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

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JMIR Form Res

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. 2026 Jan 15:10:e70809.

doi: 10.2196/70809.

The Effect of Telehomecare on Patients' Health-Related Quality of Life, Satisfaction, Disease Self-Management Skills, Provider Satisfaction, and Informal Caregiver Strain: Longitudinal Cohort and Cross-Sectional Study

Troy Francis [1 2], Aleksandra Stanimirovic [1 2], Sonia Meerai [3], Nida Shahid [2], Valeria E Rac [1 2]

Affiliations Expand

- PMID: 41538796

- DOI: 10.2196/70809

Abstract

Background: Heart failure (HF) and chronic obstructive pulmonary disease (COPD) are responsible for a significant amount of the economic and chronic disease burden that impacts the Ontario health system. Telehomecare, a home self-management program launched by the Ontario Telemedicine Network (OTN), was created to improve access to quality care and limit health care use. However, few

data are available on patient-, caregiver-, and provider-reported outcomes of telehomecare.

Objective: This study aims to evaluate the impact of the OTN telehomecare program on the health-related quality of life (HRQoL), disease-management skills, and satisfaction of patients with HF and those with COPD; informal caregiver strain index; and nurse satisfaction with telehomecare.

Methods: We used a prospective longitudinal cohort design, including patients with HF and those with COPD enrolled in Ontario's telehomecare program, informal caregivers of patients in the program, and nurses providing services in telehomecare. Patients and informal caregivers were administered telephone surveys at baseline, month 3, month 6, and month 12 follow-up from July 2016 to December 2019. The outcomes for the longitudinal surveys were patient-perceived HRQoL, disease self-management skills, perception of telehomecare (ease of use and usefulness), satisfaction with telehomecare, and informal caregiver-perceived strain. Cross-sectional surveys were conducted with nurses to assess nurse perception and satisfaction with telehomecare. Participant data were analyzed using general linear mixed models in SAS Statistical Software (version 9.4; SAS Institute Inc).

Results: Overall, a total of 194 patients (HF, n=117; COPD, n=77), 62 caregivers, and 24 nurses participated, with an overall response rate of 51% (280/551). The average age of patients with HF and those with COPD was 71 (SD 11.3) years and 70 (SD 11.1) years, respectively, and 52% (100/194) were men. A significant improvement in overall HRQoL was observed among patients with HF at month 12 (-18.37, P<.001). Minimal clinically important differences were observed across all HRQoL domains for people with HF, indicating clinically meaningful improvement over the study period. No statistically significant improvement in HRQoL was observed among patients with COPD; however, minimal clinically important differences were observed in the physical functioning dimension. Patients reported being confident in self-managing their diseases throughout the study, but as patients aged, their perception of and satisfaction with telehomecare was shown to decrease (P=.002 and P=.002, respectively). Caregivers reported relatively low strain scores (mean 10.3, SD 5.9) throughout the program, and nurses reported moderate levels of satisfaction (mean 6.7, SD 1.5) with telehomecare at follow-up.

Conclusions: In this population, telehomecare demonstrated an ability to improve the HRQoL of patients with HF and those with COPD. However, the long-term sustainability of HRQoL improvements in patients following telehomecare requires further investigation. Furthermore, telehomecare was shown to decrease informal caregiver-perceived strain, and nurses described moderate levels of satisfaction and perceived quality of care with telehomecare.

Keywords: chronic obstructive pulmonary disease; heart failure; longitudinal data analysis; patient-reported outcomes; remote patient monitoring; telehomecare.

Supplementary info

MeSH termsExpand

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Cite

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Allergy

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. 2026 Jan 15.

doi: 10.1111/all.70220. Online ahead of print.

Reply to "Dupilumab-Induced Blood Eosinophilia-Why We Need to Look Beyond the Blood"

Andrea Portacci [1], Remo Poto [2 3], Gilda Varricchi [2 4], Giovanna Elisiana Carpagnano [1]

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- PMID: 41537228

- DOI: 10.1111/all.70220

No abstract available

Keywords: COPD; CRSwNP; Dupilumab; eosinophilia.

Supplementary info

Publication typesExpand

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3

Thorac Res Pract

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. 2026 Jan 15.

doi: 10.4274/ThoracResPract.2025.2025-6-1. Online ahead of print.

Excessive Short-acting Beta-agonists Prescriptions in COPD Treated with Triple Inhaler Therapy: A Possible Marker of Frequent Exacerbations. A Retrospective Cohort Study

Bruno Sposato [1], Leonardo Gianluca Lacerenza [2], Elisa Petrucci [2], Alberto Ricci [3], Alberto Cresti [4], Pasquale Baratta [4], Andrea Serafini [5], Claudio Micheletto [6], Maurizio Di Tomassi [7], Antonio Perrella [1], Valerio Alonzi [1], Sara Croce [1], Marco Scalese [8]

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- PMID: 41536185

- DOI: 10.4274/ThoracResPract.2025.2025-6-1

Abstract

Objective: Short-acting β2-agonists (SABA) are used both in asthma and in chronic obstructive pulmonary disease (COPD); SABA use appears to be associated with an increased risk of exacerbations. We evaluated whether COPD patients receiving regular treatment with single-inhaler triple therapy (SITT) used SABA and whether they experienced more exacerbations.

Material and methods: Our single-center cohort study retrospectively included COPD patients who had been on SITT for 12 months and who were prescribed >7 inhaled corticosteroids/long-acting β2-agonists/long-acting muscarinic antagonist packages. Patients were divided into three groups based on the number of SABA boxes they received during the SITT year: no SABA (0 boxes/year), 1-2 boxes/year, and ≥3 boxes/year. Oral corticosteroids (OC) and antibiotic packs during the SITT year were considered outcomes for the SABA groups.

Results: Five thousand one hundred and seven subjects were recruited, and 1,444 (28.3%) had at least one SABA prescription. Adherence to SITT treatment was similar across the three SABA groups: 10.7±2.8, 10.6±2.8, and 10.9±3.9 packages/year in the 0, 1-2, and ≥3 SABA groups, respectively. The number of OC/antibiotic packages increased progressively across SABA groups from 0 to 1-2 and ≥3 ($P < 0.0001$). When we applied logistic models, we also observed a progressively higher risk of taking OC and antibiotics among subjects who had taken 1-2 packs of SABA [odds ratio (OR): 2.299 (1.878-2.813) and 2.034 (1.621-2.551), respectively; $P < 0.0001$], and among those who had taken ≥3 packs of SABA [OR: 3.472 (2.871-4.200) and 2.714 (2.192-3.362), respectively; $P < 0.0001$].

Conclusion: A significant number of subjects were prescribed SABA despite SITT therapy. A relationship between SABA packages and the number of exacerbations, assessed by OC/antibiotic prescriptions, was observed. Excessive SABA use or

prescription may indicate frequent exacerbations in patients with COPD despite receiving maximal inhaled therapy.

Keywords: COPD; SABA; antibiotics; exacerbations; oral corticosteroids; real-life; triple therapy.

Conflict of interest statement

No conflict of interest was declared by the authors.

Full text links

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Cite

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Review

Eur Respir Rev

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. 2026 Jan 14;35(179):240286.

doi: 10.1183/16000617.0286-2024. Print 2026 Jan.

Multi-omics to study chronic respiratory diseases and viral infections

Sobia Idrees [1], Hao Chen [1], Tayyaba Sadaf [1], Saima Firdous Rehman [1], Matt D Johansen [1], Keshav Raj Paudel [1], Gang Liu [2], Yuting Wang [3], Malte D Luecken [3 4], Elinor Hortle [1], Ashleigh S Philp [5], Kurtis F Budden [6], Matthew O'Rourke [1], Gerard E Kaiko [6], Sionne E M Lucas [7], Joanne L Dickinson [7], Peter C Allen [8 9], Joseph E Powell [8 10], Lai-Ying Zhang [11], Daniel C Chambers [11], Tamera Corte [11], Gaetano Caramori [12], Maor Sauler [13], Peter A Wark [14], Janine Gote-Schniering [15], Mareike Lehmann [4 16 17], Thomas M Conlon [4], Theodore S Kapellos [4 18], Ali Önder Yildirim [4 18], Rosa Faner [19], Shyamali C Dharmage [20], Craig E Wheelock [21], Maarten van den Berge [22], Martijn C Nawijn [23], Francesca Polverino [24], Gabrielle T Belz [25], Sanjay H Chotirmall [26 27], Leopoldo N Segal [28], Alen Faiz [22 29 30], Philip M Hansbro [31 6 30]

Affiliations Expand

- **PMID: 41534886**

- **DOI: 10.1183/16000617.0286-2024**

Abstract

Despite recent advances, the underlying mechanisms of the development and progression of many chronic respiratory diseases remain to be elucidated. Factors such as heterogeneity and complexity of human diseases and difficulty interpreting large datasets hinder research into chronic respiratory diseases. Omics assesses the changes in specific biological entities, such as mRNA expression, epigenetics/epigenomics, genomics, proteomics, metagenomics and metabolomics, and provides valuable insights into the roles of these processes in chronic respiratory diseases. High-throughput omics at bulk, single-cell and spatial levels empower the exploration of disease-related changes through untargeted data-driven statistical methods. Multi-omics is the exploration and integration of multiple biological processes, which compared to a single-omics, can provide a substantially greater and more holistic overview of the pathogenic mechanisms that underpin complex diseases. Multi-omics analysis can comprehensively characterise the mechanisms that drive chronic respiratory diseases, capturing unique biological signatures and cellular interactions at different omics levels. Use of these methods has begun to identify key factors and biomarkers in chronic respiratory diseases. Here, we review current omics approaches and highlight recent advances in respiratory research achieved using multi-omics and integrative methods. Our review provides a valuable resource for researchers and clinicians in this area.

