COPD)/OSA overlap syndrome compared to obstructive sleep apnea (OSA) alone: a systematic review
Ahmad M Alharbi 1 , Nawal Alotaibi 2 3 , Ömer Faruk Uysal 2 , Roby D Rakhit 4 5 , Simon E Brill 6 , John R Hurst 2 6 , Swapna Mandal 2 6
Affiliations Expand
• PMID: 40888961

• PMCID: PMC12402042

• DOI: 10.1007/s11325-025-03426-9
Abstract
Background: Obstructive Sleep Apnoea (OSA) and Chronic Obstructive Pulmonary Disease (COPD) are both independently associated with cognitive impairment. COPD/OSA overlap syndrome could potentially result in greater cognitive impairment that is more than additive. This systematic review evaluates attention, memory, executive function and global cognition in OSA alone compared to COPD/OSA overlap syndrome.
Methods: Systematic searches in MEDLINE, EMBASE, PsycINFO, CINAHL, and CENTRAL identified studies assessing cognitive function in adults with OSA and/or COPD/OSA overlap syndrome. Inclusion criteria required validated diagnostic and cognitive assessment tools. Twelve studies, including 7,424 participants, were reviewed:

10 involving OSA alone and 2 involving overlap syndrome. A narrative synthesis was performed due to methodological heterogeneity. Registration number is: CRD42024557577.
Results: OSA alone was primarily associated with mild to moderate cognitive impairment, with attention and executive function most affected, with nocturnal hypoxemia and sleep fragmentation thought to be underlying causative factors. Memory and global cognition were relatively preserved. In contrast, COPD/OSA overlap syndrome was associated with more severe impairments, particularly in memory and global cognition. Overlap patients had significantly lower cognitive scores and a higher prevalence of mild cognitive impairment compared to OSA alone.
Conclusions: Whilst OSA alone is associated with mild to moderate cognitive impairments, COPD/OSA overlap syndrome associates with more pronounced impairments, particularly in memory and global cognition. Nocturnal hypoxemia and systemic inflammation may be important mechanisms. Early cognitive screening and targeted interventions could support clinicians in mitigating these risks.
Keywords: COPD; Cognitive function; Nocturnal hypoxemia; OSA; Overlap syndrome; Systematic review.

Conflict of interest statement
Declarations. Ethics approval: This article does not contain any studies with human participants performed by any of the authors. Conflict of interest: All authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest (such as honoraria, educational grants, participation in speakers' bureaus, membership, employment, consultancies, stock ownership, or other equity interest, and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge, or beliefs) in the subject matter or materials discussed in this manuscript. Informed consent: Not applicable.
• 45 references
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Radiol Artif Intell
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. 2025 Sep;7(5):e250555.
doi: 10.1148/ryai.250555.
Advancing Early Detection of Chronic Obstructive Pulmonary Disease Using Generative AI
Quincy A Hathaway 1 , Yashbir Singh 2 3
Affiliations Expand
• PMID: 40862689

• DOI: 10.1148/ryai.250555
No abstract available

Comment on
• Single Inspiratory Chest CT-based Generative Deep Learning Models to Evaluate Functional Small Airways Disease.
Zhang D, Zhao M, Zhou X, Li Y, Guan Y, Xia Y, Zhang J, Dai Q, Zhang J, Fan L, Zhou SK, Liu S.Radiol Artif Intell. 2025 Sep;7(5):e240680. doi: 10.1148/ryai.240680.PMID: 40668132
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Pharmacoepidemiol Drug Saf
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. 2025 Sep;34(9):e70204.
doi: 10.1002/pds.70204.
Impact of Long-Acting Beta-Agonists on Progressive Risk of Lung Cancer in Patients With Chronic Obstructive Pulmonary Disease: A Nationwide Cohort Study
Shih-Hsun Lin 1 , Yu-Chun Lin 1 , Tsai-Hui Lin 1 , Hung-Jen Lin 2 3 , Mei-Chen Lin 4 , Sheng-Teng Huang 1 2 5
Affiliations Expand
• PMID: 40820473

• DOI: 10.1002/pds.70204
Abstract
Purpose: Chronic obstructive lung disease (COPD) is a common comorbid disease in lung cancer causing disability. A long-acting β2-agonist (LABA) is commonly given to patients with moderate to very severe COPD. This study aims to evaluate the relationship between LABA treatment and the risk of lung cancer in patients with COPD using a national representative database.
Methods: We conducted the analyses using the Longitudinal Health Insurance Database. Patients with at least two outpatient visits or one hospitalization due to COPD diagnosis (ICD-9-CM: 491, 492, 494, 496) from 1997 to 2012 were identified. Patients in the LABA cohort had regularly used LABA during the study period, while the non-LABA cohort was

those without receiving LABA treatment. A 1:2 propensity score matching by COPD diagnosis year, index year, sex, age, occupation, comorbidities, and medication usage was applied.
Results: A total of 3924 patients with COPD were enrolled in the study, 1308 patients with regular LABA treatment and 2616 patients without LABA treatment. Approximately half of the study subjects were male (54.8%), with a mean age of 63.1 years. Those with LABA treatment who were male (aHR = 2.15, 95% CI = 1.09-4.22) had an increased risk of lung cancer.
Conclusions: This study indicated that LABA treatment in patients with COPD was associated with lung cancer in older men; those with high cumulative daily doses.
Keywords: chronic obstructive pulmonary disease; long-acting β2 sympathomimetic agonists; lung cancer; observational research.

• 45 references
Supplementary info

MeSH terms, Substances, Grants and fundingExpand
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Review

Clin Chest Med
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. 2025 Sep;46(3):499-508.
doi: 10.1016/j.ccm.2025.04.008. Epub 2025 Jul 3.
Oscillometry
Claude S Farah 1 , Leigh M Seccombe 2
Affiliations Expand
• PMID: 40769595

• DOI: 10.1016/j.ccm.2025.04.008
Abstract
Respiratory oscillometry measures impedance during tidal breathing and is a sensitive marker of smaller airway function. Recent consensus documents provide a framework for the clinician to incorporate this lung function test into routine clinical practice. Oscillometry has an established role in pediatric respiratory medicine. In adults, an abnormal oscillometry result relates to patient symptoms and clinically important outcomes especially in asthma and chronic obstructive pulmonary disease. There is increasing interest in the role of oscillometry when monitoring patients longitudinally including after lung transplantation, and a greater appreciation of intrabreath analysis and the detection of dynamic elastance.
Keywords: Airway resistance; Forced oscillation technique; Oscillometry; Pulmonary disease; Respiratory function testing.

Conflict of interest statement

Disclosures C.S. Farah reports receiving speaker fees from Chiesi, AstraZeneca, GlaxoSmithKline and Sanofi unrelated to the content of this study. L.M. Seccombe has nothing to disclose.
Supplementary info
Publication types, MeSH termsExpand
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Review

Clin Chest Med
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. 2025 Sep;46(3):467-479.
doi: 10.1016/j.ccm.2025.04.006. Epub 2025 Jul 2.
Six-Minute Walk Testing: Performance, Properties, and Clinical Applications
Ella Ishaaya 1 , Nathan Yee 2 , Thomas W DeCato 3

Affiliations Expand
• PMID: 40769593

• DOI: 10.1016/j.ccm.2025.04.006
Abstract
Field exercise testing, especially the 6-min walk test (6MWT), is widely used to assess functional exercise capacity in patients with chronic respiratory diseases. The 6MWT is safe, easy to administer, cost-effective, and represents a natural daily activity. Despite established guidelines, variability in test performance exists and can impact the interpretation of results. The 6MWT is reliable, repeatable, and has been extensively studied in conditions like chronic obstructive pulmonary disease, interstitial lung disease, and pulmonary hypertension. Application is both disease- and context-dependent. Emerging variations include shorter duration tests and telemetric versions, which may continue to expand its clinical utility and accessibility.
Keywords: 6-min walk test; Field exercise test; Functional capacity; Functional exercise capacity.

Conflict of interest statement
Disclosures E. Ishaaya and N. Yee have no conflicts of interest to disclose. T.W. DeCato receives support from NIH grant RO1HL166850, R2114021056, and consulting fees from MannKind Corporation and Pulmovant.
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Lancet Respir Med
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. 2025 Sep;13(9):778-781.
doi: 10.1016/S2213-2600(25)00236-X. Epub 2025 Jul 31.
Pre-COPD: an evolving concept with practice potential
Dinh S Bui 1 , Rosa Faner 2 , George Washko 3 , Christine Jenkins 4 , E Haydn Walters 5 , Shyamali C Dharmage 6
Affiliations Expand
• PMID: 40753996

• DOI: 10.1016/S2213-2600(25)00236-X
No abstract available
Conflict of interest statement
All authors declare no competing interests. EHW and SCD contributed equally.
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Observational Study

Respir Investig
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. 2025 Sep;63(5):942-948.
doi: 10.1016/j.resinv.2025.07.016. Epub 2025 Jul 30.
Bronchiectasis in Japanese patients with chronic obstructive pulmonary disease: A prospective cohort study
Seiichi Kobayashi 1 , Mitsuhiro Yamada 2 , Masatsugu Ishida 3 , Manabu Ono 3 , Hikari Satoh 3 , Masakazu Hanagama 3 , Masaru Yanai 3
Affiliations Expand
• PMID: 40743857

• DOI: 10.1016/j.resinv.2025.07.016
Abstract
Background: Bronchiectasis often coexists with chronic obstructive pulmonary disease (COPD) and is associated with worse clinical outcomes than COPD alone. However, there is limited evidence on Japanese patients with COPD. This study aimed to investigate the prevalence, clinical characteristics, and outcomes of bronchiectasis in Japanese patients with COPD.
Methods: This prospective observational study included a cohort of Japanese patients with COPD between April 2018 and January 2025. Patient characteristics, exacerbation frequency, and mortality were assessed over a 5-year follow-up period. The Cox proportional hazards model was used to evaluate the association between bronchiectasis and mortality.
Results: In total, 302 patients (287 males, 15 females; median age, 76 years) with stable COPD were enrolled, 15 % of whom had radiological bronchiectasis, and 3.3 % had ≥3 lobes involved or cystic bronchiectasis. Patients with COPD and bronchiectasis were older and had higher staging. No significant differences were observed in exacerbations or mortality rates between patients with and without bronchiectasis. Among patients with COPD and bronchiectasis, all-cause mortality was associated with airflow obstruction

(hazard ratio [HR], 0.96; 95 % confidence interval [CI], 0.92-0.99), dyspnea (HR, 2.2; 95 %CI, 1.3-3.6), health status (HR 1.1; 95 %CI, 1.0-1.3), bronchiectasis severity index (HR, 1.3; 95 %CI, 1.1-1.6), and positive Pseudomonas aeruginosa culture (HR 6.7; 95 %CI, 1.3-33).
Conclusions: These findings demonstrated that radiological bronchiectasis was not associated with poor clinical outcomes within 5 years of follow-up. Among patients with COPD and bronchiectasis, mortality was associated with symptoms, disease severity, and positive Pseudomonas aeruginosa cultures.
Trial registration: This study was registered in the UMIN Clinical Trials Registry (UMIN000032112).
Keywords: Bronchiectasis; Chronic obstructive pulmonary disease (COPD); Exacerbations; Mortality.

Supplementary info
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Review

Pathol Res Pract

. 2025 Sep:273:156097.
doi: 10.1016/j.prp.2025.156097. Epub 2025 Jul 20.
# Efficacy of sildenafil combined with statins in treating pulmonary hypertension secondary to chronic obstructive pulmonary disease
Ma-Li Zhuo 1 , Jin-Long Xu 2 , Wen Zhang 3 , Guo-Wu Rao 4 , Quan Zheng 5
Affiliations Expand
• PMID: 40716122

• DOI: 10.1016/j.prp.2025.156097
Abstract
Aims: This study aims to comprehensively assess the effectiveness and safety of combining sildenafil with statins for managing pulmonary hypertension secondary to COPD. By conducting a comprehensive meta-analysis, we seek to provide robust evidence to inform and optimize clinical decision-making for this challenging condition.
Methods: A systematic search of the literature was performed across various databases, such as CNKI, VIP Data, Wanfang Data, PubMed, Web of Science, and the Cochrane Library, to identify RCTs that assess the effectiveness of sildenafil and statins in combination for treating PH secondary to COPD.The search included all records available from the establishment of each database until October 2024.Data extraction and meta-analysis were carried out with RevMan 5.3 software. The primary outcome measures comprised 6MWD and mPAP. The secondary outcome measures included FEV1/FVC, hs-CRP,and PaO2.
Results: Our study encompassed a total of 12 randomized controlled trials involving 937 patients who all come from China.Our research findings indicate that Sildenafil combined

with statins could enhance 6MWD,lower mPAP,rise FEV1/FVC and PaO 2 , reduce hs-CRP of COPD-PH,in contrast to the control group.Adverse reactions associated with the combination therapy were generally mild and tolerable.
Conclusion: This combination therapy not only improves patients' exercise capacity, as evidenced by increased 6MWD, but also alleviates PH and enhances overall quality of life. Importantly, the therapy does not raise significant safety concerns. These findings support the integration of sildenafil-statin combination therapy into the clinical management of COPD-PH, offering a promising approach to improving patient outcomes.
Keywords: Chronic obstructive pulmonary disease(COPD); Meta-analysis; Pulmonary hypertension(PH); Sildenafil; Statins.

Conflict of interest statement
Declaration of Competing Interest No conflict of interest exits in the submission of this manuscript,and manuscript is approved by all authors for publication.I would like to declare on behalf of my co-authors that the work described was original research that has not been published previously,and not under consideration for elsewhere,in whole or in part.All the authors listed have approved the manuscript that is enclosed.
Supplementary info
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Review

Respir Care
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. 2025 Sep;70(9):1177-1192.
doi: 10.1089/respcare.13126. Epub 2025 Jul 16.
# Reconsidering Race and Ethnicity for Predicting Normal Lung Function in Spirometry
Ellen A Becker 1
Affiliations Expand
• PMID: 40669865

• DOI: 10.1089/respcare.13126
Abstract
This review describes the impact of race-neutral spirometry reference equations on predicting normal lung function. The European Respiratory Society/American Thoracic Society 2022 interpretation guidance suggests further research on the relationship between pulmonary function results and clinical outcomes to aid interpretation decisions rather than relying solely on the 5 th and 95 th percentiles as statistical end points. Recent research compared how race-specific and race-neutral spirometry reference equations affected clinical outcomes (6-min walk test, abnormal computed tomography, hospitalizations, and clinic visits), symptoms (St George's Respiratory Questionnaire, COPD Assessment Test, dyspnea, and wheezing), and mortality. Race-neutral reference equations were equivalent or better at predicting clinical outcomes from FEV 1 and FVC in most studies. Initial studies showed that switching from race-specific to race-neutral

reference equations increased the number of Black persons with potential restrictive lung disorders and decreased the frequency of abnormal test results in Whites and Northeast and Southeast Asians. Similar results were seen in the pediatric population. The severity of lung disease also changed, but primarily in those persons with spirometry values near the lower limit of normal. Changes in ventilatory impairment and severity impact downstream consequences such as eligibility for medical procedures, clinical trials, and employment, as well as financial consequences such as insurance premiums and disability payments. Further research is needed to evaluate the impact of using race-neutral equations in non-Black and non-White populations. Moving forward, clinicians need to understand how race-neutral spirometry equations affect test results and provide meaningful explanations to patients. Equally important, clinicians need to monitor emerging literature, advocate for evidence-based changes, and modify clinical practices as appropriate.
Keywords: ethnicity; lung volume measurements; racial groups; reference values; spirometry.
Supplementary info
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Editorial

Respir Investig
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. 2025 Sep;63(5):885-886.
doi: 10.1016/j.resinv.2025.07.006. Epub 2025 Jul 12.
Leveraging the 10th-percentile lower limit of normal for FEV1/FVC to facilitate early identification of Pre-COPD in middle-aged Japanese adults
Yoko Shibata 1
Affiliations Expand
• PMID: 40652644

• DOI: 10.1016/j.resinv.2025.07.006
No abstract available
Keywords: 10th-percentile lower limit of normal; COMOREBY-2032; Healthy Japan 21; Pre-COPD.
Conflict of interest statement
Declaration of competing interest The author has received lecture fees from AstraZeneca.
Supplementary info
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Editorial

Ann Am Thorac Soc
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. 2025 Sep;22(9):1297-1298.
doi: 10.1513/AnnalsATS.202507-703ED.
Chronic Exposure to PM 2.5 Can Be Deadly for People with Chronic Obstructive Pulmonary Disease
Shawn D Aaron 1
Affiliations Expand
• PMID: 40632892

• DOI: 10.1513/AnnalsATS.202507-703ED
No abstract available
Comment on
• Fine Particulate Matter and Mortality in Chronic Obstructive Pulmonary Disease with Multimorbidity.
Robichaux CE, Baldomero AK, Gravely AA, Wendt CH, Berman JD.Ann Am Thorac Soc. 2025 Sep;22(9):1335-1342. doi: 10.1513/AnnalsATS.202411-1200OC.PMID: 40315387
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Comparative Study

Adv Ther
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doi: 10.1007/s12325-025-03295-4. Epub 2025 Jul 7.
Comparative Effectiveness of FF/UMEC/VI and BUD/GLY/FORM in Patients with COPD Stepping Up From Dual Therapy
Jadwiga A Wedzicha 1 , Stephen G Noorduyn 2 3 , Valentina Di Boscio 4 , Olivier Le Rouzic 5 , Anurita Majumdar 6 , Rosirene Paczkowski 7 , Stephen Weng 8 , Guillaume Germain 9 , François Laliberté 9 , David Mannino 10 11
Affiliations Expand
• PMID: 40619503

• PMCID: PMC12394344

• DOI: 10.1007/s12325-025-03295-4
Abstract
Introduction: Recent data suggest differences in effectiveness of single-inhaler triple therapies (SITTs) for patients with chronic obstructive pulmonary disease (COPD); however, data specifically from patients previously treated with dual bronchodilator therapy are lacking. This real-world comparative effectiveness study assessed patients with COPD

treated with fluticasone furoate/umeclidinium/vilanterol (FF/UMEC/VI) and budesonide/glycopyrrolate/formoterol fumarate (BUD/GLY/FORM) who stepped up from dual therapy.
Methods: This retrospective study used healthcare claims from the Komodo Research database to identify patients with COPD and Medicare Fee-for-Service insurance on dual therapy as their most recent treatment in the 90 days pre-index, stepping up to FF/UMEC/VI or BUD/GLY/FORM between January 1, 2016 and December 31, 2023. Primary outcome was annualized rate of moderate-severe exacerbations per patient-year (PPY) compared using rate ratios (RRs) and 95% confidence intervals (CIs) from Poisson regression models after adjustment with overlap weighting. Secondary outcomes were time to first moderate-severe exacerbation (analyzed as a composite and separately), reported using Kaplan-Meier (KM) analysis and compared using hazard ratios (HRs) with 95% CIs from weighted Cox regression models. All-cause mortality (KM analysis) was included as an exploratory outcome.
Results: Overall, 10,093 FF/UMEC/VI and 3926 BUD/GLY/FORM patients stepping up from dual therapy were included. Patients stepping up to FF/UMEC/VI experienced an 18% significantly lower rate of moderate-severe COPD exacerbations compared with BUD/GLY/FORM [0.80 vs. 0.98 PPY; RR (95% CI) 0.82 (0.77, 0.88); P < 0.001]. Stepping up to FF/UMEC/VI was also associated with a 14% lower risk of moderate-severe COPD exacerbations [HR (95% CI) 0.86 (0.81, 0.92); P < 0.001] and 18% lower risk of all-cause mortality [HR (95% CI) 0.82 (0.68, 0.99); P = 0.040] at 12 months compared with BUD/GLY/FORM.
Conclusion: In this real-world study, SITT with FF/UMEC/VI was associated with a significantly lower rate and risk of exacerbations compared with BUD/GLY/FORM in patients stepping up from dual therapy.
Keywords: All-cause mortality; Budesonide/glycopyrrolate/formoterol fumarate; Chronic obstructive pulmonary disease; Exacerbations; Fluticasone furoate/umeclidinium/vilanterol; Real-world comparative effectiveness study.
Plain language summary
Chronic obstructive pulmonary disease (COPD) is a progressive respiratory disease and one of the leading causes of death worldwide. Triple therapy (a combination of three molecules) in a single inhaler is a recommended treatment option for patients with COPD

to control COPD attacks; two such single-inhaler triple therapies are available in the United States (US), Europe, and elsewhere; however, information is limited on how they compare in controlling COPD attacks in patients who have previously been treated with dual therapy (a combination of two molecules). This study assessed the effect of treatment with the single-inhaler triple therapies fluticasone furoate/umeclidinium/vilanterol (FF/UMEC/VI) or budesonide/glycopyrrolate/formoterol fumarate (BUD/GLY/FORM) in patients with COPD in the US who had previously used dual therapy as their most recent treatment for 90 days; a healthcare claims database was used to identify the patients. The results of the study suggest that single-inhaler triple therapy with FF/UMEC/VI was associated with a significantly lower rate and risk of COPD attacks compared with BUD/GLY/FORM in patients who had previously used dual therapy. Patients stepping up to triple therapy with FF/UMEC/VI had an 18% lower rate of COPD attacks compared with BUD/GLY/FORM, a 14% lower risk of COPD attacks a year after step up, and an 18% lower risk of death in an exploratory endpoint. These results may help healthcare providers choose the most appropriate treatment for patients with COPD who are inadequately controlled with dual therapy and require treatment with single-inhaler triple therapy.

Conflict of interest statement

Declarations. Conflict of Interest: Jadwiga A. Wedzicha reports grants from AstraZeneca, Boehringer Ingelheim, Chiesi, GSK, and Novartis, consulting fees from AstraZeneca, EpiEndo Pharmaceuticals, GSK, Gilead, Novartis, Pfizer, Roche, and Empirico, honoraria for lectures, presentations or educational events from AstraZeneca, Boehringer Ingelheim, Glenmark, GSK, Novartis, Recipharm, Roche, and Sanofi, and participation as the data safety monitoring board chair for Virtus. Stephen G. Noorduyn, Valentina Di Boscio, Anurita Majumdar, Rosirene Paczkowski, and Stephen Weng are employees of GSK and/or hold financial equities in GSK. Stephen G. Noorduyn is also a PhD candidate at McMaster University. Olivier Le Rouzic is a principal investigator of CSL Behring and Vertex studies and reports receiving personal fees and/or congress support from AstraZeneca, Boehringer Ingelheim, Chiesi, CSL Behring, Grifols, GSK, LFB, and Sanofi outside the submitted work. Guillaume Germain and François Laliberté are employees of Groupe d’analyse which received funding from GSK to conduct this study but not for manuscript development. David Mannino is a consultant for AstraZeneca, the COPD Foundation, Genentech, GSK, Regeneron, and UpToDate. David Mannino is also an expert witness on behalf of people suing the tobacco and vaping industries. Ethical Approval: The study complied with all applicable laws regarding patient privacy, as described in the Declaration of Helsinki. No direct patient contact or primary collection of individual human patient data occurred in this study. This study used existing, fully de-identified data that complied with the requirements of the Health Insurance Portability and Accountability Act and the patient(s) cannot be identified, directly or through identifiers. Study results were in tabular form and aggregate analyses that omit patient identification; therefore, informed consent and ethics committee or Institutional Review Board approval were not required.

- 21 references
- 4 figures

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Respir Med
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. 2025 Sep:246:108243.
doi: 10.1016/j.rmed.2025.108243. Epub 2025 Jul 3.
# Targeting neutrophilic inflammation in obstructive airway disease - A narrative review of brensocatib therapy
Jyoti Bajpai 1 , Surya Kant 1 , Maria Gabriella Matera 2 , Mario Cazzola 3
Affiliations Expand
• PMID: 40614835

• DOI: 10.1016/j.rmed.2025.108243
Abstract
Brensocatib is an oral inhibitor of dipeptidyl peptidase 1, an enzyme that activates neutrophil serine proteases. Its potential to reduce neutrophil-driven inflammation has

generated interest across a range of chronic inflammatory and respiratory conditions, particularly non-cystic fibrosis (CF) bronchiectasis. As the body of evidence supporting brensocatib continues to expand, there is a clear need for a comprehensive, rigorous, and practical narrative review to consolidate current knowledge and highlight gaps for future research. The aim of this narrative review was to systematically examine and synthesize the existing literature on brensocatib, including its pharmacology, therapeutic applications, clinical trial outcomes, safety profile, and ongoing research efforts. A systematic search was performed across major databases, EMBASE, MEDLINE, Scopus, Web of Science, Google Scholar, and ClinicalTrials.gov, through April 2025. Studies involving brensocatib in preclinical or clinical contexts were thoroughly reviewed to evaluate its efficacy and safety. Data were extracted on study design, population, dosage, outcomes, adverse events (AEs), and key findings. The most extensively studied indication was non-CF bronchiectasis, where brensocatib demonstrated a reduction in exacerbation rates and neutrophil protease activity. Preliminary evidence also suggests potential applications in CF, chronic obstructive pulmonary disease, and other neutrophilic conditions. An evaluation of the safety data indicates that the AEs reported are generally mild to moderate in severity. Brensocatib demonstrates potential as a novel anti-inflammatory therapy targeting neutrophil-mediated disease mechanisms. Further research is needed to evaluate its long-term efficacy, safety across a broader population, and its role in combination therapies.
Keywords: Brensocatib; Bronchiectasis; Dipeptidyl peptidase 1; Inflammation; Neutrophil elastase; Neutrophils.

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 utilized in its production.
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Respir Med
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. 2025 Sep:246:108242.
doi: 10.1016/j.rmed.2025.108242. Epub 2025 Jul 3.
# A lung function threshold for survival? - FEV 1 Q and mortality in patients with COPD and chronic respiratory failure
Filip Björklund 1 , Andreas Palm 2 , Josefin Sundh 3 , Magnus Ekström 4
Affiliations Expand
• PMID: 40614829

• DOI: 10.1016/j.rmed.2025.108242
Free article

Abstract
Introduction: The FEV 1 quotient (FEV 1 Q), calculated as the index between FEV 1 and a theoretical lower survivable FEV 1 threshold of 0.4L for females and 0.5L for males, has been investigated as a novel method of interpreting results from lung function testing. The applicability of the FEV 1 Q in populations with chronic respiratory failure has not been studied, and the continuous association between the FEV 1 Q and mortality is unknown.
Methods: Longitudinal analysis of data from the DISCOVERY database. First percentile values of FEV 1 were determined. The predictive ability of FEV 1 Q and FEV 1 %-predicted values for overall and respiratory mortality were compared using Cox and Fine-Gray regression models with C-statistics. The continuous association between FEV 1 Q and mortality was evaluated using a restricted cubic spline.
Results: A total of 5,711 patients (61 % females) with oxygen-dependent COPD were studied. First-percentile values of FEV 1 were 0.3L for females, and 0.4L for males. Higher levels of FEV 1 Q were associated with a lower risk of overall and respiratory mortality when adjusting for age, sex, height, smoking status, A-a-gradient, and education. For overall mortality, FEV 1 Q and FEV1 %-predicted models had identical C-statistics of 0.60 (95 %CI 0.59-0.61). The association between FEV 1 Q and overall mortality was J-shaped, with a threshold of increased risk at FEV 1 Q values < 1.0.
Conclusion: While first-percentile values of FEV 1 were lower in this cohort than in previous studies, a population threshold for increased mortality risk was identified at FEV 1 Q levels corresponding to those originally presented. For individual subjects, neither FEV 1 Q, nor FEV1 %-predicted, were identified as useful predictors of mortality.
Keywords: FEV(1)Q; LTOT; Mortality.

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: Filip Bjorklund reports financial support was provided by Agreement concerning research and education of doctors. Magnus Ekstrom reports financial support was provided by Swedish Research Council. Andreas Palm reports a relationship with ResMed that includes: consulting or advisory. Josefin Sundh reports a relationship with AstraZeneca that includes: consulting or advisory. Josefin Sundh reports a relationship with Boehringer Ingelheim GmbH that includes: consulting or advisory. Josefin Sundh reports a relationship with Chiesi Pharmaceuticals Inc that includes: consulting or advisory. Josefin Sundh reports a relationship with Novartis that includes: consulting or advisory. Magnus Ekstrom reports a relationship with ResMed that includes: funding grants. Magnus Ekstrom reports a relationship with AstraZeneca that includes: consulting or advisory. Magnus Ekstrom reports a relationship with Boehringer Ingelheim GmbH that includes: consulting or

advisory. Magnus Ekstrom reports a relationship with Novartis that includes: consulting or advisory. Magnus Ekstrom reports a relationship with Roche that includes: consulting or advisory. 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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Clin Lung Cancer

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. 2025 Sep;26(6):520-525.
doi: 10.1016/j.cllc.2025.05.017. Epub 2025 Jun 4.
Maximizing Lung Cancer Screening in High-Risk Population Leveraging ML-Developed Risk-Prediction Algorithms: Danish Retrospective Validation of LungFlag
Margrethe Bang Henriksen 1 , Ole Hilberg 2 , Christian Juul 3 , Rasmus Thomsen 3 , Sara Witting Christensen Wen 4 , Morten Borg 5 , Andreas Fanø 3 , Alon Lanyado 6 , Itamar Menuhin-Gruman 6
Affiliations Expand
• PMID: 40592640

• DOI: 10.1016/j.cllc.2025.05.017
Free article
Abstract
Background: Early detection of lung cancer (LC) is crucial for curative treatment, but current screening methods face challenges due to high costs and poor adherence. Artificial intelligence tools, such as the LungFlag model, uses routine clinical data for innovative risk stratification. This study validates LungFlag in Danish high-risk populations to assess its potential in LC screening.
Methods: This retrospective study included data from 2 populations in Southern Denmark (2013-2021): (A) LC fast-track clinic patients (~25% LC incidence) and (B) outpatients followed with chronic obstructive pulmonary disease (COPD) (~6% LC incidence). Data included laboratory results, comorbidities, body mass index (BMI), and smoking history from up to 3 years prior to the index date. LungFlag's performance was compared to the PLCOm2012 model. Model interpretation was conducted using Shapley additive explanation (SHAP) values, and risk stratification was analyzed by age.
Results: In Population A, 5271 LC cases were identified from 18,600 patients, with a stable LC incidence of 28%. In Population B, LC incidence varied by index-date approach: 6.6% using the diagnosis date and 2.1% using the first visit approach. LungFlag outperformed PLCOm2012 in Population A (AUC: 0.63 vs. 0.60) and showed slightly higher sensitivity in Population B, though differences were minor. Key predictors included smoking, age, and COPD. High-risk individuals identified by LungFlag were generally younger compared to using PLCOm2012.
Conclusion: LungFlag demonstrates promise as a decision-support tool in detecting LC, particularly for COPD patients, who lack systematized screening. However, prospective real-world studies are needed to confirm its effectiveness and clinical value.
Keywords: Artificial intelligence; Blood sample analyses; Machine learning; Prediction models; Risk stratification.

Supplementary info
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Am J Respir Crit Care Med
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. 2025 Sep;211(9):1600-1609.
doi: 10.1164/rccm.202408-1602PP.
Post-COPD: Can Emphysema Be Repaired?
J Michael Wells 1 2 3 , Jerry A Krishnan 4 5 , R Chad Wade 1 2 3 , Greg Kinney 6 , Robert A Wise 7 , Enid Neptune 7 , Francesca Polverino 8 , Nicola A Hanania 8 , Matthew Moll 9 10 11 , Melanie Königshoff 12 , Divay Chandra 12 , Frank Sciurba 12 , Nathaniel Marchetti 13 , Raúl San José Estépar 14 , Alejandro A Diaz 14 , Karim El-Kersh 15 , Mario Castro 16 , Ying Zhang 17 , Janet T Holbrook 18 , Elizabeth A Sugar 18 , Monica Kraft 19 , Robert J Kaner 20 21 , Barry Make 22 , Stephen Rennard 23
Affiliations Expand
• PMID: 40498633

• DOI: 10.1164/rccm.202408-1602PP
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Meta-Analysis

J Cardiopulm Rehabil Prev
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. 2025 Sep 1;45(5):318-326.
doi: 10.1097/HCR.0000000000000954. Epub 2025 Aug 22.
Optimal Pulmonary Rehabilitation Program and Timing of Program Initiation for Patients With Chronic Obstructive Pulmonary Disease: A Systematic Review and Network Meta-Analysis
Tzu-Ang Chen 1 , Sheng-Ting Mao, Tzu-Tao Chen, Yun-Kai Yeh, Kuan-Yuan Chen, Chien-Hua Tseng
Affiliations Expand
• PMID: 40455963

• DOI: 10.1097/HCR.0000000000000954
Abstract
Purpose: Evidence for optimal timing of pulmonary rehabilitation initiation, especially during stable chronic obstructive pulmonary disease (COPD) or following its acute

exacerbation (AE), is conflicting.
Review methods: PubMed, EMBASE, and Cochrane CENTRAL were systematically searched before August 2022. The identified interventions were classified as single-component programs (endurance, resistance, and respiratory muscle training) and multi-component programs (combinations of these interventions). The revised risk-of-bias tool 2.0 was used to assess the risk of bias of the included studies. Network meta-analyses were performed separately for stable COPD and AECOPD using a random-effects model to calculate mean differences (MD). A total of 52 trials with 2,828 patients were included. For patients with stable COPD, multi-component programs combining endurance,

resistance, and respiratory muscle training significantly improved the six-minute walk test (6MWT) distance (MD = 72.09: 95% CI, 48.16-96.02 meters) compared to usual care. In AECOPD, post-discharge initiation of rehabilitation with a combination of endurance and resistant training significantly reduced the readmission rate (OR = 0.44: 95% CI, 0.21-0.91); conversely, pre-discharge initiation with endurance training alone achieved the most significant improvements in both the readmission rate (OR = 0.09: 95% CI, 0.01-0.56) and 6MWT distance (MD = 167.69: 95% CI, 81.23-254.15 meters).
Summary: The integration of endurance, resistance, and respiratory muscle training improved exercise capacity in patients with stable COPD. Prioritizing endurance training prior to discharge demonstrated the most favorable outcomes in both readmission rates and exercise capacity for patients with AECOPD, although further validation is needed.
Keywords: acute exacerbation; chronic obstructive pulmonary disease; network meta-analysis; pulmonary rehabilitation; systematic review.

Conflict of interest statement
The authors declare that they have no conflict of interest.
• 19 references
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Epidemiology
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. 2025 Sep 1;36(5):606-615.
doi: 10.1097/EDE.0000000000001881. Epub 2025 May 28.
Medium-term Exposure to Wildfire Smoke PM 2.5 and Cardiorespiratory Hospitalization Risks
Yaguang Wei 1 2 , Edgar Castro 2 , Kanhua Yin 3 , Alexandra Shtein 2 , Bryan N Vu 2 , Mahdieh Danesh Yazdi 4 , Longxiang Li 5 , Yuxi Liu 6 7 , Adjani A Peralta 2 , Joel D Schwartz 2 7
Affiliations Expand
• PMID: 40433992

• PMCID: PMC12234148 (available on 2026-05-28)

• DOI: 10.1097/EDE.0000000000001881
Abstract
Background: Wildfire activity in the United States has increased substantially in recent decades. Smoke fine particulate matter (PM 2.5 ), a primary wildfire emission, can remain

in the air for months after a wildfire begins, yet large-scale evidence of its health effects remains limited.
Methods: We obtained hospitalization records for the residents of 15 states between 2006 and 2016 from the State Inpatient Databases. We used existing daily smoke PM 2.5 estimations at 10-km 2 grid cells across the contiguous United States and aggregated them to ZIP codes to match the spatial resolution of hospitalization records. We extended the traditional case-crossover design, a self-controlled design originally developed for studying acute effects, to examine associations between 3-month average exposure to

smoke PM 2.5 and hospitalization risks for a comprehensive range of cardiovascular (ischemic heart disease, cerebrovascular disease, heart failure, arrhythmia, hypertension, and other cardiovascular diseases) and respiratory diseases (acute respiratory infections, pneumonia, chronic obstructive pulmonary disease, asthma, and other respiratory diseases).
Results: We found that 3-month exposure to smoke PM 2.5 was associated or marginally associated with increased hospitalization risks for most cardiorespiratory diseases. Hypertension showed the greatest susceptibility, with the highest hospitalization risk associated with 0.1 μg/m 3 increase in 3-month smoke PM 2.5 exposure (relative risk: 1.0051; 95% confidence interval = 1.0035, 1.0067). Results for single-month lagged exposures suggested that estimated effects persisted up to 3 months after exposure. Subgroup analyses estimated larger effects in neighborhoods with higher deprivation level or more vegetation, as well as among ever-smokers.
Conclusions: Our findings provided unique insights into medium-term cardiorespiratory effects of smoke PM 2.5 , which can persist for months, even after a wildfire has ended.
Keywords: Cardiorespiratory diseases; Medium-term effect; Self-controlled design; Wildfire.

Conflict of interest statement
Disclosure: The authors report no conflicts of interest.
• Cited by 1 article
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Supplementary info
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Am J Emerg Med
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. 2025 Sep:95:7-15.
doi: 10.1016/j.ajem.2025.04.067. Epub 2025 May 1.
Serum troponin testing and adverse cardiovascular outcomes in supraventricular tachycardia: A retrospective study from TriNetX
Samantha Camp 1 , Ameen Elhamdani 2 , Samrawit Zinabu 3 , Patrick McGinnis 4 , Nateniel Mearns-Escobar 5 , Miriam Michael 6 , Ali Pourmand 7 , Becker A Brent 8 , Bennett A Myers 9 , Quincy K Tran 10
Affiliations Expand
• PMID: 40349636

• DOI: 10.1016/j.ajem.2025.04.067

Abstract
Introduction: Emergency department (ED) patients presenting with supraventricular tachycardia (SVT) often undergo laboratory testing, including troponin levels, despite previous literature suggesting an overall low prevalence of major adverse cardiac events (MACE) in this population. Better understanding of the prognostic utility of troponin in patients with SVT may help optimize disposition of these patients. We aimed to compare

rates of 30-day MACE among SVT patients with serum troponin testing (YesTrop) versus those without (NoTrop).
Methods: This retrospective, propensity-score-matched cohort study was completed using the TriNetX database. TriNetX includes data from 93 different large healthcare organizations (HCOs) with over 132 million patient records, including over 500,000 patients with a diagnosis of SVT presenting to an ED. Patients were included if they presented to ED with first-time SVT, with or without troponin testing. Patients were excluded if they had previous MACE history. Propensity-score matching was performed according to past medical history, triage vital signs, and laboratory markers. Statistical analyses, including risk analysis and outcome frequency, were conducted using TriNetX analytical tools.
Results: The TriNetX database yielded a total of 225,778 patients meeting inclusion criteria with 31,291 included in each group after propensity score matching. Mean age (+/- Standard Deviation [SD] was 58 +/- 18 years), 17,043 (54.5 %) were female and a majority were white (69.8 %). Individual components of MACE with the greatest risk difference were acute myocardial infarct with a risk difference of -3.3 % (95 % CI -0.356 to -0.299, p < 0.001) and heart failure with a risk difference of -3.8 % (95 % CI -0.414 to -0.336, p < 0.001). Total MACE for the NoTrop group was 10.5 % (3816 events) vs 21.6 % (7826 events) in the YesTrop group (Risk difference 11.1 %, 95 % CI -0.11 to -0.116, P < 0.001). Higher percentage of YesTrop group had hospital diagnoses of hypertension, diabetes, and chronic respiratory diseases, including COPD, emphysema, and bronchitis.
Conclusion: In this study involving a large number of patients with SVT, patients who had serum troponin evaluation were associated with higher-risk of 30-day MACE events. However, patients who had troponin evaluation also had higher rates of comorbidity that might have prompted clinicians to check troponin. Until further studies are available, clinicians should exercise their clinical judgement in weighing the risks and benefits of ordering troponin on patients presenting with SVT.
Keywords: SVT; Troponin.

Conflict of interest statement
Declaration of competing interest The authors declare no conflict of interest.
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Editorial

Arch Bronconeumol
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. 2025 Sep;61(9):517-518.
doi: 10.1016/j.arbres.2025.04.009. Epub 2025 Apr 28.
Mucolytics in Chronic Obstructive Pulmonary Disease: The Return of a Long-

forgotten Therapy?
[Article in English, Spanish]
Juan José Soler-Cataluña 1 , Marta Solé Delgado 2
Affiliations Expand

• PMID: 40345956

• DOI: 10.1016/j.arbres.2025.04.009
No abstract available
Supplementary info
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Cite
30
Eur J Clin Invest
•
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. 2025 Sep;55(9):e70054.
doi: 10.1111/eci.70054. Epub 2025 May 8.
Impact of smoking in MINOCA patients
Hersh Osman 1 2 , Clara Schlettert 3 , Daniel Materzok 3 , Muharrem Akin 3 , Mohammad Abumayyaleh 4 , Ibrahim Akin 4 , Andreas Mügge 1 2 3 , Assem Aweimer 5 , Nazha Hamdani 1 2 3 6 7 , Ibrahim El-Battrawy 1 3
Affiliations Expand
• PMID: 40342090

• DOI: 10.1111/eci.70054
Abstract
Background: Considerable research has been conducted in recent years on patients afflicted with myocardial infarction with nonobstructive coronary disease (MINOCA), focussing on its prognosis, prevalence and predisposing risk factors. Nevertheless, there remains a dearth of information regarding the baseline characteristics and outcomes of MINOCA patients with a history of smoking. This study endeavours to examine the in-hospital complications and baseline characteristics of a presumed MINOCA cohort comprising individuals with a history of smoking.
Methods: In this study, a total of 373 patients (85 current smokers and 283 non-smokers), who exhibited elevated troponin levels but had no evidence of obstructive coronary artery disease, were enrolled between 2010 and 2021. MINOCA patients had to fulfil the modified criteria for acute myocardial infarction (AMI) based on the 'Fourth Universal Definition of Myocardial Infarction', including an up- or downregulated troponin level with at least one value exceeding the 99th percentile, along with clinical evidence of infarction (e.g. ischaemic ECG changes, myocardial damage or coronary thrombus). Additionally, patients with less than 50% stenosis of a major epicardial vessel without intervention and those with alternative diagnoses mimicking troponin-positive nonobstructive coronary disease were excluded. It should be noted that there were five patients for whom data regarding smoking status were not available. The primary objective of this investigation was to evaluate the occurrence of various in-hospital events, including pulmonary oedema, invasive ventilation, cardiogenic shock, stroke, cardiopulmonary resuscitation, malignant cardiac arrhythmias, supraventricular arrhythmias, left ventricular thrombus, thromboembolic events and in-hospital mortality. Additionally, long-term cardiovascular

events were assessed over an 11-year follow-up period.
Results: Baseline demographics in smokers and non-smokers showed notable differences in the prevalence of supraventricular arrhythmia, particularly atrial fibrillation

(5.8% vs. 17.4%; p = .020), diabetes mellitus (DM) (10.5% vs. 19.7%; p = .051), kidney disease (9.3% vs. 15.9%; p = .075) and chronic obstructive pulmonary disease (COPD) (18.6% vs. 10.8%; p = .057). The occurrence of in-hospital cardiovascular events and mortality rates was found to be comparable between smokers and non-smokers. However, non-smokers experienced a higher incidence of long-term cardiovascular events compared to smokers. A multivariable Cox analysis for long-term outcomes indicated that individuals under the age of 50 who were smokers had a more favourable outcome. Nonetheless, the presence of DM, supraventricular tachycardia, pulmonary disease and neurological disease were all associated with a diminished long-term prognosis.
Conclusion: Although the long-term health outcomes for smokers are comparatively superior to those of non-smokers, this contrast can be attributed to the increased incidence of cardiovascular comorbidities and the older age distribution within the non-smoking population.
Keywords: arrhythmias; atrial fibrillation; in-hospital complication; myocardial infarction; nonobstructive coronary artery disease; smoking.

• 31 references
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31
Am J Cardiol
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. 2025 Sep 1:250:70-78.
doi: 10.1016/j.amjcard.2025.04.028. Epub 2025 May 6.
Incidence and Risk of Heart Failure in Patients With Coronary Heart Disease and Stroke: A Population-Based Cohort Study
Xiaofei Liu 1 , Peng Shen 2 , Yi Chen 1 , Yexiang Sun 2 , Qi Chen 2 , Hongbo Lin 2 , Xun Tang 3 , Pei Gao 4
Affiliations Expand
• PMID: 40339776

• DOI: 10.1016/j.amjcard.2025.04.028
Free article
Abstract
Heart failure (HF) is a major global health issue, with coronary heart disease (CHD) and stroke being risk factors with different mechanisms. The risk of HF in stroke patients remain poorly characterized despite the potential contributions of "stroke-heart syndrome."
This study aimed to evaluate HF incidence and risk factors across different cardiovascular disease (CVD) subtypes in a large population-based Chinese cohort. This study included 13,258 CVD patients, i.e. 3,470 patients with CHD (including 610 with myocardial infarction [MI]) and 10,048 with total stroke (comprising 8,631 ischemic and 1,515 hemorrhagic stroke), and 66,290 age- and sex-matched controls without CVD (1:5 ratio).

The primary outcome was new-onset HF. Cumulative incidence functions were estimated with non-HF death as a competing event, stratified by CVD subtypes. Cox proportional

hazard models were used to assess the risk factors of HF and compare relative hazard ratio (HR) between CHD and stroke patients. The 10-year cumulative incidence of HF was 25.3% in patients with CHD (24.6% in MI patients), 13.5% in stroke patients (14.7% and 7.3% for ischemic and hemorrhagic stroke, respectively), and 6.9% in controls. Hypertension (81.8% in CHD, 81.0% in stroke) significantly increased HF risk compared to those without it (incidence rate ratio: 1.74, 95% CI: 1.41 to 2.12 for stroke; 1.42, 95% CI: 1.12 to 1.78 for CHD). Obesity showed a stronger association with HF in stroke patients than in CHD patients (HR: 1.43, 95%CI: 1.15 to 1.78 vs 0.94, 95%CI: 0.69 to 1.28, ratio of HRs: 1.67, 95% CI: 1.14 to 2.42). Other significant risk factors in both CHD and stroke patients include older age, male sex, former smoking, diabetes, chronic kidney disease, and chronic obstructive pulmonary disease. In conclusion, heart failure incidence varies by CVD subtypes, with the highest risk rates in CHD and MI patients, followed by stroke. Hypertension and obesity notably increase HF risk for stroke patients. Tailored risk management strategies are needed, considering the differential impact of risk factors across CVD subtypes.

Keywords: coronary heart disease; heart failure; risk factor; stroke; survival.



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: Pei Gao reports financial support was provided by Beijing Natural Science Foundation and Noncommunicable Chronic Diseases - National Science and Technology Major Project of China. Xun Tang reports financial support was provided by National Natural Science Foundation of China. Pei Gao reports a relationship with Bayer that includes: funding grants. 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.

Supplementary info

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Ann Am Thorac Soc

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. 2025 Sep;22(9):1335-1342.

doi: 10.1513/AnnalsATS.202411-1200OC.

Fine Particulate Matter and Mortality in Chronic Obstructive Pulmonary Disease with Multimorbidity

Camille E Robichaux 1 , Arianne K Baldomero 1 2 3 , Amy A Gravely 4 , Chris H Wendt 1 2 , Jesse D Berman 5

Affiliations Expand

• PMID: 40315387

• DOI: 10.1513/AnnalsATS.202411-1200OC

Abstract

Rationale: Exposure to particulate matter with an aerodynamic diameter ≤2.5 μm (PM 2.5 ) is associated with respiratory dysfunction and increased risk of death. The U.S.

Environmental Protection Agency has established regulatory standards for long-term exposure in the general population, but the risk for individuals with existing respiratory disease is unclear. Objectives: Estimate the association between long-term $PM_{2.5}$ exposure and mortality in individuals with chronic obstructive pulmonary disease (COPD), including the modifying effects of comorbidities at low levels of exposure. Methods: We performed a retrospective cohort analysis of all patients with a COPD diagnosis in the Veterans Health Administration between 2016 and 2019. Annual ambient concentrations of $PM_{2.5}$ were obtained from publicly available pollutant models and spatially assigned to patient households. Primary outcomes were adjusted odds of mortality per 1-$\mu g/m^3$ increase in 5-year $PM_{2.5}$ concentrations and identification of comorbidities associated with increased susceptibility. Results: Medical records from 1,124,973 veterans with COPD were analyzed. Most of the cohort were male (95.60%), and the cohort had diverse racial, socioeconomic, and geographic characteristics. The odds of death was 3.8% higher for every 1-$\mu g/m^3$ increase in long-term $PM_{2.5}$ (adjusted odds ratio [aOR], 1.038; 95% confidence interval [CI], 1.035-1.040). For people with comorbid lung cancer (aOR, 1.051; 95% CI, 1.035-1.068), coronary arterial disease (aOR, 1.039; 95% CI, 1.033, 1.044), or chronic kidney disease (aOR, 1.042; 95% CI, 1.034, 1.049), the risk of death was significantly higher than for those without. Conclusions: The risk of mortality increases at even small magnitudes of increased $PM_{2.5}$ concentrations in people with COPD. The risk was higher for those with comorbid lung cancer, coronary artery disease, and chronic kidney disease. The current standard of 9 $\mu g/m^3$ for the general population should be reevaluated for those with existing COPD.

Keywords: air pollution; chronic kidney diseases; coronary artery disease; lung cancer; obstructive lung disease.

Comment in

- Chronic Exposure to $PM_{2.5}$ Can Be Deadly for People with Chronic Obstructive Pulmonary Disease.

Aaron SD.Ann Am Thorac Soc. 2025 Sep;22(9):1297-1298. doi: 10.1513/AnnalsATS.202507-703ED.PMID: 40632892 No abstract available.

Supplementary info

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Meta-Analysis

Heart Lung

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. 2025 Sep-Oct:73:33-41.

doi: 10.1016/j.hrtlng.2025.04.024. Epub 2025 Apr 23.

Association between patent foramen ovale and chronic obstructive pulmonary disease: A systematic review and meta-analysis

Sruthy Balakumar 1 , Naya Nadeem 2 , Areeba Asghar 3 , Claudia Frankfurter 4 , Ashley Farrell 5 , Eduardo Flores-Umanzor 6 , Eric Horlick 7 , Lusine Abrahamyan 8

Affiliations Expand

- PMID: 40273808

- DOI: 10.1016/j.hrtlng.2025.04.024

Abstract
Background: Patent foramen ovale (PFO) is a defect in the intra-atrial septum that occurs when the foramen ovale does not close postnatally. Chronic obstructive pulmonary disease (COPD) is a respiratory condition that causes airflow obstruction.
Objective: This systematic review aimed to consolidate current evidence on the association between PFO and COPD outcomes.
Methods: We searched Medline, Embase, and Cochrane databases from inception to November 2023 for studies conducted among adults who have been diagnosed with COPD and underwent testing for PFO. A structured data extraction sheet was created to collect data from selected studies. A meta-analysis with a random effects model was considered when feasible.
Results: The initial search identified 765 records. After screening for eligibility, we included six cross-sectional and three case report studies. In cross-sectional studies, patients with COPD had almost three times higher odds of having PFO than controls (OR = 2.72, 95 % CI: 1.57 to 4.70, I 2 =0 %). When comparing COPD patients with and without PFO, the pooled mean difference was -2.99 mmHg; 95 % CI:5.55 to -0.44, I 2 =77 %) in oxygen saturation (SaO2), -6.85 mmHg (95 %CI:11.71 to -2.39, I 2 =35 %) in arterial oxygen partial pressure (PaO2) and 9.65 mmHg (95 %CI: 3.38 to 12.92, I 2 =0 %) in pulmonary arterial pressure.
Conclusions: Evidence, based on a few and small size studies, indicates that PFO presence may be associated with worse outcomes in COPD patients. The long-term impact of these findings on COPD outcomes and the need for identifying high-risk patients for PFO screening should be evaluated.
Keywords: Chronic obstructive pulmonary disease; Hypoxemia; Patent foramen ovale; Systematic review.

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: Dr. Horlick is a consultant for Abbott, Edwards, and Medtronic. He has received research grants from Abbott and Occlutech for other projects. The Structural Heart Disease program at the University Health Network receives educational support from Abbott, Edwards, and Medtronic. Abbott, Edwards, Medtronic, or Occlutech were not involved in the planning or execution of this study and have not seen or reviewed this manuscript. All other authors have no conflict of interest. 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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Review

Am J Cardiovasc Drugs
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. 2025 Sep;25(5):577-592.
doi: 10.1007/s40256-025-00732-1. Epub 2025 Apr 19.
Appraisal of β-Blocker Use in Patients with Cardiovascular Disease and Chronic

Obstructive Pulmonary Disease
Ruicong Xue 1 2 , Chen Liu 1 2 , Qian Yu 3 , Yugang Dong 1 2 , Jingjing Zhao 4 5
Affiliations Expand
• PMID: 40252175

• PMCID: PMC12378896

• DOI: 10.1007/s40256-025-00732-1
Abstract
β-blockers are a fundamental component of cardiovascular disease (CVD) management, while β 2 -agonists are used to treat chronic obstructive pulmonary disease (COPD). Current guidelines recommend that these conditions be treated as usual, even when they coexist. However, there have been concerns over COPD exacerbation risk with β-blockers and attenuation of the beneficial effects of β 2 -agonists in this comorbid population, leading to β-blocker underuse. Recent evidence suggests that β-blockers, particularly cardioselective β-blockers, do not increase COPD exacerbations, demonstrate good efficacy and safety, and improve survival in patients with COPD after first-time myocardial infarction. In atrial fibrillation with COPD, both cardioselective and nonselective β-blockers may be associated with a lower COPD exacerbation risk than calcium channel blockers, as well as improving outcomes and reducing mortality risk. In this review, we summarize the β-blocker prescribing patterns in patients with CVD and COPD; describe the reasons for β-blocker underuse in patients with CVD with COPD; collate up-to-date evidence on the effects of β-blockers on symptoms and outcomes in each of these comorbid populations; and review the current treatment guidelines for coexisting COPD and CVD to support the rational prescribing of β-blockers. Finally, we provide recommendations for future research needed to demonstrate the clinical rationale of prescribing β-blockers and to encourage the generation of more robust evidence-based guidelines for β-blockers use. Future large-scale, prospective, randomized controlled trials are needed to expand the body of evidence and better understand the effects of β-blockers in CVD with comorbid COPD.

Conflict of interest statement
Declarations. Funding: This work was supported by funding from the Clinical Research Foundation of the Cardiovascular Society of the Chinese Medical Association and the 2022–2024 Guangdong Basic and Applied Basic Research Foundation to the authors' institutions, Guangdong National Science Foundation (Nos. 2022A1515012161, 2022A1515010227, 2023A1515011794, 2024A1515010458) and by Merck Serono Co., Ltd, Beijing, China. Conflict of interest: Q.Y. is an employee of Merck Serono Co., Ltd, China (an affiliate of Merck KGaA Darmstadt, Germany). All other authors report no conflict of interest. Ethics approval: Not applicable. Consent to participate: Not applicable. Consent for publication: Not applicable. Availability of data and material: No new data were generated or analyzed in support of this research. Code availability: Not applicable. Author contributions: All authors were involved with the conception and design of this manuscript, the drafting and critical revision of the manuscript, and final approval of the manuscript.
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Eur J Intern Med

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. 2025 Sep:139:106301.
doi: 10.1016/j.ejim.2025.04.008. Epub 2025 Apr 16.
Short term variability of peripheral blood eosinophil count in individuals with stable COPD
Claudio Candia 1 , Claudia Merola 2 , Salvatore Fuschillo 2 , Pasquale Ambrosino 3 , Nicolino Ambrosino 4 , Mauro Maniscalco 5
Affiliations Expand
• PMID: 40246591

• DOI: 10.1016/j.ejim.2025.04.008
No abstract available
Conflict of interest statement
Declaration of competing interest M.M. reports grants from AstraZeneca and GlaxoSmithKline and payments or honoraria for presentations or educational events from GlaxoSmithKline, Chiesi, and Damor Farmaceutici outside the scope of this manuscript. All the other Authors declair no conflicts of interest.
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Editorial

Arch Bronconeumol
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. 2025 Sep;61(9):522-524.
doi: 10.1016/j.arbres.2025.03.017. Epub 2025 Mar 28.
How Should We Treat COPD Exacerbations in the Future? By Endophenotyping, Of Course!
[Article in English, Spanish]
Clarus Leung 1 , Don D Sin 2
Affiliations Expand
• PMID: 40221276

• DOI: 10.1016/j.arbres.2025.03.017
No abstract available
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Am J Respir Crit Care Med
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. 2025 Sep;211(9):1652-1661.
doi: 10.1164/rccm.202501-0028OC.
Oscillometry-defined Small Airway Dysfunction in Tobacco-exposed Adults with Impaired or Preserved Airflow
Mustafa Abdo 1 2 3 , Henrik Watz 3 4 , Frederik Trinkmann 2 3 , Sabine Bohnet 5 , Miriam Annabelle Marcella Guess 5 , Johannes Roeben 5 , Katharina May 6 , Martin Reck 1 3 , Benjamin-Alexander Bollmann 3 7 8 , Susanne Stiebeler 1 9 , Sabine Dettmer 10 8 , Benjamin Waschki 3 11 , Klaus F Rabe 1 3 12 , Klaas Frederik Franzen 3 5 , Jens Vogel-Claussen 3 10 8
Affiliations Expand
• PMID: 40173271

• DOI: 10.1164/rccm.202501-0028OC
Abstract
Rationale: Small airway dysfunction (SAD) is a key feature of chronic obstructive pulmonary disease and might present in tobacco-exposed adults with normal spirometry. So far, the role of oscillometry-defined SAD in this population is largely unexplored. Objective: To investigate the prevalence of oscillometry-defined SAD and its associations with airway structural changes, quality of life (QoL), metabolic disease, and cardiovascular disease (CVD) in tobacco-exposed adults with impaired airflow or preserved airflow (PA). Methods: In a subcohort (n = 1,628) nested within a lung cancer screening trial, we assessed airway disease using pre-bronchodilator spirometry, oscillometry, and artificial intelligence-powered computed tomography. Impaired airflow included airflow obstruction (AFO) and preserved ratio impaired spirometry (PRISm). Subjects with PA, defined as FEV 1 and FEV 1 :FVC greater than the lower limit of normal, were further stratified as PA with SAD (PA-SAD) or normal lung function. SAD was defined as the frequency dependence of resistance or reactance area greater than the upper limit of normal. Computed tomography biomarkers included airway wall thickness, luminal diameter, branch count, and emphysema. QoL was measured using the euroqol 5-dimension 5-level (EQ-5D-5L). Measurements and Main Results: The overall prevalence of SAD was 39%. SAD was present in 26% of subjects with PA and in 60% of those with impaired airflow. The frequency of AFO, PRISm, and PA-SAD was 21%, 15%, and 16%, respectively. Similar to those with impaired airflow, subjects with PA-SAD had lower EQ-5D-5L scores, greater airway wall thickness, narrower lumen, lower branch count, and higher rate of metabolic disease and CVD than those with normal lung function (P < 0.01 for all). However, they had minimal emphysema and significantly higher branch count than those with AFO. Subjects with AFO or PRISm and concurrent SAD had greater structural changes and more frequent CVD than those with AFO or PRISm alone. SAD was associated with CVD (odds ratio, 1.91 [95% confidence interval, 1.55-2.36]), even after adjusting for confounders and metabolic disease. Conclusions: SAD is highly prevalent among tobacco-exposed adults and is associated with airway structural changes, impaired QoL, and an increased rate of CVD, even among those with PA. PA-SAD is distinct from AFO by its preserved airway count and minimal emphysema.
Keywords: PRISm; SAD; airway wall thickness; emphysema; oscillometry.
Comment in

• Understanding Small Airway Dysfunction in Tobacco-Exposed Adults Using Oscillometry.
Baalachandran R, Kaminsky DA.Am J Respir Crit Care Med. 2025 Sep;211(9):1543-1544.
doi: 10.1164/rccm.202504-0921ED.PMID: 40608420 No abstract available.
Supplementary info
MeSH terms, Grants and fundingExpand
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Clinical Trial

Arch Bronconeumol
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. 2025 Sep;61(9):528-535.
doi: 10.1016/j.arbres.2025.01.004. Epub 2025 Jan 6.
# Effect of Carbocysteine on Exacerbations and Lung Function in Patients With Mild-to-Moderate Chronic Obstructive Pulmonary Disease: A Multicentre, Double-Blind, Randomized, Placebo-Controlled Trial
[Article in English, Spanish]
Yumin Zhou 1 , Fan Wu 2 , Haiqing Li 2 , Zhishan Deng 2 , Li Lin 3 , Hong Huang 4 , Haiyan Zhao 5 , Yiran Wang 6 , Lingwei Wang 7 , Qijian Cheng 8 , Shan Cai 9 , Zhiyi He 10 , Yinghua Ying 11 , Peiyu Huang 2 , Heshen Tian 2 , Jieqi Peng 2 , Shan Xiao 2 , Xiang Wen 2 , Huajing Yang 2 , Youlan Zhen 2 , Zihui Wang 2 , Ningning Zhao 2 , Lifei Lu 2 , Jianwu Xu 2 , Qiuyue Wang 12 , Pixin Ran 13 ; China Carbocysteine in Mild-to-moderate COPD Study Group
Affiliations Expand
• PMID: 40000348

• DOI: 10.1016/j.arbres.2025.01.004
Abstract
Objectives: Carbocysteine can reduce the frequency of acute exacerbations and improve respiratory symptoms to a certain extent in severe to very severe chronic obstructive pulmonary disease (COPD) patients. The objective of the study was to evaluate the efficacy of carbocysteine on the rate of exacerbations and pulmonary function for mild-to-moderate COPD patients.
Methods: In this phase 4, multicenter, double-blind, randomized, placebo-controlled, parallel-group trial, we randomly assigned mild-to-moderate COPD patients in a 2:1 ratio to treatment with carbocysteine (500mg, thrice daily) or matched placebo for 12 months. Eligible participants were 40-80 years of age. The coprimary outcomes were the annual rate of exacerbations of COPD (mild, moderate or severe) during the 12-month trial period or the difference in the FEV 1 before bronchodilator use at 12-month from baseline.
Results: Owing to slower-than-anticipated recruitment caused by the COVID-19 pandemic, recruitment of an estimated sample size of 732 patients stopped after 539 patients. The sample size was indeed reached for the annual rate of exacerbations but not for pulmonary function. Among 539 patients, 362 were randomized to receive carbocysteine and 177 to receive matched placebo. There was no significant difference in the annual rate of exacerbations of COPD between carbocysteine group and placebo group (0.39 vs. 0.46 per patient year; relative risk [RR], 0.85; 95% confidence interval [CI],

0.64-1.13; P=0.273). Based on the available sample size, the difference in the change of FEV 1 before bronchodilator use at 12 months between carbocysteine group and placebo group has not been observed (46±12 vs. 50±17ml; mean difference, 6 ml; 95% CI, -24 to 36; adjusted P=0.700).
Conclusions: Our findings suggested that carbocysteine might not significantly reduce the annual rate of total exacerbations in patients with mild-to-moderate COPD. The findings may have been compromised by an overestimation of the efficacy of carbocysteine on reducing exacerbations in mild-to-moderate COPD and potential confounding by baseline imbalances. The efficacy on lung function could not be adequately evaluated. Clinical trial

registered with Chictr.org.cn (ChiCTR1800016712).
Keywords: Carbocysteine; Exacerbations; Lung function; Mild-to-moderate COPD.

Supplementary info
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Observational Study

J Clin Nurs
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. 2025 Sep;34(9):3870-3879.
doi: 10.1111/jocn.17603. Epub 2024 Dec 12.
Nursing Cost Analysis for Acute Exacerbation of Chronic Obstructive Pulmonary Disease in the Intensive Care Unit
Haizhou Mao 1 , Zhi Chen 2 , Wei Li 2 , Xinyue Pang 2 , Xinmei Cao 2 , Jiaqi Shi 2 , Danwen Zhuang 2 , Lijie Mao 2
Affiliations Expand
• PMID: 39668400

• DOI: 10.1111/jocn.17603
Abstract
Objective: To determine nursing costs for intensive care unit (ICU) patients with acute exacerbation of chronic obstructive pulmonary disease (AECOPD), assess the correlation with diagnosis-related group (DRG) payments and identify cost determinants.
Design: Prospective, descriptive and quantitative study.
Methods: From January to December 2022, we selected ICU patients with AECOPD and used time-driven activity-based costing method to calculate the overall nursing costs. We examined the cost recovery rate, correlations between nursing costs and DRG Relative Weight, and factors influencing nursing costs using nonparametric tests, Spearman's rank correlation and quantile regression.
Results: The median nursing charge was US$1001.88, the median nursing cost was US$678.51, and the average cost recovery rate was 68.39%. Nursing costs correlated with the DRG Relative Weight but not with payments. Length of stay, oxygen therapy mode and noninvasive ventilator use days impacted costs.
Conclusions: Nursing costs exceeded charges, with a moderate cost recovery rate. DRG payments do not fully reflect nursing cost variations.

Relevance to clinical practice: Our findings indicate the need to enhance the reimbursement system for nursing costs and to manage ICU nursing expenses by addressing the determinants of these costs.
Reporting method: The authors adhered to the EQUATOR network guidelines STROBE to report observational cross-sectional studies.
Keywords: acute exacerbation of chronic obstructive pulmonary disease; costs and cost analysis; intensive care unit; management.

• 35 references
Supplementary info
Publication types, MeSH terms, Grants and fundingExpand

Comparative Study

J Clin Nurs
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. 2025 Sep;34(9):3671-3683.
doi: 10.1111/jocn.17524. Epub 2024 Oct 28.
# Self-Care of Older Patients Affected by at Least Two Chronic Conditions Between Heart Failure, Diabetes Mellitus and Chronic Obstructive Pulmonary Disease: A Comparative Study
Giulia Andrea Baldan 1 2 , Maddalena De Maria 3 , Michela Luciani 4 , Maria Matarese 5 , Ercole Vellone 1 6 , Davide Ausili 4
Affiliations Expand
• PMID: 39468826

• DOI: 10.1111/jocn.17524
Abstract
Aims: This study aims to describe disease-specific self-care behaviours in patients with heart failure (HF), diabetes mellitus (DM) and chronic obstructive pulmonary disease (COPD) in various combinations; to compare these self-care behaviours within patient groups; and to evaluate differences across these groups.
Design: Cross-sectional study.
Methods: A total sample of 1079 older patients was recruited from outpatient clinics and home settings. Eligible patients were aged ≥ 65 years and had a diagnosis of HF and/or DM, and/or COPD, along with at least one additional chronic condition. Data were collected using validated tools: the Self-Care of Heart Failure Index, Self-Care of Diabetes Inventory and Self-Care of Chronic Obstructive Pulmonary Disease Inventory. Descriptive statistics were used to analyse disease-specific self-care behaviours. Group comparisons were performed using Student's t-test and univariate, followed by multivariate analyses of variance.
Results: The analysis focused on a subset of 223 patients who had a combination of at least two chronic conditions between HF, DM and/or COPD. The mean age of participants was 77.3 (SD 7.5) years, with a majority being female (53.4%). Self-care maintenance, monitoring and management for HF and COPD were found to be inadequate across all

patient groups. Adequate self-care was only observed in DM management among those with HF and DM and in DM maintenance for those with DM and COPD treated with insulin. Significant differences in all self-care dimensions were observed across groups, particularly in patients managing all three conditions (HF, DM and COPD).
Conclusions: The findings provide valuable insights into the complexities of self-care in patients with multiple chronic conditions, underscoring the need for tailored, integrated and patient-centred interventions. Healthcare strategies should focus on enhancing patient education and developing personalised approaches to improve health outcomes and quality of life in this population.
Reporting method: All the authors have adhered to the EQUATOR guidelines STROBE Statement.
Patient or public contribution: A convenience sample of patients was recruited in outpatient clinics and their homes. Data were collected between March 2017 and August

2022, by face-to-face during routine outpatient visits or directly at the patient's home.
Keywords: chronic disease; chronic obstructive pulmonary diseases; comorbidity; comparative studies; cross-sectional studies; diabetes mellitus; heart failure; self-care; self-management.

• 52 references
Supplementary info
Publication types, MeSH terms, Grants and fundingExpand

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

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. 2025 Sep 1;15(1):32046.
doi: 10.1038/s41598-025-18178-5.
Polydoctoring and health outcomes among the very old population with multimorbidity: a retrospective cohort study in Japan
Takayuki Ando 1 , Takashi Sasaki 2 , Hirohisa Fujikawa 3 , Junji Haruta 3 4 , Yasumichi Arai 2
Affiliations Expand
• PMID: 40890452

• PMCID: PMC12402188

• DOI: 10.1038/s41598-025-18178-5
Abstract
To assess the relationship between polydoctoring and patient outcomes, we conducted a retrospective cohort study using a Japanese population-based dataset from April 2014 to December 2022. Overall, 2,338,965 patients aged 75-89 years with at least two chronic conditions were included. Polydoctoring was assessed by the number of regularly visited facilities (RVFs). The primary outcome was all-cause mortality, with secondary outcomes being all-cause hospitalizations, hospitalizations for ambulatory care-sensitive conditions (ACSCs), and outpatient costs. During the study period, 14.5% of participants died, 52.2% were hospitalized, and 12.5% experienced ACSC-related hospitalizations. Patients without RVFs had the highest mortality risk (HR: 3.23, 95% CI: 3.14-3.33), while those with ≥ 5 RVFs had the lowest (HR: 0.67, 95% CI: 0.62-0.73). ACSC-related hospitalizations were U-shaped, with increased risk at ≥ 5 RVFs (HR: 1.13, 95% CI: 1.06-1.22). Outpatient costs increased 3.21 times for ≥ 5 RVFs compared to 1 RVF. Polydoctoring was associated with reduced mortality but higher hospitalization rates and costs, with an optimal RVF range of 2-3 which minimized ACSC-related admissions. These findings emphasize the need for strategies that balance the benefits and costs of polydoctoring to support sustainable healthcare through improved care coordination and resource management for aging populations.
Keywords: Ambulatory care-sensitive conditions; Care fragmentation; Multimorbidity; Polydoctoring; Primary care.

Conflict of interest statement
Declarations. Competing interests: The authors declare no competing interests.
• 35 references
• 5 figures
Supplementary info
MeSH terms, Grants and fundingExpand
Full text links

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Observational Study

Int J Geriatr Psychiatry
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. 2025 Sep;40(9):e70147.
doi: 10.1002/gps.70147.
Barthel Index Score at Admission to Predict 1-Month and 1-Year Prognosis in Inpatients Aged ≥ 75 Years With Multimorbidity
Xin Chen 1 2 , Chen-Lu Zhang 1 2 , Hua Jiang 1 2
Affiliations Expand
• PMID: 40875287

• DOI: 10.1002/gps.70147
Abstract
Objective: To investigate the Barthel Index (BI) score in predicting the 1-month and 1-year prognosis after discharge.
Methods: This was a retrospective observational single-center study. We retrospectively enrolled consecutive inpatients aged ≥ 75 years from a large public hospital. Information of the basic demographic variables, BI score, disease burden, length of hospital stay, medical cost and outcomes of patients were collected. Then we analyzed the association between BI score and clinical outcomes.
Results: A total of 242 subjects were included in this study. The median of BI score was 40 (5, 70). There were 48.76% and 82.23% patients with poor prognosis within 1 month and 1 year after discharge. BI remained an independent predictor of poor outcome within 1 month (P < 0.001) and 1 year (P = 0.027) after adjusting other factors. BI score was negatively correlated with poor outcomes. The calibration of 1-year outcomes was better than that of 1-month outcomes. The ROC analysis showed the AUC of the BI in predicting 1-month and 1-year outcomes were 0.860(P < 0.001) and 0.674(P < 0.001) respectively. The cutoff values for BI to predict 1-month and 1-year outcomes were 42.5 and 52.5.
Conclusions: The BI score at admission was an useful predictor of outcomes within 1 month and 1 year after discharge for very elderly multimorbidity inpatients.
Keywords: Barthel Index; elderly; multimorbidity; outcome.


• 27 references
Supplementary info
Publication types, MeSH terms, Grants and fundingExpand

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3
Kidney Med
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. 2025 Jul 2;7(9):101061.
doi: 10.1016/j.xkme.2025.101061. eCollection 2025 Sep.
Socioeconomic Disadvantage, All-Cause and Cause-Specific Mortality in Patients Treated With Maintenance Dialysis: A Mediation Analysis of Geographical Inequity and Multimorbidity
Farzaneh Boroumand 1 2 3 , Wai H Lim 4 5 6 , Shuvo Bakar 1 , Ryan Gately 7 , Pedro Lopez 8 9 10 , Dharshana Sabanayagam 1 3 11 , Anita van Zwieten 1 3 , Lin Zhu 1 , Germaine Wong 1 3 , Armando Teixeira-Pinto 1 3
Affiliations Expand
• PMID: 40837249

• PMCID: PMC12362684

• DOI: 10.1016/j.xkme.2025.101061
Abstract
Rationale & objective: Social gradient in health (a "social gradient in health" refers to the observed pattern in which individuals with lower socioeconomic status typically experience poorer health outcomes than those with higher socioeconomic status. This indicates that health disparities exist across different social levels, with the most disadvantaged groups experiencing the worst health outcomes) is significant and established in patients with kidney failure, but the pathways of this relationship are unknown. We aimed to assess the mediating effects of

multimorbidity and geographical remoteness in the socioeconomic status (SES)-death associations.
Study design: A cohort study.
Setting & participants: All patients with kidney failure aged 18 years and above, who commenced dialysis in Australia from 2005 to 2019.
Exposure: Area-level SES.
Outcomes: All-cause and cause-specific death.
Analytical approach: The effect of SES on all-cause and cause-specific death was analyzed using the inverse probability stabilized weighting. Mediating effects of geographical remoteness, diabetes mellitus (DM) and cardiovascular disease (CVD) on the association between lower SES and all-cause and cause-specific death were explored.
Results: A total of 35,239 patients receiving incident dialysis were included, with a median (p25, p75) follow-up period of 3.3 (1.7-5.9) years. Compared with patients from higher SES, the average hazard rate for all-cause death among those from lower SES was 17% higher (total effect [TE] = 0.17, 95% CI [0.12-0.23]). Proportions of the effects between SES and all-cause mortality mediated by geographical remoteness, CVD, and DM were 29.4%, 11.8%, 17.6%, respectively, whereas SES explained 41.2% of the TE directly. Compared with patients from high SES, patients from lower SES have on average a higher hazard rate of CVD (TE = 0.26, 95% CI, [0.15-0.38]) and infection-related deaths (TE = 0.12, 95% CI, [0-0.25]). The effects of

SES on CVD and infection-related deaths were mediated by CVD and DM, but not geographical remoteness.
Limitations: Potential residual confounding and other latent mediators.
Conclusions: Geographical remoteness, diabetes, and CVD are potential mediators that lie in the pathways between SES and all-cause and cause-specific deaths. A multifaceted approach with sustained efforts from multiple sectors to address these factors may reduce the social disparities observed in patients treated with dialysis.
Keywords: Area-level socioeconomic status (SES); death; dialysis; geographical remoteness; kidney failure; mediation analysis; multimorbidity.
Plain language summary
People with kidney failure who have less money or support often have more health problems than those who are better off. In this study, we found that this is not just because of their financial situation, but also because many also have other health problems, including diabetes and heart disease, and they may live in remote areas where it may be harder to access health care and specialist appointments. Our study suggests that we need to provide more support to these people and make sure everyone with kidney failure has a fair chance at good health, no matter where they live or how much money they have.