Conflict of interest statement

Conflict of interest: M.D. Luecken contracted for the Chan Zuckerberg Initiative, received speaker fees from Pfizer and Janssen Pharmaceuticals, and consults for CatalYm GmbH. The other authors declare no competing interests according to the ERS conflicts of interest policy.

Supplementary info

Publication types, MeSH termsExpand

Full text links

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Cite

5

Appl Psychophysiol Biofeedback

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. 2026 Jan 14.

doi: 10.1007/s10484-025-09763-5. Online ahead of print.

Respiratory Biofeedback Training as an Adjunct Intervention in Pulmonary Rehabilitation for Late-Stage COPD: A Pilot Trial

Gianvito Lagravinese [1], Giorgio Castellana [2], Maddalena Genco [2], Marialuisa Guglielmo [3], Serena Tagliente [3], Patrizia Guido [2], Ioannis Alexandros Charitos [2], Maria Aliani [2], Petronilla Battista [3], Mattia Nese [# 4], Mauro Carone [# 2]

Affiliations Expand

- PMID: 41533188

- DOI: 10.1007/s10484-025-09763-5

No abstract available

Keywords: Biofeedback; COPD; Cognition; Depression; Dyspnea; Pulmonary rehabilitation; Quality of life.

Conflict of interest statement

Declarations. Conflicts of interest: The authors declare no competing interests. Informed consent: Written informed consent was obtained from patients for publication of this study. All eligible patients agreed to participate and provided written informed consent. No refusals occurred. The institutional ethics committee of IRCCS Maugeri of Bari approved this study.

- 44 references

Prevalence of treatable traits among patients with very severe COPD across STAR and GOLD classification: A multicenter cohort study

Weiwei Meng [1 2 3 4], Yiming Ma [1 2 3 4 5], Jiankang Wu [1 2 3 4], Jiayu Wang [1 2 3 4], Rui Zhao [1 2 3 4], Sisi Liu [1 2 3 4], Naishu Xie [1 2 3 4], Qixuan Huang [1 2 3 4], Lijun Liu [6], Yanchao Liang [7], Huihui Zeng [1 2 3 4], Yan Chen [1 2 3 4]

Affiliations Expand

- PMID: 41532221

- DOI: 10.1080/25310429.2026.2613525

Free article

Abstract

Objectives: This study aimed to demonstrate the prevalence of treatable traits (TTs) and investigate the relationship between specific TTs and future exacerbation-related readmission risk among patients with very severe chronic obstructive pulmonary disease (COPD) across both STaging of Airflow obstruction by Ratio (STAR) and Global Initiative for Chronic Obstructive Lung Disease (GOLD) grading system.

Methods: A total of 589 hospitalised patients were included. Participants underwent a multidimensional assessment to characterise the TTs and were then followed up for one year. Cox regression analyses were used to determine the association between the TTs and future exacerbation-related readmission risk.

Results: Hospitalised patients with very severe COPD exhibit a higher prevalence of TTs. In the STAR classification, TTs of bronchodilator reversibility, emphysema, frequent exacerbations, frequent hospital admission, O_2 desaturation, dyspnoea, exercise intolerance, pathogen colonisation, underweight, diabetes and not adherence were significantly related with 'STAR 4'. In the GOLD classification, TTs including bronchodilator reversibility, frequent exacerbations, frequent hospital admission, O2 desaturation, dyspnoea, exercise intolerance, pathogen colonisation, underweight, heart failure, dyslipidemia, not adherence and indoor use of biomass/coal were significantly linked with 'GOLD 4'. Furthermore, Cox regression analysis showed that patients with STAR 4 exhibited seven TTs associated with future exacerbation-related readmission risk, whereas two TTs were predictors in patients with GOLD 4.

Conclusion: Patients with very severe COPD exhibited more TTs that require intervention. Additionally, specific TTs were associated with future exacerbation-related readmissions in patients with very severe COPD across STAR and GOLD classification, indicating their clinical utility of evaluating them.

Keywords: Chronic obstructive pulmonary disease; exacerbation; severity staging; treatable traits.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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ERJ Open Res

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. 2026 Jan 12;12(1):00472-2025.

doi: 10.1183/23120541.00472-2025. eCollection 2026 Jan.

Concavity of the maximal expiratory flow-volume curve, and incidence of COPD and respiratory symptoms: a population-based cohort study

Daniel J Tan [1 2], David P Johns [1 3], Caroline J Lodge [1], Dinh S Bui [1], Don Vicendese [1 4], Garun S Hamilton [2 5], MeiLan K Han [6], Alvar Agusti [7 8 9], Michael J Abramson [1 10], Jennifer L Perret [1 11 12], Shyamali C Dharmage [1 13], E Haydn Walters [1 3 13]

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- PMID: 41532089
- PMCID: PMC12794249
- DOI: 10.1183/23120541.00472-2025

Abstract

Background: Concavity of the maximal expiratory flow-volume curve is widely regarded as an early indicator of obstructive airways disease. However, its discriminatory accuracy for respiratory outcomes has remained poorly defined. We aimed to examine the discriminatory accuracy of concavity of the maximal expiratory flow-volume curve *versus* post-bronchodilator (BD) forced expiratory volume in 1 s/forced vital capacity (FEV_1/FVC) as predictors of incidence of COPD and respiratory symptoms.

Methods: Spirometry was performed on a subset of the Tasmanian Longitudinal Health Study cohort at age 45 years, and incidence of COPD and respiratory symptoms were prospectively monitored over the next 8 years (n=852). Central and peripheral concavity were assessed using a published algorithm based on post-BD

forced expiratory flow at 50% of the FVC ($FEF_{50\%}$) and $FEF_{75\%}$, respectively. Optimal thresholds were determined using the unweighted Youden Index for COPD incidence.

Results: Among participants without COPD at age 45 years, central and peripheral concavity were greater in those who developed COPD by age 53 years than in those who did not (mean difference: +20%, 95% CI 12-28, and +15%, 95% CI 7-23, respectively). Central concavity above the optimal threshold (27%) had a sensitivity of 70% and specificity of 79% for COPD incidence, while peripheral concavity above the optimal threshold (47%) had a sensitivity of 79% and specificity of 50%. Excess central and peripheral concavity were associated with an increased odds of developing wheeze and exertional dyspnoea over the 8-year follow-up. Post-BD FEV_1/FVC was more sensitive and specific for COPD incidence than the concavity indices, but was not associated with incident respiratory symptoms.

Conclusion: Concavity indices were more useful for assessing future risk of respiratory symptoms but had lower discriminatory accuracy for COPD incidence compared to post-BD FEV_1/VC.

Conflict of interest statement

Conflict of interest: D.J. Tan, D.P. Johns, D. Vicendese and G.S. Hamilton declare no conflicts of interest. C.J. Lodge, D.S. Bui, J.L. Perret and E.H. Walters hold investigator-initiated grants from GSK for unrelated research. M.K. Han has received unrelated consulting fees from AstraZeneca (AZ), Boehringer Ingelheim (BI), GSK, Novartis, Pulmonx, Teva, Verona, Merck, Mylan, Sanofi, DevPro, Aerogen, Polarian, Regeneron, United Therapeutics, Altesa BioPharma and Amgen, and research support or funds from Sanofi, Novartis, Nuvaira, Sunovion, AZ, BI, Gala Therapeutics, Biodesix, COPD Foundation and American Lung Association. A. Agusti has received personal fees from AZ, grants and personal fees from Menarini, personal fees from Chiesi, grants and personal fees from GSK, and personal fees from Nuvaira, outside the submitted work. M.J. Abramson holds investigator-initiated grants from GSK, Pfizer, BI and Sanofi for unrelated research; has undertaken an unrelated consultancy for and received assistance with conference attendance from Sanofi; and received a speaker's fee from GSK. S.C. Dharmage holds investigator-initiated grants from GSK and AZ for unrelated research.

8

Review

. 2026 Jan 13.