• 28 references

• 5 figures
Full text links

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Cite
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Obesity (Silver Spring)
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. 2025 Sep;33(9):1622-1624.
doi: 10.1002/oby.70017. Epub 2025 Jul 30.
From Weight Loss to Multimorbidity Prevention: Framing the Anticipated Contributions of SURMOUNT-MMO
Naveed Sattar 1
Affiliations Expand
• PMID: 40739460

• PMCID: PMC12381600

• DOI: 10.1002/oby.70017
No abstract available
Keywords: cardiovascular disease; multimorbidity; obesity; trials.
Conflict of interest statement
N.S. has consulted for and/or received speaker honoraria from Abbott Laboratories, AbbVie, Amgen, AstraZeneca, Boehringer Ingelheim, Carmot Therapeutics, Eli Lilly, GlaxoSmithKline, Hanmi Pharmaceuticals, Menarini-Ricerche, Metsera, Novartis, Novo Nordisk, Pfizer, and Roche; and received grant support paid to his university from AstraZeneca, Boehringer Ingelheim, Novartis, and Roche outside the submitted work.
• 5 references

• 1 figure

Full text links

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5
Neth Heart J
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. 2025 Sep;33(9):270-280.
doi: 10.1007/s12471-025-01968-x. Epub 2025 Jul 18.
Hospital healthcare utilisation in patients with atrial fibrillation: the role of multimorbidity and age
Melissa E Middeldorp 1 , Colinda van Deutekom 1 , Liann I Weil 2 , Ursula W De Ruijter 3 , Patrick T Jeurissen 4 , Isabelle C Van Gelder 1 , Barbara C van Munster 2 , Michiel Rienstra 5
Affiliations Expand
• PMID: 40679582

• PMCID: PMC12364794

• DOI: 10.1007/s12471-025-01968-x
Abstract
Background: Patients with atrial fibrillation (AF) often present with multimorbidity and may require a higher healthcare utilisation. We aimed to compare hospital healthcare utilisation among AF patients to non-cardiovascular disease (non-CVD) patients and explore the role of multimorbidity and age.
Methods: We performed a retrospective cohort study using electronic health records data from three hospitals in the Netherlands. Patients aged ≥ 18 years with ≥ 1 inpatient or outpatient presentation were included. Diagnoses were determined using the International Classification of Diseases and Related Health Problems 10 codes and linked with the Dutch Hospital Data Clinical Classification Software to determine comorbidities.
Results: A total of 226,991 patients, 5,127 (2%) had AF. AF patients had significantly more outpatient visits (6.6 vs 3.6), emergency department visits (0.9 vs 0.2), and in-

hospital days (4.0 vs 1.5) compared to non-CVD patients/year (all p < 0.001). AF patients saw more frequently multiple specialists, (13% vs 2% consulting ≥ 5 specialists, p < 0.001). Number of outpatient visits for AF patients increased with number of comorbidities: from a median of 1 (0-1 comorbidities) to 11 (≥ 4 comorbidities) (p < 0.001). Similarly, in-hospital days increased from 0.6 days (0-1 comorbidities) to 8.2 days (≥ 4 comorbidities) (p < 0.001). Regardless of age, AF patients had more outpatient and emergency department visits and more days in hospital days compared to non-CVD patients (all p < 0.001).
Conclusions: Patients with AF had significantly greater hospital healthcare utilisation use compared to non-CVD patients, independent of age. Therefore, there is a need for more cohesive care pathways in AF patients to reduce healthcare utilisation.
Keywords: Age; Atrial fibrillation; Comorbidities; Healthcare utilisation; Multimorbidity.

Conflict of interest statement
Conflict of interest: M.E. Middeldorp, C. van Deutekom, L.I. Weil, U.W. De Ruijter, P.T. Jeurissen, I.C. Van Gelder, B.C. van Munster and M. Rienstra declare that they have no competing interests.
• 27 references
• 3 figures
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Multicenter Study

Lancet Respir Med
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. 2025 Sep;13(9):821-832.
doi: 10.1016/S2213-2600(25)00135-3. Epub 2025 Jul 8.
Evaluation of the effect of multimorbidity on difficult-to-treat asthma using a novel score (MiDAS): a multinational study of asthma cohorts

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Affiliations Expand
• PMID: 40645203

• DOI: 10.1016/S2213-2600(25)00135-3
Free article
Abstract
Background: Multimorbidity (ie, co-existence of two or more health conditions) is highly prevalent in patients with difficult-to-treat asthma. However, it remains unclear how multimorbidity correlates with disease severity and adverse health outcomes in these patients and which comorbidities are most important. We aimed to address this knowledge gap by developing a patient-centred, clinically descriptive multimorbidity score for difficult-to-treat asthma.
Methods: We used data from the UK-based Wessex Asthma Cohort of Difficult Asthma (WATCH; n=500, data collected between April 22, 2015, and April 1, 2020) to develop the Multimorbidity in Difficult Asthma Score (MiDAS). Initially, we created a modified Asthma Severity Scoring System (m-ASSESS) in WATCH. We then conducted univariate association analysis to test the association between the 13 commonest comorbidities and m-ASSESS in WATCH and used a branch-and-bound approach to select the most relevant comorbidities for inclusion in MiDAS. We calculated MiDAS values for all patients with complete information in WATCH (n=319) and assessed them for correlation with components of m-ASSESS, proinflammatory biomarkers, and St George's Respiratory Questionnaire (SGRQ) score, a quality-of-life measure. We also assessed the association of MiDAS with multiple clinical outcomes in four international cohorts: two from Australia (n=236,

data collected between June 14, 2014, and April 1, 2022; and n=140, Aug 6, 2012, to Oct 18, 2016), one from southeast Asia (n=151, March 21, 2017, to Jan 16, 2024), and one from the USA (n=100, July 9, 2021, to Dec 14, 2023).
Findings: We selected seven common comorbidities (ie, rhinitis, gastro-oesophageal reflux disease, breathing pattern disorder, obesity, bronchiectasis, non-steroidal anti-inflammatory drug-exacerbated respiratory disease, and obstructive sleep apnoea) for inclusion in MiDAS on the basis of the branch-and-bound analysis and combined them using multivariate linear regression to derive a MiDAS model associated with m-ASSESS in WATCH. The range of MiDAS scores was 9·6-16·2. In WATCH members, mean MiDAS value was 11·97 (SD 1·21) and MiDAS was nominally correlated with m-ASSESS components of poor asthma control (τ=0·31 [95% CI 0·24-0·38]) and exacerbations (τ=0·16 [0·08-0·24]). MiDAS was also correlated with worse total SGRQ score (r=0·39 [95% 0·28-0·49], p<0·0001) and with the proinflammatory plasma cytokines interleukin (IL)-4 (r=0·19 [95% CI 0·06-0·31], p=0·0036), IL-5 (r=0·35 [0·24-0·46], p<0·0001), and leptin (r=0·29 [0·17-0·40], p<0·0001) in WATCH. MiDAS values across the four international cohorts were

similar to those of WATCH (UK cohort), with mean values of 12·33 (SD 1·47) and 12·31 (1·37) in the Australian cohorts, 11·80 (1·20) in the USA cohort, and 11·55 (1·23) in the Singapore cohort. In these cohorts, MiDAS correlated with worse asthma control, worse quality of life, anxiety, depression, and increased inflammation.
Interpretation: MiDAS highlights the co-occurrence of multimorbidity with the worst outcomes in difficult-to-treat asthma. These findings strongly indicate that an airway-centric approach is inadequate and that holistic and multidisciplinary care is imperative. This clinical score could help clinicians to identify patients most at risk from their multimorbidity.
Funding: UK National Institute for Health and Care Research, Australian National Health and Medical Research Council, Hunter Medical Research Institute, University of Newcastle (Australia), and John Hunter Hospital Charitable Trust.

Conflict of interest statement
Declaration of interests RJK co-holds a methods patent outside the submitted work on the cellular profiles of tissue resident memory T-cells and their use in asthma. BA is a member of the UK Taskforce for Lung Health, has received honoraria for educational talks from AstraZeneca, and sits on advisory boards for the Medito Foundation and earGym (all unrelated to this work). PGG reports personal fees from AstraZeneca, GSK, and Novartis and grants from AstraZeneca and GSK, outside the submitted work. VMM reports grants from GSK outside the submitted work, and advisory board and speaker fees from GSK, Menarini, and Boehringer-Ingelheim outside the submitted work. VC reports speakers fees from AstraZeneca, unrelated to the conduct of this study. MH has received grants and personal fees outside the submitted work from GSK, AstraZeneca, Sanofi, Novartis, Teva, and Chiesi, all paid to his employer Alfred Health. CE reports travel support from Chiesi and speaker fees from AstraZeneca outside the submitted work. RD is a co-founder of and consultant to Synairgen, has received funding for lectures from GSK, and has been on advisory boards of GSK, Celltrion, ALK Abello, and ZenasBio, all unrelated to this work. Unrelated to this work, NL has received consulting fees from Amgen, AstraZeneca, Avillion, Genentech, GSK, Niox, Novartis, Regeneron, Sanofi, and Teva; honoraria for non-speakers bureau presentations from GSK, Teva, and AstraZeneca; and travel support from AstraZeneca, Sanofi, Teva, Regeneron, and GSK; her institution received research support from Amgen, AstraZeneca, Avillion,

Bellus, Evidera, Gossamer Bio, Genentech, GSK, Janssen, Niox, Regeneron, Sanofi, Novartis, and Teva. NL is an honorary faculty member of the Observational and Pragmatic Research Institute but does not receive compensation for this role. SH reports speakers fees from AstraZeneca, Berlin-Chemie Menarini, Takeda, Providens, and Amicus Therapeutics; support for attending meetings from AstraZeneca, Chiesi (Providens), and Hemofarm; and payment for advisory boards from AstraZeneca, Berlin-Chemie Menarini, and Providens, all unrelated to this work. WCGF declares stock ownership in relation to Sanofi, GSK, and AstraZeneca, unrelated to this work. HMH co-holds a method patent on anti-ADAM33 oligonucleotides and related methods, which is unrelated to the current work. All other authors declare no competing interests.

Supplementary info
Publication types, MeSH termsExpand
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Lancet Respir Med
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. 2025 Sep;13(9):775-776.
doi: 10.1016/S2213-2600(25)00170-5. Epub 2025 Jul 8.
Beyond the airways in difficult-to-treat asthma: multimorbidity as the rule, not the exception
Hannu Kankaanranta 1 , Bright I Nwaru 2
Affiliations Expand
• PMID: 40645202

• DOI: 10.1016/S2213-2600(25)00170-5
No abstract available
Conflict of interest statement
HK reports personal fees for lectures and consulting from AstraZeneca, Boehringer-Ingelheim, Chiesi Pharma, Covis Pharma, GSK, MSD, Orion Pharma, and Sanofi, outside the submitted work. BIN declares no competing interests.
Full text links

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Ann Am Thorac Soc

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. 2025 Sep;22(9):1335-1342.
doi: 10.1513/AnnalsATS.202411-1200OC.
Fine Particulate Matter and Mortality in Chronic Obstructive Pulmonary Disease with Multimorbidity
Camille E Robichaux 1 , Arianne K Baldomero 1 2 3 , Amy A Gravely 4 , Chris H Wendt 1 2 , Jesse D Berman 5

Affiliations Expand
• PMID: 40315387

• DOI: 10.1513/AnnalsATS.202411-1200OC
Abstract
Rationale: Exposure to particulate matter with an aerodynamic diameter ≤2.5 μm (PM 2.5 ) is associated with respiratory dysfunction and increased risk of death. The U.S. Environmental Protection Agency has established regulatory standards for long-term exposure in the general population, but the risk for individuals with existing respiratory disease is unclear. Objectives: Estimate the association between long-term PM 2.5 exposure and mortality in individuals with chronic obstructive pulmonary disease (COPD), including the modifying effects of comorbidities at low levels of exposure. Methods: We performed a retrospective cohort analysis of all patients with a COPD diagnosis in the Veterans Health Administration between 2016 and 2019. Annual ambient concentrations of PM 2.5 were obtained from publicly available pollutant models and spatially assigned to patient households. Primary outcomes were adjusted odds of mortality per 1-μg/m 3 increase in 5-year PM 2.5 concentrations and identification of comorbidities associated with increased susceptibility. Results: Medical records from 1,124,973 veterans with COPD were analyzed. Most of the cohort were male (95.60%), and the cohort had diverse racial, socioeconomic, and geographic characteristics. The odds of death was 3.8% higher for every 1-μg/m 3 increase in long-term PM 2.5 (adjusted odds ratio [aOR], 1.038; 95% confidence interval [CI], 1.035-1.040). For people with comorbid lung cancer (aOR, 1.051; 95% CI, 1.035-1.068), coronary arterial disease (aOR, 1.039; 95% CI, 1.033, 1.044), or chronic kidney disease (aOR, 1.042; 95% CI, 1.034, 1.049), the risk of death was significantly higher than for those without. Conclusions: The risk of mortality increases at even small magnitudes of increased PM 2.5 concentrations in people with COPD. The risk was higher for those with comorbid lung cancer, coronary artery disease, and chronic kidney disease. The current standard of 9 μg/m 3 for the general population should be reevaluated for those with existing COPD.
Keywords: air pollution; chronic kidney diseases; coronary artery disease; lung cancer; obstructive lung disease.

Comment in
• Chronic Exposure to PM 2.5 Can Be Deadly for People with Chronic Obstructive Pulmonary Disease.
Aaron SD.Ann Am Thorac Soc. 2025 Sep;22(9):1297-1298. doi: 10.1513/AnnalsATS.202507-703ED.PMID: 40632892 No abstract available.
Supplementary info
MeSH terms, Substances, Grants and fundingExpand
Full text links

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Int J Med Inform
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. 2025 Sep:201:105954.
doi: 10.1016/j.ijmedinf.2025.105954. Epub 2025 Apr 26.
Exploring Multimorbidity Patterns in older hospitalized Norwegian patients using

Network Analysis modularity

Mohsen Askar 1 , Beate Hennie Garcia 2 , Kristian Svendsen 2
Affiliations Expand

• PMID: 40300484

• DOI: 10.1016/j.ijmedinf.2025.105954
Free article

Abstract
Background: Understanding Multimorbidity Patterns (MPs) is crucial for planning healthcare interventions, allocating resources, and improving patients' outcomes.
Objective: We aim to demonstrate the use of Network Analysis (NA) to explore the MPs in hospitalized Norwegian older patients.

Methods: We utilized data from the Norwegian Patient Registry (NPR) of all admissions between 2017 and 2019. The study population included patients ≥ 65 years old with two or more different conditions. Multimorbidity was defined as the co-occurrence of two or more associated chronic conditions. Chronic conditions were identified using the Chronic Condition Indicator Refined (CCIR) list. The association between chronic conditions was determined by calculating Relative Risk (RR) and Phi-correlation to detect pairs of conditions that co-occur beyond chance. A multimorbidity network was created, and MPs were detected using Louvain method for community detection. We suggested a clinical interpretation for these MPs.
Results: A total of 539 chronic conditions were used to create a multimorbidity network revealing several MPs. These modules included patterns of vision and hearing disorders, cardiorenal syndrome, metabolic and cardiovascular disorders, respiratory disorders, endocrine and skin conditions, autoimmune and musculoskeletal disorders, as well as mental and behavioral disorders. Using NA centrality measures, we identified the most influential conditions in each module. An interactive network and sunburst graphs for each module are publicly available.
Conclusion: The study demonstrates the use of NA modularity detection in identifying MPs. The findings highlight the complex interaction of chronic conditions in the elderly and the potential of NA methodology in exploring these relationships.

Keywords: Chronic conditions; Community detection; Comorbidity; Disease patterns; Modularity; Multimorbidity; Network analysis.



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.

Supplementary info

MeSH termsExpand

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Soc Psychiatry Psychiatr Epidemiol

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. 2025 Sep;60(9):2125-2134.
doi: 10.1007/s00127-025-02877-5. Epub 2025 Mar 25.
Mental health service contact in children with and without physical-mental multimorbidity
Shannon Reaume 1 , Joel Dubin 2 , Christopher Perlman 2 , Mark Ferro 2
Affiliations Expand
• PMID: 40131381

• DOI: 10.1007/s00127-025-02877-5
Abstract
Purpose: To estimate six-month prevalence of child mental health service contacts and quantify associations between child health status and mental health service contacts, including number of types of contacts.
Methods: Data come from 6,242 children aged 4-17 years in the Ontario Child Health Study. A list of chronic conditions developed by Statistics Canada measured physical illness. The Emotional Behavioural Scales assessed mental illness. Child health status was categorized as healthy, physical illness only, mental illness only, and multimorbid (≥ 1 physical and ≥ 1 mental illness). Mental health service contact was aggregated to general medicine, urgent medicine, specialized mental health, school-based, alternative, and any contact (≥ 1 of the aforementioned contacts). Regression models quantified associations between health status and type of mental health contact, including number of types of contacts.
Results: Weighted prevalence estimates showed 261,739 (21.4%) children had mental health-related service contact, with school-based services being the most common contact amongst all children, regardless of health status. Children with multimorbidity had higher odds for every mental health contact than healthy controls (OR range: 4.00-6.70). A dose-response was observed, such that the number of contacts increased from physical illness only (OR = 1.49, CI: 1.10-1.99) to mental illness only (OR = 3.39, CI: 2.59-4.44) to multimorbidity (OR = 4.13, CI: 2.78-6.15).
Conclusion: Over one-fifth of children had mental health-related service contact and contacts were highest among children with multimorbidity. Types of mental health contacts for children with multimorbidity are diverse, with further research needed to elucidate the barriers and facilitators of mental health use.
Keywords: Children; Chronic physical illness; Mental health care service research; Mental illness; Multimorbidity.

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

• 57 references
Supplementary info
MeSH terms, Grants and fundingExpand
Full text links

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11
Psychol Health
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. 2025 Sep;40(9):1532-1550.

doi: 10.1080/08870446.2024.2339327. Epub 2024 May 1.
Older adult's experiences of navigating healthcare whilst living with multimorbidity
Helen Ginman 1 , Matthew Sitch 1
Affiliations Expand
• PMID: 38693663

• DOI: 10.1080/08870446.2024.2339327
Abstract
Objective: The way older adults navigate their healthcare is critical to supporting positive health outcomes. However, navigating healthcare with multimorbidity is typically disjointed due to complexities in treatment, management, and service provision. This study sought to examine how older patients navigate healthcare whilst living with multimorbidity.
Methods and measures: Semi-structured interviews were undertaken with five older adults, aged 65 or older, living with multimorbidity in residential care in England. An Interpretive Phenomenological Analysis was undertaken.
Results: Overall, participants experienced navigating healthcare whilst living with multimorbidity as challenging. Group Experiential Themes included 'Health knowledge and understanding', 'Relationships and expectations' and 'Navigating health care with a single lens'. Collectively these themes represented narratives involving how having limited understanding of health conditions, experiencing

challenges in communication with health professionals, and receiving segmented care in a health care system driven by a single condition focus interfered with navigation.
Conclusion: These findings highlight experiences of older adults living with multimorbidity navigating healthcare and illustrate several ways older adults living with multimorbidity may be supported to navigate services with less challenges. The research also promotes the need for future research in this area.
Keywords: Multimorbidity; healthcare navigation; older adults.
Supplementary info
MeSH termsExpand
Full text links

"asthma"[MeSH Terms] OR asthma[Text Word]
1
Review

Allergy
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. 2025 Sep 4.
doi: 10.1111/all.70038. Online ahead of print.
The Impact of War on Asthma, a Systematic Review and Meta-Analysis: An EAACI Task Force Report
João Cavaleiro Rufo 1 2 3 , Inês Paciência 4 , Marek Jutel 5 6 , André Moreira 1 3 7 , Isabella Annesi-Maesano 8 9 , Hille Suojalehto 10 , Magdalena Zemelka-Wiącek 11 , Thulja Trikamjee 12 , Semra Demir 13 , Ibon Eguíluz-Gracia 14 , Daniela Carvalho 15 , Anaïs Backland 8 9 , Josh Lawson 16 17
Affiliations Expand
• PMID: 40906435

• DOI: 10.1111/all.70038
Abstract
Wartime events have been followed by an increase in asthma prevalence, which is believed to result from a combination of environmental hazards and psychological trauma. This systematic review and meta-analysis aimed to investigate this relationship by pooling available data on various wartime exposures, such as occupational, environmental, and psychological factors. MEDLINE, Scopus, and Cochrane databases were searched for articles that measure the effect of war-related exposures on asthma. Risk of bias was assessed using the Effective Public Health Practice Project tool. The retrieved effects were then used to fit meta-analytical models. A total of 48 studies, corresponding to 90 effect measures, were included. War-related post-traumatic stress disorder showed the strongest association with asthma outcomes (OR [95% CI] = 2.25 [1.04, 4.89]), followed by experiencing at least one life-threatening event (1.96 [1.18, 3.26]) and depression (1.56 [1.02, 2.37]). Although environmental exposures were also associated with an

increased asthma risk in subgroup analysis (1.64 [1.32, 2.04]), this effect was mitigated when psychological variables were included in the models. The study's results show that wartime events
and conflicts may increase asthma prevalence and outcomes associated with asthma. The management of asthma symptoms, lung function, and mental health seems fundamental in individuals who have experienced psychological trauma in war zones. Trial Registration: PROSPERO registration number: CRD42023444101.
Keywords: environment; exposure; kinetic warfare; pollution; post-traumatic stress disorder; trauma.

• 108 references
Supplementary info
Publication types, Grants and fundingExpand
Full text links
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2
J Gen Intern Med
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. 2025 Sep 4.
doi: 10.1007/s11606-025-09833-8. Online ahead of print.
Inhaled Cannabis, Asthma, and Chronic Obstructive Pulmonary Disease: A Population-Based Cross-Sectional Study of n = 379,049
Alison S Rustagi 1 2 , Abra M Jeffers 3 4 5 , F Julian Graham 6 7 , Beth E Cohen 6 8 , Christopher G Slatore 9 10 11 , Amy L Byers 6 12 13 14 , Stanton A Glantz 15 , Salomeh Keyhani 6 8
Affiliations Expand
• PMID: 40906010

• DOI: 10.1007/s11606-025-09833-8
Abstract
Background: Cannabis may cause chronic pulmonary disease. Prior studies have been limited by low cannabis exposure, lack of data on tobacco cigarettes, and/or limited numbers of those without tobacco cigarette use.
Objective: To examine whether inhaled cannabis associated with asthma and chronic obstructive pulmonary disease, independent of tobacco cigarettes.

Design: Cross-sectional analysis of population-based, nationally representative survey data.
Participants: Adults 18-74 years who participated in the 2016-2020 Behavioral Risk Factor Surveillance System surveys.
Main measures: The exposure was past-30-day cannabis use, from 0 (0/30 days) to 1 (30/30 days). Outcomes were self-reported diagnoses by a medical professional of asthma or chronic obstructive pulmonary disease. We used multivariable logistic regression to test whether inhaled cannabis was associated with odds of disease, adjusted for sociodemographics and tobacco cigarette use (current/former/never). Pre-specified analyses restricted to those with no lifetime tobacco cigarette use.
Key results: Among n = 379,049, n = 23,035 reported inhaled cannabis use. Inhaled cannabis was associated with asthma overall (adjusted odds ratio (aOR) 1.44, 95% CI 1.26-1.63 for daily use) and among n = 221,767 with no lifetime tobacco cigarette use (aOR 1.51 for daily use, 95% CI 1.18-1.93). Inhaled cannabis was associated with chronic obstructive pulmonary disease overall (aOR 1.27 for daily use, 95% CI 1.10-1.46), with a non-significant elevated odds of disease among those with no lifetime tobacco cigarette use (aOR 1.54 for daily use, 95% CI 0.92-2.57).
Conclusions: Inhaled cannabis was associated with asthma and chronic obstructive pulmonary disease after adjusting for tobacco cigarette use. Among those with no lifetime tobacco cigarette use, the association with asthma persisted. Cannabis may be a potential modifiable risk factor for asthma and chronic obstructive pulmonary disease.
Keywords: COPD; asthma; cannabis; marijuana.

Conflict of interest statement
Declarations:. Conflict of Interest:: The authors declare no competing interests. Disclaimer:: The study sponsors had no role in the study design; collection, analysis, or interpretation of data; writing the report; or the decision to submit the manuscript for publication. The opinions expressed herein are those of the authors and not their employers, the U.S. Department of Veterans Affairs, the U.S. government, or the study sponsors. Human Ethics and Consent to Participate:: This study was based on publicly available de-identified data and was exempt from IRB review. Role of the Sponsors:: The study sponsors had no role in the study design; collection, analysis, or interpretation of data; writing the report; or the decision to submit the manuscript for publication. The opinions expressed herein are those of the authors and not their employers or the study sponsors. Institutional Review Board:: This study was based on publicly available de-identified data and was exempt from IRB review.
• 51 references
Supplementary info
Grants and fundingExpand
Full text links
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3
Observational Study

BMJ Open Respir Res
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. 2025 Sep 3;12(1):e002987.
doi: 10.1136/bmjresp-2024-002987.
Impact of bronchitis variability on outcomes of COPD
Joon Young Choi 1 , Yun Seok Kim 1 , Youlim Kim 2 , Hyun Lee 3 , Kyung Hoon Min 4 , Hyunjung Kim 5 , Chin Kook Rhee 6 , Yong Bum Park 7 , Kwang Ha Yoo 2 , Ji-Yong Moon 8

Affiliations Expand
• PMID: 40903188

• PMCID: PMC12410636

• DOI: 10.1136/bmjresp-2024-002987
Abstract
Objective: This study aimed to evaluate the impact of serial bronchitic status over two consecutive years on clinical outcomes, including frequency of exacerbation and lung function decline rate.
Methods: We analysed data from 1265 participants enrolled in the Korea COPD Subgroup Study, a nationwide prospective observational chronic obstructive pulmonary disease (COPD) cohort. Bronchitic status was determined using subquestionnaires of the COPD Assessment Test at baseline and after 1 year, classifying patients into three serial bronchitic groups of persistently not bronchitic (NB), intermittently bronchitic (IB) and chronic bronchitis (CB). Annualised exacerbation rates and longitudinal lung function decline rates were analysed.
Results: The NB group consisted of 873 individuals, the IB group contained 272 and the CB group included 120. The analysis of baseline demographics showed a greater prevalence of current smokers in the CB and IB groups compared with the NB group. Patients with CB exhibited the worst baseline symptoms and lung function, while those with IB had worse clinical features

compared with those with persistently NB. Patients with CB had the highest rate of moderate-to-severe exacerbations, followed by IB, compared with persistently NB. No significant differences in forced expiratory volume in 1 s or forced vital capacity decline rates were observed among the groups.
Conclusions: Patients with CB and IB exhibit a greater risk of exacerbations than those with NB, whereas lung function decline rates did not significantly differ between groups.
Keywords: Cough/Mechanisms/Pharmacology; Patient Outcome Assessment; Perception of Asthma/Breathlessness; Pulmonary Disease, Chronic Obstructive; Respiratory Function Test.

Conflict of interest statement
Competing interests: None declared.
• 24 references
• 2 figures
Supplementary info
Publication types, MeSH termsExpand
Full text links
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J Allergy Clin Immunol Pract
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. 2025 Sep 1:S2213-2198(25)00822-0.
doi: 10.1016/j.jaip.2025.08.021. Online ahead of print.
Response to biologics along a gradient of T2 involvement in patients with severe asthma: a data-driven biomarker clustering approach
Eileen Wang 1 , William Henley 2 , Désirée Larenas-Linnemann 3 , Lakmini Bulathsinhala 4 , Trung N Tran 5 , Michael E Wechsler 6 , Shawn D Aaron 7 , Mona Al-Ahmad 8 , Riyad Al-Lehebi 9 , Alan Altraja 10 , Peter Barker 5 , Aaron Beastall 4 , Andrey S Belevskiy 11 , Celine Bergeron 12 , Leif Bjermer 13 , Unnur S Björnsdóttir 14 , Sinthia Z Bosnic-Anticevich 15 , Arnaud Bourdin 16 , Guy G

Brusselle 17 , John Busby 18 , Giorgio Walter Canonica 19 , Victoria Carter 4 , Kenneth R Chapman 20 , Nicholas Chapman 21 , George C Christoff 22 , Borja G Cosio 23 , Richard W Costello 24 , James Fingleton 25 , João A Ioa Fonseca 26 , Mina Gaga 27 , Peter G Gibson 28 , Susanne
Hansen 29 , Liam G Heaney 30 , Enrico Heffler 19 , Mark Hew 31 , Takahiko Horiguchi 32 , Flavia Hoyte 33 , Richard B Hubbard 34 , Takashi Iwanaga 35 , David J Jackson 36 , Rohit Katial 33 , Mariko Siyue
Koh 37 , Konstantinos Kostikas 38 , Piotr Kuna 39 , Sverre Lehmann 40 , Lauri Lehtimäki 41 , Renaud Louis 42 , Dóra Lúdvíksdóttir 43 , Njira Lugogo 44 , Bassam Mahboub 45 , Neil Martin 46 , Jorge Máspero 47 , Andrew N Menzies-Gow 48 , Arjun Mohan 44 , Ruth B Murray 49 , Tatsuya Nagano 50 , Nikolaos G Papadopoulos 51 , Andriana I Papaioannou 52 , Pujan H Patel 53 , Luis Perez-de-
Llano 54 , Diahn-Warng Perng 55 , Matthew J Peters 56 , Paul E Pfeffer 57 , Paulo Márcio Pitrez 58 , Roy
Alton Pleasants 59 , Todor A Popov 60 , Celeste M Porsbjerg 61 , Francesca Puggioni 62 , Anna Quinton 63 , Chin Kook Rhee 64 , Mohsen Sadatsafavi 65 , Sundeep Salvi 66 , Giulia Scioscia 67 , Chau-
Chyun Sheu 68 , Concetta Sirena 69 , Camille Taillé 70 , Christian Taube 71 , Carlos A Torres-Duque 72 , Ming-Ju Tsai 68 , Alf Tunsäter 13 , Charlotte Suppli Ulrik 73 , David B Price 74
Affiliations Expand
• PMID: 40902942

• DOI: 10.1016/j.jaip.2025.08.021
Abstract
Background: Asthma with low levels of T2-biomarkers is poorly understood.
Objective: To characterize severe asthma phenotypes and compare pre- to post-biologic change in asthma outcomes along a gradient of T2-involvement.

Methods: This was a registry-based, cohort study including data from 24 countries. Biomarker distribution (BEC, FeNO, IgE) was quantified pre-biologic initiation. Clusters were identified using a five-component Gaussian finite mixture model and phenotypically characterized. Change in asthma and healthcare utilization outcomes between 1-year pre- and post-biologic initiation were compared between clusters and by biologic class.
Results: Amongst 3,675 patients Five biomarker clusters) were identified along a gradient of T2-involvement: Cluster A with the lowest T2-involvement (16.4%), Cluster B (20.4%), Cluster C (22.9%), Cluster D (30.3%), and cluster E with the highest T2-involvement (10.0%). In multivariable analysis, biologic use was associated with improved outcomes in all clusters but tended to be better at the higher end of the T2 spectrum. For example, patients in cluster C had a significantly greater increase in FEV 1 relative to cluster A (difference 0.16L [95% CI 0.08, 0.25]; p<0.001). The odds of uncontrolled asthma were approximately 0.6 for all clusters relative to cluster A.Overall, exacerbation rates were lower and greater improvements in lung function and asthma control were noted for anti-IL-5/5R (but not anti-IgE or anti-IL4Rα) for all clusters relative to cluster A.
Conclusion: T2-targeting biologics have utility in the management of asthma with low T2 involvement, but more effective therapies are needed. Further research is warranted to identify specific pathogenic pathways at the lower end of the T2 spectrum that can be effectively targeted by biologics.
Keywords: BEC; FeNO; IgE; benralizumab; dupilumab; effectiveness; mepolizumab; omalizumab; real-life; reslizumab.

Respir Investig
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. 2025 Sep 2;63(6):1078-1084.
doi: 10.1016/j.resinv.2025.08.008. Online ahead of print.
Effects of Daikin air purifiers on asthma control and pulmonary function: A multicenter, single-arm, observational pilot study
Satoshi Hamada 1 , Susumu Sato 2 , Shota Hori 3 , Shiqi Yu 3 , Hironobu Sunadome 4 , Kimihiko Murase 5 , Toyohiro Hirai 4
Affiliations Expand
• PMID: 40902284

• DOI: 10.1016/j.resinv.2025.08.008
Abstract
Background: While numerous studies, including systematic reviews, have investigated the effects of air purifiers on asthma control in Western countries, there is a paucity of research conducted in Japan. This multicenter, single-arm, observational pilot study examined the effect of air purifiers on asthma control in Japanese patients.
Methods: This study was conducted at the Kyoto University Hospital and the Ayabe City Hospital. The air purifiers (MCK704ABK: Daikin Industries, Ltd., Osaka, Japan) were equipped with electrostatic high-efficiency particulate air filters, capable of capturing 99.97 % of particles ≥0.3 μm. We examined changes in particulate matter (PM) 2.5 levels and forced expiratory volume in 1 s (FEV 1 ) before and after one month of air purifier use.
Results: Eighteen patients (median age: 64 [58, 70] years, 66.7 % female) participated in the study. The median PM2.5 concentration significantly decreased from 4.6 (3.4, 6.9) μg/m 3 to 1.4 (0.7, 2.7) μg/m 3 after using the air purifiers (p = 0.00042). FEV 1 significantly increased from 2.0 (1.7, 2.6) L to 2.1 (1.7, 2.6) L (p = 0.041). The median change in FEV 1 after air purifier use was 40 (-22.5, 112.5) mL. Patients with improved FEV 1 (ΔFEV1 >0 mL) had a significantly higher

frequency of allergen sensitization compared to those without improvement (75.0 % vs. 16.7 %, p = 0.019).
Conclusion: The Daikin air purifiers demonstrated the potential to reduce PM levels and improve pulmonary function and asthma symptoms.
Keywords: Air pollution; Air purifier; Chronic airways assessment test; Particulate matter; Pulmonary function.

Conflict of interest statement
Declaration of competing interest Satoshi Hamada and Kimihiko Murase receive research grant from Teijin Pharma Ltd., outside the submitted work. Shota Hori and Shiqi Yu are employees of Daikin Industries, Ltd. Susumu Sato receives grants from Philips Japan Ltd., ResMed Inc., FUJIFILM Co., Ltd., and Nippon Boehringer Ingelheim Co., Ltd., outside the submitted work. Hironobu Sunadome receives grants from Philips Japan Ltd. and ResMed Inc., outside the submitted work. Toyohiro Hirai receives research grant from Daikin Industries, Ltd. related to submitted work. Also, he received lecture fees from AstraZeneca K.K. and Nippon Boehringer Ingelheim Co., Ltd., research grants from DAIICHI SANKYO Co., Ltd., Teijin Pharma Ltd., and FUJIFILM Co., Ltd., and scholarship donation from Sanofi K.K., TAIHO Pharmaceutical Co., Ltd., Chugai Pharmaceutical Co., Ltd., and Nippon Boehringer Ingelheim Co., Ltd., outside the submitted work.

6
Review

Subst Abuse Treat Prev Policy
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. 2025 Sep 2;20(1):34.
doi: 10.1186/s13011-025-00673-7.
Tobacco and asthma: presenting the world health organization (WHO) tobacco knowledge summary
Wenying Lu 1 , Sarah Rylance 2 , Kerstin Schotte 3 , Rebekka Aarsand 4 , Elizaveta Lebedeva 5 , Werner
Bill 6 , Jing Han 2 , David Cl Lam 7 , Joan B Soriano 8 , Arzu Yorgancioglu 9 , Sukhwinder Singh Sohal 10
Affiliations Expand
• PMID: 40898330

• PMCID: PMC12406344

• DOI: 10.1186/s13011-025-00673-7
Abstract
The WHO recently published a Tobacco Knowledge Summary (TKS) which is prepared with the objective to summarize the current evidence on the association between tobacco use and asthma. This is also intended as an advocacy tool to widely include health care professionals in the fight for tobacco control and prevention of tobacco related adverse health effects. This article expands on the evidence outlined in the TKS, providing a more comprehensive and clinically focused analysis, aimed at lung-specialist audience. It emphasizes six key messages aimed at guiding healthcare providers and governments in advocating for the health of people living with asthma and the broader population: (1) Babies born to mothers who smoke have smaller lungs and an increased risk of developing asthma during childhood. Pregnant women should receive targeted support to quit tobacco use. (2) Children exposed to second-hand tobacco smoke have an increased risk of developing asthma. (3) Smoking during adolescence and adulthood increases the risk of

developing asthma and exacerbates the condition, as well as causing other lung diseases such as chronic obstructive pulmonary disease (COPD) and lung cancer. (4) For people living with asthma, smoking worsens symptoms and can make treatment with medications less effective. All smokers with asthma should be supported to quit smoking. (5) E-cigarettes, heated tobacco products and other nicotine-delivery devices likely also carry risks. Governments should implement effective tobacco control measures to protect all individuals, including those who are vulnerable. (6) The tobacco and nicotine industries' aggressive tactics in the marketing of their products specifically target children, adolescents and young adults. Protecting youth from these harmful tactics is a top priority.
Keywords: Asthma; Smoking and vaping; Smoking cessation; Tobacco control.