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Neutrophils as critical orchestrators of chronic inflammation

Kaat Torfs [#1], Gaël Vermeersch [#1,2], Mieke Gouwy [1], Timothy Devos [1,2], Paul Proost [3], Sofie Struyf [1]

Affiliations Expand

- PMID: 41530536

- DOI: 10.1038/s41423-025-01380-w

Abstract

Neutrophils are the first key effector innate immune cells recruited toward inflammatory sites. Through the release of neutrophilic extracellular traps (NETs), the production of reactive oxygen species (ROS), degranulation and phagocytosis, neutrophils play a central role in the rapid elimination of invading pathogens. Recently, increasing attention has been given to the role of neutrophils in chronic inflammation, challenging the dichotomy between innate and adaptive immune responses. In chronic inflammatory conditions, neutrophils generally display a hyperinflammatory phenotype via dysregulated pathogen defense mechanisms. Excessive neutrophil activation may result in aberrant cell death, uncontrolled oxidative burst or NET formation and sustained release of inflammatory mediators such as proteases and inflammatory cytokines. Therefore, neutrophils contribute to the development of a sustained inflammatory environment and cause collateral tissue damage. In addition to their direct inflammatory effects, neutrophils further orchestrate inflammation and tissue remodeling by actively engaging in crosstalk with other cells within the immune microenvironment, such as endothelial cells, monocytes, platelets, and T and B cells. This review summarizes the current knowledge of the emerging role of neutrophils in the context of chronic inflammation. The key characteristics of neutrophils and their interactions with distinct cell types are discussed within the initial part of the review, whereas the second part focuses on their contributions to the pathophysiology of immune-driven diseases, including rheumatoid arthritis, atherosclerosis, inflammatory bowel disease, systemic lupus erythematosus, chronic obstructive pulmonary disease, and fibrotic disorders. Increasing knowledge on neutrophil behavior in the context of chronic inflammation may offer novel insights into disease pathology and, potentially, the identification of novel therapeutic targets.

Keywords: Chronic inflammation; Innate immune response; Neutrophil.

Conflict of interest statement

Competing interests: The authors have nothing to disclose. PP is the editorial board member of Cellular & Molecular Immunology, but he has not been involved in the peer review or the decision-making of the article.

- **306 references**

Supplementary info

Publication types, Grants and fundingExpand

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Med Clin (Barc)

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. 2026 Jan 12;166(1):107232.

doi: 10.1016/j.medcli.2025.107232. Online ahead of print.

Impact of an integrated transitional care programme for older patients with multimorbidity and repeated emergency department visits

[Article in English, Spanish]

Antonio San-José [1], María José Abadías [2], Emmanuel Giménez [3], Marta Losada [4], Carmen Pérez-Bocanegra [5], María Gabriela Carrizo [1], María Arranz [6], Jordi Acezat [7], Jordi Ibáñez [8], Miriam Barrecheguren [9], Ana Belén Méndez [10], Neus Gual [11]

Affiliations Expand

- **PMID: 41529580**

- **DOI: 10.1016/j.medcli.2025.107232**

Abstract

Background: With an ageing population, the prevalence of multimorbidity is increasing. This leads to increasing frailty and repeated Emergency Department (ED) visits. This study aim was to evaluate the impact of an integrated transitional

care programme on ED revisits and Health-Related-Quality-of-Life (HRQoL) in older patients with multimorbidity.

Methods: Prospective intervention pre-post study comparing the programme impact 6 months before and 6 after launching (from November-2022 to June-2023). The programme involved automated daily lists, a patient distribution protocol and a specialized case - manager nurse. Patients included had two or more ED visits in the 6 months prior due to Heart Failure (HF) decompensation or Chronic Obstructive Pulmonary Disease (COPD) exacerbation with multimorbidity. The programme involved the tertiary, intermediate and primary care centres of an integrated care health area of a Spanish city.

Results: In 126 older patients with multimorbidity and repeated ED visits (91 HF, 29 COPD, 6 both), an integrated transitional care programme resulted in a significant 33% reduction in ED visits after six months. The reduction was higher among women (39.6% reduction vs 27.6% in men) and patients experiencing HF (38.7% vs 17.2% in COPD). Most participants (68.2%) reported an improvement or maintenance of quality of life.

Conclusion: A combined intervention between automated lists, territorial consensus, and a specialized case-manager nurse is efficacious to achieve ED re-visits decreases with a majority of patients having maintained or improved HRQoL.

Keywords: Atención integrada; Calidad de vida relacionada con la salud; Chronic disease; Enfermedad crónica; Health related quality of life; Integrated care; Multimorbidity; Multimorbilidad; Repeated visit to Emergency Department; Transición asistencial; Transitional care; Visitas recurrentes al servicio de urgencias.

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Chronic Obstr Pulm Dis

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. 2026 Jan 12.

doi: 10.15326/jcopdf.2025.0673. Online ahead of print.

Determinants of Medication Nonadherence Among Diverse Adults With Chronic Obstructive Pulmonary Disease

Stephanie L LaBedz [1], Ebere M Okpara [2], Archit V Potharazu [3], Min J Joo [1 4], Valerie G Press [5], Lisa K Sharp [6]

Affiliations Expand

- PMID: 41528163

- DOI: 10.15326/jcopdf.2025.0673

Free article

Abstract

Introduction: High rates of medication non-adherence contribute to poor outcomes in chronic obstructive pulmonary disease (COPD), but the mechanisms driving non-adherence remain poorly understood.

Methods: We conducted qualitative semi-structured interviews to evaluate barriers and facilitators of inhaler adherence. The Capability, Opportunity, and Motivation model of Behavior informed the semi-structured interview guide and analysis.

Results: Short-term lapses in inhaler use commonly resulted from inhaler unaffordability, not possessing the inhaler, forgetfulness, and geographical or logistical issues accessing healthcare services. Participants overcame these barriers by requesting more affordable inhalers, keeping inhalers in strategic locations, routinizing inhaler use, utilizing reminders or cues, having extra inhalers, and leaning on social support. Nearly half of participants reported using their inhalers differently than prescribed because of insufficient knowledge, skills, or complex motivational barriers. Participants who reported using an incorrect dosage schedule or poor inhaler technique were unaware of their inhaler misuse. Although participants collectively saw some benefit to using inhalers, many were intentionally non-adherent due to conflicting motivational factors. Common motivational barriers to adherence included beliefs that inhalers were not always necessary, non-adherence carried little risk, their self-identity conflicted with having COPD, and emotional distress related to numerous medications. There were strong interactions between reinforcement and other motivational factors that created feedback loops which strengthened or weakened adherence.

Conclusions: Barriers to medication adherence were common and varied by individual. Knowledge and skills barriers are well-suited for interventions that utilize instruction or enablement, whereas motivational barriers could be addressed through reinforcement or interventions tailored at the individual level.

Keywords: COPD; inhalation therapy; maintenance therapy; medication adherence; race.

Supplementary info

Grants and fundingExpand

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Review

Expert Rev Respir Med

. 2026 Jan 13:1-22.

doi: 10.1080/17476348.2026.2616838. Online ahead of print.

Haemophilus influenzae in the airways: canary in the coal mine or driver of disease?

Jodie Ackland [1], Lauren Bowron [2], Michael Joseph Cox [2], Karl James Staples [1 3]

Affiliations Expand

- PMID: 41527686

- DOI: 10.1080/17476348.2026.2616838

Abstract

Introduction: Overgrowth and colonization by non-typeable *Haemophilus influenzae* (NTHi) is a common feature of increasing disease severity, treatment resistance and increased susceptibility to disease exacerbations across chronic airways diseases (CADs). Whether NTHi is a driver of respiratory disease or reflects that the damaged airway has become a permissive environment for growth remains to be proven.

Areas covered: In this review, we discuss the potential roles of hypermutation, biofilm formation and intracellular living in allowing NTHi to adapt to living in the lungs of individuals with CADs. Furthermore, we also highlight immunological, structural and mucosal changes in the lungs themselves that can create a permissive niche for NTHi colonization. Given the significance of the host-pathogen interaction in the pathophysiology of CADs, we also consider which host and bacterial mechanisms may serve as potential targets for novel therapeutics. To achieve this we performed a comprehensive literature search through PubMed to identify studies reporting on NTHi in chronic airways diseases published up to 1 December 2025.

Expert opinion: A deeper understanding of the dynamic interactions between NTHi and the diseased airway may help identify novel diagnostic and therapeutic interventions that can be effective across multiple CADs.

Keywords: Asthma; COPD; Haemophilus influenzae; NTHi; bronchiectasis.

Supplementary info

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Int J Chron Obstruct Pulmon Dis

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. 2026 Jan 8:21:1-14.

doi: 10.2147/COPD.S557298. eCollection 2026.

An Interpretable AdaBoost Model for 1-Year Readmission Risk Prediction in AECOPD Patients with Hypertension

Xinxin Zhang [1], Maolang He [1], Jingyi Zhang [2], Luna Zhao [1], Dong Liu [1]

Affiliations Expand

- **PMID: 41527668**
- **PMCID: PMC12790769**
- **DOI: 10.2147/COPD.S557298**

Abstract

Background: Chronic obstructive pulmonary disease (COPD) complicated by hypertension imposes a substantial global health burden, with acute exacerbation of chronic obstructive pulmonary disease (AECOPD) significantly increasing 1-year readmission risk. This study aimed to develop and validate an interpretable machine learning (ML) model that predicts 1-year readmission risk in AECOPD patients complicated by hypertension using real-world data.