Conflict of interest statement
Declarations. Ethics declarations: Not applicable. Consent to publish: Not applicable. Disclaimer: The authors alone are responsible for the views expressed in this article and they do not necessarily represent the views, decisions, or policies of the institutions with which they are affiliated. Conflict of interest: Declaration of competing interests: Dr Sohal reports honorarium for lectures from Chiesi, travel support from Chiesi, AstraZeneca, Boehringer Ingelheim and GSK, and research grants from Boehringer Ingelheim and Lung Therapeutics, outside the submitted work; and has served on the small airway advisory board for Chiesi Australia for which an honorarium

has been received. Dr Sohal has served as Chair for the Chiesi Advisory Board for Centre of Excellence in Oscillometry, for which an honorarium was received.
• 89 references
• 1 figure
Supplementary info
Publication types, MeSH terms, Substances, Grants and fundingExpand
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Allergy Asthma Clin Immunol
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. 2025 Sep 2;21(1):39.
doi: 10.1186/s13223-025-00985-0.
Duo biologic therapy using mepolizumab and omalizumab in refractory ABPA: two cases
Ivan H Huang 1 2 3 , Kenneth N Dang 4 5 6 , Saarang Kashyap 7 5 6 , Noah St Clair 8 9 5 6 , Alexander J
Sweidan 10 4 7 8 9 5 6
Affiliations Expand
• PMID: 40898293

• PMCID: PMC12403339

• DOI: 10.1186/s13223-025-00985-0
Abstract
Background: Allergic bronchopulmonary aspergillosis (ABPA) presents with a wide range of symptom severity, with severe disease manifestations being harder to control through conventional inhalers. While corticosteroids remain a standard treatment option, their use is often hindered by significant adverse side effects. This case series discusses a novel treatment of duo-administration of monoclonal antibodies for two patients that reduced their exacerbations, spared the use of steroids, and improved their quality of life.
Case presentation: Both patients were diagnosed with ABPA. Before the administration of treatment, they experienced almost monthly exacerbations and infections requiring constant systemic oral corticosteroids and antibiotics. After the implementation of successive concomitant

monoclonal antibody treatments, absolute eosinophil levels were brought down to normal levels, and the monthly exacerbations were eliminated.
Conclusion: This case series describes a novel approach for ABPA therapy that holds potential in improving patient outcomes for those with severe ABPA. Duo biologic therapy may improve disease control and reduce corticosteroid reliance in patients with refractory ABPA by targeting multiple mechanistic pathways of inflammation. Mepolizumab with Omalizumab offers a potential treatment strategy to reduce exacerbation frequency and severity and has minimal adverse effects.
Keywords: Mycobacterium avium complex; ABPA; Asthma; Biologic therapies; Eosinophil; Ige; Mepolizumab; Omalizumab; Systemic glucocorticoids.

Conflict of interest statement
Declarations. Consent for publication: Written informed consent for publication of clinical details and/or clinical images was obtained from all individual participants included in the manuscript.
Competing interests: The authors declare no competing interests.
• 9 references

• 3 figures
Full text links
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8
Thorax
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. 2025 Sep 2:thorax-2025-223239.
doi: 10.1136/thorax-2025-223239. Online ahead of print.
Impact of regional asthma guidelines on SABA prescribing patterns across England: an interrupted time series analysis
Dominic L Sykes 1 , Michael D Clarkson 2 , Anita Negbenebor 3 , Helena Cummings 2 , Shoaib Faruqi 2 , Oscar Lau 3 , Niranjanlal Ahilal 3 , Michael G Crooks 4
Affiliations Expand
• PMID: 40897544

• DOI: 10.1136/thorax-2025-223239
Abstract
The 2024 British Thoracic Society/ National Institute for Health and Care Excellence/ Scottish Intercollegiate Guidelines Network asthma guidelines recommend anti-inflammatory reliever (AIR)-based management, providing opportunity to reduce short-acting beta agonist (SABA) over-use. Many English regions also publish local guidelines. Analysis of 34 regional guidelines enabled grouping into three categories: SABA-first, inhaled corticosteroid (ICS) plus SABA and AIR (as-needed AIR), based on recommended initial treatment. Interrupted time series analysis using publicly available data demonstrated that AIR guideline publication resulted in the greatest decline in SABA prescribing, expressed as the proportion of all ICS-containing and SABA inhaler prescriptions (AIR: -0.26% (SD 0.09%) per month; SABA-first: -0.1% (SD 0.03%) per month, p=0.001 vs AIR; and ICS plus SABA: -0.16% (SD 0.06%) per month, p=0.004, vs AIR). Therefore, regional guidelines do affect local prescribing practice and alignment with the latest national recommendations could improve asthma prescribing and resulting patient outcomes.
Keywords: Asthma; Asthma Epidemiology; Asthma Guidelines; Asthma in primary care.

Conflict of interest statement
Competing interests: None declared.
Full text links

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Review

J Clin Invest
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. 2025 Sep 2;135(17):e194312.
doi: 10.1172/JCI194312.
Particulate matter air pollution: effects on the respiratory system
Robert B Hamanaka, Gökhan M Mutlu

• PMID: 40892514

• PMCID: PMC12404767

• DOI: 10.1172/JCI194312
Abstract
Air pollution comprises a complex mixture of gaseous and particulate components. Particulate matter (PM) air pollution is associated with 4.7 million premature deaths per year. Among modifiable risk factors, air pollution exposure contributes to 8% of disability adjusted life years and ranks above factors such as high blood pressure, smoking, and high fasting plasma glucose. As the site of entry, exposure to PM air pollution causes respiratory symptoms and is a significant cause of respiratory morbidity and mortality. In this Review, we discuss the studies that link air pollution exposure with respiratory diseases. We review the epidemiological evidence linking PM exposure and lung diseases including asthma, chronic obstructive pulmonary disease, pulmonary fibrosis, pneumonia, acute respiratory distress syndrome, and lung cancer. We also provide an overview of current knowledge about the mechanisms by which PM exerts its biological effects leading to adverse health effects in the respiratory system.
Conflict of interest statement
Conflict of interest: The authors have declared that no conflict of interest exists.
• 272 references
• 2 figures
Supplementary info
Publication types, MeSH terms, SubstancesExpand
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10
Eur Ann Allergy Clin Immunol
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. 2025 Sep 2.
doi: 10.23822/EurAnnACI.1764-1489.408. Online ahead of print.
Pollen-induced asthma: diagnostic and therapeutic implications
L Cecchi 1 , A Musarra 2 , K Jaubashi 3 , A M Marra 4 , M Martini 5 6 , F Papia 7 , G Valenti 7 , B Yang 8 , A
Vaghi 9 , M B Bilò 5 6
Affiliations Expand
• PMID: 40891381

• DOI: 10.23822/EurAnnACI.1764-1489.408
Free article

Abstract
Evidence supports the hypothesis of pollen-induced asthma as a specific asthma phenotype, with defined clinical features and tailored pathways for its clinical management. The probability of diagnosis varies significantly in the pollen season, in which allergic patients are symptomatic, as compared to asymptomatic periods outside the pollen season. In this context, a novel diagnostic scheme for pollen-induced asthma has been developed. Pollen exposure is the key risk factor for symptoms and exacerbations. Therefore, we proposed a therapeutic algorithm for pollen-induced asthma based on a risk stratification model that considers the medical history of the patients and the measurement of objective markers, allowing a tailored therapeutic approach.

Keywords: Pollen-induced asthma; asthma diagnosis; asthma treatment; phenotype.
Full text links
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Clin Transl Allergy
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. 2025 Sep;15(9):e70095.
doi: 10.1002/clt2.70095.
Characterization of Chronic Rhinosinusitis Patients Based on Markers of Type 2 Inflammation: Findings From the European CRS Outcome Registry (CHRINOSOR)
Carlo Cavaliere 1 , Sven F Seys 2 , Joost de Kinderen 2 , Giulia Bettio 2 , Alexandros Andrianakis 3 , Isam Alobid 4 , Peter W Hellings 5 6 , Laura Van Gerven 5 6 7 , Valérie Hox 8 , Claire Hopkins 9 , Anette Kjeldsen 10 , Sietze Reitsma 11 , Sven Schneider 12 , Peter-Valentin Tomazic 3 , Zuzana Diamant 6 13 14 , Julia Eckl-Dorna 12 , Wytske J Fokkens 11 , Clemens Holzmeister 3 , Kenneth Larsen 10 , Anu Laulajainen-Hongisto 15 , Antonella Loperfido 16 , Valerie Lund 17 , Gert Mariën 2 , Simonetta Masieri 18 , Geoffrey Mortuaire 19 , Mathilde Moyaert 5 , Joaquim Mullol 4 , Josje Otten 11 , Camilo Rodriquez-Van Strahlen 4 , Martin Wagenmann 20 , Claus Bachert 21 22
Affiliations Expand
• PMID: 40887890

• PMCID: PMC12399834

• DOI: 10.1002/clt2.70095
Abstract
Background: Primary chronic rhinosinusitis (CRS) can be classified based on the sinuses involved and the dominant endotype of the mucosal inflammation. Since the introduction of type 2 targeted biologics as treatment option for CRS, assessment of the inflammatory status has gained importance in CRS patients. We here aimed to characterize CRS patients with and without elevated markers of type 2 inflammation.
Methods: CRS patients who visited the outpatient ENT clinic in one of the 10 tertiary centers in 7 European countries were invited to use the Galenus Health mobile application for the monitoring of their disease.
Results: CRS patients (n = 281) were stratified according to blood eosinophil counts or BEC (< 150 cells/μL: 21.6% of patients, ≥ 150 cells/μL: 78.4%; < 250 cells/μL: 36.3%, ≥ 250 cells/μL: 63.7%) and serum total IgE (< 100 IU/mL: 59.9%, ≥ 100 IU/mL: 40.1%). BEC and serum total IgE did not correlate well (Spearman r = 0.06; p = 0.39). CRS patients with BEC ≥ 150 cell/μL or ≥ 250 cells/μL, respectively, showed increased NPS, SNOT-22, VAS for total CRS symptoms, loss of smell, nasal blockage, runny nose compared to patients with BEC below 150 or 250 cells/μL. CRS patients with increased serum total IgE (≥ 100 IU/mL) did not show differences in the outcome parameters compared to patients with levels below 100 IU/mL. CRS patients with asthma (58.9%) showed increased SNOT-22 and VAS loss of smell compared to patients without asthma.

Conclusions: A significant proportion of CRS patients exhibit a type 2 endotype, characterized by blood eosinophilia (78%), increased serum total IgE (40%) and/or concomitant asthma (59%). Our results underline the usefulness of eosinophils as a marker of type 2 inflammation and severity but challenge the utility of serum total IgE since it does not correlate with any of the markers of severity.
Keywords: asthma; eosinophils; mobile application; real world data; total IgE.

Conflict of interest statement
The authors declare no conflicts of interest.
• 50 references
• 5 figures
Supplementary info
Grants and fundingExpand
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12
Yonsei Med J
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. 2025 Sep;66(9):545-555.
doi: 10.3349/ymj.2024.0320.
Real-World Effectiveness of Omalizumab Treatment in Adult Asthma Patients
Jae-Hyuk Jang # 1 , ChulHyoung Park # 2 , Chungsoo Kim 3 4 , Youngsoo Lee 1 , Eunyoung Lee 5 , Rae
Woong Park 2 6 , Hae-Sim Park 7
Affiliations Expand
• PMID: 40873141

• PMCID: PMC12394757

• DOI: 10.3349/ymj.2024.0320
Abstract
Purpose: Omalizumab improves clinical outcomes for patients with severe asthma (SA), but its long-term effectiveness and potential biomarkers for predicting patient response require further investigation. This study aimed to evaluate the real-world effectiveness of omalizumab in treating SA and to identify potential biomarkers for predicting a favorable treatment response.
Materials and methods: Clinical outcomes were compared between asthma patients receiving omalizumab (omalizumab group) and those on inhaled corticosteroid with long-acting beta-agonist (ICS-LABA) alone (ICS-LABA group). Propensity score matching and Cox proportional hazards model were used to calculate hazard ratios (HRs). Study outcomes included severe asthma exacerbation (SAE), incompletely controlled asthma, intravenous (IV) corticosteroid use, and asthma-related hospitalization. Incompletely controlled asthma was defined by blood eosinophil counts ≥150 cells/μL, fractional exhaled nitric oxide (FeNO) ≥25 ppb, forced expiratory volume in one second (FEV1%) <80%, or SAE occurrence.
Results: The omalizumab group had significantly lower risks of SAE (HR 0.17, p=0.03), incompletely controlled asthma (HR 0.56, p=0.04), IV corticosteroid treatment (HR 0.38, p=0.02), and asthma-related hospitalization (HR 0.27, p=0.05). Blood eosinophil count stayed lower in the omalizumab group. FEV1% was higher with the omalizumab group, while blood neutrophil count, FeNO, and serum total IgE showed no differences. Furthermore, subgroup analysis showed patients with treatment-favorable response (>50% reduction in systemic corticosteroid dose) exhibited decreased blood neutrophil counts but increased FEV1% and serum total IgE levels compared with the treatment-unfavorable group.

Conclusion: Omalizumab treatment effectively reduces SAE and improves lung function and asthma control. Blood neutrophil counts and serum total IgE may be potential biomarkers for

predicting favorable responses to omalizumab treatment.
Keywords: Asthma; IgE; neutrophils; omalizumab.

Conflict of interest statement
The authors have no potential conflicts of interest to disclose.
• 40 references
• 5 figures
Supplementary info
MeSH terms, Substances, Grants and fundingExpand
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Review

Immunol Rev
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. 2025 Sep;334(1):e70057.
doi: 10.1111/imr.70057.
IgE in Allergic Diseases
Dana Greene 1 , Jamie Moore Fried 1 , Julie Wang 1
Affiliations Expand
• PMID: 40862531

• DOI: 10.1111/imr.70057
Abstract
Immunoglobulin E (IgE) is key in the pathogenesis of allergic diseases, exerting both systemic and local effects through high-affinity binding to FcεRI on mast cells and basophils. Cross-linking of antigen-specific IgE leads to rapid degranulation and release of histamine, leukotrienes, and other mediators, resulting in classic allergic sequelae. IgE plays a key role in conditions including food allergy, atopic dermatitis, asthma, chronic spontaneous urticaria, and chronic rhinosinusitis. Clinical applications of anti-IgE targeted therapies have demonstrated effectiveness in improving outcomes in food allergy desensitization, reducing asthma exacerbations, and treating chronic urticaria. This review highlights the critical role of IgE as a therapeutic and diagnostic target in the management of allergic disease.
Keywords: allergy; asthma; atopic dermatitis; chronic rhinosinusitis; eczema; food allergy; immunoglobulin E (IgE); mast cell; oral immunotherapy; urticaria.

• 59 references
Supplementary info
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EClinicalMedicine
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. 2025 Aug 12:87:103402.
doi: 10.1016/j.eclinm.2025.103402. eCollection 2025 Sep.
# Safety of budesonide/glycopyrronium/formoterol fumarate dihydrate delivered by HFO-1234ze versus HFA-134a in chronic obstructive pulmonary disease: a phase 3, multi-site, randomised, double-blind, parallel-group, active-comparator study
Omar S Usmani 1 , Fernando J Martinez 2 , Hitesh Pandya 3 , Matthew Camiolo 4 , Artur Bednarczyk 5 , Kinga Kucz 5 , Marek Kokot 5 , Christer Gottfridsson 6 , Magnus Aurivillius 7 , Lars Pettersson 7 , Jie Mei 7 , Karin Skansen 7 , Jennifer L Bell 8 , David Petullo 9 , Kathryn Collison 10 , Patrik
Bondarov 11 , Mandeep Jassal 12 , Mehul Patel 3
Affiliations Expand
• PMID: 40831469

• PMCID: PMC12359160

• DOI: 10.1016/j.eclinm.2025.103402
Abstract
Background: Pressurised metered dose inhalers (pMDIs) contain a hydrofluorocarbon propellant, such as hydrofluoroalkane-134a (HFA-134a), which is known to have global warming potential (GWP). Transitioning pMDIs to propellants with lower GWP will reduce the environmental impact of pMDIs. This study assessed the safety of a near-zero GWP propellant, hydrofluoroolefin-1234ze (HFO-1234ze), compared with HFA-134a when used in the delivery of budesonide/glycopyrronium/formoterol fumarate dihydrate (BGF) in participants with chronic obstructive pulmonary disease (COPD). The results of this study advance our understanding of the safety of HFO-1234ze compared with HFA-134a.
Methods: This phase 3, double-blind, parallel-group study (ClinicalTrials.govNCT05573464) across 9 countries (Argentina, Bulgaria, Canada, Germany, Mexico, Poland, Turkey, the United Kingdom, the United States) included participants (aged 40-80 years) with physician-diagnosed COPD using dual or triple inhaled maintenance therapies, COPD Assessment Test score ≥10, ≥10 pack-years smoking history, and no comorbid diagnosis of asthma or other clinically significant diseases impacting study outcomes. Participants were randomised (1:1) to receive either BGF HFO-1234ze or BGF HFA-134a (two inhalations of 160/7·2/5·0 μg twice daily) for 12 weeks in the main safety analysis set (or 52 weeks [first 120 participants per treatment]). Safety endpoints included the incidence of adverse events (AEs), measures of vital signs, clinical laboratory tests, and electrocardiograms.
Findings: Participants were recruited between 27 September 2022 and 19 May 2023. A total of 874 participants were screened. Of 558 treated participants (mean [standard deviation] age, 67·0 [7·4] years; male, 315 [56·5%]) in the 12-week safety analysis set, 280 received BGF HFO-1234ze, and 278 received BGF HFA-134a. The AE incidence was balanced between formulations in the 12-week (HFO-1234ze, 124 [44·3%]; HFA-134a, 114 [41·0%]) and 52-week (HFO-1234ze, 80 [66·7%]; HFA-134a, 94 [78·3%]) safety analysis sets.
Interpretation: These findings support the potential for HFO-1234ze to replace HFA-134a in pMDIs containing BGF, which could be evaluated further in a real-world setting.
Funding: The study was supported by AstraZeneca.
Keywords: Budesonide/glycopyrronium/formoterol fumarate dihydrate (BGF); Chronic obstructive pulmonary disease (COPD); Hydrofluoroalkane-134a (HFA-134a); Hydrofluoroolefin-1234ze (HFO-1234ze); Inhaled triple therapy; Safety.

Conflict of interest statement
Omar S. Usmani has received personal fees from AstraZeneca, Boehringer Ingelheim, Chiesi, Cipla, Covis, Deva, GlaxoSmithKline, Kamada, Menarini, Mundipharma, Novartis, Orion, Sandoz, Takeda, Trudell Medical, and UCB; has received research grants from AstraZeneca, Boehringer Ingelheim, Chiesi, and GlaxoSmithKline; and has received consulting fees from AstraZeneca,

Cipla, and Mereo Biopharma. He is also President of the International Society of Aerosols in Medicine, Chair of the UK Inhaler Group, the European Respiratory Society Council Chair elect 2024–2025, and was the Assembly 5 Head of the European Respiratory Society from 2020 to 2023. Fernando J. Martinez has consulted for AstraZeneca, Chiesi, DevPro, GlaxoSmithKline,

Novartis, and Roche; has received honoraria from Sanofi/Regeneron, and UpToDate; and received payment or honoraria for lectures and presentations from AstraZeneca, GlaxoSmithKline, and Roche. Support for the study and for development of the current manuscript was provided by AstraZeneca. Jennifer L. Bell is contracted by AstraZeneca. Hitesh Pandya, Matthew Camiolo, Artur Bednarczyk, Christer Gottfridsson, Magnus Aurivillius, Lars Pettersson, Jie Mei, Karin Skansen, Kathryn Collison, Patrik Bondarov, Mandeep Jassal, and Mehul Patel are employees of AstraZeneca and hold stock and/or stock options in the company. Kinga Kucz, Marek Kokot, and David Petullo are employees of AstraZeneca.

• 22 references
• 3 figures
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Pediatr Qual Saf
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. 2025 Aug 13;10(6):e829.
doi: 10.1097/pq9.0000000000000829. eCollection 2025 Sep-Oct.

Project BREATHE: A Quality Improvement Initiative

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Affiliations Expand

• PMID: 40814404

• PMCID: PMC12348406

• DOI: 10.1097/pq9.0000000000000829

Abstract
Introduction: Asthma is the most common chronic illness in pediatrics, placing a significant burden on patients and the healthcare system. The lack of standardization in screening, diagnosis, and treatment remains a key challenge in pediatric asthma management. This project used the Project BREATHE toolkit, supplied through the New York State Department of Health, to implement a care process for children with asthma receiving care at our institution. Our primary objective was to enhance asthma care through a quality improvement framework to optimize outcomes and reduce healthcare usage.
Methods: Following identifying key drivers contributing to suboptimal asthma care in our region, our transdisciplinary team developed a standardized asthma care process. From July 2020 to June 2021, the process was systematically applied to all patients admitted with a diagnosis of asthma. Control charts were reviewed monthly to assess adherence and uptake of care process components, facilitating continuous quality improvement and data-driven modifications.
Results: Following implementation, inhaled corticosteroid prescriptions increased from 50% to 81%, whereas subspecialist consults rose from 8.3% to 77%. The proportion of patients receiving asthma severity assessments ranged from 71% to 90%, and the rates of asthma education

fluctuated from 50% to 89%. Additionally, the rate of emergency department visits declined from 5.2% to 4.7% and hospitalizations from 12.7% to 10.1% following implementation.
Conclusions: Implementing a transdisciplinary asthma care process resulted in sustained improvements in asthma management and reduced asthma-related emergency department visits and hospitalizations. These findings highlight the effectiveness of a structured, team-based approach in optimizing pediatric asthma care.




Clin Chest Med
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. 2025 Sep;46(3):509-523.
doi: 10.1016/j.ccm.2025.04.010. Epub 2025 Jul 2.
# Fraction of Nitric Oxide in Exhaled Breath
Amisha Barochia 1 , Loretta G Que 2
Affiliations Expand
• PMID: 40769596

• DOI: 10.1016/j.ccm.2025.04.010
Abstract
Nitric oxide (NO) is an odorless gaseous molecule important for biological functions including regulation of vasodilation, smooth muscle relaxation, neurotransmission, platelet aggregation inhibition, and airway epithelial barrier function. It was first discovered in exhaled breath by Gustafsson and colleagues in 1991. However, interest in NO in respiratory medicine escalated following 2 successive independent reports, 1 showing elevated levels of NO in the exhaled breath of individuals with asthma and another demonstrating a decrease in exhaled NO in response to inhaled corticosteroid use. More than 2000 papers evaluate the use of the fraction of NO in exhaled breath, in lung disease.
Keywords: Exhaled nitric oxide; FE(NO); Pulmonary function.
Published by Elsevier Inc.
Conflict of interest statement
Disclosure This work was supported in part by the Intramural Research Program of the NIH (for author AB) and by NIH RO1HL146542 and NIH RO1HL154641 (for author LGQ). The views, information or content, and conclusions presented do not necessarily represent the official position or policy of, nor should any official endorsement be inferred on the part of, the Clinical Center, the National Institutes of Health, or the Department of Health and Human Services.

Clin Chest Med
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. 2025 Sep;46(3):499-508.
doi: 10.1016/j.ccm.2025.04.008. Epub 2025 Jul 3.
Oscillometry
Claude S Farah 1 , Leigh M Seccombe 2

Affiliations Expand
• PMID: 40769595

• DOI: 10.1016/j.ccm.2025.04.008
Abstract
Respiratory oscillometry measures impedance during tidal breathing and is a sensitive marker of smaller airway function. Recent consensus documents provide a framework for the clinician to incorporate this lung function test into routine clinical practice. Oscillometry has an established role in pediatric respiratory medicine. In adults, an abnormal oscillometry result relates to patient symptoms and clinically important outcomes especially in asthma and chronic obstructive pulmonary disease. There is increasing interest in the role of oscillometry when monitoring patients longitudinally including after lung transplantation, and a greater appreciation of intrabreath analysis and the detection of dynamic elastance.
Keywords: Airway resistance; Forced oscillation technique; Oscillometry; Pulmonary disease; Respiratory function testing.

Conflict of interest statement
Disclosures C.S. Farah reports receiving speaker fees from Chiesi, AstraZeneca, GlaxoSmithKline and Sanofi unrelated to the content of this study. L.M. Seccombe has nothing to disclose.
Supplementary info
Publication types, MeSH termsExpand
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Review

Clin Chest Med
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. 2025 Sep;46(3):453-465.
doi: 10.1016/j.ccm.2025.04.005. Epub 2025 Jul 3.
Exercise and Mannitol Bronchial Challenge Testing
Ryan C Murphy 1
Affiliations Expand
• PMID: 40769592

• DOI: 10.1016/j.ccm.2025.04.005
Abstract
Indirect airway hyperresponsiveness (AHR) is a physiologic feature that is highly specific for asthma and provides a unique insight into the mechanisms responsible for airway dysfunction.

Individuals at risk for indirect AHR have distinct alterations in their airways that are further dysregulated following exposure to specific stimuli and promote bronchoconstriction. Dry air exercise challenge and inhaled mannitol challenge are tests for indirect AHR, which can be used by clinicians to characterize exercise-related symptoms concerning for exercise-induced bronchoconstriction, evaluate individuals presenting with asthma-like symptoms, and to titrate asthma-directed therapies.
Keywords: Asthma; Dry air exercise challenge; Exercise-induced bronchoconstriction; Indirect airway hyperresponsiveness; Mannitol challenge testing.

Conflict of interest statement
Disclosures Dr R.C. Murphy has no relevant financial disclosures or conflicts of interest. Dr R.C. Murphy receives research funding from the Parker B. Francis Family Foundation.

Supplementary info
Publication types, MeSH terms, SubstancesExpand
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Review

Clin Chest Med
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. 2025 Sep;46(3):437-452.
doi: 10.1016/j.ccm.2025.04.004. Epub 2025 Jul 2.
Methacholine Challenge: Physiology, Methodology, and Clinical Interpretation
Imran Satia 1 , Mark Inman 2 , Beth E Davis 3
Affiliations Expand
• PMID: 40769591

• DOI: 10.1016/j.ccm.2025.04.004
Abstract
This review article explores the methacholine challenge test (MCT), a bronchoprovocation technique used to assess airway hyperresponsiveness (AHR), a hallmark of asthma. The article begins by tracing the historical development of the MCT, including early studies that established its clinical relevance in diagnosing asthma. The physiological mechanisms underlying AHR are discussed, with emphasis on how these contribute to bronchoconstriction. The article also highlights advances in MCT methodology, clinical utility in ruling out asthma, factors that influence the interpretation of MCT results, and limitations of the test. Finally, the review suggests future directions for improving MCT.
Keywords: Airways disease; Asthma; Bronchial challenge; Methacholine.

Conflict of interest statement
Disclosure I. Satia reports research grants from Merck, MITACS, GSK, Bellus, Trevi Therapeutics, Bayer, Genentech; personal speaker fees from Merck, GSK, AstraZeneca, Sanofi-Regeneron; consulting fees from Merck, GSK, Bellus, Sanofi-Regeneron, Methapharm outside the submitted work. M. Inman and B.E. Davis have no disclosures.
Supplementary info
Publication types, MeSH terms, SubstancesExpand
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Cite
20
Pulm Ther
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. 2025 Sep;11(3):475-489.
doi: 10.1007/s41030-025-00310-5. Epub 2025 Aug 4.
# Real-World Use of MART in Moderate-Severe Asthma: Results from the Italian WAMP Survey among Healthcare Professionals and Patients
Fulvio Braido 1 2 , Matteo Bonini 3 4 , Walter Castellani 5 , Andrea Claudio Comel 6 , Francesco Paolo
Lombardo 7 , Antonio Spanevello 8 9 , Alessandro Vatrella 10 , Marco Contoli 11 12
Affiliations Expand

• PMID: 40760303

• PMCID: PMC12373597

• DOI: 10.1007/s41030-025-00310-5
Abstract
Introduction: Moderate-severe asthma affects a significant proportion of patients and poses challenges in symptom control and exacerbation prevention. The preferred track 1 endorsed by the Global Initiative for Asthma (GINA) recommendations offers a single-inhaler approach combining inhaled corticosteroids and formoterol for both maintenance and symptom relief (maintenance and reliever therapy; MART). However, MART's real-world adoption remains suboptimal and concerns
regarding its correct implementation persist. "What About MART Posology" (WAMP) survey assessed the knowledge and clinical application of MART among Italian healthcare professionals (HCPs) and patients.
Methods: WAMP was a cross-sectional, web-based survey conducted among 1000 Italian HCPs and 400 patients with moderate-severe asthma. HCPs answered questions regarding treatment preferences, adherence to GINA recommendations and MART implementation. Patients reported on their therapeutic regimens, inhaler use, and adherence behaviors.
Results: Most HCPs demonstrated awareness of GINA recommendations. Pulmonologists (73.6%) and allergists (62.0%) reported favoring track 1, while general practitioners (GPs) showed greater variability (55.1%). Most of HCPs reported the use of inhaled corticosteroids (ICS)-formoterol, according to the MART approach, to manage moderate-severe asthma. GPs reported that approximately 45.5% of moderate-severe patients with asthma treated with ICS-formoterol inhaled therapy were also prescribed short-acting β2-agonists (SABA). Among patients, ICS-formoterol was the most reported regimen (59.7%), despite only 21.6% adhered to the MART approach correctly. Triple therapy was preferred for patients with recurrent exacerbations, yet its adoption was lower than expected.
Conclusions: The WAMP survey suggests a strong awareness of GINA track 1 among Italian HCPs. MART was widely implemented, particularly by specialists; patient data supported these findings. Gaps in education on MART's dual function persist though. Targeted training for HCPs and improved patient education are essential to optimize asthma management and adherence to evidence-based strategies.
Keywords: Asthma; Healthcare professional; Inhaled therapy; Italy; Maintenance and reliever therapy (MART); Moderate; Patient; Severe; Survey.

Conflict of interest statement
Declarations. Conflict of Interest: Matteo Bonini has received research grants, advisory board

honoraria, consultancy fees, and lecture fees from AstraZeneca, Chiesi Farmaceutici, Grifols, GlaxoSmithKline, Lallemand Health Solutions, Lusofarmaco, Menarini Group, Omron Healthcare, and Sanofi. Francesco Paolo Lombardo has received consultancy and lecture fees from Chiesi Farmaceutici, GlaxoSmithKline, and AstraZeneca. Walter Castellani, Marco Contoli, Andrea Claudio Comel, Fulvio Braido, Antonio Spanevello, and Alessandro Vatrella have nothing to disclose. Ethics Approval: The survey was conducted in accordance with the principles outlined in the Declaration of Helsinki, and informed consent was obtained from patients prior to their involvement. Ethics approval was not required for this study as it was based on a voluntary, anonymous survey of healthcare professionals and patients, without the collection of sensitive personal data or interventions affecting patient care, in accordance with applicable ethical guidelines and regulations.




Review

Respir Investig
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. 2025 Sep;63(5):918-927.
doi: 10.1016/j.resinv.2025.07.007. Epub 2025 Jul 26.


# Multifaceted roles of group 2 innate lymphoid cells in respiratory diseases


Reina Nakamura 1 , Hiroki Kabata 2 , Kotaro Sasahara 1 , Momoko Kurihara 1 , Jin Kagatani 1 , Roma Sehmi 3 , Koichi Fukunaga 1
Affiliations Expand



- PMID: 40716197

- DOI: 10.1016/j.resinv.2025.07.007
Free article



Abstract
Group 2 innate lymphoid cells (ILC2s) play a canonical role in the induction of type 2 inflammation by producing type 2 cytokines, including interleukin (IL)-5 and IL-13, in response to stimuli such as IL-33. However, their functions are modulated by tissue- and disease-specific microenvironments, including cytokines, lipid mediators, neuropeptides, and hormones. These influences give rise to diverse ILC2 phenotypes that contribute to non-canonical roles, such as the production of type 1 and type 3 cytokines, thereby expanding their traditional functions. This review examines the multifaceted roles of ILC2s in various respiratory diseases, including asthma, chronic obstructive pulmonary disease, pulmonary fibrosis, lung cancer, and viral infections, and highlights their significant impact on disease pathophysiology. However, the mechanisms underlying ILC2 diversity remain poorly understood. A deeper understanding of this diversity is critical for the development of targeted therapeutic strategies to modulate ILC2 function. By examining the roles of ILC2s in respiratory diseases, this review offers valuable insights into their contribution to disease pathophysiology and potential as targets for innovative therapeutic strategies.



Keywords: Asthma; COPD; Cancer; ILC2; Interstitial pneumonitis.




Conflict of interest statement
Declaration of competing interest H. K. received honoraria from AstraZeneca. R. S. received

compensation for employment, a leadership position, and an advisory role from Areteia Therapeutics. In addition, R. S. received honoraria from AstraZeneca and GlaxoSmithKline, as well as research funding from AstraZeneca, Third Harmonics Bio, and Jasper Therapeutics. K. F. received honoraria from Boehringer Ingelheim, Novartis, Sanofi, GlaxoSmithKline, AstraZeneca, and Kyorin Pharmaceutical. K.F. received research funding from Boehringer Ingelheim and Chugai Pharmaceuticals. Other authors declare no conflicts of interest.
Supplementary info
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Editorial

Am J Respir Crit Care Med
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. 2025 Sep;211(9):1537-1539.
doi: 10.1164/rccm.202506-1403ED.

Treatment of Severe Asthma Is Not "Cookie-Cutter" Medicine
William W Busse 1 , Ravi Viswanathan 1
Affiliations Expand
• PMID: 40700732

• DOI: 10.1164/rccm.202506-1403ED
No abstract available
Comment on
• Clinical Remission by a Comprehensive Severe Asthma Management Strategy Guided by Airway Inflammometry and Bioimaging.
Nolasco S, Kjarsgaard M, Lauks S, Treleaven O, Ho T, Huang C, Radford K, Swindall T, Venegas Garrido C, Bhalla A, Thawanaphong S, Friedlander Y, Dyment L, Surette M, Trus M, Sehmi R, Haider E, Khalidi N, Sommer DD, Waserman S, Mukherjee M, Svenningsen S, Cox G, Nair P.Am J Respir Crit Care Med. 2025 Sep;211(9):1622-1635. doi: 10.1164/rccm.202412-2438OC.PMID: 40540629
Supplementary info
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Editorial

Am J Respir Crit Care Med
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. 2025 Sep;211(9):1539-1540.
doi: 10.1164/rccm.202506-1327ED.
Beyond Single Pollutants: Mixture Analysis Methods in Air Pollution and Asthma Research
Wenxin Lu 1 , John R Balmes 1 2
Affiliations Expand

• PMID: 40700728

• DOI: 10.1164/rccm.202506-1327ED
No abstract available
Comment on
• Association of Annual Exposure to Air Pollution Mixture on Asthma Hospitalizations in the United States.
Vu BN, Amini H, Qiu X, Feng Y, Wei Y, Schwartz J.Am J Respir Crit Care Med. 2025 Sep;211(9):1636-1643. doi: 10.1164/rccm.202409-1853OC.PMID: 40548919
Supplementary info
Publication typesExpand
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Respir Med
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. 2025 Sep:246:108255.
doi: 10.1016/j.rmed.2025.108255. Epub 2025 Jul 12.

Spirometry and impulse oscillometry in the diagnosis of cough variant asthma in children
Chunyu Tian 1 , Shiqiu Xiong 2 , Xin Song 3 , Shuo Li 4 , Yantao Zhang 5 , Xinmei Jiang 6 , Xinyue Hou 7 , Yifan Zhang 8 , Chuanhe Liu 9
Affiliations Expand
• PMID: 40659253

• DOI: 10.1016/j.rmed.2025.108255
Abstract
Objective: This study aimed to assess the diagnostic utility of spirometry and impulse oscillometry, focusing on their correlation and diagnostic advantages, in children with cough variant asthma (CVA).
Methods: This study included children aged 5-12 years with a diagnosis of CVA who underwent sequential IOS and spirometry pulmonary function with bronchodilation (BD) tests. A control group of healthy children was matched. Receiver operating characteristic (ROC) curves were plotted, and the area under the curve (AUC) was calculated to assess the discriminatory potential of these spirometry and IOS parameters for CVA. The correlation and diagnostic consistency between spirometry and IOS parameters were compared.
Results: A total of 177 patients with CVA and 45 control subjects were included. The ROC curve results for pre-BD parameters and the improvement rate showed that the combinations of "pre-MMEF(%pred) and △ MMEF" and "pre-Z5 (%pred) and - △ Z5 (%)" achieved the highest AUC value of
0.892 and 0.836, with threshold probabilities of 0.868, 0.786, respectively. The AUC values of these combined parameters surpassed those of individual ones. The correlation between spirometry and IOS parameters showed that pre-FEF 25 (%pred) has a moderately negative correlation with pre-Z5 (%pred) and pre-R5 (%pred) (r = -0.415, -0.404; P < 0.001), △ FEF 75 % has a weak positive correlation with - △ Z5 %, - △ R5 %(r = 0.154, 0.155; P < 0.05). The comparison of diagnostic consistency between pre-BD spirometry and pre-BD IOS parameters showed a weak correlation(kappa = 0.150, P = 0.007).
Conclusions: The changes in spirometry and IOS parameters during the BD test provided valuable diagnostic information for CVA and can help pediatricians accurately identify CVA in

children.
Keywords: Children; Cough variant asthma; Diagnosis; Impulse oscillometry; spirometry.