Methods: This retrospective cohort study enrolled 2042 patients with AECOPD complicated by hypertension from the First Affiliated Hospital of Shihezi University between 2015 and 2024. The data were split into training and test sets at a 7:3 ratio. Feature selection was performed based on machine learning methods. Eight ML models were trained and tested to construct predictive models. Model performance was evaluated by the area under the receiver operating characteristic curve (AUC), accuracy, recall, specificity, and F1-score. The Shapley additive explanation method (SHAP) was used to rank the feature importance and explain the final model. An online risk prediction tool was developed based on the optimal model to facilitate clinical application.

Results: The 1-year readmission rate of patients with AECOPD complicated by hypertension was 37.5%. Seven independent predictors, including times of inhospitalization, procalcitonin, total protein, international normalized ratio (INR), prothrombin time, D-dimer, and hypoproteinemia, were identified as the most valuable features for establishing the models. The AdaBoost model showed optimal performance, with an AUC of 0.884 in the test set and an average AUC of 0.889 in 5-fold cross-validation. SHAP analysis confirmed that times of inhospitalization were the strongest predictor, followed by INR and total protein. An online calculator was deployed (https://fast.statsape.com/tool/detail?id=17) for clinical use.

Conclusion: This study developed an interpretable AdaBoost-based online calculator for 1-year readmission risk assessment in AECOPD patients by hypertension. The tool highlight the importance of addressing hypercoagulability and nutritional status to reduce readmission risk. Further external multi-center validation is needed to enhance its generalizability.

Keywords: 1-year readmission; acute exacerbation of chronic obstructive pulmonary disease; hypertension; machine learning; web calculator.

Conflict of interest statement

The authors declare no competing interests.

- 73 references
- 4 figures

Supplementary info

Publication types, MeSH termsExpand

Full text links

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Cite

13

Curr Opin Pulm Med

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doi: 10.1097/MCP.0000000000001238. Online ahead of print.

Integrated disease management in outpatient chronic obstructive pulmonary disease

Steven Deas [1 2], Aarthi Rao [3], Deepa Raghavan [1 2]

Affiliations Expand

- PMID: 41527399

- DOI: 10.1097/MCP.0000000000001238

Abstract

Purpose of review: There is an undisputable knowledge-to-care implementation gap in chronic obstructive pulmonary disease (COPD) management. Integrated disease management (IDM), a multidisciplinary approach to prevent and manage chronic diseases, has been identified as one potential solution to address this gap. The purpose of this review is to examine the recent evidence base and discuss the nuances of IDM in COPD care.

Recent findings: IDM in COPD has been implemented in the real world setting in diverse geospatial contexts in the last 5 years. IDM teams are predominantly embedded in primary care clinics and consist of 2-8 multidisciplinary team members. Interventions delivered by IDM COPD teams have been highly variable, making it difficult to definitively conclude 'how many' and 'which intervention' or 'combination of interventions' is needed to achieve positive clinical outcomes. Health service utilization and patient symptom scores are the common outcomes examined, and IDM COPD teams invariably achieved positive outcomes.

Summary: IDM represents a promising approach to the gaps in COPD guideline implementation and may help reduce care fragmentation. IDM teams have been shown to improve clinical outcomes, and also improve patient and provider satisfaction. A strong implementation plan that is theoretically grounded and considers all relevant contextual factors is more likely to result in successful implementation of an effective IDM team.

Keywords: chronic obstructive pulmonary disease; interprofessional team; outpatient; team-based care.

- 38 references

Full text links

Cite

14

Am J Epidemiol

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More Lessons from the Lung Health Study

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Affiliations Expand

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Abstract

The 32.5-year follow-up of the Lung Health Study (LHS) published in this issue highlights the long-term impact of a well-executed randomized clinical trials (RCTs) evaluating a smoking cessation intervention. Between 1986 and 1989, the LHS enrolled 5,887 smokers aged 35-59 with mild-to-moderate airway obstruction across ten North American sites and randomized them to a 10-day smoking cessation intervention with placebo inhaler, the same intervention with ipratropium bromide, or usual care. The latest 32.5-year analysis confirms a reduction in respiratory-related mortality, though the earlier observed all-cause mortality benefit observed at 14.5 years was not seen. The updated analysis excludes 608 participants from the one Canadian clinic and their baseline smoking characteristics differed from the US participants. Regardless, qualitative effect modification is unlikely. Shifts in leading causes of death over time, competing risks, and potential postrandomization selection bias are challenges inherent in extended follow-up, yet the findings of reduced respiratory mortality for participants assigned to smoking cessation stood the test of time. This publication highlights the importance of trial conduct, data preservation, and the value of long-term follow-up using the National Death Index. Congratulations to the authors for this fourth update and to all LHS researchers who contributed to this landmark clinical trial.

Keywords: COPD; Clinical trials; smoking cessation.

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Respir Res

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A novel targeted lung denervation multi-polar radiofrequency ablation system for moderate to severe COPD patients: a translational study

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Free article

Abstract

Background: Disruption of parasympathetic pulmonary nerves, which release acetylcholine and trigger airway smooth muscle constriction, has been shown to improve lung function and alleviate symptoms in patients with chronic obstructive pulmonary disease (COPD). However, the current targeted lung denervation (TLD) mono-polar radiofrequency (RF) ablation system has the potential for structural improvement to enhance the generalizability and safety of the TLD procedure.

Objective: To develop a novel TLD multi-polar RF ablation for COPD treatment and evaluate its feasibility, safety, and efficacy.

Methods: In the preclinical study, we performed TLD in vitro (porcine lung and liver model) to validate its feasibility and in vivo (dogs and sheep) to ensure its safety

and preliminary efficacy. Subsequently, we conducted a first-in-man study to evaluate TLD in patients with COPD forced expiratory volume in 1 s (FEV_1)/forced vital capacity (FVC) (FEV_1/FVC < 0.70; FEV_1 20%-60% predicted) with three energy settings (12 W, 14 W, and 16 W). The primary safety endpoint was the occurrence of any adverse events or serious adverse events deemed related to the TLD device or the procedure. The efficacy endpoints included the instrument and technical success rates of the TLD procedures, as well as changes in lung function, exercise capacity assessments, and health-related quality of life.

Results: In vitro experiments demonstrated that using ice-cold saline irrigation reduced the temperature at the ablation point compared to room-temperature saline (44 °C vs. 63 °C). The ablation range was 6-8 mm when the single electrode power was 12-16 W, coinciding with the distribution of peribronchial nerves. In the in vivo experiments, we confirmed the feasibility of performing TLD in dogs without causing esophageal injury. In sheep, the bronchoscopy and histological examinations showed airway epithelial restitution within a one-year follow-up. Postprocedural pulmonary airway resistance was reduced by approximately 30% with a sustained 30% decrease in axonal staining. In the first-in-man study, the nine patients included reported good tolerance with a success instrument rate of 100% and a technical success rate of 88.9%. FEV_1 increased by 160 ± 120 mL at 6 months post-TLD and 80 ± 150 mL at 12 months post-TLD from baseline. The patients' motor ability and quality of life scores showed improvement but returned to baseline levels by the twelfth month.

Conclusion: This study demonstrated the feasibility of the novel TLD multi-polar RF ablation system in COPD patients. Its safety and clinical efficacy require further validation in larger patient cohorts.

Clinical trial number: ChiCTR2100047843 (http://www.chictr.org.cn/). Registration date: 27 June, 2021.

Keywords: Anticholinergic; Chronic obstructive pulmonary disease; Multi-polar radiofrequency ablation; Targeted lung denervation.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This animal study was approved by the Ethical Committee of WestPoint Innovation Center (Ethical Approval number: IAC21110101, IAC22041801), and treatment of the animals was in accordance with the Animal Welfare Act of 1966 and all efforts were made to minimize animal suffering and to use the minimum number of animals necessary to produce reliable scientific data. This clinical study was approved by Ethical Committee of West China Hospital of Sichuan University (Ethical Approval number: 2021-426) and in accordance with the Declaration of Helsinki (1996), Good Clinical Practice guidelines, and local requirements. The trial was registered on the Chinese Clinical Trial Registry (chiCTR.gov, No. ChiCTR2100047843, 27 June, 2021). The date of enrolment of the first research participant was 15 September, 2021. Patients or their representatives provided signed informed consent forms before participation in the study. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

- 18 references

Supplementary info

Grants and fundingExpand

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Nat Med

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Interpretable inflammation landscape of circulating immune cells

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Affiliations Expand

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- DOI: 10.1038/s41591-025-04126-3

Abstract

Inflammation is a biological phenomenon beneficial for homeostasis, but it is unfavorable if dysregulated. Although major progress has been made in characterizing inflammation in specific diseases, a global, holistic understanding is still elusive. This is particularly intriguing, considering its function for human health and the potential for modern medicine if fully deciphered. In this study, we leveraged advances in single-cell transcriptomics to delineate inflammatory processes of circulating immune cells during infection, immune-mediated inflammatory diseases and cancer. Our single-cell atlas of more than 6.5 million peripheral blood mononuclear cells from 1,047 patients (56% female, 43% male) and 19 diseases allowed us to learn a comprehensive model of inflammation in circulating immune cells. The atlas expands current knowledge of the biology of inflammation of immune-mediated diseases, acute and chronic inflammatory diseases, infections and solid tumors and lays the foundation to develop a disease classification framework using unsupervised as well as explainable machine learning. Beyond a disease-centered analysis, we charted altered activity of inflammatory molecules in peripheral blood cells, depicting discriminative inflammation-related genes to further understand mechanisms of inflammation. We present a rich resource for the community and lay the groundwork for learning a classifier for inflammatory diseases, presenting cells in circulation as living biomarkers.