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.
Supplementary info
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Respir Med
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. 2025 Sep:246:108253.
doi: 10.1016/j.rmed.2025.108253. Epub 2025 Jul 10.
Mortality and its predictive factors in participants with asthma: a 26-year follow-up
Marta A Kisiel 1 , Xingwu Zhou 2 , Ida Fundberg 3 , Amelie Barrling 3 , Herman Sundqvist Lindelöf 4 , Adriana-Maria Hiller 5 , Christer Janson 6 , Anna Rask-Andersen 7
Affiliations Expand
• PMID: 40651560

• DOI: 10.1016/j.rmed.2025.108253
Free article
Abstract
Background: The long-term impact of asthma on mortality remains uncertain. This study aimed to assess mortality and its predictors over 26 years in asthmatic participants compared to those with or without other respiratory symptoms.
Methods: This longitudinal cohort study included participants recruited from the general Swedish population, followed from 1990 to 2016. The younger (30-39 years, n = 938) and older (60-69 years, at baseline, n = 1020) groups were divided into asthma, other and no respiratory symptoms. Baseline data included spirometry, allergy testing, smoking status, and quality of life. Survival analyses were conducted using Kaplan-Meier and Cox proportional hazards models.
Results: At 26-years follow-up the survival rates were 34 % and 95 % for asthmatics in the older and younger age groups, respectively. Asthma was not found to be a statistically significant independent predictor of mortality when compared to non-asthmatics in either age group (older group HR 95 % CI: 0.94 (0.77-1.15); younger group: 1.39 (0.63-3.09). Significant mortality predictors included increasing age ((1.13 (1.10-1.16)), male sex (1.73 (1.44-2.07), smoking (2.01 (1.65-2.44), lower forced expiratory volume in 1 s (FEV 1 ) (0.67 (0.60-0.76), and more symptoms (1.21 (1.01-1.45) in the older group, while age (1.14 (1.02-1.27) and other respiratory symptoms (2.44 (1.18-5.03) were predictors in the younger group. Risk factors significantly linked to mortality among older asthmatics included older age, male sex and current passive smoking, and only male sex in younger asthmatics.
Conclusion: Asthma was not a strong independent predictor of mortality in either age group, whereas age, male sex, other respiratory symptoms, smoking, and lower FEV 1, but not quality of life, were key risk factors. These findings highlight the importance of identifying high-risk individuals and addressing modifiable lifestyle factors such as smoking in mortality prevention strategies.
Keywords: All-cause mortality; Asthma; Lung function; Other respiratory symptoms; Quality of life.

Conflict of interest statement
Declaration of competing interest The authors declare that they have no competing financial or personal interests that could have influenced the work reported in this manuscript (below). No funding bodies had any role in the study design, data collection, analysis, or interpretation, nor in the decision to submit this manuscript for publication.
Supplementary info
MeSH termsExpand
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Multicenter Study

Lancet Respir Med
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. 2025 Sep;13(9):821-832.
doi: 10.1016/S2213-2600(25)00135-3. Epub 2025 Jul 8.
Evaluation of the effect of multimorbidity on difficult-to-treat asthma using a novel score (MiDAS): a multinational study of asthma cohorts
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Affiliations Expand

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Free article
Abstract
Background: Multimorbidity (ie, co-existence of two or more health conditions) is highly prevalent in patients with difficult-to-treat asthma. However, it remains unclear how multimorbidity correlates with disease severity and adverse health outcomes in these patients and which comorbidities are most important. We aimed to address this knowledge gap by developing a patient-centred, clinically descriptive multimorbidity score for difficult-to-treat asthma.
Methods: We used data from the UK-based Wessex Asthma Cohort of Difficult Asthma (WATCH; n=500, data collected between April 22, 2015, and April 1, 2020) to develop the Multimorbidity in Difficult Asthma Score (MiDAS). Initially, we created a modified Asthma Severity Scoring System (m-ASSESS) in WATCH. We then conducted univariate association analysis to test the association between the 13 commonest comorbidities and m-ASSESS in WATCH and used a branch-and-bound approach to select the most relevant comorbidities for inclusion in MiDAS. We calculated MiDAS values for all patients with complete information in WATCH (n=319) and assessed them for correlation with components of m-ASSESS, proinflammatory biomarkers, and St George's Respiratory Questionnaire (SGRQ) score, a quality-of-life measure. We also assessed the association of MiDAS with multiple clinical outcomes in four international cohorts: two from Australia (n=236, data collected between June 14, 2014, and April 1, 2022; and n=140, Aug 6, 2012, to Oct 18, 2016), one from southeast Asia (n=151, March 21, 2017, to Jan 16, 2024), and one from the USA (n=100, July 9, 2021, to Dec 14, 2023).
Findings: We selected seven common comorbidities (ie, rhinitis, gastro-oesophageal reflux disease, breathing pattern disorder, obesity, bronchiectasis, non-steroidal anti-inflammatory drug-

exacerbated respiratory disease, and obstructive sleep apnoea) for inclusion in MiDAS on the basis of the branch-and-bound analysis and combined them using multivariate linear regression to derive a MiDAS model associated with m-ASSESS in WATCH. The range of MiDAS scores was 9·6-16·2. In WATCH members, mean MiDAS value was 11·97 (SD 1·21) and MiDAS was nominally correlated with m-ASSESS components of poor asthma control (τ=0·31 [95% CI 0·24-0·38]) and exacerbations (τ=0·16 [0·08-0·24]). MiDAS was also correlated with worse total SGRQ score (r=0·39 [95% 0·28-0·49], p<0·0001) and with the proinflammatory plasma cytokines interleukin (IL)-4 (r=0·19 [95% CI 0·06-0·31], p=0·0036), IL-5 (r=0·35 [0·24-0·46], p<0·0001), and leptin (r=0·29 [0·17-0·40], p<0·0001) in WATCH. MiDAS values across the four international cohorts were similar to those of WATCH (UK cohort), with mean values of 12·33 (SD 1·47) and 12·31 (1·37) in the Australian cohorts, 11·80 (1·20) in the USA cohort, and 11·55 (1·23) in the Singapore cohort. In these cohorts, MiDAS correlated with worse asthma control, worse quality of life, anxiety, depression, and increased inflammation.

Interpretation: MiDAS highlights the co-occurrence of multimorbidity with the worst outcomes in difficult-to-treat asthma. These findings strongly indicate that an airway-centric approach is inadequate and that holistic and multidisciplinary care is imperative. This clinical score could help clinicians to identify patients most at risk from their multimorbidity.

Funding: UK National Institute for Health and Care Research, Australian National Health and Medical Research Council, Hunter Medical Research Institute, University of Newcastle (Australia), and John Hunter Hospital Charitable Trust.



Conflict of interest statement

Declaration of interests RJK co-holds a methods patent outside the submitted work on the cellular profiles of tissue resident memory T-cells and their use in asthma. BA is a member of the UK Taskforce for Lung Health, has received honoraria for educational talks from AstraZeneca, and sits on advisory boards for the Medito Foundation and earGym (all unrelated to this work). PGG reports personal fees from AstraZeneca, GSK, and Novartis and grants from AstraZeneca and GSK, outside the submitted work. VMM reports grants from GSK outside the submitted work, and advisory board and speaker fees from GSK, Menarini, and Boehringer-Ingelheim outside the submitted work. VC reports speakers fees from AstraZeneca, unrelated to the conduct of this study. MH has received grants and personal fees outside the submitted work from GSK, AstraZeneca, Sanofi, Novartis, Teva, and Chiesi, all paid to his employer Alfred Health. CE reports travel support from Chiesi and speaker fees from AstraZeneca outside the submitted work. RD is a co-founder of and consultant to Synairgen, has received funding for lectures from GSK, and has been on advisory boards of GSK, Celltrion, ALK Abello, and ZenasBio, all unrelated to this work. Unrelated to this work, NL has received consulting fees from Amgen, AstraZeneca, Avillion, Genentech, GSK, Niox, Novartis, Regeneron, Sanofi, and Teva; honoraria for non-speakers bureau presentations from GSK, Teva, and AstraZeneca; and travel support from AstraZeneca, Sanofi, Teva, Regeneron, and GSK; her institution received research support from Amgen, AstraZeneca, Avillion, Bellus, Evidera, Gossamer Bio, Genentech, GSK, Janssen, Niox, Regeneron, Sanofi, Novartis, and Teva. NL is an honorary faculty member of the Observational and Pragmatic Research Institute but does not receive compensation for this role. SH reports speakers fees from AstraZeneca, Berlin-Chemie Menarini, Takeda, Providens, and Amicus Therapeutics; support for attending meetings from AstraZeneca, Chiesi (Providens), and Hemofarm; and payment for advisory boards from AstraZeneca, Berlin-Chemie Menarini, and Providens, all unrelated to this work. WCGF declares stock ownership in relation to Sanofi, GSK, and AstraZeneca, unrelated to this work. HMH co-holds a method patent on anti-ADAM33 oligonucleotides and related methods, which is unrelated to the current work. All other authors declare no competing interests.

Supplementary info

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Lancet Respir Med
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. 2025 Sep;13(9):775-776.
doi: 10.1016/S2213-2600(25)00170-5. Epub 2025 Jul 8.
Beyond the airways in difficult-to-treat asthma: multimorbidity as the rule, not the exception
Hannu Kankaanranta 1 , Bright I Nwaru 2
Affiliations Expand
• PMID: 40645202

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Conflict of interest statement
HK reports personal fees for lectures and consulting from AstraZeneca, Boehringer-Ingelheim, Chiesi Pharma, Covis Pharma, GSK, MSD, Orion Pharma, and Sanofi, outside the submitted work. BIN declares no competing interests.
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Am J Respir Crit Care Med
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. 2025 Sep;211(9):1723-1724.
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Baseline Membrane Thickness in Asthma: Where Type-2 Inflammation Meets Remodeling?
James Melhorn 1 , Simon Couillard 2

Affiliations Expand
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• DOI: 10.1164/rccm.202505-1106LE
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Am J Respir Crit Care Med
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. 2025 Sep;211(9):1724-1725.
doi: 10.1164/rccm.202505-1245LE.
Reply to Melhorn and Couillard: Baseline Membrane Thickness in Asthma: Where Type-2 Inflammation Meets Remodeling?

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Affiliations Expand
• PMID: 40587942

• DOI: 10.1164/rccm.202505-1245LE
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Respir Med
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doi: 10.1016/j.rmed.2025.108223. Epub 2025 Jun 26.
# Real-world respiratory effectiveness of mepolizumab in severe eosinophilic asthma and eosinophilic granulomatosis with polyangiitis
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Affiliations Expand
• PMID: 40581257

• DOI: 10.1016/j.rmed.2025.108223
Abstract
Background: Severe eosinophilic asthma (SEA) and eosinophilic granulomatosis with polyangiitis (EGPA) share a common type 2 inflammatory pathway but differ in systemic involvement and corticosteroid dependence. Real-world data on mepolizumab's effectiveness in Chinese SEA and
EGPA populations are limited, and no study has jointly evaluated both cohorts.
Methods: We conducted a single-center, retrospective cohort study of 38 consecutive SEA or EGPA patients treated with mepolizumab between July 2022 and February 2025 in China. Key outcomes included asthma exacerbation frequency, oral corticosteroid (OCS) use, lung function

(FEV 1 % predicted), and symptom control (ACQ-5, mini-AQLQ, SNOT-22) at baseline, 6 months, and 12 months. Safety and tolerability were also assessed.
Results: After 12 months, the proportion of patients with ≥1 exacerbation decreased from 66 % to 14 % (P < 0.001), and median annual exacerbation rate fell from 2.0 (IQR 2.0-4.0) to 0.0 (IQR 0.0-0.8; P < 0.001). OCS use declined from 63 % to 23 %, with median daily prednisone dose reduced from 10.0 mg to 5.0 mg (P < 0.001). Mean FEV 1 % predicted increased from 69.3 % to 81.4 % at 12 months (P = 0.004); the SEA subgroup, characterized by more severe baseline obstruction, achieved a statistically significant FEV 1 % predicted gain, whereas improvements in EGPA did not reach significance. Symptom scores (ACQ-5, mini-AQLQ, SNOT-22) improved significantly in both cohorts (all P < 0.001). Two patients reported mild arthromyalgia.
Conclusion: In this real-world Chinese cohort, mepolizumab was well tolerated and associated with substantial reductions in exacerbations and OCS requirement, significant lung function gains, particularly in SEA, and marked symptom improvement in both SEA and EGPA.
Keywords: Eosinophilic airway inflammation; Eosinophilic granulomatosis with polyangiitis; Mepolizumab; Severe eosinophilic asthma.

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.
Supplementary info
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Eur J Clin Pharmacol
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. 2025 Sep;81(9):1301-1314.
doi: 10.1007/s00228-025-03868-w. Epub 2025 Jun 27.
Severe drug-associated anaphylaxis: a complementary descriptive analyses of registry cases and spontaneous reports
Patrick Christ 1 2 , Diana Dubrall 1 2 , Sabine Dölle-Bierke 3 , Wojciech Francuzik 3 , Matthias Schmid 2 , Bernhardt Sachs 4 5 , Margitta Worm 6
Affiliations Expand
• PMID: 40576782

• PMCID: PMC12398439

• DOI: 10.1007/s00228-025-03868-w
Abstract
Purpose: Drugs are among the most common triggers of severe anaphylactic reactions in adults. The aim of our study was to identify the most frequently suspected drugs and associated factors of severe drug-associated anaphylactic reactions in two different data sources. Moreover, the impact of the route of administration (oral versus intravenous) was investigated.
Methods: Severe drug-associated anaphylactic reactions from Germany were analysed in 1046 cases of the European Anaphylaxis Registry and in 1878 spontaneous reports of the European adverse drug reaction (ADR) database EudraVigilance.
Results: Several analgesics, antibiotics and contrast media were among others reported most frequently in both data sources. In addition, antineoplastic and immunomodulating agents were commonly reported in spontaneous reports. As associated factors, thyroid disorders, asthma and chronic obstructive pulmonary diseases, as well as cardiovascular diseases, were frequently

reported in both. Serious reactions such as cardiac arrest were more commonly reported for intravenously administered drugs, while skin reactions were more common for orally administered drugs.
Conclusions: The analyses of two datasets differing regarding their data collection enables to get a more complete picture of severe anaphylactic reactions in real world settings. Our study confirms that patients with thyroid disorders, cardiovascular and respiratory diseases (e.g. asthma) might carry a higher risk to develop severe anaphylactic reaction. The more serious course of anaphylactic reactions related to intravenously compared to orally applied drugs may result from the faster availability of intravenously administered drugs or differences among the patient populations.
Keywords: Adverse drug reactions; Allergy; Anaphylactic reaction; Drug-induced anaphylaxis; Pharmacovigilance study.

Conflict of interest statement
Declarations. Ethics approval: The presented study is a retrospective analysis of pseudonymised reports of adverse drug reactions. According to the local ethics committee of the Medical Faculty of Bonn, no ethics approval is needed for this study (file no. 100/21). The Anaphylaxis Registry was approved by the ethics committee at Charité-Universitätsmedizin Berlin, Germany (EA1/079/06), accredited by the local ethics committees in the participating centres, and is registered on ClinicalTrials.gov (Identifier: NCT05210543). Consent to participate: Not applicable. Consent for publication: Not applicable. Competing interests: M. Schmid and D. Dubrall. were supported by the ANKA project, which is founded by the Federal Institute for Drugs and Medical Devices and the Institute for Medical Biometry, Informatics and Epidemiology at the university hospital Bonn. M. Worm declares honoraria for lectures and consulting from Novartis Pharma GmbH, Sanofi-Aventis Deutschland GmbH, DBV Technologies S.A, Aimmune Therapeutics UK Limited, Leo Pharma GmbH, AstraZenceca GmbH, ALK-Abelló Arzneimittel GmbH, Lilly Deutschland GmbH, Kymab Limited, Amgen GmbH, Abbvie Deutschland GmbH & Co. KG, Pfizer Pharma GmbH, Mylan Germany GmbH (A Viatris Company), Boehringer Ingelheim Pharma GmbH & Co. KG, GlaxoSmithKline GmbH & Co. KG, Almirall S. A., Amgen GmbH, Pfizer Deutschland GmbH, Bristol-Myers Squibb GmbH & Co. KGaA and FomF GmbH outside submitted work. Disclaimer: The information and views set out in this manuscript are those of the authors and do not necessarily reflect the official opinion of the Federal Institute for Drugs and Medical Devices.
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• 6 figures
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Am J Respir Crit Care Med
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. 2025 Sep;211(9):1636-1643.
doi: 10.1164/rccm.202409-1853OC.
Association of Annual Exposure to Air Pollution Mixture on Asthma Hospitalizations in the United States
Bryan N Vu 1 , Heresh Amini 2 3 , Xinye Qiu 1 , Yijing Feng 4 , Yaguang Wei 1 , Joel Schwartz 1 4
Affiliations Expand
• PMID: 40548919

• DOI: 10.1164/rccm.202409-1853OC
Abstract

Rationale: Air pollutants have adverse effects on asthma exacerbation in people of all ages. However, fewer studies have examined long-term exposure to particle components in conjunction with nitrogen dioxide (NO 2 ) and ozone (O 3 ) to assess their mixture effects. Objectives: We used weighted quantile sum regression to assess the cumulative effects of 15 particle components, including organic compounds and metals, together with NO 2 and O 3 , on counts of inpatient asthma hospitalizations for children 0-18 years of age and adults 19-64 years of age. Methods: We conducted two separate weighted quantile sum models for each age group, with weights constrained between 0 and 1 while summing up to 1, q = 10 deciles, and 100 bootstrap samples. Measurements and Main Results: Inpatient records for asthma hospitalizations from 2002 to 2016 were collected from 11 U.S. state inpatient databases. We also included temperature

and variables from the U.S. census to control for socioeconomic status. All variables were aggregated to the annual ZIP code level. We observed an increase of 10.6% (95% confidence interval, 10.0-11.2%) and 8.0% (95% confidence interval, 7.7-8.4%) in the number of asthma inpatient hospitalizations each year for each decile increase of the pollutant mixture in children 0-18 years of age and adults 19-64 years of age, respectively. Nickel, vanadium, sulfate, nitrate, bromine, and ammonium contributed the most weight to the association found. Conclusions: Our results indicate that long-term exposure to pollutant mixtures is associated with increased risk of asthma hospitalization in both children and adults, and daily measurements of particle components data are needed to assess short-term exposure.

Keywords: NO2; asthma; ozone; particulate matter components; weighted quantile sum.

Comment in

- Beyond Single Pollutants: Mixture Analysis Methods in Air Pollution and Asthma Research. Lu W, Balmes JR.Am J Respir Crit Care Med. 2025 Sep;211(9):1539-1540. doi: 10.1164/rccm.202506-1327ED.PMID: 40700728 No abstract available.

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Int J Cardiol Cardiovasc Risk Prev

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doi: 10.1016/j.ijcrp.2025.200451. eCollection 2025 Sep.

Association between asthma and cardiovascular disease among a United States representative population

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Affiliations Expand

- PMID: 40546977

- PMCID: PMC12180956

- DOI: 10.1016/j.ijcrp.2025.200451

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34

Am J Respir Crit Care Med

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. 2025 Sep;211(9):1622-1635.

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Clinical Remission by a Comprehensive Severe Asthma Management Strategy Guided by Airway Inflammometry and Bioimaging

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Huang 1 , Katherine Radford 1 , Taylor Swindall 1 , Carmen Venegas Garrido 1 2 , Anurag Bhalla 2 , Sarita
Thawanaphong 1 2 , Yonni Friedlander 1 , Lindsey Dyment 1 , Michael Surette 2 , Michael Trus 3 , Roma
Sehmi 1 2 , Ehsan Haider 4 , Nader Khalidi 5 , Doron D Sommer 6 , Susan Waserman 7 , Manali Mukherjee 1 2 , Sarah Svenningsen 1 2 , Gerard Cox 1 2 , Parameswaran Nair 1 2
Affiliations Expand
• PMID: 40540629

• DOI: 10.1164/rccm.202412-2438OC
Abstract
Rationale: Clinical remission is a multicomponent treatment goal in severe asthma. However, only about 30% of patients achieve clinical remission when treatment decisions are guided using blood eosinophil counts and fractional exhaled nitric oxide concentrations. Objectives: To assess the effectiveness of a comprehensive, individualized treatment strategy in achieving clinical remission over 24 months in patients with severe asthma. Methods: Treatment strategies-including antiinflammatory therapies, biologics, antibiotics, immunomodulators, and bronchial thermoplasty-were guided by clinical assessment, airway physiology, airway inflammometry, and bioimaging. Clinical remission was defined as no exacerbations for 24 months, no oral corticosteroid use, and partly/well-controlled symptoms, with or without lung function criteria. Measurements and Main Results: A total of 178 patients with severe asthma were evaluated. Of these, 88.2% were treated with biologics alone or in combination with other strategies; 20.2% were treated with antibiotics, hypertonic saline, and/or immunoglobulins; and 9% underwent bronchial thermoplasty after controlling the inflammatory component. After 24 months, 89.9% of patients were exacerbation-free, 83.1% were oral corticosteroid-free, 78.1% had partly/well-controlled symptoms, and 85.4% had preserved lung function. Clinical remission was achieved in 66.3% of patients based on the three primary criteria and in 61.6% when including FEV 1 % decline ⩽5% from baseline. However, when the most stringent criteria were applied (five-point Asthma Control Questionnaire ⩽0.75 and FEV 1 ⩾80%), the clinical remission rate was 29.1%. Residual disease activity was driven primarily by airway infections and airway hyperresponsiveness rather than type 2 inflammation. Conclusions: By using a comprehensive set of biomarkers and a management strategy tailored to individual pathobiology, a high proportion of patients with severe asthma can achieve clinical remission, depending on the definitions used. Nonetheless, recurrent airway infections, mucus, and airway hyperresponsiveness remain key unmet needs in severe asthma.
Keywords: imaging; inflammometry; remission; severe asthma; sputum.
Comment in
• Treatment of Severe Asthma Is Not "Cookie-Cutter" Medicine.
Busse WW, Viswanathan R.Am J Respir Crit Care Med. 2025 Sep;211(9):1537-1539. doi: 10.1164/rccm.202506-1403ED.PMID: 40700732 No abstract available.
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Meta-Analysis

Ann Allergy Asthma Immunol
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. 2025 Sep;135(3):278-286.e11.
doi: 10.1016/j.anai.2025.06.011. Epub 2025 Jun 13.
Triple therapy vs dual inhaler therapy for moderate-to-severe asthma: An updated systematic review and meta-analysis
Daniel G Rayner 1 , Layla Bakaa 2 , Flavia Hoyte 3 , Tamara T Perry 4 , Katherine Rivera-Spoljaric 5 , Kaharu Sumino 6 , Bradley Chipps 7 , John Oppenheimer 8 , Sharmilee M Nyenhuis 9 , Elliot
Israel 10 , Ellen McCabe 11 , Paul M O'Byrne 12 , Lindsay E Shade 13 , Valerie G Press 14 , Gordon H
Guyatt 15 , Susana Rangel 16 , Dia Sue-Wah-Sing 17 , Lisa Hall 17 , Hilarry Orr 17 , Angel Melendez 17 , Tonya Winders 18 , Donna D Gardner 19 , Kathyrn Przywara 20 , Matthew A Rank 21 , Leonard B Bacharier 22 , Giselle Mosnaim 23 , Derek K Chu 24
Affiliations Expand
• PMID: 40516649

• DOI: 10.1016/j.anai.2025.06.011
Free article
Abstract
Background: Long-acting muscarinic antagonists are typically added to inhaled corticosteroids (ICS) and long-acting β-agonists (LABA) for asthma management.
Objective: To systematically synthesize the benefits and harms of triple therapy (ICS/LABA/long-acting muscarinic antagonists) compared with dual therapy (ICS/LABA) for asthma management across key subpopulations as part of developing linked American Academy of Allergy, Asthma, and Immunology/American College of Allergy, Asthma, and Immunology guidelines.
Methods: We searched MEDLINE, EMBASE, the Cochrane Controlled Register of Trials, and the International Clinical Trials Registry Platform from January 1, 2020 to February 1, 2025, for randomized trials comparing inhaled triple therapy to dual therapy for asthma to update our previous systematic review. Paired reviewers independently screened citations, extracted data, and assessed the risk of bias. Random effects meta-analyses assessed asthma control (asthma control questionnaire-7; 0-6), asthma-related quality of life (asthma quality of life questionnaire; 1-7), prebronchodilator forced expiratory volume in 1 second, severe exacerbations, and serious adverse events. The Grading of Recommendations, Assessment, Development, and Evaluation approach informed the certainty of evidence. Open Science Framework Registration (https://osf.io/u8t4q/).
Results: A total of 26 trials randomized 12,431 participants. Compared with dual therapy, triple therapy reduces severe exacerbations in patients at high risk for future exacerbation (relative risk 0.83, 95% CI 0.76-0.90; risk difference 5.3% fewer; high certainty), with trivial improvement in asthma control (mean difference [MD] -0.04, 95% CI -0.07 to 0.00, moderate certainty; lower better), quality of life (MD 0.05, 95% CI -0.03 to 0.14, moderate certainty; higher better), and prebronchodilator forced expiratory volume in 1 second (MD 0.07, 95% CI 0.05-0.09; high certainty), without increase in serious adverse events (moderate certainty). The effects were consistent across age, body mass index, and exacerbation history.
Conclusion: In patients with moderate-to-severe asthma, triple therapy, compared with dual therapy, reduces severe exacerbations in patients at high risk for future exacerbation with minimal harm.

Conflict of interest statement
Disclosures Dr Hoyte reports receiving consulting, advisory board, and/or speaking fees from AstraZeneca and GlaxoSmithKline (GSK). Dr Sumino reports receiving consulting, advisory board, and/or speaking fees from Teva and Kyorin Pharmaceutical. Dr Israel reports receiving personal fees from Amgen, Arrowhead Pharmaceuticals, AstraZeneca, GSK, Merck, Regeneron, Sanofi, Teva, Apogee Therapeutics, Yuhan, Leerink Partners, Jasper Therapeutics, Generate:Biomedicines, and UpToDate; nonfinancial support from Genentech, Sun Pharma, Laurel

Pharmaceuticals, Om Pharma, Nestlé, CSL Behring, and Sanofi-Regeneron; and research grants from Genentech, Amgen, GSK, AstraZeneca, Avillion, Gossamer Bio, National Institutes of Health, and Patient-Centered Outcomes Research Institute. Dr O'Byrne reports receiving consulting,

advisory board, and/or speaking fees and research grants from AstraZeneca and GSK. Dr Bacharier reports receiving consulting, advisory board, and/or speaking fees with AstraZeneca and Novartis. Dr Mosnaim reports receiving research grants from Areteia Therapeutics, GSK, Genentech, Incyte, Novartis, Sanofi-Regeneron, and Teva; and consulting, advisory board, and/or speaking fees from Jasper Therapeutics, Aptar, Chiesi, Genentech, Novartis, Sanofi-Regeneron, and Teva. The remaining authors have no conflicts of interest to report.



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Review

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. 2025 Sep;25(7):993-1003.
doi: 10.1080/14737167.2025.2520898. Epub 2025 Jun 17.

# Adherence to asthma and COPD inhaled therapies in low- and middle-income countries: a narrative review

Vaibhav Gaur 1 , Alessandra Sorano 2 , Himanshu Sankrityayan 1 , Jaideep Gogtay 1 , Federico Lavorini 2
Affiliations Expand

• PMID: 40514349

• DOI: 10.1080/14737167.2025.2520898

Abstract
Introduction: In low-income and middle-income countries (LIMCs), defined based on the World Bank classification, non-adherence to respiratory therapies contributes to increasing mortality and morbidity due to chronic respiratory diseases. To address this issue, it is essential to identify and tackle underlying factors such as cultural beliefs, socioeconomic disparities, and limited access to healthcare resources and infrastructures. The absence of strategies that integrate community involvement, healthcare professional's training, economic policies, and educational programs exacerbates the disproportionate burden of chronic respiratory diseases in LIMCs.
Areas covered: This review is based on a structured literature search across PubMed, Scopus, and Google Scholar (2000-2023) using terms relevant to asthma, COPD, adherence, and LMICs. The review examines key factors that hinder patients' adherence to Asthma and COPD medications in LIMCs, providing some insights into the issue and proposing concrete solutions.
Expert opinion: Addressing non-adherence requires a multifaceted approach involving community engagement, educational initiatives, and improved healthcare infrastructure. Future research should focus on tailored interventions to enhance adherence and ultimately improve health outcomes for patients with chronic respiratory diseases in LMICs.

Keywords: Adherence; COPD; asthma; inhaled therapy; low- and middle-income countries.

Cite
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Observational Study

Respir Investig
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. 2025 Sep;63(5):726-733.
doi: 10.1016/j.resinv.2025.05.007. Epub 2025 Jun 11.
# Real-world effectiveness of budesonide/glycopyrronium/formoterol fumarate metered dose inhaler on symptoms and quality of life in patients with COPD: EBISU study
Shigeo Muro 1 , Soichiro Hozawa 2 , Hisatoshi Sugiura 3 , Yuri Yoshida 4 , Naoyuki Makita 4 , Yuki Kato 4 , Takehiro Hirai 4 , Kenichiro Nishida 4 , Tomotaka Kawayama 5
Affiliations Expand
• PMID: 40513294

• DOI: 10.1016/j.resinv.2025.05.007
Free article
Abstract
Background: There are limited real-world data regarding triple therapy with inhaled corticosteroid/long-acting muscarinic antagonist/long-acting β 2 -agonist on symptoms and patient-reported outcomes (PROs) in patients with chronic obstructive pulmonary disease (COPD), without current/history of asthma. We investigated the effects of budesonide/glycopyrronium/formoterol fumarate (BGF) metered dose inhaler (MDI) triple therapy on health status and PROs in patients with COPD in daily clinical practice.
Methods: This was a 12-week, prospective, multicenter, observational study (NCT05219630). The primary endpoint was mean change from baseline in the COPD Assessment Test (CAT) over 12 weeks. Secondary and exploratory endpoints included mean change from baseline in the St George's Respiratory Questionnaire (SGRQ) over 12 weeks and CAT score subgroup analyses.
Results: In total, 102 patients were analyzed; mean age at baseline was 73.8 years, mean forced expiratory volume in 1 s was 57.7 %, CAT total score was 15.6, and SGRQ score was 33.3. The adjusted mean change from baseline over 12 weeks in CAT was -2.9 (standard error [SE] 0.5) (P < 0.001), and in SGRQ was -2.7 (SE 0.9) (P = 0.004). As early as Week 4, these scores were significantly improved from baseline. In subgroup analyses, CAT scores were improved, regardless of blood eosinophil counts at baseline and exacerbation history in the previous year.
Conclusions: Triple therapy with a BGF MDI significantly improved CAT and SGRQ scores over 12 weeks. BGF MDI could be a suitable option for patients living with COPD who have persistent symptoms without current asthma or a history of asthma.
Trial registration: ClinicalTrials.gov (NCT05219630).
Keywords: Budesonide/glycopyrronium/formoterol fumarate drug combination; COPD Assessment Test; Chronic obstructive pulmonary disease; Patient-reported outcome; Quality of life.

Conflict of interest statement
Declaration of competing interest Shigeo Muro has received honoraria from AstraZeneca K.K., Boehringer Ingelheim, and GlaxoSmithKline. Soichiro Hozawa has received honoraria from AstraZeneca K.K., GlaxoSmithKline, Novartis, and Kyorin Pharmaceutical. Hisatoshi Sugiura has received honoraria from AstraZeneca K.K., GlaxoSmithKline, Boehringer Ingelheim, Novartis, and Sanofi. Yuri Yoshida, Naoyuki Makita, Yuki Kato, Takehiro Hirai, and Kenichiro Nishida are employees of AstraZeneca K.K. Tomotaka Kawayama has received honoraria from AstraZeneca K.K., GlaxoSmithKline, Boehringer Ingelheim, and Sanofi.
Supplementary info

Publication types, MeSH terms, Substances, Associated dataExpand
Full text links
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Cite
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Respir Investig

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. 2025 Sep;63(5):711-717.
doi: 10.1016/j.resinv.2025.06.002. Epub 2025 Jun 6.
Clinical and complete remission in patients with severe asthma with 24-month dupilumab treatment
Tomoko Tajiri 1 , Motohiko Suzuki 2 , Hirono Nishiyama 3 , Tatsuro Suzuki 3 , Yuki Amakusa 3 , Keima Ito 3 , Yuta Mori 3 , Kensuke Fukumitsu 3 , Satoshi Fukuda 3 , Yoshihiro Kanemitsu 3 , Takehiro Uemura 3 , Hirotsugu Ohkubo 3 , Masaya Takemura 3 , Yutaka Ito 3 , Tetsuya Oguri 3 , Akio Niimi 3
Affiliations Expand
• PMID: 40482373

• DOI: 10.1016/j.resinv.2025.06.002
Abstract
Background: A few studies have reported asthma clinical remission with 24-month dupilumab therapy; however, complete remission remains unknown. In this post hoc analysis of our previous study, the achievement rates of clinical and complete remissions, and the factors associated with clinical remission with 24-month dupilumab therapy were assessed in adult patients with severe asthma.
Methods: Twenty-eight patients who had participated in our previous study were included. The primary outcome was the achievement rates of three-component clinical remission, four-component clinical remission, and complete remission at 24 months. The secondary outcome was the factors associated with achievement of four-component clinical remission at 24 months. Three-component or four-component clinical remission was defined as: 1) no significant asthma symptoms; 2) oral corticosteroid-free; 3) exacerbation-free; with or without 4) normalized pulmonary function. Complete remission was defined as four-component clinical remission plus 5) the resolution of asthma-related inflammation and 6) negative airway hyperresponsiveness.
Results: At 24 months, 19 (68 %), 16 (57 %), and 2 patients (7 %) achieved three-component, four-component clinical remission, and complete remission, respectively. At 24 months, patients with a higher incidence of comorbid chronic rhinosinusitis with nasal polyps, lower incidence of comorbid depression/anxiety, higher type 2 biomarkers, lower inhaled corticosteroid dose, better asthma control at baseline, and fewer exacerbations, unscheduled physicians' visit or hospitalization in the previous year more frequently achieved four-component clinical remission than those without (all P < 0.05).
Conclusions: The achievement rates of clinical or complete remission were maintained for up to 24 months in patients with severe asthma receiving dupilumab therapy.
Trial registration: This study was registered in the UMIN Clinical Trial Registry (UMIN000038669).
Keywords: Airway hyperresponsiveness; Asthma; Clinical remission; Complete remission; Dupilumab.

Conflict of interest statement
Declaration of competing interest The authors have no conflicts of interest.
Supplementary info

MeSH terms, SubstancesExpand
Full text links
Proceed to details
Cite
39
Am J Med Sci
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. 2025 Sep;370(3):245-250.
doi: 10.1016/j.amjms.2025.05.005. Epub 2025 May 18.
# Diagnostic value of FeNO, periostin, IL-4, and ECP in patients with acute exacerbation of bronchial asthma
Menglong Feng 1 , Lingqin Meng 2 , Yaben Yao 3
Affiliations Expand
• PMID: 40393571

• DOI: 10.1016/j.amjms.2025.05.005
Abstract
Objective: This study aimed to analyze the diagnostic value of fractional exhaled nitric oxide (FeNO), periostin, interleukin (IL)-4, and eosinophil cationic protein (ECP) in patients with acute exacerbation of bronchial asthma (AEBA) and their relationship with lung function.
Methods: Ninety-six bronchial asthma patients admitted to our hospital from January 2020 to January 2021 were collected and divided into two groups: acute exacerbation group (n = 55) and non-acute-exacerbation group (n = 41). Pulmonary function indices and serum levels of FeNO, IL-4, periostin, ECP, and EOS % were determined. Pearson correlation analysis was used to analyze the relationships between these biomarkers and pulmonary function indices. A receiver operating characteristic (ROC) curve was applied to assess the diagnostic value of these biomarkers for AEBA.
Results: The acute-exacerbation group showed lower percentage of predicted values of peak expiratory flow (PEF %pred), forced expiratory volume in 1 s (FEV1 %pred), and forced vital capacity (FVC %pred) while higher levels of FeNO, IL-4, periostin, ECP, and EOS compared to the non-acute-exacerbation group. Pearson correlation analysis indicated that FeNO, IL-4, periostin, and ECP levels were negatively correlated with PEF %pred, FEV1 %pred, and FVC %pred, and positively correlated with EOS %. ROC curve analysis revealed that these biomarkers had high predictive value for AEBA.
Conclusions: FeNO, IL-4, periostin, and ECP levels are negatively correlated with pulmonary function indices (PEF %pred, FEV1 %pred, and FVC %pred) and positively correlated with EOS %. These biomarkers have high predictive value for AEBA.
Keywords: Acute exacerbation of bronchial asthma; Diagnostic value; ECP; FeNO; IL-4; Lung function; Periostin.

Conflict of interest statement
Declaration of competing interest Menglong Feng, Lingqin Meng and Yaben Yao declare that they have no conflicts of interest.
Supplementary info
MeSH terms, SubstancesExpand
Full text links
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Review

Ann Allergy Asthma Immunol
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. 2025 Sep;135(3):268-275.
doi: 10.1016/j.anai.2025.05.011. Epub 2025 May 17.
The impact of respiratory syncytial virus on asthma development and exacerbation
Ruixue Ma 1 , Chenyu Zhang 2 , Yi Zhang 2 , Hong Tan 1 , Yao Zhang 1 , Qiuhong Li 1 , Yumei Bai 3 , Xin
Sun 4
Affiliations Expand

• PMID: 40389152

• DOI: 10.1016/j.anai.2025.05.011
Free article
Abstract
Asthma is a chronic inflammatory disorder of the lower airways clinically characterized by recurrent wheezing, breathlessness, cough, and dyspnea and the most prevalent chronic disease among children and adolescents. Respiratory viral infections are implicated in asthma inception and exacerbation, with respiratory syncytial virus (RSV) emerging as a key contributor. RSV is a leading cause of acute lower respiratory tract infections, particularly infant bronchiolitis, and is associated with a type 2-biased immune response, diminished interferon activity, epithelial barrier dysfunction, and altered airway microbiome. Although the causal relationship between RSV and asthma remains debated, early life RSV lower respiratory tract infections are increasingly recognized as a significant risk factor for recurrent wheezing and asthma-like symptoms in childhood. This review comprehensively evaluates existing evidence on the long-term respiratory outcomes of infant RSV infection, elucidates the pathophysiological mechanisms connecting RSV infection to asthma development-such as immune dysregulation, chronic airway inflammation, and gene-environment interplay-and highlights novel preventive strategies. Recent advancements, such as maternal RSV vaccines and long-acting monoclonal antibodies, demonstrate efficacy in reducing severe RSV disease burden and subsequent wheeze in high-risk infants. By bridging clinical observations with mechanistic insights, this review underpins the development of future clinical therapies.