Conflict of interest statement

Competing interests: H.H. is co-founder and Chief Scientific Officer of Omniscope; a scientific advisory board member of Nanostring, Bruker and MiRXES; and a consultant to Moderna and Singularity. H.H. also received an honorarium from Genentech. J.C.N. is a scientific consultant to Omniscope. V.S. has received research grants from AstraZeneca and honoraria from GlaxoSmithKline unrelated to this study. M.v.d.B. has received research grants (unrestricted) from AstraZeneca, Novartis, GlaxoSmithKline, Roche, Genentech, Chiesi and Sanofi. M.N. has been awarded research grants (unrestricted) from AstraZeneca and GlaxoSmithKline. A.S. is the recipient of research grants from Roche-Genentech, AbbVie, GlaxoSmithKline, Scipher Medicine, Pfizer, Alimentiv, Boehringer Ingelheim and Agomab; receives consulting fees from Genentech, GlaxoSmithKline, Pfizer, HotSpot Therapeutics, Alimentiv, Origo Biopharma, Deep Track Capital, Great Point Partners and Boxer Capital; and is on the advisory boards of BioMAdvanced Diagnostics, Goodgut and Orikine. A.A. is a computational biologist at IMIDomics, Inc. A.J. is the chief data scientist at IMIDomics, Inc. S.M. is the co-founder and chief medical officer at IMIDomics, Inc. J.S.-R. reports funding from GlaxoSmithKline, Pfizer and Sanofi and fees/honoraria from Travere Therapeutics, Stadapharm, Astex, Pfizer, Grunenthal and Owkin. The remaining authors declare no competing interests.

- **94 references**

Full text links

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Chronic Obstr Pulm Dis

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. 2026 Jan 5.

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Lung Cancer in Patients With COPD: Predictors of Surgery and Long-Term Survival Following Lung Resection

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Affiliations Expand

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Free article

Abstract

Background: Lung resection is the preferred treatment option for lung cancer. Patients with chronic obstructive pulmonary disease (COPD) may be denied surgery due to lung function impairment or other comorbidities.

Research question: To describe the predictors of lung resection and long-term survival in patients with COPD with early-stage non-small cell lung cancer (NSCLC).

Study design and methods: Retrospective cohort study of patients with COPD treated for resectable NSCLC between 2009 and 2019 in a tertiary care hospital. The decision to operate or not followed a thorough clinical evaluation. Survival status was obtained from a provincial registry. A multivariable logistic regression analysis was used to determine predictors of surgery. A propensity score technique was used to control for confounding by indication. Hazard ratios (HR) for survival were estimated from a Cox regression model, adjusted for measured baseline confounders and propensity score as covariates.

Results: 1307 patients with COPD were included, including 918 who underwent surgery. 147 (38%) of those who did not have surgery were treated with stereotactic body radiotherapy, 86 (22%) with conventional radiotherapy and 156 (40%) did not receive any active treatment. Predictors of surgery included age, FEV_1,

adenocarcinoma versus squamous cell carcinoma, and stage IIA versus stage IA. Propensity score-adjusted survival was significantly reduced with non-surgical versus surgical approaches.

Interpretation: Lung resection was associated with better survival in patients with COPD and resectable lung cancer compared to non-surgical approaches.

Keywords: COPD; lung cancer; stereotactic body radiotherapy; surgery.

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Chronic Obstr Pulm Dis

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The Impact of Treated and Untreated COPD Exacerbations on Long-Term Health-Related Quality of Life

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Affiliations Expand

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Free article

Abstract

Objective: Untreated COPD exacerbations are associated with short-term changes in lung function and decreased health-related quality of life (HRQoL). This study aims to examine the association between untreated exacerbations and long-term HRQoL, as well as differences in characteristics between treated and untreated exacerbations.

Methods: A secondary analysis was performed using data from a prospective observational cohort study of participants with COPD. Participants' HRQoL was measured using the Chronic Respiratory Questionnaire (CRQ) at baseline and at 12 months. Exacerbations were ascertained with phone calls every two weeks, with detailed information regarding exacerbations obtained by research staff. Exacerbations were considered treated if participants took prednisone or antibiotics. Mixed models were used to analyze differences in treated and untreated exacerbation characteristics. Linear and logistic regression models were used to examine the association between the number of treated and untreated exacerbations and a change in CRQ at 12 months.

Results: Among 410 participants, 355 experienced 1097 exacerbations during the 12-month study period, of which 460 (42%) were treated. Treated exacerbations were more severe and lasted longer (25.5 vs 19.9 days, $p<0.001$) compared to untreated exacerbations. Each additional untreated exacerbation experienced was associated with a significant worsening of long-term HRQoL scores compared to those without exacerbations: CRQ dyspnea (adjusted b= -0.10; 95% CI -0.18 to -0.03), CRQ fatigue (b= -0.07; -0.14 to -0.01), and CRQ emotional function (b= -0.08; -0.14 to -0.02).

Conclusion: Untreated COPD exacerbations occurred frequently and were associated with worse long-term HRQoL, despite being shorter and less severe than treated exacerbations.

Keywords: acute exacerbation of COPD; health-related quality of life; quality of life.

Supplementary info

Grants and fundingExpand

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Chronic Obstr Pulm Dis

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doi: 10.15326/jcopdf.2025.0669. Online ahead of print.

Rationale and Design of the Roflumilast or Azithromycin to Prevent COPD Exacerbations Clinical Trial

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Affiliations Expand

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Free article

Abstract

Chronic obstructive pulmonary disease (COPD) is a leading cause of hospitalization and death, particularly among patients with chronic bronchitis and frequent exacerbations. Results of placebo-controlled clinical trials indicate that treatment escalation with either long-term oral roflumilast or azithromycin can reduce COPD exacerbations. However, head-to-head comparative data from clinical trials are lacking, so the relative harms and benefits of these treatments are unclear. The RELIANCE (RofLumilast or Azithromycin to preveNt COPD Exacerbations) study is an investigator-initiated, multicenter, randomized, pragmatic clinical trial embedded in clinical practice to evaluate the effectiveness of treatment escalation with long-term azithromycin versus roflumilast in patients with COPD and chronic bronchitis. We solicited preferences from patients, clinicians, and other stakeholders during the design and implementation phases of the study, including feedback that informed modifications related to the COVID-19 pandemic. Eligibility criteria did not require assessments outside of clinical practice, with exclusions principally for safety. The composite endpoint of first all-cause hospitalization or death served as the primary outcome. Enrollment was initially through university-affiliated Clinical Centers but was subsequently expanded to recruit patients in community-based practices who might not otherwise participate in research. We employed human-centered design principles to improve the usability of study activities from the perspective of participants, study staff, and treating clinicians. The final study design offered the option for patients with COPD and chronic bronchitis at high-risk of hospitalization or death to be remotely consented, prescribed a medication according to the randomized treatment allocation, and complete virtual follow-up study visits in a decentralized clinical trial.

Keywords: COPD; acute exacerbation of COPD; clinical trials; hospital readmission reduction program.

Supplementary info

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Int J Infect Dis

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Clinical Characteristics and Prognostic Differences Between RSV and Influenza A Virus Infections in Hospitalized Adult Patients

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- PMID: 41520773

- DOI: 10.1016/j.ijid.2026.108381

Free article

Abstract

Introduction: Respiratory syncytial virus (RSV) and influenza A virus are primary causes of lower respiratory tract infections in adults. However, there is limited comparative data on their clinical characteristics and prognostic impact in hospitalized patients. We aimed to describe the clinical characteristics and differences in prognosis among individuals aged 18 years and older admitted to the hospital with RSV, compared to influenza A.

Methods: This study was conducted at a teaching hospital in Beijing, China, across a respiratory season (November 1, 2023- January 30, 2024). All hospitalized adults with laboratory-confirmed RSV or influenza A infection were enrolled. Patients were divided into three groups: those with RSV infection, those with influenza A infection, and those with co-infection with both viruses. We compared clinical features, comorbidities, laboratory and radiological findings, treatments, complications, and outcomes across the groups. Multivariable logistic regression identified factors associated with adverse outcomes in inpatients with RSV infection.

Results: A total of 538 patients were included, comprising 162 (30.1%) with RSV infection, 355 (66.0%) with influenza A, and 21 (3.9%) with co-infection. Co-infected patients were older (72 years; p < 0.001), predominantly smokers (90.5%; p < 0.001), and more frequently presented with hypoxemia (71.4%; p = 0.007) and dyspnea (76.2%; p = 0.032). RSV patients showed higher rates of productive cough (62.3%; p = 0.014), whereas influenza A was associated with fever (64.8%; p = 0.002) and myalgia (14.6%; p = 0.028). Use of antiviral therapy was lowest in RSV (24.1%; p < 0.001), while influenza A had the highest complication burden (99.2%; p < 0.001). Mechanical ventilation was most frequently required in co-infections (42.9%; p = 0.013), although overall mortality and Intensive Care Unit (ICU) admission did not differ across groups. In multivariate analysis of RSV patients, current smoking (adjusted OR, 2.61; 95% CI, 1.98-6.91; p = 0.044), chronic obstructive pulmonary disease (COPD) (adjusted OR, 2.99; 95% CI, 1.21-7.35; p = 0.017), chronic heart failure (adjusted OR, 3.71; 95% CI, 1.62-8.46; p = 0.002), and pneumonia (adjusted OR, 3.14; 95% CI, 1.26-7.81; p = 0.014) independently predicted adverse outcomes.