Conflict of interest statement
Disclosures The authors have no conflicts of interest to report.
• Cited by 1 article
Supplementary info
Publication types, MeSH terms, SubstancesExpand
Full text links
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J Affect Disord
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. 2025 Sep 1:384:98-106.
doi: 10.1016/j.jad.2025.05.003. Epub 2025 May 5.
Young men's anxiety presentations to Australian ambulance services
Krista Fisher 1 , Simon M Rice 2 , Debbie Scott 3 , Dan I Lubman 4 , John L Oliffe 5 , Rowan P

Ogeil 6 , Naomi Beard 7 , Ziad Nehme 8 , Zac E Seidler 9
Affiliations Expand
• PMID: 40334864

• DOI: 10.1016/j.jad.2025.05.003
Free article
Abstract
Young men experiencing anxiety risk traversing traditional norms of masculinity, a tension that contributes to under-diagnosis - and, by extension, under-treatment. Within this context, young men frequently present to ambulance services with acute psychosomatic anxiety symptoms, implicating extensive, and resource exhaustive diagnostic tests to differentially diagnose and clinically manage potentially life-threatening conditions (i.e., myocardial infarction, dyspnoea, asthma, and stroke). This four-phase mixed-methods study developed and tested a coding framework to describe and interpret clusters within data from the Victorian arm of the Australian

National Ambulance Surveillance System (NASS). Six hundred and ninety-four young men aged 15-25 years with an anxiety-related ambulance attendance in 2019 were analysed in the present analyses. Study findings revealed that the most common clinical characteristics in young men's anxiety presentations were psychosomatic symptoms, alcohol and drug use, and situational stressors. Three typologies for young men's anxiety presentations: 1) Psychosomatic-Anxiety, 2) Anxious-Substance Use and 3) Complex-Anxiety, were evident across severities. Findings highlight the need for tailored assessments to effectively triage young men experiencing anxiety and engage them with appropriate mental health services.
Keywords: Anxiety; Emergency medical services; Help-seeking; Masculinity; Men.

Conflict of interest statement
Declaration of competing interest The authors declare that they have no competing interests.
Supplementary info
MeSH termsExpand
Full text links
Proceed to details
Cite
42
J Asthma
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. 2025 Sep;62(9):1608-1615.
doi: 10.1080/02770903.2025.2500077. Epub 2025 May 12.
Occupational risk factors for asthma exacerbation in adults: a five-year follow-up of the Norwegian Telemark study cohort
Nikola Zivadinovic 1 2 , Keson Jaioun 3 , Geir Klepaker 1 , Anthony Wagstaff 2 4 , Kjell Torén 5 6 , Paul K
Henneberger 7 , Johny Kongerud 8 , Regine Abrahamsen 1 , Anne Kristin Møller Fell 1 2
Affiliations Expand
• PMID: 40317170

• DOI: 10.1080/02770903.2025.2500077
Free article
Abstract
Objectives: Asthma exacerbation due to occupational exposure is highly prevalent among adults with asthma. This study assessed the association between occupational risk factors and asthma

exacerbation and estimated the impact of asthma exacerbations on job change, sick leave and work ability.
Methods: In a prospective study of respiratory health in Telemark, Norway, 1857 adult participants with physician-diagnosed asthma were invited to participate in a follow-up survey. Among those who responded, 740 were found eligible for this study. Participants were categorized into overall, mild, and severe asthma exacerbation groups based on self-reports of hospitalization, doctor or emergency visits for breathing difficulties, or increased or new use of lung medications. Logistic regression, adjusted for age, sex, and smoking, was used to assess associations between self-reported asthma exacerbation and exposure to VGDF, job exposure matrix (N-JEM) data, job change, sick leave, and work ability.
Results: Asthma exacerbation occurred in 140 (19%) responders; 83 had mild exacerbations and 57 severe exacerbations. Severe exacerbation was associated with daily VGDF exposure (OR 2.57, 95% CI 1.15-5.78) and accidental peak exposure to irritants (OR 4.62, 95% CI 1.13-18.85). Both overall and severe exacerbation were associated with job changes (OR 5.40, 1.26-5.65; OR 3.06, 1.16-8.07), sick leave (OR 1.94, 1.33-2.85; OR 2.78, 1.57-4.92), and reduced work ability (OR 1.61, 1.04-2.49; OR 2.17, 1.18-3.98).

Conclusion: Asthma exacerbation was associated with VGDF exposure and some N-JEM occupational exposures. Reducing workplace exposure may decrease job-change, sick leave, and improve work ability in individuals with asthma exacerbation.
Keywords: Public health; Telemark study; asthma; epidemiology; exacerbation; exposure; occupation.
Supplementary info
MeSH terms, SubstancesExpand
Full text links
Proceed to details
Cite
43
Review

J Asthma
•
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. 2025 Sep;62(9):1644-1650.
doi: 10.1080/02770903.2025.2495723. Epub 2025 Apr 30.
High-frequency percussive ventilation as a lifesaving intervention in a pediatric case of life-threatening asthma: a case report and literature review
Lanah Almatroud 1 , John S Rerucha 2 , Waseem Ostwani 3
Affiliations Expand
• PMID: 40308002

• DOI: 10.1080/02770903.2025.2495723
Free article
Abstract
Introduction: Severe acute asthma exacerbation requiring mechanical ventilation, referred to as life-threatening asthma, presents significant challenges due to elevated airway resistance, dynamic hyperinflation, and impaired gas exchange. Conventional mechanical ventilation may be insufficient in these cases, necessitating alternative strategies. High-frequency percussive ventilation (HFPV) offers a promising approach by combining improved oxygenation and ventilation with effective secretion clearance.
Case study: An 11-year-old male with a history of asthma and eczema presented to the emergency department in respiratory failure with profound hypercarbia. Life-threatening asthma

with cardiopulmonary arrest led to endotracheal intubation and initiation of mechanical ventilation. Despite the use of conventional settings, oxygen saturation remained critically low, and air trapping persisted. The patient was transitioned to HFPV via a VDR ® -4 ventilator.
Results: Arterial blood gases demonstrated rapid improvement within 2 hours (from pH 6.7, pCO 2 >120 mmHg to pH 7.169, pCO 2 77.2 mmHg). After 29 hours on HFPV, the patient was transitioned to conventional ventilation, followed by tracheal extubation to high-flow nasal cannula. The patient was discharged home within 72 hours with optimized asthma management.
Conclusion: This case demonstrates the potential efficacy of HFPV in managing life-threatening pediatric asthma, achieving rapid stabilization without the use of neuromuscular blockade. Further prospective studies are needed to evaluate HFPV's potential as a rescue therapy in both specialized and non-specialized settings.
Keywords: Severe asthma; high-frequency percussive ventilation (HFPV); pediatric asthma; pediatric critical care.
Supplementary info
Publication types, MeSH termsExpand
Full text links
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Cite
44
J Asthma
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. 2025 Sep;62(9):1584-1590.
doi: 10.1080/02770903.2025.2499823. Epub 2025 May 8.
Efficacy of tiotropium bromide on spirometric measurements and control of asthma in real life: data from a 1-year clinical follow-up
Fatma Dindar Çelik 1 , Kurtuluş Aksu 1 , Enes Çelik 2 , Hatice Çelik Tuğlu 1 , Melis Yağdıran 1 , Özgür Akkale 1 , Onur Telli 1 , Gözde Köycü Buhari 1 , Sakine Nazik Bahçecioğlu 1 , Funda Aksu 3
Affiliations Expand
• PMID: 40304436

• DOI: 10.1080/02770903.2025.2499823
Abstract
Objective: Real-life studies are needed to evaluate the clinical outcomes of add-on tiotropium therapy in patients with asthma. The effects of adding tiotropium bromide to the treatment of asthmatic patients on pulmonary functions and asthma control using real-life data.
Methods: In a retrospective study, spirometric measures and asthma control states were compared before and one year after of tiotropium treatment in asthmatic adults whose disease was not adequately controlled with a combination of inhaled corticosteroids and long-acting β2-agonists.
Results: One year after tiotropium treatment, mean FEV1, FEV1%, and FEV1/FVC ratio increased significantly compared to pretreatment values. Among 32 patients added tiotropium due to symptomatic asthma, 28 (87.5%) patients achieved well-controlled (ACT ≥ 20) end of the year and GINA treatment step-down in 4 (12.5%) patients. Monoclonal antibody therapies (mepolizumab or omalizumab) were initiated in 9 patients (28.1%). FEV1 values and FEV1/FVC ratios showed a statistically significant improvement from baseline measurements obtained prior to the initiation of tiotropium therapy, independent of monoclonal antibody use (p < .001 for each). The mean age of these patients was 48.78 ± 11.64 (range: 28-81) years, and 25 (78.1%) of them were female.
Conclusions: Tiotropium bromide is an effective and reliable add-on therapy for symptomatic asthma when combined with ICS plus LABA, also leads to improvements in respiratory function and asthma control.

Keywords: Asthma; asthma control test; forced expiratory volume in one second (FEV1); forced vital capacity (FVC); respiratory volumes; tiotropium.
Supplementary info
MeSH terms, SubstancesExpand
Full text links
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45
Observational Study

J Asthma
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. 2025 Sep;62(9):1567-1574.
doi: 10.1080/02770903.2025.2495725. Epub 2025 Apr 26.
# The impact of tezepelumab therapy on perceived asthma triggers: a multicenter real-life study

Andrea Portacci 1 , Giulia Scioscia 2 , Silvano Dragonieri 1 , Maria Aliani 3 , Ernesto Lulaj 1 , Francesca
Montagnolo 1 , Pietro Magaletti 2 , Piera Soccio 2 , Luciana Salerno 3 , Donato Lacedonia 2 , Giovanna
Elisiana Carpagnano 1
Affiliations Expand
• PMID: 40257396

• DOI: 10.1080/02770903.2025.2495725
Abstract
Objective: Asthma exacerbations are often triggered by factors such as respiratory infections, allergens, exercise, and airway irritants, significantly affecting patients' respiratory symptoms and
quality of life. Effective management of triggers is crucial in severe asthma care. Tezepelumab, an anti-thymic stromal lymphopoietin (TSLP) monoclonal antibody, can effectively reduce severe asthma exacerbations and symptoms burden. However, its impact on patients' perception of trigger-related symptoms remains underexplored.
Methods: We conducted an observational, multicenter study involving 30 severe asthma patients starting tezepelumab 210 mg every 4 wk. Asthma triggers were assessed with the Asthma Triggers Inventory (ATI), while respiratory symptoms and HRQoL were evaluated using the Asthma Control Test (ACT), Asthma Control Questionnaire (ACQ), and Asthma Quality of Life Questionnaire (AQLQ). Data were collected at baseline (T0) and after 3 months of treatment (T3).
Results: At T3, patients demonstrated a significant reduction in the impact of asthma triggers as well as improvements in the perception of triggers effects on HRQoL. Specific improvements were observed in the "air pollution/irritants" and "infection" domains of the ATI. Correlation analysis
revealed a significant association between ATI and AQLQ changes over time.
Conclusion: Tezepelumab positively impacts patients' perception of asthma triggers and their HRQoL, supporting its role in managing triggers hypersensitivity as a treatable trait in severe asthma. Further research is warranted to investigate underlying mechanisms and long-term effects.
Keywords: Severe asthma; anti-TSLP; control; quality of life; tezepelumab; trigger.
• Cited by 2 articles
Supplementary info

Publication types, MeSH terms, SubstancesExpand
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46
Comparative Study

J Asthma
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. 2025 Sep;62(9):1560-1566.
doi: 10.1080/02770903.2025.2495729. Epub 2025 Apr 26.
Artificial intelligence in asthma health literacy: a comparative analysis of ChatGPT versus Gemini
Simon Høj 1 , Vibeke Backer 1 2 , Charlotte Suppli Ulrik 2 3 , Torben Sigsgaard 4 , Howraman Meteran 3 4 5
Affiliations Expand
• PMID: 40257390

• DOI: 10.1080/02770903.2025.2495729
Abstract
Background: Asthma is a complex and heterogeneous chronic disease affecting over 300 million individuals worldwide. Despite advances in pharmacotherapy, poor disease control remains a major challenge, necessitating innovative approaches to patient education and self-management.

Artificial intelligence driven chatbots, such as ChatGPT and Gemini, have the potential to enhance asthma care by providing real-time, evidence-based information. As asthma management moves toward personalized medicine, AI could support individualized education and treatment guidance. However, concerns remain regarding the accuracy and reliability of AI-generated medical content.
Objective: This study evaluated the accuracy of ChatGPT (version 4.0) and Gemini (version 1.2) in providing asthma-related health information using the Patient-completed Asthma Knowledge Questionnaire, a validated asthma literacy tool.
Methods: A cross-sectional study was conducted in which both AI models answered 54 standardized asthma-related items. Responses were classified as correct or incorrect based on alignment with validated clinical knowledge. Accuracy was assessed using descriptive statistics, Cohen's kappa for inter-model agreement, and chi-square tests for comparative performance.
Results: ChatGPT achieved an accuracy of 96.3% (52/54 correct; 95% CI: 87.5%-99.0%), while Gemini scored 92.6% (50/54 correct; 95% CI: 82.5%-97.1%), with no statistically significant difference (p = 0.67). Cohen's kappa demonstrated near-perfect agreement for ChatGPT (κ = 0.91)
and strong agreement for Gemini (κ = 0.82).
Conclusion: ChatGPT and Gemini demonstrated high accuracy in delivering asthma-related health information, supporting their potential as adjunct tools for patient education. AI models could potentially play a role in personalized asthma management by providing tailored treatment guidance and improving patient engagement.
Keywords: AI accuracy; Asthma; ChatGPT; Gemini; artificial intelligence; asthma management; clinical frameworks; health information; large language models; patient education.
Supplementary info
Publication types, MeSH termsExpand
Full text links
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47
Multicenter Study

J Asthma
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. 2025 Sep;62(9):1493-1498.
doi: 10.1080/02770903.2025.2490106. Epub 2025 Apr 15.
Biologicals reduce drug burden and improve physical and mental health in severe eosinophilic asthma
Vincenzo Patella 1 2 , Roberta Zunno 1 , Girolamo Pelaia 3 , Luciana Pierro 1 , Giovanni Florio 1 , Carmine
Nicoletta 1 , Corrado Pelaia 3
Affiliations Expand
• PMID: 40233270

• DOI: 10.1080/02770903.2025.2490106
Abstract
Objective: This real-world study evaluates the improvement in asthma control, drug burden reduction, and physical and mental health in patients with severe eosinophilic asthma treated with biologicals.
Methods: We enrolled 127 patients with severe eosinophilic asthma from two centers, treating them with add-on biological therapy. The asthma control test (ACT) and the Short-form Health Survey-12 (SF-12), including Physical Component Summary (PCS) and Mental Component Summary (MCS), were used, assessing drug history at baseline (T0) and after 32 weeks of biological therapy (T1).
Results: A significant improvement in asthma control was observed after the biological treatment (ACT score: 11(8) vs 23(3), p < 0.0001), with most patients achieving asthma control at T1 (110,

86.6%). There was a statistically significant reduction in the use of non-biological drugs at T1, such as oral corticosteroids (40.2% vs 17.3%, p < 0.0001), inhalation therapy (75.6% vs 57.5%, p = 0.001), leukotriene receptor antagonists (34.6% vs 25.2%, p < 0.0001), and antihistamines (42.5% vs 18.1%, p < 0.0001). ACT and PCS scores at T1 had a strong positive correlation (r = 0.749, p < 0.0001), as did ACT and MCS scores (r = 0.744, p < 0.0001). Our study shows that the biological treatments for severe eosinophilic asthma, properly characterized through a careful phenotypic assessment, significantly improve asthma control and reduce drug burden (notably oral corticosteroids, inhalation therapy, leukotriene receptor antagonists, and antihistamines), as well as enhance both physical and mental health irrespective of age and sex.
Keywords: Asthma control; SF-12; asthma phenotypes; biological therapy; drug burden.
Supplementary info
Publication types, MeSH terms, SubstancesExpand
Full text links
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Cite
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Rheumatology (Oxford)
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. 2025 Sep 1;64(9):5108-5111.
doi: 10.1093/rheumatology/keaf201.
Step-down treatment with mepolizumab for eosinophilic granulomatosis with polyangiitis: a

real-life single-centre study
Luca Moroni 1 2 , Veronica Batani 1 2 3 , Gabriele D Gallina 1 , Giovanni Benanti 1 , Maria Cilona 1 2 , Adriana Cariddi 1 , Marco Lanzillotta 1 2 , Giulia Danè 4 , Umberto Tanzini 4 , Marco Matucci-
Cerinic 1 2 , Lorenzo Dagna 1 2
Affiliations Expand
• PMID: 40221861

• DOI: 10.1093/rheumatology/keaf201
Abstract
Objectives: To evaluate the efficacy and safety of a step-down treatment approach using mepolizumab for eosinophilic granulomatosis with polyangiitis (EGPA) in a real-life single-centre cohort. The study aimed to assess outcomes following a transition from high-dose (300 mg/4 weeks) to low-dose (100 mg/4 weeks) mepolizumab after achieving remission.
Methods: This retrospective study included EGPA patients treated with mepolizumab between April 2014 and December 2024. Patients receiving step-down therapy were in remission, defined by a Birmingham Vasculitis Activity Score (BVAS) of 0, Asthma Control Test (ACT) >20 and steroid-free for at least one year. Disease activity, eosinophil counts and systemic glucocorticoids (GC) use were tracked in medical charts.
Results: Among 45 patients initially treated with 300 mg/4 weeks, 12 (27%) switched to 100 mg/4 weeks after a median of 26.5 months. Over a median follow-up of 27.5 months post-step-down, 50% maintained complete remission without GC therapy. In 50% of patients sinonasal symptoms recurred and were treated with either increased mepolizumab dose or optimization of local therapy. No asthma or vasculitis exacerbations occurred.
Conclusion: Our preliminary data show that step-down therapy with mepolizumab to 100 mg/4 weeks was effective in maintaining systemic remission and reducing GC use in EGPA patients. However, recurrence of sinonasal symptoms suggests the need for an individualized management. Larger studies are warranted to confirm these findings and optimize dosing strategies for long-term care.
Keywords: Churg–Strauss syndrome; anti-neutrophil cytoplasm antibody; biological therapies; ear-nose-throat; vasculitis.


Supplementary info
MeSH terms, Substances, Grants and fundingExpand

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

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Review

Pediatr Allergy Immunol
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. 2025 Sep;36(9):e70191.
doi: 10.1111/pai.70191.
Control of Allergic Rhinitis and Asthma Test for Children (CARATkids): A systematic review and meta-analysis of its measurement properties

Hadla Sami El Didi 1 , Ana Margarida Pereira 1 , Cristina Jácome 1 , Rita Amaral 1 2 , Gustavo F Wandalsen 3 , Joyce Emons 4 , Stefania La Grutta 5 , Giovanna Cilluffo 6 7 , Sehra Birgül Batmaz 8 , Daniela Linhares 1 , Dirceu Sole 3 , Bernardo Sousa-Pinto 1 , João Almeida Fonseca 1 , Rafael José Vieira 1
Affiliations Expand
• PMID: 40898383

• PMCID: PMC12405605

• DOI: 10.1111/pai.70191
Abstract
Control of Allergic Rhinitis and Asthma Test for Children (CARATkids) is the first patient-reported outcome measure (PROM) designed to assess both allergic rhinitis and asthma simultaneously in children aged 6 to 12 years. CARATkids has been validated in several languages and countries, highlighting the need for a review of its psychometric properties.

This study aims to evaluate the measurement properties of CARATkids. This systematic review follows PRISMA and COSMIN guidelines. A systematic search was performed across three databases (Ovid/MEDLINE, Web of Science, and Scopus in October 2023, updated in June 2025). We included studies focused on the development, cultural adaptation, or validation of CARATkids, as well as studies comparing CARATkids with other PROMs. We evaluated the quality of CARATkids development, the methodological quality of primary studies, the overall rating, and the certainty of evidence for each CARATkids measurement property and performed a meta-analysis of its measurement properties. Our search retrieved 193 results. We included nine studies. CARATkids displayed sufficient content validity. Regarding internal consistency, we found a meta-analytical Cronbach alpha of 0.81 (95% CI = 0.79; 0.83). CARATkids displayed sufficient reliability (meta-analytical intraclass correlation coefficient 0.86 [95% CI = 0.61; 0.96]). The minimal clinically important difference was 2.76. Construct validity had sufficient evidence for most correlations, with absolute meta-analytical Spearman coefficients from 0.37 to 0.71. Responsiveness showed strong correlations between CARATkids and most outcome measurement instruments. These findings support CARATkids as a suitable tool for assessing asthma and allergic rhinitis in children aged 6 to 12 years who present both conditions simultaneously.
Keywords: Allergic rhinitis; CARATkids; COSMIN; asthma; patient-reported outcomes; psychometrics.

Conflict of interest statement
Ana Margarida Pereira, Cristina Jácome, Rita Amaral, Gustavo F. Wandalsen, Joyce Emons, Stefania La Grutta, Giovanna Cilluffo, Sehra Birgül Batmaz, Daniela Linhares, Dirceu Sole, and João Almeida Fonseca were involved in the original studies of the development, validation, and/or mobile phone adaptation of CARATkids.
• 40 references
• 2 figures
Supplementary info
Publication types, MeSH termsExpand
Full text links

Proceed to details
Cite
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Lung India

. 2025 Sep 1;42(5):408-413.

doi: 10.4103/lungindia.lungindia_594_24. Epub 2025 Sep 2.
# Phenotyping of asthma population based on inflammatory blood biomarkers and characterisation of phenotypes depending on asthma control, frequency of exacerbations, and associated comorbidities

Bony Francis 1 , Deepak Phalgune 2 , Sanjay Mehendale 2 , Jai Mullerpattan 1
Affiliations Expand
• PMID: 40892812

• DOI: 10.4103/lungindia.lungindia_594_24
Free article
Abstract
Background and objective: There are very few studies in the Indian population on the prevalence of phenotypes in asthma patients. To phenotype patients with bronchial asthma and characterise the phenotypes based on asthma control, exacerbation frequency, and associated comorbidities.
Methods: The current cross-observational study was conducted between January 2022 and June 2022 in the department of pulmonary medicine in a tertiary care hospital. One hundred and seventeen patients aged 13 or above of both genders diagnosed with asthma as per Global Initiative for Asthma guidelines were enrolled. The blood eosinophil count and serum immunoglobulin E were measured. The Asthma Control Test (ACT) Questionnaire was used to calculate the ACT score. The patients were categorised into various asthma phenotypes such as atopic asthma, eosinophilic asthma, overlap phenotype, and biomarker-negative.
Results: Phenotypes such as atopic, eosinophilic, overlap, and both negative were observed in 33.3%, 20.5%, 42.7%, and 3.4% patients, respectively. The mean BMI was significantly lower in both negative patients. There was no statistically significant association observed between allergic rhinitis, chronic rhinosinusitis, and eczema with various phenotypes, whereas nasal polyposis had a significant association with eosinophilic phenotype and overlap. The median asthma exacerbations per year were significantly higher in patients of bronchial asthma, atopic and overlap phenotypes. The percentage of patients who required baseline corticosteroid support was significantly less in both negative phenotypes.
Conclusion: There is a substantial overlap of inflammatory blood biomarkers, suggesting that a more comprehensive approach is needed to identify the optimal therapy for individual patients.
Keywords: Biomarker; bronchial asthma; phenotype.

• 15 references
Full text links

. 2025 Sep 2:e254283.
doi: 10.1001/jamainternmed.2025.4283. Online ahead of print.
Azelastine Nasal Spray for Prevention of SARS-CoV-2 Infections: A Phase 2 Randomized Clinical Trial
Thorsten Lehr 1 , Peter Meiser 2 , Dominik Selzer 1 , Torben Rixecker 3 , Frank Holzer 2 , Ralph Mösges 4 5 , Sigrun Smola 6 7 , Robert Bals 3 6 ; CONTAIN Study Group Collaborators, Affiliations Expand
• PMID: 40892398

• PMCID: PMC12406145

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Abstract
Importance: Limited pharmaceutical options exist for preexposure prophylaxis of COVID-19 beyond vaccination. Azelastine, an antihistamine nasal spray used for decades to treat allergic rhinitis, has in vitro antiviral activity against respiratory viruses, including SARS-CoV-2.
Objective: To determine the efficacy and safety of azelastine nasal spray for prevention of SARS-CoV-2 infections in healthy adults.
Design, setting, and participants: A phase 2, double-blind, placebo-controlled, single-center trial was conducted from March 2023 to July 2024. Healthy adults from the general population were enrolled at the Saarland University Hospital in Germany.
Interventions: Participants were randomly assigned 1:1 to receive azelastine, 0.1%, nasal spray or placebo 3 times daily for 56 days. SARS-CoV-2 rapid antigen testing (RAT) was conducted twice weekly, with positive results confirmed by polymerase chain reaction (PCR). Symptomatic participants with negative RAT results underwent multiplex PCR testing for respiratory viruses.
Main outcome: The primary end point was the number of PCR-confirmed SARS-CoV-2 infections during the study.
Results: A total of 450 participants were randomized, with 227 assigned to azelastine and 223 to placebo; 299 (66.4%) were female, 151 (33.6%) male, with a mean (SD) age of 33.0 (13.3) years. Most were White (417 [92.7%]), with 4 (0.9%) African, 22 (4.9%) Asian, and 7 (1.6%) of other ethnicity. In the intention-to-treat (ITT) population, the incidence of PCR-

confirmed SARS-CoV-2 infection was significantly lower in the azelastine group (n = 5 [2.2%]) compared with the placebo group (n = 15 [6.7%]) (OR, 0.31; 95% CI, 0.11-0.87). As secondary end points, azelastine demonstrated an increase in mean (SD) time to SARS-CoV-2 infection among infected participants (31.2 [9.3] vs 19.5 [14.8] days), a reduction of the overall number of PCR-confirmed symptomatic infections (21 of 227 participants vs 49 of 223 participants), and a lower incidence of PCR-confirmed rhinovirus infections (1.8% vs 6.3%). Adverse events were comparable between the groups.
Conclusions and relevance: In this single-center trial, azelastine nasal spray was associated with reduced risk of SARS-CoV-2 respiratory infections. These findings support the potential of azelastine as a safe prophylactic approach warranting confirmation in larger, multicentric trials.
Trial registration: EudraCT number: 2022-003756-13.
Conflict of interest statement
Conflict of Interest Disclosures: Dr Lehr reported grants from Ursapharm as a study sponsor during the conduct of the study; personal fees from Saarmetrics GmbH as a founder and shareholder outside the submitted work. Dr Meiser reported personal fees from URSAPHARM Arzneimittel GmbH for employment outside the submitted work; and Dr Meiser is employed at URSAPHARM Arzneimittel GmbH, the sponsor of the CONTAIN trial. Dr Selzer reported grants from URSAPHARM Arzneimittel GmbH as a study sponsor during

the conduct of the study; grants from the Scientific Consilience GmbH for constultant work for the company outside the submitted work. Dr Holzer reported personal fees from URSAPHARM Arzneimittel GmbH as CEO of the company outside the submitted work; and Frank Holzer is the CEO of URSAPHARM Arzneimittel GmbH, the sponsor of the CONTAIN trial. Dr Mösges reported personal fees from Ursapharm GmbH and grants from Ursapharm GmbH during the conduct of the study; personal fees from ALK, grants from ASITbiotech, personal fees from Allergopharma, personal fees from Bencard, grants from Leti, grants from Lofarma, nonfinancial support from Roxall, personal fees from Stallergenes, grants from Bencard, personal fees from Lofarma, nonfinancial support from Lofarma, grants from Stallergenes, personal fees from Optima, Friulchem, Hexai, Servier, and Klosterfrau, nonfinancial support from Atmos, personal fees from Bayer, nonfinancial support from Bionorica, personal fees from FAES, GSK, MSD, Johnson & Johnson, Meda, and Novartis, nonfinancial support from Novartis, nonfinancial support from Otonomy, personal fees from Stada and UCB, nonfinancial support from Ferrero, grants from Hulka, personal fees from Nuvo, Menarini, Mundipharma, and Pohl-Boskamp, grants from Inmunotek, personal fees from Cassella-med GmbH&Co KG, Laboratoire de la Mer, and Sidroga, grants from HAL BV, personal fees from HAL BV, Lek, PRO-AdWISE, Angelini Pharma, and JGL, nonfinancial support from JGL, grants from bitop, personal fees from bitop and Sanofi, grants from Probelte Pharma, personal fees from Probelte Pharma, Diater, and Worg Pharma, grants from Allergy Therapeutics, and personal fees from Allergy Therapeutics outside the submitted work. Dr Smola reported grants from URSAPHARM Arzneimittel GmbH as institutional funding to perform laboratory analysis for the present study during the conduct of the study. Dr Bals reported grants from Ursapharm Pharmaceuticals during the conduct of the study; grants from Deutsche Forschungsgemeinschaft, German Ministry for Research and Education, Schwiete-Foundation, and the State of Saarland, personal fees from CSL Behring, Grifols, AstraZeneca, GSK, and Regeneron outside the submitted work. No other disclosures were reported.

Comment in
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• 24 references
• 2 figures



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Int J Pediatr Otorhinolaryngol
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# Surgery for recurrent croup? A new therapeutic tool

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Affiliations Expand

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• DOI: 10.1016/j.ijporl.2025.112498

Abstract
Introduction: Viral laryngotracheobronchitis, or croup, is a common cause of emergency room visits, hospital admissions, and school absenteeism. Subglottic cauterization is an

innovative surgical procedure that, using local heat, aims to adhere the subglottic mucosa to the cricoid cartilage, thereby reducing mucosal edema and, consequently, the frequency and/or severity of episodes.
Objectives: To evaluate subglottic cauterization as a surgical treatment in pediatric patients diagnosed with recurrent croup that do not respond to conventional medical management.
Method: Retrospective study of pediatric patients from the Concepción Regional Hospital with a diagnosis of recurrent croup (>2 episodes/year) who underwent subglottic cauterization between 2020 and 2024 were included, whose comorbidities (asthma, GERD, allergic rhinitis) had been previously treated.
Results: Four patients, aged between 5 and 8 years at the time of the intervention, underwent subglottic cauterization, with an average follow-up of 23 months. Prior to surgery, they experienced an average of 7 episodes and 2.25 hospitalizations per year, figures that decreased to 2.25 episodes and no hospitalizations during follow-up. In the immediate postoperative period, none of the patients had a postoperative stay longer than 24 hours or required ICU/critical care unit admission. In the long term, none of the patients exhibited voice alterations, secondary subglottic stenosis, or any other injury or symptom associated with the surgery.

Conclusions: We present subglottic cauterization as an alternative for patients with recurrent croup who do not respond satisfactorily to medical treatment, as a low-morbidity surgery with excellent clinical outcomes.
Keywords: Atypical croup; Croup; Laryngotracheobronchitis; Recurrent croup; Stridor; Subglottic cauterization.

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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Multicenter Study

Lancet Respir Med
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. 2025 Sep;13(9):821-832.
doi: 10.1016/S2213-2600(25)00135-3. Epub 2025 Jul 8.
Evaluation of the effect of multimorbidity on difficult-to-treat asthma using a novel score (MiDAS): a multinational study of asthma cohorts
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Affiliations Expand
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Free article

Abstract

Background: Multimorbidity (ie, co-existence of two or more health conditions) is highly prevalent in patients with difficult-to-treat asthma. However, it remains unclear how multimorbidity correlates with disease severity and adverse health outcomes in these patients and which comorbidities are most important. We aimed to address this knowledge gap by developing a patient-centred, clinically descriptive multimorbidity score for difficult-to-treat asthma.

Methods: We used data from the UK-based Wessex Asthma Cohort of Difficult Asthma (WATCH; n=500, data collected between April 22, 2015, and April 1, 2020) to develop the Multimorbidity in Difficult Asthma Score (MiDAS). Initially, we created a modified Asthma Severity Scoring System (m-ASSESS) in WATCH. We then conducted univariate association analysis to test the association between the 13 commonest comorbidities and m-ASSESS in WATCH and used a branch-and-bound approach to select the most relevant comorbidities for inclusion in MiDAS. We calculated MiDAS values for all patients with complete information in WATCH (n=319) and assessed them for correlation with components of m-ASSESS, proinflammatory biomarkers, and St George's Respiratory Questionnaire (SGRQ) score, a quality-of-life measure. We also assessed the association of MiDAS with multiple clinical outcomes in four international cohorts: two from Australia (n=236, data collected between June 14, 2014, and April 1, 2022; and n=140, Aug 6, 2012, to Oct 18, 2016), one from southeast Asia (n=151, March 21, 2017, to Jan 16, 2024), and one from the USA (n=100, July 9, 2021, to Dec 14, 2023).

Findings: We selected seven common comorbidities (ie, rhinitis, gastro-oesophageal reflux disease, breathing pattern disorder, obesity, bronchiectasis, non-steroidal anti-inflammatory drug-exacerbated respiratory disease, and obstructive sleep apnoea) for inclusion in MiDAS on the basis of the branch-and-bound analysis and combined them using multivariate linear regression to derive a MiDAS model associated with m-ASSESS in WATCH. The range of MiDAS scores was 9·6-16·2. In WATCH members, mean MiDAS value was 11·97 (SD 1·21) and MiDAS was nominally correlated with m-ASSESS components of poor asthma control (τ=0·31 [95% CI 0·24-0·38]) and exacerbations (τ=0·16 [0·08-0·24]). MiDAS was also correlated with worse total SGRQ score (r=0·39 [95% 0·28-0·49], p<0·0001) and with the proinflammatory plasma cytokines interleukin (IL)-4 (r=0·19 [95% CI 0·06-0·31], p=0·0036), IL-5 (r=0·35 [0·24-0·46], p<0·0001), and leptin (r=0·29 [0·17-0·40], p<0·0001) in WATCH. MiDAS values across the four international cohorts were similar to those of WATCH (UK cohort), with mean values of 12·33 (SD 1·47) and 12·31 (1·37) in the Australian cohorts, 11·80 (1·20) in the USA cohort, and 11·55 (1·23) in the Singapore cohort. In these cohorts, MiDAS correlated with worse asthma control, worse quality of life, anxiety, depression, and increased inflammation.

Interpretation: MiDAS highlights the co-occurrence of multimorbidity with the worst outcomes in difficult-to-treat asthma. These findings strongly indicate that an airway-centric approach is inadequate and that holistic and multidisciplinary care is imperative. This clinical score could help clinicians to identify patients most at risk from their multimorbidity.

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Conflict of interest statement

Declaration of interests RJK co-holds a methods patent outside the submitted work on the

cellular profiles of tissue resident memory T-cells and their use in asthma. BA is a member of the UK Taskforce for Lung Health, has received honoraria for educational talks from AstraZeneca, and sits on advisory boards for the Medito Foundation and earGym (all unrelated to this work). PGG reports personal fees from AstraZeneca, GSK, and Novartis and grants from AstraZeneca and GSK, outside the submitted work. VMM reports grants from GSK outside the submitted work, and advisory board and speaker fees from GSK, Menarini, and Boehringer-Ingelheim outside the submitted work. VC reports speakers fees from AstraZeneca, unrelated to the conduct of this study. MH has received grants and personal fees outside the submitted work from GSK, AstraZeneca, Sanofi, Novartis, Teva, and Chiesi, all paid to his employer Alfred Health. CE reports travel support from Chiesi and speaker fees from AstraZeneca outside the submitted work. RD is a co-founder of and consultant to Synairgen, has received funding for lectures from GSK, and has been on advisory boards of GSK, Celltrion, ALK Abello, and ZenasBio, all unrelated to this work. Unrelated to this work, NL has received consulting fees from Amgen, AstraZeneca, Avillion, Genentech, GSK, Niox, Novartis, Regeneron, Sanofi, and Teva; honoraria for non-speakers bureau presentations from GSK, Teva, and AstraZeneca; and travel support from AstraZeneca, Sanofi, Teva, Regeneron, and GSK; her institution received research support from Amgen, AstraZeneca, Avillion, Bellus, Evidera, Gossamer Bio, Genentech, GSK, Janssen, Niox, Regeneron, Sanofi, Novartis, and Teva. NL is an honorary faculty member of the Observational and Pragmatic Research Institute but does not receive compensation for this role. SH reports speakers fees from AstraZeneca, Berlin-Chemie Menarini, Takeda, Providens, and Amicus Therapeutics; support for attending meetings from AstraZeneca, Chiesi (Providens), and Hemofarm; and payment for advisory boards from AstraZeneca, Berlin-Chemie Menarini, and Providens, all unrelated to this work. WCGF declares stock ownership in relation to Sanofi, GSK, and AstraZeneca, unrelated to this work. HMH co-holds a method patent on anti-ADAM33 oligonucleotides and related methods, which is unrelated to the current work. All other authors declare no competing interests.
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Randomized Controlled Trial

Ann Otol Rhinol Laryngol
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. 2025 Sep;134(9):692-702.
doi: 10.1177/00034894251344426. Epub 2025 May 28.

Omalizumab Efficacy in Chronic Rhinosinusitis Patients with Recurrent Nasal Polyps: An open-label, single-center, randomized, controlled study
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Affiliations Expand
• PMID: 40437843

• DOI: 10.1177/00034894251344426
Abstract

Background: Chronic rhinosinusitis with nasal polyposis (CRSwNP) causes inflammatory nasal polyps, with an unknown cause. CRSwNP patients face a higher relapse risk, impacting their quality of life. This study assesses omalizumab's efficacy in reducing nasal polyp recurrence, aiming to provide insights into managing CRSwNP and improving patient outcomes through potential therapeutic interventions.
Methods: The Iranian clinical trial (IRCT20220218054057N1) approved in January 2023 focused on adult patients (18-60 years) with CRSwNP. Participants were randomized into control and omalizumab groups. Before the intervention, demographic data, Sino-nasal outcome test (SNOT-22), Total nasal symptom score (TNSS), Nasal polyp score (NPS), and blood IgE levels were collected. An oral aspirin challenge diagnosed AERD. Both groups were monitored, completing questionnaires during and 12 months post-study initiation. Recurrence of nasal polyps was examined at the 1-year mark. SPSS version 25 was used for analysis. The trial aimed to assess omalizumab's impact on CRSwNP, considering various factors and long-term outcomes.
Results: In a study with 76 participants (50 control, 26 omalizumab), aged around 45.62 and 41.50 years, without significant difference in gender and number of polyp surgeries in both groups. Both groups experienced a notable decrease in NPS, with the omalizumab group showing a greater reduction (-1.31 vs -0.90, P < .001). TNSS scores dropped more in the omalizumab group (-4.54) than in the control group (-2.04) at week 24. SNOT-22 scores decreased significantly from baseline to week 24 for both groups. Notably, nasal polyp relapse occurred in 9 control patients but none in the omalizumab group (P < .001). No significant differences were observed between AERD and non-AERD patients.
Conclusion: Omalizumab is an effective treatment for CRSwNP, significantly improving the quality of life of patients post-surgery, especially TNSS score, and reducing regeneration of polyp tissue and relapse frequency in nasal endoscopy.
Keywords: AERD; IgE; SNOT-22; TNSS; allergy; chronic rhinosinusitis; immunotherapy; monoclonal antibodies; nasal polyps; omalizumab.
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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Meta-Analysis

Ann Otol Rhinol Laryngol
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. 2025 Sep;134(9):671-682.
doi: 10.1177/00034894251341110. Epub 2025 May 26.
Surgical Treatment Outcomes in the Management of Rhinitis: A Systematic Review and Meta-Analysis
Asher T Ripp 1 2 , Pranav A Patel 1 , Shaun A Nguyen 1 , Isabella V Schafer 1 , Alexander N Duffy 1 , Zachary M Soler 1 , Rodney J Schlosser 1 3
Affiliations Expand
• PMID: 40417957

• DOI: 10.1177/00034894251341110

Abstract
Background: Rhinitis can present with symptoms including severe nasal obstruction, rhinorrhea, nasal itching, and sneezing. Surgical treatment options include inferior turbinate procedures, thought to target nasal congestion, and posterior nasal nerve (PNN) procedures, for relief of rhinorrhea. This review intends to quantify the degree of resolution of symptoms related to rhinitis from various procedures and guide clinical decision making.
Methods: A literature search identified studies reporting rhinitis symptoms at baseline and following surgical treatment. Outcomes of interest were the 4-item Total Nasal Symptom Score (TNSS) and VAS equivalents for "rhinorrhea," "nasal obstruction," "nasal itching,"
and "sneezing." Postnasal drip (PND) scores were additionally collected when available.
Results: A total of 20 studies (N = 1408) were analyzed. The TNSS fell by 50% (mean difference 3.86 points [95% CI 3.03-4.69]), with all 4 symptoms undergoing significant amelioration across all procedure types. Nasal congestion, rhinorrhea, and PND saw the largest improvement, with reductions ranging from 1.2 to 1.5 points. VAS scoring followed a similar pattern, with nasal obstruction and runny nose undergoing the largest changes. Turbinate and PNN procedures led to similar improvements in congestion and rhinorrhea, with average score reductions of 56.8% and 57.6% (P = 0.7168), respectively. Nasal itching and PND underwent differential improvement, with greatest improvements from PNN

procedures (mean differences of 14.2% [95% CI: 4.7-23.4%] and 31.6% [95% CI: 21.2-40.6%], P < .0001).
Conclusion: All surgical treatments for rhinitis improve patient symptom burden, having the most drastic effect on nasal congestion and rhinorrhea. PNN procedures result in greater improvements in nasal itching and PND but otherwise perform similarly to inferior turbinate surgeries.
Keywords: adults rhinology; allergy/rhinology; quality of life.
Conflict of interest statement
Declaration of Conflicting InterestsThe author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: Zachary M. Soler: OptiNose (consultant), Sinusonic (consultant), Regeneron (consultant), Sanofi (consultant). Rodney J. Schlosser: OptiNose (consultant), Sinusonic (consultant), Stryker (consultant).
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Laryngoscope
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. 2025 Sep;135(9):3104-3111.
doi: 10.1002/lary.32205. Epub 2025 Apr 23.
Sustained Efficacy and Low Rate of Adverse Events of Dupilumab in Type-2 CRSwNP Over 48 Months
Pietro Orlando 1 , Giuseppe Licci 1 , Gennaro Illiano 1 , Alberto Minzoni 1 , Emanuele Vivarelli 2 , Matteo Accinno 2 , Alessandra Vultaggio 2 , Andrea Matucci 2 , Giandomenico Maggiore 1
Affiliations Expand
• PMID: 40265743

• DOI: 10.1002/lary.32205
Abstract

Objective: Dupilumab is a fully humanized monoclonal antibody that interferes with the inflammatory cascade in type-2 Chronic Rhinosinusitis with Nasal Polyps (CRSwNP). Studies evaluating its safety and efficacy in the long term are still few. Our study analyzed outcomes and adverse events after 1, 3, 6, 12, 24, 36, and 48 months of dupilumab administration in patients affected by CRSwNP.
Materials and methods: A monocentric, retrospective study assessing blood eosinophil (BEC) and total IgE count, Sinonasal Outcome Test-22 (SNOT-22), Nasal Polyps Score (NPS), sniffin' sticks identification test (SSIT-16), and Lund-Mackay score (LMS) in patients receiving subcutaneous Dupilumab 300 mg/2 weeks for at least 1 year and up to 4 years.
Results: Seventy patients were enrolled, of whom 70, 38, 25, and 12 completed a 12, 24-, 36-, and 48-month follow-up period, respectively. Patients showed a very rapid and long-lasting statistically significant improvement in their SNOT-22, NPS, and SSIT after 1 month, and this trend was kept in the following 48 months. The total IgE count has been constantly reducing over the study period. BEC increased in the first 6 months and then gradually decreased over time, reaching an even smaller value than baseline at 36 and 48 months. Four patients (5.9%) complained of severe adverse events within 6 months, with two interrupting treatment due to hypereosinophilia.
Conclusion: Dupilumab was safe and effective in extinguishing the symptomatologic burden of CRSwNP as early as 1 month and up to 48 months, with side events limited to the first 6 months of administration.
Keywords: chronic rhinosinusitis with nasal polyps; dupilumab; quality of life; rhinology; sense of smell.

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Int Forum Allergy Rhinol
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. 2025 Sep;15(9):926-933.
doi: 10.1002/alr.23589. Epub 2025 Apr 21.
Long-Term Particulate Matter Exposure May Increase Risk of Chronic Rhinosinusitis WIth Nasal Polyposis: Results From an Exposure-Matched Study

Rory J Lubner 1 , Mason Krysinski 1 , Ping Li 1 , Rakesh K Chandra 1 , Justin H Turner 1 , Naweed I Chowdhury 1
Affiliations Expand
• PMID: 40257454

• PMCID: PMC12353961

• DOI: 10.1002/alr.23589

Free PMC article

Abstract
Background: Particulate matter ⩽2.5 μm in diameter (PM 2.5 ) and its role in chronic rhinosinusitis (CRS) pathogenesis have gained heightened attention. We previously demonstrated that PM 2.5 exposure may bias the nasal mucosa in CRS toward a Type 2 inflammatory pathway. However, there are limited data comparing cytokine changes in CRS sinonasal tissue to non-CRS patients as it relates to PM 2.5 exposure. We hypothesized that long-term exposure preferentially increases the risk of manifesting CRS with nasal polyposis (CRSwNP).
Methods: We performed a retrospective analysis of 376 patients (308 CRS, 68 controls) who underwent endoscopic sinus or skull base surgery. A spatiotemporal machine-learning model estimated daily PM 2.5 levels for 1 year prior to each patient's surgery date. Cytokines were quantified using a multiplex flow cytometric bead assay and compared to estimated PM 2.5 exposure using Spearman correlation and multivariate regression. Patients with high and low 12-month PM 2.5 exposures were matched across age, sex, income, and rurality using a nearest neighbor algorithm. Multivariate adjusted logistic regression was used to estimate the odds of CRS based on PM 2.5 exposure.
Results: Reduced IL-10 levels were associated with higher PM 2.5 exposures in control patients (β = -0.735, p = 0.0196). In exposure-matched logistic regression analysis, high 12-month PM 2.5 exposure was an independent predictor of CRSwNP (β = 1.97, OR: 7.22, p = 0.0001) after adjustment for age, income, rurality, and comorbid asthma/allergic rhinitis. A similar relationship was not identified for CRSsNP.
Conclusions: PM 2.5 exposure is associated with reduced IL-10 in control patients compared to CRS and may increase odds of CRSwNP development.
Keywords: aeroallergens; air pollution; allergic rhinitis; chronic rhinosinusitis; particulate matter.

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Observational Study

Laryngoscope
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. 2025 Sep;135(9):3093-3103.
doi: 10.1002/lary.32171. Epub 2025 Apr 21.
Reduction of Rescue Treatment With Dupilumab for Chronic Rhinosinusitis With Nasal Polyps in Japan
Mamoru Yoshikawa 1 , Mitsuhiro Okano 2 , Makiko Takeuchi 3 , Yoshinori Sunaga 3 , Mami Orimo 3 , Masato Ishida 3
Affiliations Expand
• PMID: 40257287

• PMCID: PMC12371856

• DOI: 10.1002/lary.32171
Abstract
Objective: Add-on dupilumab provides significant symptomatic improvement for individuals with chronic rhinosinusitis with nasal polyps (CRSwNP); however, little is known about the impact of dupilumab in reducing rates of rescue treatment for CRSwNP in Japanese real-world practice settings. This observational study examined the impact of add-on dupilumab treatment on disease burden, including the use of rescue therapy, in Japanese individuals with CRSwNP.
Methods: The study analyzed individual participant data from a Japanese hospital-based administrative claims database between January 1, 2019, and March 31, 2023. Data were collected for each individual from 12 months prior to the index date (the start date of dupilumab administration) to 12 months after the index date (follow-up period). The primary outcome was the change in overall rate of rescue treatment (systemic corticosteroid [SCS] use or endoscopic sinus surgery [ESS]) before and after the initiation of dupilumab.
Results: The study included 438 individuals with CRSwNP (mean ± SD age of 53.9 ± 13.4 years; 56.6% male). The overall rate of rescue treatment before and after initiation of

dupilumab treatment was 7.89 events per patient-year (PY) and 2.14 events per PY, respectively (p < 0.0001), and there was a 73% reduction in the rate of rescue treatment. Compared with the pre-index period, a lower rate of SCS prescriptions (7.54 vs. 2.05) and ESS procedures (0.35 vs. 0.05) during the follow-up was observed, respectively, and there was a 72% reduction in the rate of SCS prescriptions. The mean ± SD daily SCS dose decreased from 7.1 ± 9.7 mg in the pre-index period to 6.1 ± 7.3 mg during follow-up.
Conclusion: In this real-world study, add-on dupilumab treatment significantly reduced the requirement for rescue treatment in Japanese individuals with CRSwNP.
Keywords: chronic rhinosinusitis with nasal polyps; dupilumab; endoscopic sinus surgery; rescue treatment; systemic corticosteroids.

Conflict of interest statement
M.Y. has received fees for lectures from Sanofi, and research funding from Kissei Pharmaceutical. M.Ok. has received lecture fees from Mitsubishi Tanabe Pharma, Novartis, Sanofi, and Taiho. M.T., Y.S., M.Or., and M.I. are employees of Sanofi K.K.
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. 2025 Sep;135(9):3071-3081.
doi: 10.1002/lary.32165. Epub 2025 Apr 14.
Allergic Rhinitis-Underrepresented Populations and Barriers to Healthcare Access
Sophia J Peifer 1 , Zachary M Helmen 1 , Stuart Duffield 2 , Chloe Shields 1 , Shray Mehra 1 , David K Lerner 1 , Shekhar K Gadkaree 1
Affiliations Expand

• PMID: 40227995

• PMCID: PMC12371843

• DOI: 10.1002/lary.32165
Abstract
Objective: To establish the prevalence of allergic rhinitis (AR), categorized by demographics and barriers to healthcare, and the prevalence of antihistamine and nasal steroid use in these subgroups.
Methods: We performed a retrospective, cross-sectional study utilizing the All of Us Database. Sociodemographic factors among AR patients were compared via Chi-Square analysis and multivariable logistic regression (MLR). Subgroups of AR patients with or without nasal steroid spray or oral antihistamine listed in the electronic health record (EHR) were compared via chi-square analysis and MLR.
Results: 47,224 participants were identified with AR, an 11.6% estimated prevalence. AR patients were more commonly White (12.8% vs. 10.6%, p < 0.001), female (13.1% vs. 9.1%, p < 0.001), and older than 65 (14.7% vs. 7.6% vs. 11.6%, p < 0.001). MLR identified older age (OR 1.018, CI: 1.017-1.018), income > $35,000 (OR 1.035, CI: 1.021-1.049), finishing high school/college (OR 1.140, CI: 1.113-1.167; OR 1.113, CI: 1.085, 1.142), and health insurance coverage (OR 2.003, CI: 1.924-2.087) as predictive factors for AR. Patients with nasal steroid spray and/or oral antihistamine listed in the EHR were more commonly Black (OR 1.250, CI: 1.177-1.328; OR 1.491, CI: 1.398-1.590) and had an income < $35,000 (OR 0.856, CI: 0.814-0.900; OR 0.724, CI: 0.687-0.764).
Conclusion: AR patients were more likely to be insured, while oral antihistamines/nasal steroid spray listed in the EHR were associated with lower income and Black race. These results highlight the barriers to AR diagnoses and treatment and the need for providers to ensure that underserved patients are offered appropriate care.
Keywords: allergic rhinitis; barriers to care; fluticasone; socioeconomic status.

Conflict of interest statement
The authors declare no conflicts of interest.
• 37 references
Supplementary info
MeSH terms, Substances, Grants and fundingExpand
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Randomized Controlled Trial

Int Forum Allergy Rhinol
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. 2025 Sep;15(9):915-925.
doi: 10.1002/alr.23577. Epub 2025 Apr 4.
3-Year Outcomes of Temperature-Controlled Radiofrequency Ablation of the Posterior Nasal Nerve in Patients With Chronic Rhinitis

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Affiliations Expand
• PMID: 40183781

• PMCID: PMC12401078

• DOI: 10.1002/alr.23577
Abstract
Background: Temperature-controlled radiofrequency (TCRF) ablation of the posterior nasal nerve has been shown to improve chronic rhinitis (CR) symptoms and quality of life (QoL). This study assesses the durability of TCRF's effectiveness and safety 3 years post-procedure in patients with perennial allergic CR and nonallergic CR.
Methodology: This prospective, multicenter, single-blinded, randomized controlled trial included a sham control arm and long-term follow-up. Analysis combined patients from the active treatment and control crossover arms. Outcomes include reflective total nasal symptom score (rTNSS), postnasal drip (PND), and cough scores, as well as QoL measured by the Mini Rhinoconjunctivitis Quality-of-Life Questionnaire (MiniRQLQ).
Results: Of 104 patients who underwent TCRF, 59 participated in the 3-year follow-up. The baseline mean rTNSS was 8.2 (95% confidence interval [95% CI, 7.9-8.6]), reduced to 3.5 (95% CI, 2.9-4.1) at 3 years, a 57.3% reduction and mean change of -4.7 (95% CI, -5.3 to -4.1; p < 0.0001). Most patients (79.7%) were responders. Cough scores decreased from a mean baseline of 1.5 (95% CI, 1.3-1.7) to 0.7 (95% CI, 0.5-0.9; mean change, -0.8; p < 0.0001). PND symptoms were also reduced from 2.5 (95% CI, 2.4 - 2.7) to 1.4 (95% CI, 1.2-1.7; mean change, -1.1; p < 0.0001). No severe adverse events were reported throughout the study, and no adverse events were reported between 24 months and 36 months of follow-up.
Conclusion: TCRF ablation of the posterior nasal nerve provided sustained safety and improvement in CR symptoms, cough, postnasal drip, and patient-reported QoL at 3 years, supporting its long-term safety and efficacy in CR.

Keywords: congestion; neurolysis; posterior nasal nerve; quality of life; radiofrequency ablation; rhinitis; rhinorrhea.

Conflict of interest statement
J. Pablo Stolovitzky: Consultant for Aerin Medical, Medtronic, Cryosa, and Dyanosic. Randall A. Ow: Advisor/consultant for Aerin Medical, speaker for Sanofi/Regeneron, GSK, and Optinose, advisor to Medtronic. Stacey L. Silvers: Consultant for Aerin Medical, 3D Matrix, and Lyra Therapeutics Medical Advisory Board for STStent. Marc Dean: Consultant for Aerin Medical, 3D Matrix, STStent, Immertec, and VSEEHealth. Ahmad R. Sedaghat: Research funding from Aerin Medical. Katie Phillips: Medical advisory board with Sanofi/Regeneron. Equity in Sound Health. Masayoshi Takashima: Consultant for Aerin Medical, Medtronic, Acclarent, and LivaNova. The other authors declare no conflicts of interest.
• 23 references
• 7 figures
Supplementary info
Publication types, MeSH terms, Grants and fundingExpand
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13
Int Forum Allergy Rhinol
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. 2025 Sep;15(9):898-914.
doi: 10.1002/alr.23578. Epub 2025 Mar 26.
Efficacy and Safety of Combined Pharmacotherapies in Moderate-to-Severe Allergic Rhinitis: A Network Meta-Analysis
Yuan Zhang 1 2 3 , Zengxiao Zhang 1 2 3 , Chengshuo Wang 1 2 3 , Luo Zhang 1 2 3
Affiliations Expand
• PMID: 40135771

• DOI: 10.1002/alr.23578
Abstract
Background: Combination pharmacotherapies are often selected for moderate-to-severe allergic rhinitis (AR), particularly when monotherapies do not control symptoms effectively. However, few studies have compared the efficacy and safety of different combination regimens. Therefore, we performed this study to investigate the clinical benefits of different combination strategies for moderate-to-severe AR.
Methods: Electronic databases were searched (inception-May 31, 2024) for randomized controlled trials involving combination therapies for treating moderate-to-severe AR. The medication classes included intranasal corticosteroids (INCS), intranasal antihistamines (INAH), oral antihistamines (OAH), and oral leukotriene receptor antagonists (LTRA). A network meta-analysis with a random-effects model was performed following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines.
Results: Forty-eight eligible studies with 17,188 participants were included. In this meta-analysis, INAH and INCS, OAH and INCS, and INCS were the most effective in improving Total Nasal Symptom Score, and INAH and INCS, INAH, and INCS most effectively enhanced the total ocular symptom score. INCS and LTRA, OAH and INCS, and INAH and INCS showed the greatest benefit in improving the Rhinitis Quality of Life Questionnaire. Although INCS and INAH and INAH increased the risk of overall adverse events, specific adverse events predominantly included a bitter taste.
Conclusion: Combination therapies demonstrated superior efficacy compared to monotherapies overall. The INAH and INCS combination provided the greatest advantage in symptom improvement. The combination of OAH and INCS could be a viable alternative treatment option if the bitter taste is unacceptable. Our findings provide novel insights into optimizing personalized combination therapies.
Keywords: allergic rhinitis; combination therapy; efficacy; network meta-analysis; safety.

• 80 references
Supplementary info
Publication types, MeSH terms, Substances, Grants and fundingExpand
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Randomized Controlled Trial

Altern Ther Health Med

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. 2025 Sep;31(5):156-161.
Clinical Study on the Use of Omalizumab for IgE-Mediated Allergic Diseases
Shuang Ren, Yufei Dong, Yan Wang, Xiaochao Gao
• PMID: 38836729
Free article
Abstract
Objective: This study aimed to explore the therapeutic effects of the combined use of omalizumab with conventional anti-allergy treatment for IgE-mediated allergic diseases and to provide new treatment options for the clinical management of IgE-mediated allergic diseases.
Methods: Patients with IgE-mediated allergic diseases who visited the Allergy Department of the First Hospital of Hebei Medical University between June 2020 and June 2022 were randomly divided into two groups: the conventional anti-allergy treatment group (control) and the experimental group receiving conventional treatment combined with omalizumab. The treatment lasted for 24 weeks, with patient follow-up and evaluation of treatment effects for seasonal allergic rhinitis, allergic asthma, and urticaria.
Results: The evaluation of treatment effects for seasonal allergic rhinitis, urticaria, and allergic rhinitis showed that the experimental group had significantly better outcomes than the control group.
Conclusion: The combined use of omalizumab with conventional anti-allergy treatment was effective in treating IgE-mediated seasonal allergic rhinitis, urticaria, and allergic asthma, providing a new therapeutic option for the clinical management of IgE-mediated allergic diseases.
Supplementary info
Publication types, MeSH terms, SubstancesExpand
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15
Review

Ear Nose Throat J
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. 2025 Sep;104(9):582-590.
doi: 10.1177/01455613221141214. Epub 2022 Nov 15.
Drug-Induced Rhinitis: Narrative Review
Saud Alromaih 1 , Lamya Alsagaf 2 , Nouf Aloraini 1 , Abdulaziz Alrasheed 1 , Ahmad Alroqi 1 , Mohammad Aloulah 1 , Saad Alsaleh 1 , Tariq Alhawassi 3
Affiliations Expand
• PMID: 36377650

• DOI: 10.1177/01455613221141214
Free article
Abstract
ObjectivesRhinitis, one of the most common inflammatory conditions of the nasal mucosa,

is known to affect a large proportion of people worldwide. It is generally classified into allergic and non-allergic types and both are associated with several unpleasant symptoms. Several medications prescribed for different medical conditions can cause unpleasant rhinitis as an adverse effect, which is known as drug-induced non-allergic rhinitis. The aims of this article were to review the literature to identify drugs that could induce rhinitis, prevalence of drug-induced rhinitis, and the associated pathogenic mechanisms if known.MethodsLiterature search screening for eligible papers published up to December 31st, 2021, in Medline (via PubMed) and Embase was conducted. The search included the following combination of keywords and terms: rhinitis, sneezing, congestion, allergic, non-allergic, rhinorrhea, vasomotor, medication, drug-induced.ResultsThe review findings suggest that 12 subtypes of drugs potentially could induce rhinitis. Based on their mechanisms of action, the pathogenic causes for the induction of rhinitis have been recognized for some drugs, while others remain unknown.ConclusionAwareness of the list of drugs that reportedly induce non-allergic nasal symptoms, along with taking the patient's medication history, is important in the diagnosis of rhinitis.
Keywords: adverse effect; drug related; drug-induced rhinitis; non-allergic; rhinitis.
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.
• Cited by 2 articles
Supplementary info
Publication types, MeSH termsExpand

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

1
Observational Study

BMJ Open Respir Res
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. 2025 Sep 3;12(1):e002987.
doi: 10.1136/bmjresp-2024-002987.
Impact of bronchitis variability on outcomes of COPD
Joon Young Choi 1 , Yun Seok Kim 1 , Youlim Kim 2 , Hyun Lee 3 , Kyung Hoon Min 4 , Hyunjung Kim 5 , Chin Kook Rhee 6 , Yong Bum Park 7 , Kwang Ha Yoo 2 , Ji-Yong Moon 8
Affiliations Expand
• PMID: 40903188

• PMCID: PMC12410636

• DOI: 10.1136/bmjresp-2024-002987
Abstract
Objective: This study aimed to evaluate the impact of serial bronchitic status over two consecutive years on clinical outcomes, including frequency of exacerbation and lung function decline rate.
Methods: We analysed data from 1265 participants enrolled in the Korea COPD Subgroup Study, a nationwide prospective observational chronic obstructive pulmonary disease (COPD) cohort. Bronchitic status was determined using subquestionnaires of the COPD Assessment Test at baseline and after 1 year, classifying patients into three serial bronchitic groups of persistently not bronchitic (NB), intermittently bronchitic (IB) and

chronic bronchitis (CB). Annualised exacerbation rates and longitudinal lung function decline rates were analysed.
Results: The NB group consisted of 873 individuals, the IB group contained 272 and the CB group included 120. The analysis of baseline demographics showed a greater prevalence of current smokers in the CB and IB groups compared with the NB group. Patients with CB exhibited the worst baseline symptoms and lung function, while those with IB had worse clinical features compared with those with persistently NB. Patients with CB had the highest rate of moderate-to-severe exacerbations, followed by IB, compared with persistently NB. No significant differences in forced expiratory volume in 1 s or forced vital capacity decline rates were observed among the groups.
Conclusions: Patients with CB and IB exhibit a greater risk of exacerbations than those with NB, whereas lung function decline rates did not significantly differ between groups.

Keywords: Cough/Mechanisms/Pharmacology; Patient Outcome Assessment; Perception of Asthma/Breathlessness; Pulmonary Disease, Chronic Obstructive; Respiratory Function Test.

Conflict of interest statement
Competing interests: None declared.
• 24 references
• 2 figures
Supplementary info
Publication types, MeSH termsExpand
Full text links

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Cite
2
Ann Med Surg (Lond)
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. 2025 Jul 22;87(9):6226-6227.
doi: 10.1097/MS9.0000000000003632. eCollection 2025 Sep.
Comment on the use of bronchoscopy in the postoperative management of lung cancer patients
Syed Ibraheem Ul Hassan Ramzi 1 , Syed Hameed-Ul-Hassan Shah 1 , Hooria Ahmad Qureshi 2 , Huzafa Ali 2 , Ajay Pandeya 3
Affiliations Expand
• PMID: 40901195

• PMCID: PMC12401302

• DOI: 10.1097/MS9.0000000000003632
Abstract

Zhang et al. explore "Effectiveness of bronchoscopy-assisted postoperative respiratory management in patients with lung cancer and impaired cough strength" in a high-risk population. The study is clinically relevant, but its sample size and lack of standardized objective assessments decrease its generalizability and reproducibility. The study discusses different interventions for respiratory clearance. The study discusses various

interventions for respiratory clearance. However, the inclusion of noninvasive airway clearance techniques (e.g., physiotherapy or mechanical exsufflation) and bronchoscopy, guided by standard clinical guidelines and protocols, particularly for patients with neuromuscular conditions such as post-polio syndrome, could improve its clinical effectiveness. The study reported that 25% of patients had atelectasis because they did not get effective respiratory rehabilitation, which questions the effectiveness of the intervention on its own. These are gaps and limitations; thus, further studies that use standard guidelines and well-compared approaches are needed to benefitclinical practice.
Keywords: atelectasis; bronchoscopy; lung cancer; post operative; pulmonary complications.

Conflict of interest statement
None.
• 7 references
Full text links

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IJID Reg
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. 2025 Jul 31:16:100718.
doi: 10.1016/j.ijregi.2025.100718. eCollection 2025 Sep.
Should Japanese athletes undergo booster vaccination for pertussis?
Hideharu Hagiya 1
Affiliations Expand
• PMID: 40893803

• PMCID: PMC12391262

• DOI: 10.1016/j.ijregi.2025.100718
Abstract
Pertussis, a highly contagious respiratory infection caused by Bordetella pertussis, has demonstrated a global resurgence in the post-COVID-19 era, with the emergence of macrolide-resistant strains. In Japan, the routine immunization schedule for pertussis remains limited compared with international standards, leaving young populations under-immunized and at elevated risk of infection. Despite international recommendations for booster vaccinations during adolescence, Japan currently provides only a four-dose primary series during infancy, without subsequent boosters. This immunization gap possibly increases the vulnerability of Japanese athletes to pertussis. Persistent cough can significantly impair athletic performance for weeks to months, posing substantial challenges to professional sports teams. To protect athletes' health and performance capacity and prevent team-wide outbreaks, it is imperative to consider pertussis booster immunizations in Japan, especially for elite athletes. However, DTaP (diphtheria, tetanus, and acellular pertussis) (TRIBIK ® ) is the only available vaccine in Japan, which contains higher antigen concentrations than the internationally used Tdap (tetanus, diphtheria, pertussis) vaccines (ADACEL™ and BOOSTRIX ® ): the antigen contents of pertussis toxin, filamentous hemagglutinin, and diphtheria toxin in TRIBIK ® , ADACEL™, and BOOSTRIX ® are 23.5 μg/23.5 μg/≤15 μg, 2.5 μg/5 μg/2 μg, and 8 μg/8 μg/2.5 μg, respectively.

These differences result in more severe local adverse effects in vaccinees and would complicate booster strategies in Japan. Aligning Japan's immunization policies with international practices represents a critical step toward ensuring individual health and public safety in increasingly globalized sports environments.
Keywords: Bordetella pertussis; Immunization; Vaccination.

Conflict of interest statement
The authors have no competing interests to declare.
• 11 references
Full text links

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Cite
4
BMJ
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. 2025 Sep 1:390:r1843.
doi: 10.1136/bmj.r1843.
Baby in the UK dies from whooping cough

Gareth Iacobucci 1
Affiliations Expand
• PMID: 40889991

• DOI: 10.1136/bmj.r1843
No abstract available
Full text links

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Cite
5
Multidiscip Respir Med
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. 2025 Sep 1:20.
doi: 10.5826/mrm.2025.1007.
Performance study of a new diagnostic questionnaire for (Chronic obstructive pulmonary - disease) COPD with information on exposure to wood smoke, COPD-WS
Alejandra Lozano-Forero 1 , Eduardo Tuta-Quintero 2 , Alirio R Bastidas 3 , Irma Méndez-Aguirre 2 , Miguel A Molina 4 , Julian Camacho 4 , Ivan Guerrero 4 , Laura Ramirez 4 , Maria Perez 4 , Laura Bravo 4 , Silvia Rojas 4 , Juan Mejia 4 , Paula Salazar 4 , Daniel Maestre 4 , Juan Moreno 4 , Laura Cabrera 4 , Lina Borjas 4 , Miguel Chacon 4
Affiliations Expand
• PMID: 40888809

• DOI: 10.5826/mrm.2025.1007
Abstract
Background: To determine the diagnostic performance of a new questionnaire (COPD-WS) that considers also exposure to wood smoke for diagnosing Chronic Obstructive

Pulmonary Disease (COPD) in a Colombian population.
Methods: A cross-sectional study was conducted with analysis of diagnostic tests in subjects with and without COPD. Clinical variables were selected based on their relevance to COPD diagnosis, including age, sex, smoking status, exposure to wood smoke, dyspnea, cough, chronic expectoration, and wheezing. A bivariate analysis was performed with the diagnosis of COPD by spirometric criteria. The area under the receiver operating

characteristic curve (AUROC) was calculated for the new questionnaire and compared with the LFQ, CDQ, PUMA, COULD IT BE COPD, and COPD-PS questionnaires. The cutoff point for the new questionnaire was obtained through the Youden index, and a p-value <0.05 was considered statistically significant.
Results: A total of 681 patients were included, 187 (27.5%) diagnosed with COPD. The mean age of the population was 65.9 (SD: ±11.79) years, with 53.7% being women and 58.3% having been exposed to wood smoke. The variables included in the questionnaire were age, sex, smoking status, exposure to wood smoke, dyspnea, cough, chronic expectoration, and wheezing. The AUROC for the new COPD-WS questionnaire was 0.69 (95%CI:0.65-0.74;p<0.001), and for a cutoff point ≥6, sensitivity was 0.711 (95%CI:0.677-0.745), specificity was 0.575 (95%CI:0.538-0.612), PPV was 0.388 (95% CI:0.351-0.424), NPV was 0.840 (95%CI:0.813-0.868), LR+ was 1.673 (95%CI:1.458-1.919), LR- was 0.502 (95% CI:0.438-0.576).
Conclusion: This new questionnaire COPD-WS demonstrates acceptable diagnostic capability for diagnosis of COPD in this symptomatic population, and its performance is comparable to other questionnaires currently in use.
Full text links

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Cite
6
MedComm (2020)
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. 2025 Aug 24;6(9):e70340.
doi: 10.1002/mco2.70340. eCollection 2025 Sep.
Activated Interferon-γ-Positive T Lymphocytes and Cytokine Signatures in Patients With Postinfectious Cough
Zheng Deng 1 2 , Tongtong Song 1 , Wenbin Ding 1 , Wei Luo 1 , Jiaxing Xie 1 , Haodong Wu 1 , Nanshan Zhong 1 2 , Kefang Lai 1 2
Affiliations Expand
• PMID: 40859955

• PMCID: PMC12375690

• DOI: 10.1002/mco2.70340
Abstract

Postinfectious subacute cough (PISC) and postinfectious chronic cough (PICC) are triggered by respiratory infections, which induce adaptive immunity. The expression of T-lymphocyte subsets and cytokine signatures remains elusive in these patients. Here, we recruited 40 healthy controls, 64 PICC patients, 65 PISC patients, and 20 recovered individuals with postinfectious subacute cough (R-PISC). As cough and airway inflammation resolved in R-PISC subjects, sputum lymphocytes dropped substantially. Both PICC and PISC patients had an increase in blood activated interferon-γ (IFN-γ) + T-lymphocytes, which were decreased in R-PISC subjects. Elevated cough sensitivity, higher

proportions of activated IFN-γ + T-lymphocytes, and CD8 + /CD4 + T-lymphocyte ratios, as well as elevated concentrations of uric acid, IFN-γ, tumor necrosis factor-α (TNF-α), IFN-α, IFN-β, and interleukin-10 in sputa, were observed in PICC and PISC patients but normalized in R-PISC subjects. Correlation analyses and logistic regression models identified activated IFN-γ + T-lymphocytes and these cytokines in sputa as biomarkers for predicting cough risk. PICC patients exhibited greater cough severity, elevated activated IFN-γ + T-lymphocytes, and TNF-α concentrations in sputa compared to PISC patients. Overall, postinfectious cough patients exhibit airway inflammatory signatures characterized by activated IFN-γ + T-lymphocytes and elevated levels of IFN-γ, TNF-α, IFN-α, IFN-β, and interleukin-10, which are valuable for effective treatment options.

Keywords: T lymphocytes; airway inflammation; cytokines; immune responses; postinfectious cough.



Conflict of interest statement

The authors declare no conflicts of interests.

• 53 references

• 6 figures

Full text links

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Randomized Controlled Trial

Am J Speech Lang Pathol

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. 2025 Sep 4;34(5):2864-2876.
doi: 10.1044/2025_AJSLP-25-00124. Epub 2025 Aug 14.

# Internet-Based Behavioral Cough Suppression Therapy for Refractory Chronic Cough: A Randomized Controlled Trial

Jane R Salois 1 , Kassidi L Heinle 1 , Laurie J Slovarp 1 , Marie E Jetté 2 , Vinaya Manchaiah 2 3 4 5 6 , George Vlaescu 7 , Gerhard Andersson 8 9

Affiliations Expand

• PMID: 40811675

• DOI: 10.1044/2025_AJSLP-25-00124

Abstract

Purpose: The purpose of this study was to assess the efficacy of internet-based behavioral cough suppression therapy (IBCST) and explore users' experiences.

Method: This study involved a prospective, single-blind, randomized controlled trial comparing the efficacy of a 5-week IBCST and healthy lifestyle education control intervention in patients with refractory chronic cough. Additionally, qualitative interviews were conducted and analyzed using grounded theory methodology.

Interventions: IBCST and the healthy lifestyle control included 5 weeks of asynchronous content delivered via video and text on a study-specific website. IBCST emphasized education and cough suppression.

Outcomes: The Leicester Cough Questionnaire (LCQ) and Cough Severity Visual Analog Scale (VAS) were the primary and secondary outcome measures, respectively, and were

administered at baseline (T0), 1-week posttreatment (T1), and 1-month posttreatment (T2). Semistructured qualitative interviews were conducted with a subgroup of IBCST participants.
Results: Thirty-nine adults with refractory chronic cough enrolled, and 30 (27 women, three men; M age = 61 years) completed the study (18 IBCST, 12 control). IBCST resulted in clinically significant improvements for 72% of participants in LCQ total score at T1 with a mean change of 3.74 ($p = .014$, $\eta p 2 = .205$) and 76% of participants at T2 with a mean change of 4.1 ($p = .033$, $\eta p 2 = .163$). VAS changes did not reach the minimum clinically meaningful threshold but trended in that direction for the IBCST group at T1 ($p = .056$, $\eta p 2 = .128$). Qualitative analysis revealed IBCST participants liked the convenience and quality of treatment and experienced improvements in symptom control.
Conclusion: IBCST was feasible and efficacious and resulted in total LCQ score changes on par with what has been reported for other BCST interventions, paving the way for adaptation to a digital therapeutic.
Supplementary info
Publication types, MeSH termsExpand
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Review

Clin Chest Med
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. 2025 Sep;46(3):525-542.
doi: 10.1016/j.ccm.2025.04.013. Epub 2025 Jul 3.
Respiratory Muscle Testing
Carolyn L Rochester 1
Affiliations Expand
• PMID: 40769597

• DOI: 10.1016/j.ccm.2025.04.013
Abstract
Disorders of the respiratory muscles (RM) are common, yet are often overlooked. Physical examination findings may suggest the presence of RM weakness but are nonspecific. Several tests of RM function are available, including measurements of upright and supine vital capacity, inspiratory and expiratory muscle pressures, sniff nasal inspiratory pressure, sniff esophageal and transdiaphragmatic pressures, and peak cough flow. These tests are widely available but are effort dependent. Electrodiagnostic studies, such as electromyography, electrical, or magnetic phrenic nerve stimulation, are effort independent but require more specialized equipment and staff. Imaging techniques such as ultrasound provide helpful complementary information about diaphragm function.
Keywords: Cervical magnetic stimulation; Diaphragm; Maximal expiratory pressure; Maximal inspiratory pressure; Respiratory muscle; Sniff nasal inspiratory pressure; Transdiaphragmatic pressure; Ultrasound.