Conclusion: RSV and influenza A infections share a high complication burden but exhibit distinct clinical features. RSV patients with COPD, heart failure, or pneumonia face greater risks, and co-infections further worsen severity, including an increased rate of mechanical ventilation, underscoring the need for tailored preventive and therapeutic strategies, including RSV vaccination.

Keywords: Adverse outcome; Clinical features; Influenza A; Respiratory syncytial virus.

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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Pulm Pharmacol Ther

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Effectiveness of Mepolizumab and Dupilumab in patients with asthma-COPD overlap (ACO) compared to severe uncontrolled asthma (SUA): A retrospective observational cohort study

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Affiliations Expand

- PMID: 41519429

- DOI: 10.1016/j.pupt.2025.102407

Abstract

Background: The coexistence of asthma and chronic obstructive pulmonary disease (COPD), known as asthma-COPD overlap (ACO), presents unique diagnostic and therapeutic challenges. Although biological therapies such as Mepolizumab and Dupilumab have transformed the management of severe eosinophilic asthma, their role in ACO remains poorly defined due to the exclusion of this phenotype from most clinical trials.

Methods: This retrospective observational study aimed to evaluate the real-world effectiveness of Mepolizumab and Dupilumab in patients with ACO compared to those with severe uncontrolled asthma (SUA). We included 212 patients treated in a specialized asthma unit between 2017 and 2024, all with at least 12 months of follow-up. Treatment response was assessed using clinical tools (EXACTO scale and SEPAR-REMAS criteria).

Results: Among Mepolizumab-treated patients (ACO n = 10; SUA n = 132), those with ACO had significantly lower baseline FEV_1 and lower rates of good/complete response (14.2 % vs. 60 %, p < 0.03) and clinical remission (0 % vs. 20.9 %). In the Dupilumab group (ACO n = 10; SUA n = 60), ACO patients showed lower baseline ACT scores and FEV_1, with reduced response rates (25 % vs. 55 %) and no clinical remission, although differences were not statistically significant. Despite limited power due to small ACO sample sizes, the magnitude of these differences suggests a clinically relevant reduction in biologic effectiveness in ACO.

Conclusion: These findings emphasize the urgent need for dedicated studies in ACO, a population with a high disease burden and limited treatment guidance. Individualized therapeutic approaches should be prioritized until robust clinical trial data becomes available.

Keywords: Asthma; Biologic therapy; Chronic obstructive pulmonary disease (COPD); Clinical remission; Real-world study; Therapeutic response.

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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Respir Investig

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Identifying high-risk smokers without airflow limitation using new COPD criteria: pooled analysis of two Japanese cohorts

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- **PMID: 41512641**

- **DOI: 10.1016/j.resinv.2026.101368**

Abstract

Background: Recently proposed multidimensional chronic obstructive pulmonary disease (COPD) diagnostic criteria incorporate computed tomography (CT) findings and symptoms beyond airflow limitation. These criteria, developed using North American cohorts, require validation in Asian populations in which COPD phenotypes differ. We examined whether these criteria identify Japanese smokers at increased exacerbation risk, particularly those without airflow limitation.

Methods: This retrospective analysis pooled data from two prospective Japanese cohorts (Kyoto-Himeji and K-CCR) that included 517 smokers aged ≥40 years undergoing chest CT and COPD assessment test (CAT). The criteria included one major criterion (airflow limitation) and five minor criteria (emphysema [low attenuation area percent, LAA% ≥5 %], airway wall thickening [wall area percent ≥60 %], symptoms, dyspnea, and chronic bronchitis). COPD was defined as meeting the

major criterion plus ≥1 minor criterion or ≥3 minor criteria alone. Negative binomial regression examined three-year exacerbation risk.

Results: Among 517 smokers, 364 had major criteria COPD, 26 had minor criteria-only COPD, 40 had airflow limitation without meeting COPD criteria, and 87 had neither (non-COPD group). Exacerbation rates were 0.270, 0.259, 0.161, and 0.069 per person-year, respectively. Both COPD groups had a significantly greater exacerbation risk than the non-COPD group (adjusted IRR: 4.95 [95 %CI: 1.79-14.62] for minor criteria-only; 3.95 [2.06-7.79] for major criteria). Higher CAT scores and LAA % were independently associated with a greater exacerbation risk in patients with COPD.

Conclusion: The new multidimensional COPD criteria successfully identified Japanese smokers at increased exacerbation risk, including those without airflow limitation, supporting their applicability across different populations. Registered at UMIN (UMIN000028387).

Keywords: Airway; COPD; Chronic obstructive pulmonary disease; Emphysema; Imaging.

Cite

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J Intensive Care Med

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The Superiority of AVAPS Mode of Non-invasive Ventilation in Combination with HFNC Over HFNC Alone in Patients with Chronic Obstructive Pulmonary Disease Complicated by Respiratory Failure

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Affiliations Expand

- PMID: 41512102

- DOI: 10.1177/08850666251412806

Abstract

ObjectiveThis paper was designed to investigate the clinical efficacy of combining the Average Volume Assured Pressure Support (AVAPS) mode of non-invasive ventilation (NIV) with high-flow nasal cannula oxygenation (HFNC) oxygen therapy in managing chronic obstructive pulmonary disease (COPD) patients complicated by respiratory failure.MethodsNinety-six patients with COPD and respiratory failure were enrolled and classified into a control group and an observation group. Both groups received conventional treatment. The control group was treated with AVAPS-mode NIV, while the observation group received additional HFNC. Clinical outcomes, adverse reactions, clinical indicators, blood gas parameters, serum inflammatory markers, and pulmonary function indicators were compared between the two groups.ResultsThe observation group had a significantly higher overall clinical response rate (93.75% vs 75.00%, $P < 0.05$), shorter ICU stays and mechanical ventilation times, lower respiratory rates, higher PaO_2, SaO_2, FEV_1, FVC, and FEV_1/FVC values, and lower $PaCO_2$, IL-6, IL-8, TNF-α, and sTREM-1 levels than the control group (all $P < 0.05$). Heart rate did not differ significantly between the two groups ($P > 0.05$). The adverse reaction rate was significantly lower in the observation group relative to the control group (4.17% vs 18.75%, $P < 0.05$).ConclusionThis combined approach demonstrates superior efficacy in treating COPD patients with respiratory failure, improving arterial blood gas and pulmonary function, reducing inflammatory responses, and exhibiting a high safety profile.

Keywords: average volume assured pressure support mode; chronic obstructive pulmonary disease; clinical efficacy; high-flow nasal cannula oxygen therapy; non-invasive ventilation; respiratory failure.

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Prescribing Patterns of Gabapentinoids in Patients with Chronic Obstructive Pulmonary Disorder

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- PMID: 41510798

- DOI: 10.1080/15412555.2025.2596683

Free article

Abstract

In 2019, the U.S. Food and Drug Administration (FDA) issued a warning regarding the risk of serious respiratory depression in patients using gabapentin or pregabalin who have respiratory risk factors, including those with chronic obstructive pulmonary disorder (COPD). With the overall prescribing of gabapentinoids continuing to grow, there is the potential for inappropriate prescribing in this patient population. Data from the National Ambulatory Medical Care Survey (NAMCS) from 2013 to 2018, with the exception of 2017, was used to assess prevalence and predictors of gabapentinoid prescribing in patients with COPD. The data consists of 1,131 unweighted visits, representing approximately 53.6 million ambulatory care visits nationally. Of these visits, 146 patients (10.8%) with a COPD diagnosis were also prescribed a gabapentinoid, which represents more than a million office visits annually when weighted. Patients with an increased risk of receiving gabapentinoids were those with concomitant diabetes mellitus, concurrent opioid use, and those currently using tobacco. Due to increased risk of serious respiratory depression caused by gabapentinoids, prescribers should take caution when prescribing to individuals with COPD and other respiratory risk factors. Based on the reviewed prescribing patterns, more education is needed to inform providers about the risks associated with concomitant COPD and gabapentinoid use.

Keywords: Chronic obstructive pulmonary disorder; gabapentin; gabapentinoids; pregabalin; prescribing trends; respiratory depression.

PLoS One

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The investigation and prevalence of pulmonary embolism among emergency department patients with acute exacerbations of chronic obstructive pulmonary disease (AECOPD): A multi-centered linked administrative database study

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Affiliations Expand

- PMID: 41505482
- PMCID: PMC12782416
- DOI: 10.1371/journal.pone.0340308

Abstract

Background: Although patients with acute exacerbation of chronic obstructive pulmonary disease (AECOPD) may be investigated for pulmonary embolism (PE) in the emergency department (ED), little is known about the prevalence of PE and factors associated with investigation. We sought to evaluate the PE prevalence among patients presenting to the ED with AECOPD.