Conflict of interest statement
Disclosure C.L. Rochester has no conflicts of interest to declare in regard to this article. No artificial intelligence (AI) or AI-assisted technologies were used in the writing process of

this article. Preparation of this article did not involve any grant funding.
Supplementary info
Publication types, MeSH termsExpand
Full text links

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Cite
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Respir Med
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. 2025 Sep:246:108255.
doi: 10.1016/j.rmed.2025.108255. Epub 2025 Jul 12.
Spirometry and impulse oscillometry in the diagnosis of cough variant asthma in children
Chunyu Tian 1 , Shiqiu Xiong 2 , Xin Song 3 , Shuo Li 4 , Yantao Zhang 5 , Xinmei Jiang 6 , Xinyue Hou 7 , Yifan Zhang 8 , Chuanhe Liu 9
Affiliations Expand
• PMID: 40659253

• DOI: 10.1016/j.rmed.2025.108255
Abstract
Objective: This study aimed to assess the diagnostic utility of spirometry and impulse oscillometry, focusing on their correlation and diagnostic advantages, in children with cough variant asthma (CVA).
Methods: This study included children aged 5-12 years with a diagnosis of CVA who underwent sequential IOS and spirometry pulmonary function with bronchodilation (BD) tests. A control group of healthy children was matched. Receiver operating characteristic (ROC) curves were plotted, and the area under the curve (AUC) was calculated to assess the discriminatory potential of these spirometry and IOS parameters for CVA. The correlation and diagnostic consistency between spirometry and IOS parameters were compared.
Results: A total of 177 patients with CVA and 45 control subjects were included. The ROC curve results for pre-BD parameters and the improvement rate showed that the combinations of "pre-MMEF(%pred) and △ MMEF" and "pre-Z5 (%pred) and - △ Z5 (%)"
achieved the highest AUC value of 0.892 and 0.836, with threshold probabilities of 0.868, 0.786, respectively. The AUC values of these combined parameters surpassed those of individual ones. The correlation between spirometry and IOS parameters showed that pre-FEF 25 (%pred) has a moderately negative correlation with pre-Z5 (%pred) and pre-R5 (%pred) (r = -0.415, -0.404; P < 0.001), △ FEF 75 % has a weak positive correlation with - △ Z5 %, - △ R5 %(r =
0.154, 0.155; P < 0.05). The comparison of diagnostic consistency between pre-BD spirometry and pre-BD IOS parameters showed a weak correlation(kappa = 0.150, P = 0.007).

Conclusions: The changes in spirometry and IOS parameters during the BD test provided valuable diagnostic information for CVA and can help pediatricians accurately identify CVA in children.
Keywords: Children; Cough variant asthma; Diagnosis; Impulse oscillometry; spirometry.

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.
Supplementary info
MeSH termsExpand
Full text links

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Cite
10
J Aerosol Sci
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. 2025 Sep:189:106633.
doi: 10.1016/j.jaerosci.2025.106633. Epub 2025 Jun 10.
Dynamic of infectious aerosols generated by cough from patients with pulmonary tuberculosis
Taline Canto Tristão 1 , Mariana Abou Mourad Ferreira 1 , Pedro Sousa de Almeida Júnior 1 , Luiz Guilherme Schmidt Castellani 1 , Manuela Negrelli Brunetti 1 , Edward C Jones-López 2 3 , Kevin P Fennelly 3 , Michael R Barer 4 , Carlos Henrique Fantecelle 1 , Saulo Almeida Morellato 5 , David Jamil Hadad 1 , Jerrold J Ellner 6 , Reynaldo Dietze 1 , Moisés Palaci 1
Affiliations Expand
• PMID: 40635785

• PMCID: PMC12237428 (available on 2026-06-10)

• DOI: 10.1016/j.jaerosci.2025.106633
Abstract

Tuberculosis (TB) is an ancient disease transmitted through aerosols frequently generated by coughing and it is still unknown whether there is variability in cough aerosol output throughout the day and whether this may impact patients' infectivity categorization. To study the dynamic of infectious aerosols generated by cough, we conducted a cross-sectional study on pulmonary TB patients (n=16) who had their cough-generated aerosols sampled twice daily for two consecutive days for the Cough Aerosol Sampling System (CASS) assay. Most patients were classified as Variable Low Producers and Variable High Producers (n=10; 62.5%), followed by Negative Producers (n = 4; 25%) and Consistent Producers (n = 2; 12.5%). Additionally, most recovered bacilli (88.7 %) within a respiratory aerosol size range. Although the time of collection did not appear to impact on aerosol infectivity, performing CASS with multiple samples allowed for more accurate detection and distinction among aerosol producers.
Keywords: Mycobacterium tuberculosis; aerosols; cough; tuberculosis.
Conflict of interest statement
Declaration of interests The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Edward C. Jones-Lopez reports financial support was provided by Boston University. Jerrold J. Ellner reports was provided by National Institutes of Health. Jerrold J. Ellner reports was provided by TB research unit network award. Reynaldo Dietze reports equipment, drugs, or supplies was provided by Federal University of Espirito Santo Centre for Infectious Diseases. 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.

• 35 references
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Respir Care
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. 2025 Sep;70(9):1103-1109.
doi: 10.1089/respcare.12514. Epub 2025 May 22.
Evaluation of the Accuracy of a Mechanical Insufflation-Exsufflation Device's Cough Peak Flow Measurement

Neeraj M Shah 1 2 , Sophie Madden-Scott 1 , Chloe Apps 1 3 4 , Ema Swingwood 5 6 , Harriet Shannon 7 , Eui-Sik Suh 1 8 , Nicholas Hart 1 2 3 , Georgios Kaltsakas 1 2 , Leyla Osman 7 9 , Patrick B
Murphy 1 2
Affiliations Expand
• PMID: 40401453

• DOI: 10.1089/respcare.12514
Abstract
Background: Mechanical insufflation-exsufflation (MI-E) is used to augment secretion clearance in neuromuscular patients with weakened cough strength. Cough peak flow (CPF) is a measure of cough function that is used to assess a patient's ability to clear secretions, with thresholds set that categorize cough as effective, ineffective or severely ineffective. MI-E is prescribed according to these thresholds, and CPF is used to assess titration of MI-E settings. The Clearway2 (Breas Medical, Stratford-upon-Avon, United Kingdom) displays a real-time CPF, measured by an internal pneumotachograph. This study sought to assess the agreement and repeatability of this displayed CPF, against the reference CPF measurement by a calibrated pneumotachograph. Methods: This study consisted of two phases (1) lung model (Group A) and (2) acutely unwell individuals with neuromuscular conditions (Group B) and clinically stable individuals with neuromuscular conditions (Group C). Simultaneous CPF measurements were recorded from the MI-E device (CPF MI-E ) and a calibrated pneumotachograph (CPF), which was inserted into the MI-E circuit. Bland-Altman analysis was used to assess agreement between methods of measurement, and repeatability was assessed using a repeated measures analysis of variance. Results: During phase 1, 805 simulated coughs were evaluated with the Clearway2. The mean bias toward CPF MI-E was 33 L/min (95% limits of agreement 6-60 L/min). During phase 2, the mean bias increased to 66 L/min (95% limits of agreement 13-119 L/min). CPF MI-E and CPF both had good repeatability in all groups. Conclusions: The Clearway2 MI-E device provided a real-time CPF measurement that was repeatable and systematically higher than CPF. It may therefore be a useful tool to measure change longitudinally, or in response to changes in MI-E settings, in an individual patient. Caution is advised if using the CPF MI-E to assess cough efficacy against clinical thresholds.
Keywords: airway clearance; lung model; mechanical insufflation-exsufflation; neuromuscular disease; respiratory failure.
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Review

Ann Allergy Asthma Immunol
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. 2025 Sep;135(3):268-275.
doi: 10.1016/j.anai.2025.05.011. Epub 2025 May 17.
# The impact of respiratory syncytial virus on asthma development and exacerbation
Ruixue Ma 1 , Chenyu Zhang 2 , Yi Zhang 2 , Hong Tan 1 , Yao Zhang 1 , Qiuhong Li 1 , Yumei Bai 3 , Xin Sun 4
Affiliations Expand
• PMID: 40389152

• DOI: 10.1016/j.anai.2025.05.011
Free article
Abstract
Asthma is a chronic inflammatory disorder of the lower airways clinically characterized by recurrent wheezing, breathlessness, cough, and dyspnea and the most prevalent chronic disease among children and adolescents. Respiratory viral infections are implicated in asthma inception and exacerbation, with respiratory syncytial virus (RSV) emerging as a key contributor. RSV is a leading cause of acute lower respiratory tract infections, particularly infant bronchiolitis, and is associated with a type 2-biased immune response, diminished interferon activity, epithelial barrier dysfunction, and altered airway microbiome. Although the causal relationship between RSV and asthma remains debated, early life RSV lower respiratory tract infections are increasingly recognized as a significant risk factor for recurrent wheezing and asthma-like symptoms in childhood. This review comprehensively evaluates existing evidence on the long-term respiratory outcomes of infant RSV infection, elucidates the pathophysiological mechanisms connecting RSV infection to asthma development-such as immune dysregulation, chronic airway inflammation, and gene-environment interplay-and highlights novel preventive strategies. Recent advancements, such as maternal RSV vaccines and long-acting monoclonal antibodies, demonstrate efficacy in reducing severe RSV disease burden and subsequent wheeze in high-risk infants. By bridging clinical observations with mechanistic insights, this review underpins the development of future clinical therapies.

Conflict of interest statement
Disclosures The authors have no conflicts of interest to report.
• Cited by 1 article
Supplementary info
Publication types, MeSH terms, SubstancesExpand

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Respir Care
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. 2025 Sep;70(9):1093-1102.
doi: 10.1089/respcare.12874. Epub 2025 May 16.
# Long-Term Mechanical Insufflation-Exsufflation Practice: A Norwegian National Survey After More Than 20 Years' Experience
Tiina M Andersen 1 2 , Ester Nørstebø 3 , Brit Hov 4
Affiliations Expand
• PMID: 40376772

• DOI: 10.1089/respcare.12874
Free article
Abstract
Background: As knowledge of mechanical insufflation-exsufflation (MI-E) expands, understanding factors influencing home use is essential to promote effective therapy. This study aimed to determine the prevalence of MI-E long-term users in Norway and describe clinicians' self-reported experience and independence with MI-E, cough assessment practices, and MI-E initiation and follow-up in a country with over 20 years of experience. Methods: This cross-sectional study used 4 data sources (1) Norwegian Units for Medical Home-Care Equipment provided data on MI-E users, (2) Statistics Norway provided the overall count of the Norwegian population, (3) The Norwegian Patient Registry supplied population data on specialist health care service use, and (4) a survey of multidisciplinary clinicians collected self-reported data on clinicians MI-E confidence and practices. Results: In 2023, 1,131 individuals in Norway (16% under 18 years) used MI-E devices for long-term treatment, with a prevalence of 53.5 per 100,000 among specialist health care service users and 20.6 per 100,000 in the total population. Of 182 survey respondents, 163 reported MI-E experience, primarily physiotherapists (78%), followed by nurses (13%) and physicians (9%). Physiotherapists had the longest experience and highest confidence in independently initiating MI-E and assisting colleagues. Most clinicians (77%) used multiple methods to assess cough effectiveness, including qualitative assessment, cough peak flow, and swallowing evaluation. Follow-up practices varied widely 43% used patient journals, 5% digital registries, 10% paper records, 27% unspecified overview of MI-E users for follow-up purposes, and 15% had no systematic overview. Regular follow-ups

were reported by 43%, whereas 19% followed up only on patient request, 30% were unaware of local routines, and 8% reported no follow-up routines. Conclusions: The MI-E prevalence highlights its role as a substantial therapy for individuals with rare disorders. Variability in follow-up practices underscores the need for standardized guidelines to improve consistency and quality in long-term MI-E care.
Keywords: airway clearance; cough; follow-up; long term; mechanical insufflation-exsufflation; prevalence.

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. 2025 Sep;15(9):915-925.
doi: 10.1002/alr.23577. Epub 2025 Apr 4.
# 3-Year Outcomes of Temperature-Controlled Radiofrequency Ablation of the Posterior Nasal Nerve in Patients With Chronic Rhinitis
J Pablo Stolovitzky 1 , Randall A Ow 2 , Stacey L Silvers 3 , Bobby A Tajudeen 4 , Chad M McDuffie 5 , Marc Dean 6 7 8 , Ahmad R Sedaghat 9 , Katie Phillips 9 , Masayoshi Takashima 10
Affiliations Expand
• PMID: 40183781

• PMCID: PMC12401078

• DOI: 10.1002/alr.23577
Abstract
Background: Temperature-controlled radiofrequency (TCRF) ablation of the posterior nasal nerve has been shown to improve chronic rhinitis (CR) symptoms and quality of life (QoL).

This study assesses the durability of TCRF's effectiveness and safety 3 years post-procedure in patients with perennial allergic CR and nonallergic CR.
Methodology: This prospective, multicenter, single-blinded, randomized controlled trial included a sham control arm and long-term follow-up. Analysis combined patients from the active treatment and control crossover arms. Outcomes include reflective total nasal symptom score (rTNSS), postnasal drip (PND), and cough scores, as well as QoL measured by the Mini Rhinoconjunctivitis Quality-of-Life Questionnaire (MiniRQLQ).
Results: Of 104 patients who underwent TCRF, 59 participated in the 3-year follow-up. The baseline mean rTNSS was 8.2 (95% confidence interval [95% CI, 7.9-8.6]), reduced to 3.5 (95% CI, 2.9-4.1) at 3 years, a 57.3% reduction and mean change of -4.7 (95% CI, -5.3 to -4.1; p < 0.0001). Most patients (79.7%) were responders. Cough scores decreased from a mean baseline of 1.5 (95% CI, 1.3-1.7) to 0.7 (95% CI, 0.5-0.9; mean change, -0.8; p < 0.0001). PND symptoms were also reduced from 2.5 (95% CI, 2.4 - 2.7) to 1.4 (95% CI, 1.2-1.7; mean change, -1.1; p < 0.0001). No severe adverse events were reported throughout the study, and no adverse events were reported between 24 months and 36 months of follow-up.
Conclusion: TCRF ablation of the posterior nasal nerve provided sustained safety and improvement in CR symptoms, cough, postnasal drip, and patient-reported QoL at 3 years, supporting its long-term safety and efficacy in CR.
Keywords: congestion; neurolysis; posterior nasal nerve; quality of life; radiofrequency ablation; rhinitis; rhinorrhea.

Conflict of interest statement
J. Pablo Stolovitzky: Consultant for Aerin Medical, Medtronic, Cryosa, and Dyanosic. Randall A. Ow: Advisor/consultant for Aerin Medical, speaker for Sanofi/Regeneron, GSK, and Optinose, advisor to Medtronic. Stacey L. Silvers: Consultant for Aerin Medical, 3D Matrix, and Lyra Therapeutics Medical Advisory Board for STStent. Marc Dean: Consultant for Aerin Medical, 3D Matrix, STStent, Immertec, and VSEEHealth. Ahmad R. Sedaghat: Research funding from Aerin Medical. Katie Phillips: Medical advisory board with Sanofi/Regeneron. Equity in Sound Health. Masayoshi Takashima: Consultant for Aerin Medical, Medtronic, Acclarent, and LivaNova. The other authors declare no conflicts of interest.

• 23 references
• 7 figures
Supplementary info
Publication types, MeSH terms, Grants and fundingExpand
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Respir Care
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. 2025 Sep;70(9):1155-1158.
doi: 10.1089/respcare.12267. Epub 2025 Mar 26.
Mechanical Insufflation-Exsufflation in Older In-Patients With Impaired Cough
Claire Estenne 1 , Mathilde Pelletier Visa 1 , Bruno Pereira 2 , Alexandra Usclade 2 , Emmanuel Coudeyre 1 3 , Lech Dobija 1 3
Affiliations Expand
• PMID: 40138199

• DOI: 10.1089/respcare.12267
No abstract available
Supplementary info
Publication types

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

1
Review

BMJ Open Respir Res
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. 2025 Sep 3;12(1):e003049.
doi: 10.1136/bmjresp-2024-003049.
Improving shared decision-making in bronchiectasis
Paul McCallion 1 2 , Judy M Bradley 3 , Adam Lewis 4 , Lisa Robinson 5 , Joanne Lally 2 , Anthony De Soyza 6

Affiliations Expand
• PMID: 40903189

• PMCID: PMC12410678

• DOI: 10.1136/bmjresp-2024-003049
Abstract
Bronchiectasis is a heterogeneous lung disease. There is an increasing focus on personalised medicine in bronchiectasis, with targeted pharmacological interventions for

inflammation, immunology and infection. Airway clearance techniques (ACTs) are non-pharmacological treatments used to manage bronchiectasis. Approximately half of patients with bronchiectasis perform ACTs. There have been attempts to personalise ACT prescriptions, including consideration of patient physiology, disease status and psychosocial factors. Guidelines suggest that patient preference or choice should be considered when prescribing ACTs. There is a lack of literature showing patient preference or choice being taken into consideration when prescribing ACTs in bronchiectasis. This article discusses the role of shared decision-making (SDM), the potential use of SDM for ACTs in bronchiectasis to support patient choice of and adherence to ACTs and the steps involved in designing an SDM intervention for ACTs in bronchiectasis for future research. Development and use of an SDM intervention to support patient choice of ACT in bronchiectasis may result in a patient-centred, pragmatic approach to empower patients to be actively involved in their care, improve their knowledge on the importance of ACTs and support improvement in adherence to this essential therapy.
Keywords: Bronchiectasis.

Conflict of interest statement
Competing interests: PMC declares no competing interests linked to this paper but for transparency notes he has received advisory board speakers' fees or travel support from Insmed and Trudell Medical International. JB, AL, LR and JL declare no competing interests. ADS declares no competing interests linked to this paper but for transparency notes he has received advisory board speakers' fees, grants or travel support from AstraZeneca, Bayer, Chiesi, Forrest/Teva, Insmed, Innogen 30T, GSK and Sanofi.
• 68 references
• 1 figure
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Review

ERJ Open Res
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. 2025 Sep 1;11(5):01131-2024.
doi: 10.1183/23120541.01131-2024. eCollection 2025 Sep.
Viruses in bronchiectasis
Claire Baker 1 , James D Chalmers 1
Affiliations Expand
• PMID: 40901375

• PMCID: PMC12400186

• DOI: 10.1183/23120541.01131-2024
Abstract
Bronchiectasis is a chronic respiratory condition characterised by irreversible dilation of

the bronchi, leading to recurrent respiratory infections and chronic inflammation. Bacterial infections have been well-recognised as contributors to disease progression as well as potent inducers of exacerbations for decades. However, recent studies have indicated that viruses are present in up to 50% of exacerbations, raising questions over the role viruses may play in bronchiectasis. Despite the evidence of their presence, the role of viral infections in bronchiectasis remains largely underexplored. Understanding how viruses impact bronchiectasis is crucial in providing patients with better care and treatment strategies. Given the persistent threat of viral infections, as highlighted by the coronavirus disease 2019 (COVID-19) pandemic, this review aims to provide an overview of the current knowledge surrounding viruses in bronchiectasis, how they may trigger exacerbations and insights from other chronic respiratory conditions where the role of viruses is better understood.



Conflict of interest statement

Conflict of interest: J.D. Chalmers is an associate editor of this journal.

• 118 references

• 3 figures

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Publication typesExpand

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Lung India

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. 2025 Sep 1;42(5):443-455.

doi: 10.4103/lungindia.lungindia_608_24. Epub 2025 Sep 2.

# Inhaled antibiotics and non-cystic fibrosis bronchiectasis: Trying to solve the puzzle

Nithiyanandan Ravi 1

Affiliations Expand

• PMID: 40892817

• DOI: 10.4103/lungindia.lungindia_608_24

Free article

Abstract

Bronchiectasis is a chronic airway disease with recurrent exacerbations and hospitalisations. No inhaled antibiotic has shown consistently beneficial effects in trials. This review analyses the evidence on inhaled antibiotics in non-cystic fibrosis bronchiectasis (NCFB), identifies patient traits for their use, and highlights research gaps. A PubMed search for "Inhaled antibiotics AND bronchiectasis" identified five inhaled antibiotics studied in randomised controlled trials (RCTs): aztreonam, tobramycin, gentamycin, ciprofloxacin, and colistin. Inhaled antibiotics reduced exacerbation frequency, sputum bacterial density, and increased bacterial eradication but did not improve lung function. They also increased antimicrobial resistance, with aztreonam and aminoglycosides having higher discontinuation rates due to side effects. Increased sputum bacterial density (>107 colony forming units/g), increased exacerbation frequency (≥4) at baseline, and increased sputum volume and/or purulence at baseline are some of identifiable traits associated with benefit from inhaled antibiotics. Inhaled antibiotics may

aid in eradicating Pseudomonas aeruginosa after first isolation in NCFB, but their role in acute exacerbations requires further research. There are no direct RCTs comparing different delivery systems, antibiotics, and regimens.

Keywords: Adverse effects; bronchiectasis; delivery devices; inhaled antibiotics; traits; treatment.

• 47 references
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Observational Study

Respir Investig
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. 2025 Sep;63(5):942-948.
doi: 10.1016/j.resinv.2025.07.016. Epub 2025 Jul 30.
Bronchiectasis in Japanese patients with chronic obstructive pulmonary disease: A prospective cohort study
Seiichi Kobayashi 1 , Mitsuhiro Yamada 2 , Masatsugu Ishida 3 , Manabu Ono 3 , Hikari Satoh 3 , Masakazu Hanagama 3 , Masaru Yanai 3
Affiliations Expand
• PMID: 40743857

• DOI: 10.1016/j.resinv.2025.07.016
Abstract
Background: Bronchiectasis often coexists with chronic obstructive pulmonary disease (COPD) and is associated with worse clinical outcomes than COPD alone. However, there is limited evidence on Japanese patients with COPD. This study aimed to investigate the prevalence, clinical characteristics, and outcomes of bronchiectasis in Japanese patients with COPD.
Methods: This prospective observational study included a cohort of Japanese patients with COPD between April 2018 and January 2025. Patient characteristics, exacerbation frequency, and mortality were assessed over a 5-year follow-up period. The Cox proportional hazards model was used to evaluate the association between bronchiectasis and mortality.

Results: In total, 302 patients (287 males, 15 females; median age, 76 years) with stable COPD were enrolled, 15 % of whom had radiological bronchiectasis, and 3.3 % had ≥3 lobes involved or cystic bronchiectasis. Patients with COPD and bronchiectasis were older and had higher staging. No significant differences were observed in exacerbations or mortality rates between patients with and without bronchiectasis. Among patients with COPD and bronchiectasis, all-cause mortality was associated with airflow obstruction (hazard ratio [HR], 0.96; 95 % confidence interval [CI], 0.92-0.99), dyspnea (HR, 2.2; 95 %CI, 1.3-3.6), health status (HR 1.1; 95 %CI, 1.0-1.3), bronchiectasis severity index (HR, 1.3; 95 %CI, 1.1-1.6), and positive Pseudomonas aeruginosa culture (HR 6.7; 95 %CI, 1.3-33).
Conclusions: These findings demonstrated that radiological bronchiectasis was not associated with poor clinical outcomes within 5 years of follow-up. Among patients with COPD and bronchiectasis, mortality was associated with symptoms, disease severity, and

positive Pseudomonas aeruginosa cultures.
Trial registration: This study was registered in the UMIN Clinical Trials Registry (UMIN000032112).
Keywords: Bronchiectasis; Chronic obstructive pulmonary disease (COPD); Exacerbations; Mortality.

Supplementary info
Publication types, MeSH terms, Supplementary conceptsExpand
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Multicenter Study

Lancet Respir Med
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. 2025 Sep;13(9):821-832.
doi: 10.1016/S2213-2600(25)00135-3. Epub 2025 Jul 8.
# Evaluation of the effect of multimorbidity on difficult-to-treat asthma using a novel score (MiDAS): a multinational study of asthma cohorts
Ramesh J Kurukulaaratchy 1 , Anna Freeman 2 , Aruna T Bansal 3 , Latha Kadalayil 4 , Eve Denton 5 , Vanessa Clark 6 , Peter G Gibson 7 , Judit Varkonyi-Sepp 8 , Ben Ainsworth 9 , J J Hudson-Colby 10 , Adam Lewis 11 , Chellan Eames 12 , Liuyu Wei 13 , Wei Chern Gavin

Fong 14 , Ratko Djukanovic 2 , Sanja Hromis 15 , Tunn Ren Tay 16 , Njira Lugogo 17 , Vanessa M McDonald 6 , Mark Hew 5 , Hans Michael Haitchi 18
Affiliations Expand
• PMID: 40645203

• DOI: 10.1016/S2213-2600(25)00135-3
Free article
Abstract
Background: Multimorbidity (ie, co-existence of two or more health conditions) is highly prevalent in patients with difficult-to-treat asthma. However, it remains unclear how multimorbidity correlates with disease severity and adverse health outcomes in these patients and which comorbidities are most important. We aimed to address this knowledge gap by developing a patient-centred, clinically descriptive multimorbidity score for difficult-to-treat asthma.
Methods: We used data from the UK-based Wessex Asthma Cohort of Difficult Asthma (WATCH; n=500, data collected between April 22, 2015, and April 1, 2020) to develop the Multimorbidity in Difficult Asthma Score (MiDAS). Initially, we created a modified Asthma Severity Scoring System (m-ASSESS) in WATCH. We then conducted univariate association analysis to test the association between the 13 commonest comorbidities and m-ASSESS in WATCH and used a branch-and-bound approach to select the most relevant comorbidities for inclusion in MiDAS. We calculated MiDAS values for all patients with complete information in WATCH (n=319) and assessed them for correlation with components of m-ASSESS, proinflammatory biomarkers, and St George's Respiratory Questionnaire (SGRQ) score, a quality-of-life measure. We also assessed the association of MiDAS with multiple clinical outcomes in four international cohorts: two from Australia (n=236, data collected

between June 14, 2014, and April 1, 2022; and n=140, Aug 6, 2012, to Oct 18, 2016), one from southeast Asia (n=151, March 21, 2017, to Jan 16, 2024), and one from the USA (n=100, July 9, 2021, to Dec 14, 2023).
Findings: We selected seven common comorbidities (ie, rhinitis, gastro-oesophageal reflux disease, breathing pattern disorder, obesity, bronchiectasis, non-steroidal anti-inflammatory drug-exacerbated respiratory disease, and obstructive sleep apnoea) for inclusion in MiDAS on the basis of the branch-and-bound analysis and combined them using multivariate linear regression to derive a MiDAS model associated with m-ASSESS in WATCH. The range of MiDAS scores was 9·6-16·2. In WATCH members, mean MiDAS value was 11·97 (SD 1·21) and MiDAS was nominally correlated with m-ASSESS components of poor asthma control (τ=0·31 [95% CI 0·24-0·38]) and exacerbations (τ=0·16 [0·08-0·24]). MiDAS was also correlated with worse total SGRQ score (r=0·39 [95% 0·28-0·49], p<0·0001) and with the proinflammatory plasma cytokines interleukin (IL)-4 (r=0·19 [95% CI 0·06-0·31], p=0·0036), IL-5 (r=0·35 [0·24-0·46], p<0·0001), and leptin (r=0·29 [0·17-0·40], p<0·0001) in WATCH. MiDAS values across the four international cohorts were similar to those of WATCH (UK cohort), with mean values of 12·33 (SD 1·47) and 12·31 (1·37) in the Australian cohorts, 11·80 (1·20) in the USA cohort, and 11·55 (1·23) in the Singapore cohort. In these cohorts, MiDAS correlated with worse asthma control, worse quality of life, anxiety, depression, and increased inflammation.
Interpretation: MiDAS highlights the co-occurrence of multimorbidity with the worst outcomes in difficult-to-treat asthma. These findings strongly indicate that an airway-centric approach is inadequate and that holistic and multidisciplinary care is imperative. This

clinical score could help clinicians to identify patients most at risk from their multimorbidity.
Funding: UK National Institute for Health and Care Research, Australian National Health and Medical Research Council, Hunter Medical Research Institute, University of Newcastle (Australia), and John Hunter Hospital Charitable Trust.

Conflict of interest statement
Declaration of interests RJK co-holds a methods patent outside the submitted work on the cellular profiles of tissue resident memory T-cells and their use in asthma. BA is a member of the UK Taskforce for Lung Health, has received honoraria for educational talks from AstraZeneca, and sits on advisory boards for the Medito Foundation and earGym (all unrelated to this work). PGG reports personal fees from AstraZeneca, GSK, and Novartis and grants from AstraZeneca and GSK, outside the submitted work. VMM reports grants from GSK outside the submitted work, and advisory board and speaker fees from GSK, Menarini, and Boehringer-Ingelheim outside the submitted work. VC reports speakers fees from AstraZeneca, unrelated to the conduct of this study. MH has received grants and personal fees outside the submitted work from GSK, AstraZeneca, Sanofi, Novartis, Teva, and Chiesi, all paid to his employer Alfred Health. CE reports travel support from Chiesi and speaker fees from AstraZeneca outside the submitted work. RD is a co-founder of and consultant to Synairgen, has received funding for lectures from GSK, and has been on advisory boards of GSK, Celltrion, ALK Abello, and ZenasBio, all unrelated to this work. Unrelated to this work, NL has received consulting fees from Amgen, AstraZeneca, Avillion, Genentech, GSK, Niox, Novartis, Regeneron, Sanofi, and Teva; honoraria for non-speakers bureau presentations from GSK, Teva, and AstraZeneca; and travel support from AstraZeneca, Sanofi, Teva, Regeneron, and GSK; her institution received research support from Amgen, AstraZeneca, Avillion, Bellus, Evidera, Gossamer Bio, Genentech, GSK, Janssen, Niox, Regeneron, Sanofi, Novartis, and Teva. NL is an honorary faculty member of the Observational and Pragmatic Research Institute but does not receive compensation for this role. SH reports speakers fees from AstraZeneca, Berlin-Chemie Menarini, Takeda,

Providens, and Amicus Therapeutics; support for attending meetings from AstraZeneca, Chiesi (Providens), and Hemofarm; and payment for advisory boards from AstraZeneca, Berlin-Chemie Menarini, and Providens, all unrelated to this work. WCGF declares stock ownership in relation to Sanofi, GSK, and AstraZeneca, unrelated to this work. HMH co-holds a method patent on anti-ADAM33 oligonucleotides and related methods, which is unrelated to the current work. All other authors declare no competing interests.
Supplementary info
Publication types, MeSH termsExpand
Full text links

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Review

Respir Med
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. 2025 Sep:246:108243.
doi: 10.1016/j.rmed.2025.108243. Epub 2025 Jul 3.
Targeting neutrophilic inflammation in obstructive airway disease - A narrative review of brensocatib therapy
Jyoti Bajpai 1 , Surya Kant 1 , Maria Gabriella Matera 2 , Mario Cazzola 3
Affiliations Expand
• PMID: 40614835

• DOI: 10.1016/j.rmed.2025.108243
Abstract
Brensocatib is an oral inhibitor of dipeptidyl peptidase 1, an enzyme that activates neutrophil serine proteases. Its potential to reduce neutrophil-driven inflammation has generated interest across a range of chronic inflammatory and respiratory conditions, particularly non-cystic fibrosis (CF) bronchiectasis. As the body of evidence supporting brensocatib continues to expand, there is a clear need for a comprehensive, rigorous, and practical narrative review to consolidate current knowledge and highlight gaps for future research. The aim of this narrative review was to systematically examine and synthesize the existing literature on brensocatib, including its pharmacology, therapeutic applications, clinical trial outcomes, safety profile, and ongoing research efforts. A systematic search was performed across major databases, EMBASE, MEDLINE, Scopus, Web of Science, Google Scholar, and ClinicalTrials.gov, through April 2025. Studies involving brensocatib in preclinical or clinical contexts were thoroughly reviewed to evaluate its efficacy and safety. Data were extracted on study design, population, dosage, outcomes, adverse events (AEs), and key findings. The most extensively studied indication was non-CF bronchiectasis, where brensocatib demonstrated a reduction in exacerbation rates and neutrophil protease activity. Preliminary evidence also suggests potential applications in CF, chronic obstructive pulmonary disease, and other neutrophilic conditions. An evaluation of the safety data indicates that the AEs reported are generally mild to moderate in severity. Brensocatib demonstrates potential as a novel anti-inflammatory therapy targeting neutrophil-mediated disease mechanisms. Further research is needed to evaluate its long-term efficacy, safety across a broader population, and its role in combination therapies.
Keywords: Brensocatib; Bronchiectasis; Dipeptidyl peptidase 1; Inflammation; Neutrophil elastase; Neutrophils.

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 utilized in its production.
Supplementary info
Publication types, MeSH terms, SubstancesExpand
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Respir Med
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. 2025 Sep:246:108220.
doi: 10.1016/j.rmed.2025.108220. Epub 2025 Jul 2.
Natural history and burden of refractory Mycobacterium avium complex pulmonary disease: Insights from the US Bronchiectasis and Nontuberculous Mycobacterial Research Registry
Timothy R Aksamit 1 , Radmila Choate 2 , David M Mannino 3 , Amanda E Brunton 4 , Ping Wang 5 , Mariam Hassan 6
Affiliations Expand
• PMID: 40614831

• DOI: 10.1016/j.rmed.2025.108220
Free article
Abstract
Background: Managing Mycobacterium avium complex pulmonary disease (MACPD) is challenging for refractory disease. This study used real-world data to describe natural history and burden of refractory MACPD.
Methods: US Bronchiectasis and Nontuberculous Mycobacteria Research Registry data were analyzed retrospectively. Patients treated for MACPD were categorized as refractory (defined as receiving oral clofazimine, bedaquiline, inhaled amikacin, or amikacin liposome inhalation suspension, or remaining culture positive ≥6 months during treatment) or nonrefractory. Patient characteristics and healthcare resource utilization were compared. Longitudinal assessment over adjacent visits (pre-refractory and refractory) focused on hospitalizations and exacerbations among incident refractory cases.

Results: Of 1064 patients treated for MACPD, 43.4 % were refractory and 56.6 % nonrefractory. At MACPD treatment initiation, refractory patients had lower mean BMI (21.3 vs 22.2; p < 0.001) and FVC% predicted (78.4 vs 84.8; p < 0.001), more prevalent fibrocavitary/cavitary disease (33.5 % vs 16.3 %; p < 0.001) and bronchiectasis (96.2 % vs 89.7 %; p < 0.001). Exacerbations (54.1 % and 50.5 %), hospitalizations (18.8 % and 17.3 %), chronic cough (78.0 % and 77.7 %), and baseline lung severity were common in both groups. The natural history of the disease among 197 incident refractory cases showed that exacerbations (45.6 % and 39.4 %) and hospitalizations (13.3 % and 12.8 %) were common at pre-refractory and refractory visits.
Conclusions: MACPD imposes substantial burden on patients in terms of symptoms,

exacerbations, and hospitalizations. Disease burden was present among refractory patients, at pre-refractory and refractory visits ≥1 year later, and non-refractory patients. Understanding patient characteristics at time of treatment may help timely identification and management of refractory MACPD.
Keywords: Burden of illness; Natural history; Refractory MAC lung disease; United States Bronchiectasis and Nontuberculous Mycobacteria Research Registry.

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: Timothy R. Aksamit reports article publishing charges and writing assistance were provided by Insmed Incorporated. Timothy R. Aksamit reports a relationship with AstraZeneca Pharmaceuticals LP that includes: consulting or advisory. Timothy R. Aksamit reports a relationship with Johnson & Johnson that includes: consulting or advisory. Timothy R. Aksamit reports a relationship with Insmed Incorporated that includes: consulting or advisory. Timothy R. Aksamit reports a relationship with RedHill Biopharma that includes: consulting or advisory. Timothy R. Aksamit reports a relationship with Spero Therapeutics that includes: consulting or advisory. Timothy R. Aksamit reports a relationship with Zambon that includes: consulting or advisory. Timothy R. Aksamit reports a relationship with Hillrom that includes: consulting or advisory. Timothy R. Aksamit reports a relationship with RespirTech that includes: consulting or advisory. Timothy R. Aksamit reports a relationship with COPD Foundation that includes: board membership. David M. Mannino reports a relationship with AstraZeneca that includes: consulting or advisory. David M. Mannino reports a relationship with GlaxoSmithKline that includes: consulting or advisory. David M. Mannino reports a relationship with UpToDate that includes: consulting or advisory. Ping Wang reports a relationship with Insmed Incorporated that includes: employment and equity or stocks. Mariam Hassan reports a relationship with Insmed Incorporated that includes: employment and equity or stocks. 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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Blood Eosinophil Count During Severe Bronchiectasis Exacerbation and Risk of Hospital Readmission
[Article in English, Spanish]
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