Methods: All adult patients presenting with AECOPD to six EDs between January 2015 and June 2021 using ICD-10-CA codes from administrative data. The primary outcomes were the investigation for and prevalence of PE. Conventional, age-adjusted D-dimer (AADD) and chest imaging are reported. A multivariable logistic regression was used to identify predictors of investigations for PE among patients with AECOPD, including demographic characteristics, comorbidities, and ED presentation data as covariates.

Results: Of the 25,510 patients with AECOPD, 12,164 (48%) patients (median age 70 years, 50% males, 46% hospitalized) were included after applying exclusion criteria. Overall, 2,072 (17%) patients received at least one test for PE: 84% had a D-dimer, 44% had a chest CT and 2% had lung scans. Overall, 68 (0.5%) patients received a diagnosis of PE; 41 (0.3%) received a PE co-diagnosis in the ED and 27 (0.2%) patients received a primary PE diagnosis while hospitalized. Use of an AADD could reduce CT image ordering by approximately 13%. Overall, 852 (7%) returned to the ED and 490 (4%) died within 30 days. The presence of chest pain (aOR=2.71; 95% CI:

2.24-3.28) and cough/congestion (aOR=0.57; 95% CI: 0.46-0.70) increased and decreased PE investigations, respectively.

Conclusion: The overall prevalence of PE among patients presenting to the ED with AECOPD was low (less than 1%). While acknowledging PE may occur concurrently with AECOPD, clinicians should be cautious to avoid over-investigation, which has a negative impact on operational flow, increases costs, and may be harmful to patients. Evidence-based pathways using information readily available at presentation and selective investigations (e.g., decision rules and AADD cut-offs) have the potential to improve resource use and facilitate shared decision-making in the acute setting.

Conflict of interest statement

No authors have competing interests.

- 19 references
- 2 figures

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Cite

26

J Asthma

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Small airway abnormalities in asthmatic patients with persistent airflow limitation

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Affiliations Expand

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Abstract

Background: A subset of patients with asthma develops persistent airflow limitation (PAL) despite optimal treatment. The role of small airways dysfunction (SAD) in this phenotype, and its relationship with symptoms, remains incompletely understood.

Objectives: To assess small airways function in asthmatic patients with PAL and compare it with patients with fully reversible asthma and with COPD; and to explore correlations between small airway indices and patient-reported outcomes.

Methods: We enrolled 60 patients (20 with asthma and PAL, 20 with fully reversible asthma, 20 with COPD) matched for age, sex, and pre-bronchodilator FEV1. Small airways function was evaluated using impulse oscillometry (IOS; R5-R20) and single-breath nitrogen washout test (SBNWT; dN2). Patients completed a daily symptom diary (dyspnea, cough, sputum, and rescue medication use) over four weeks.

Results: Compared with fully reversible asthma, asthmatic patients with PAL showed significantly higher dN2 and R5-R20 values, though less pronounced than in COPD. SAD (R5-R20 > 0.07 $kPa \cdot L^{-1} \cdot s$) was present in all COPD patients, 79% of PAL patients, and 37% of reversible asthma patients ($p < 0.001$). In PAL, R5-R20 correlated strongly with dyspnea scores ($r = 0.64$, $p < 0.001$). In reversible asthma, R5-R20 correlated with cough and rescue medication use, whereas in COPD, symptoms were primarily related to residual volume.

Conclusions: Small airways dysfunction is highly prevalent in asthmatic patients with PAL and significantly contributes to daily symptom burden. Its intermediate severity between COPD and reversible asthma suggests that SAD plays a central role in the pathogenesis of fixed obstruction, suggesting a potential role for targeted diagnostic and therapeutic strategies.

Keywords: COPD; Small airways; abnormalities; asthma; function.

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In-hospital Mortality Patterns and Readmissions in Patients With Chronic Obstructive Pulmonary Disease: An Analysis of the Role of Pulmonary Hypertension

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Free article

Abstract

Chronic obstructive pulmonary disease (COPD) may be complicated by pulmonary hypertension (PH). We aimed to understand the impact of PH on in-hospital mortality and quantify the 30-day readmission rate among patients with COPD. For this cross-sectional study, we used the Nationwide Readmissions Database from 2017-2020 to identify adults ≥18 years with COPD. Patients were stratified according to PH diagnosis. Baseline characteristics between groups were compared using the Pearson chi-square test and two-sample t-test. Predictors of in-hospital mortality were determined using multivariate logistic regression analysis adjusted for demographics and confounders. The 30-day readmission rate and prevalence of PH subgroups by baseline COPD status were also obtained. There were 766,561 (7.43%) patients with concomitant PH and COPD among 10,312,543 patients with COPD. Patients with PH and COPD were older, female, and more often had a length of stay ≥7 days (all $p < 0.001$). Patients with PH suffered more from in-hospital mortality than those without PH (5.84% versus 3.94%, $p < 0.001$). PH predicted in-hospital mortality (adjusted odds ratio [aOR]: 1.22 [1.21-1.24], $p < 0.001$). COVID-19 (aOR: 6.20 [6.11-6.30]), metastatic cancer (aOR: 3.28 [3.23-3.32]), and moderate/severe liver disease (aOR: 3.09 [3.04-3.15]) were the strongest positive predictors of in-hospital mortality (all $p < 0.001$) in all patients with COPD. The 30-day readmission rate for the entire cohort was approximately 16%. Most patients had PH coded as unspecified/other.PH was associated with increased in-hospital mortality among patients with COPD, highlighting a high-risk group for targeted interventions to reduce morbidity and mortality.

Keywords: Nationwide Readmissions Database; chronic obstructive pulmonary disease; in-hospital mortality; pulmonary hypertension.

Supplementary info

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Review

NPJ Prim Care Respir Med

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A deep dive into atrial fibrillation in chronic obstructive pulmonary disease

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Free article

Abstract

Chronic obstructive pulmonary disease (COPD) is a prevalent respiratory condition and a major cause of morbidity and mortality. Atrial fibrillation (AF) is the most common chronic arrhythmia in patients with and without COPD, with numerous factors contributing to its development. These include hypoxemia, hypercapnia, hyperinflammation and changes in cardiac geometry and autonomic function. The presence of COPD is associated with an elevated risk of thromboembolic events, recurrence of atrial fibrillation after cardioversion, and increased all-cause mortality. Conversely, AF itself further increases the risk of mortality in patients with COPD. Medications employed in the COPD treatment may have deleterious effects on AF, while medications used to treat AF have the potential to exacerbate COPD. The majority of bronchodilator agents have been observed to increase heart rate and induce AF episodes. However, antimuscarinic agents appear to be better tolerated than β-receptor agonists in COPD. It is imperative that the AF treatment be tailored to the individual needs of patients with COPD. The efficacy and safety of AF

catheter ablation in cases with COPD appears to be well-established. Further research is warranted to develop appropriate AF screening protocols in COPD patients, incorporating artificial intelligence and telemonitoring, as well as to establish COPD-specific tools for estimating thromboembolic risk. This narrative review comprehensively explores the complex relationship between COPD and AF, incorporating the latest evidence and offering novel insights and updated perspectives.

Conflict of interest statement

Competing interests: The authors declare no competing interests.

- **168 references**

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Nat Med

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Global, regional, and national burden of chronic respiratory diseases and impact of the COVID-19 pandemic, 1990-2023: a Global Burden of Disease study

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Abstract

Chronic respiratory diseases, including chronic obstructive pulmonary disease (COPD), asthma, pneumoconiosis, interstitial lung disease (ILD) and pulmonary sarcoidosis, are major global causes of mortality and morbidity. Although the COVID-19 pandemic has influenced acute respiratory health, its impact on chronic respiratory conditions remains unclear. We estimated the global, regional and national burden of chronic respiratory diseases from 1990 to 2023, including risk factors, and evaluated how these burdens have shifted during the COVID-19 pandemic using the Global Burden of Disease Study 2023. In 2023, chronic respiratory diseases accounted for 569.2 million (95% uncertainty interval (UI), 508.8-639.8) cases and 4.2 million (3.6-5.1) deaths. The age-standardized death rate declined by 25.7% globally from 1990 to 2023 despite an increase in ILD and pulmonary sarcoidosis. Mortality declined in younger males, especially for asthma, whereas older adults experienced a rise in ILD and pulmonary sarcoidosis. Smoking was the primary risk factor for COPD, whereas high body mass index and silica exposure were key risk factors for asthma and pneumoconiosis. During the pandemic, the incidence of chronic respiratory diseases increased modestly, but the decline in mortality rates became more pronounced, highlighting the need for sustained global attention and action to address their long-term burden.

Conflict of interest statement

Competing interests: S. Ansari reports grants or contracts from the Australian Government Department of Health Medical Research Future Fund and Royal Australian College of General Practitioners (payment made to UNSW Sydney, administering institution for the grants); payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing or educational events from Asthma Australia toward participation in the Quality Use of Medicines for Chronic Airways Disease Program funded by the Australian Government Department of Health and Honoraria from the National Health and Medical Research Council for participation in two Grant Assessment Committees for the Australian Government Department of Health; support for attending meetings and/or travel from Asthma Australia toward participation in the Quality Use of Medicines for Chronic Airways Disease Program design thinking workshop in Brisbane, Australia; and other support from UNSW Sydney through two Australian Government Medical Research Future Fund grants, outside the submitted work. A. Min reports patents planned, issued or pending: US20200253891A1 Method of Liver Cancer Treatment with Safranal-Based Formulations (Pending); US20200254049A1 Combination Therapy for Cancer (Pending); and US20200253890A1 Suppression and Inhibition of CDC25B with Safranal-Based Formulations (Pending), outside the submitted work. R. Ancuceanu reports consulting fees from AbbVie and Merck Romania; payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing or educational events from AbbVie, Laropharm, Reckitt and Merck Romania; and support for attending meetings and/or travel from Merck Romania and Reckitt, outside the submitted work. J. A. Al-Tawfiq reports leadership or fiduciary role in other board, society, committee or advocacy group, paid or unpaid as a member of the executive board of the International Society for Infectious Diseases, outside the submitted work. M. Asghariahmadabad reports support for attending meetings and/or travel from the ASNR member in training travel grant to attend ASNR 2025,

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using microbial fuel cells, A system for disposed personal protection equipment (PPE) into biofuel through pyrolysis and method, A novel herbal pharmaceutical aid for formulation of gel and method thereof, and Herbal drug formulation for treating lung tissue degenerated by particulate matter exposure, and the filed patent, that is, A method to transform cow dung into the wall paint by using natural materials and composition thereof, and reports leadership or fiduciary role in other board, society, committee or advocacy group, paid or unpaid as executive council member, Indian Meteorological Society (Jaipur Chapter, India), and member secretary of DST PURSE Program, outside the submitted work. P.W. reports consulting fees from Novartis Pharmaceuticals outside the submitted work. Y. Yasufuku reports grants or contracts from Shionogi outside the submitted work. M. Zielińska reports other financial support as an Alexion, AstraZeneca Rare Disease, employee outside the submitted work. The other authors declare no competing interests.

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Sci Rep

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Albuminuria as a non-invasive biomarker of endothelial dysfunction in patients with COPD

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- PMCID: PMC12780131
- DOI: 10.1038/s41598-025-32462-4

Abstract

Endothelial dysfunction (ED) plays a significant role in the pathogenesis of chronic obstructive pulmonary disease (COPD). While albuminuria is currently recognized as a biomarker of generalized ED, data on the evaluation of albuminuria among COPD patients and its association with disease outcome measures are still limited. Thus, the aim of this study was to assess albuminuria among a group of COPD patients and investigate its relationship with clinical and physiological parameters. Sixty adult patients with COPD and forty non-COPD adult smokers were included in this cross-sectional study. All participants were assessed for anthropometric parameters, oxygen saturation (SpO_2), spirometry test, 6-minute walk test, flow-mediated dilation (FMD) of the brachial artery, routine laboratory measurements, and urinary albumin-to-creatinine ratio (UACR). Patients with COPD had higher levels of UACR (mg/g) and a greater prevalence of albuminuria than non-COPD smokers. COPD patients with albuminuria had higher body mass index (BMI), more frequent exacerbations, lower SpO_2, lower FMD, and higher fasting plasma glucose than patients without albuminuria. UACR in COPD patients was associated negatively with FMD and SpO_2 and positively with the number of comorbidities and fasting plasma glucose. The main predictors of albuminuria in COPD patients were high BMI, low SpO_2, and high fasting plasma glucose. The only independent predictor of albuminuria was the presence of low SpO_2. Given the significant association with FMD, the gold standard measure of ED, we suggest that the measurement of UACR could be routinely utilized for assessing ED in COPD patients, particularly those with low oxygen saturation.

Keywords: Albuminuria; Chronic obstructive pulmonary disease; Endothelial dysfunction; Hypoxemia..

Conflict of interest statement

Declarations. Competing interests: The authors declare no competing interests. Ethical approval: This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Ethics Committee of the Faculty of Medicine, Alexandria University, Egypt (IRB NO:00012098) (approval no. 0106712). Informed consent: Informed consent was obtained from all individual participants included in the study.

- 47 references
- 5 figures

Supplementary info

MeSH terms, SubstancesExpand

Full text links

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Mortality trends in chronic obstructive pulmonary disease in 27 countries within Europe from 2011 to 2021

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- PMID: 41494695
- PMCID: PMC12778345
- DOI: 10.1136/bmjresp-2025-003175

Abstract

Background: Chronic obstructive pulmonary disease (COPD) incurs significant mortality worldwide. Less is known about the burden in the last decade across Europe. We report trends and variations in mortality for patients with COPD across 27 European countries from 2011 to 2021.

Methods: COPD mortality was extracted from the EUROSTAT database, using the International Classification of Diseases 10 codes J43 and J44 for each country. Age-standardised and sex-standardised mortality rates (SMR) were calculated and joinpoint regression identified average annual percentage change (AAPC) in deaths from 2011 to 2021. Global Burden of Disease tobacco prevalence data were used to try and best contextualise the mortality.

Results: The overall SMR in Europe for this period was 32.1 (95% CI 32.0 to 32.1) per 100 000 person-years, with substantial geographical heterogeneity. There was a fivefold difference in mortality rates between the countries with the greatest versus the least deaths. Although there was an apparent 3% (95% CI -4.4% to -1.6%) decrease in average annual deaths from 2011 to 2021 across Europe, there was no significant change in deaths from 2011 to 2018, prior to the UK leaving the dataset (a noticeably high outlier in SMR) and the COVID-19 pandemic. A 2% reduction (95% CI -2.6% to -1.2%) in annual mortality rate was noted in males from 2011 to 2018, while females increased (AAPC 1.3% (95% CI 0.1% to 2.6)%) in the same time frame.

Conclusion: The plateau in COPD-related deaths across Europe from 2011 to 2018 demands focus. Geographical variation in mortality suggests under-reporting in some countries, which may underestimate the true burden.

Keywords: COPD epidemiology.

Conflict of interest statement

Competing interests: Outside of the work submitted, CEB reports grants from NIHR, Horizon EU 2020 and various industry collaborative on BEACON project—AZ, GSK, Chiesi, Boehringer, Novartis for work not directly related to this project. CEB is also a member of the iDMC in an unrelated area. CEB has previously had unpaid roles as Chair of the COPD Specialist Advisory Group 2019–2023 for BTS and as a member of the Lung Taskforce till 2020–2023. FG reports consulting fees from Boehringer Ingelheim. AG and CEB are supported by the NIHR BRC. All other authors declare no conflicts of interest.

- **42 references**
- **2 figures**

Supplementary info

MeSH termsExpand

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Cite

32

BMC Pulm Med

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. 2026 Jan 5.

doi: 10.1186/s12890-025-04079-w. Online ahead of print.

Sexually dimorphic response to tobacco exposure in COPD: a systematic review and meta-analysis

Ryan Chow [1], Michelle Pham [2], Matthew Cope [1], Jean Wang [3], Ramtin Ghasemi [1], Sarah Yang [1], David Le Nguyen [1], Sami Aftab Abdul [1], Sanathan

Sadh [4], Alexander Xiang [5], Preshit Ambade [6], Razan Frances [3], Risa Shorr [6], Smita Pakhale [7]

Affiliations Expand

- PMID: 41492127

- DOI: 10.1186/s12890-025-04079-w

Free article

Abstract

Background: Chronic obstructive pulmonary disease (COPD) is a heterogeneous, progressive pulmonary disorder with persistent respiratory symptoms resulting from abnormalities in the airways and/or alveoli and was prevalent globally in 10.3% of people aged 30-79 years in 2019. The prevalence of COPD has increased rapidly in women in the past decade. This may be due to increased tobacco use, but may also involve sex-specific factors.

Purpose: To evaluate the prevalence of COPD in the context of sex and tobacco exposure.

Data sources and searches: Comprehensive searches of MEDLINE (OVID), EMBASE and CENTRAL were conducted for articles published from inception to July 22, 2022.

Study selection: We independently evaluated titles, abstracts and full-text articles in a duplicated two-staged process. Studies were included if they reported the prevalence of COPD as a primary outcome in the context of sex and tobacco exposure.

Data synthesis and analysis: Pooled analysis was conducted with Review Manager 5, and heterogeneity was assessed with the I^2 statistic. For 163, 450 individuals the prevalence of COPD was 3.5-20.7% in males and 6.3-18.5% in females, and we observed a non-statistically significant difference of 1.53% [95% CI: -5.83, 8.89] ($p = 0.68$) in females compared to males with tobacco exposure ($Tau^2 = 54.02$; $Chi^2 = 53.15$; $df = 4$ ($P < 0.00001$); $I^2 = 92\%$). Females with COPD had earlier mortality, greater co-morbidities involving cardiovascular disease and others, and decreased FEV_1% predicted, as compared to males with COPD. Estrogen and androgens may protect against COPD, but smoking-induced hypogonadism may diminish these effects. Menopause could also be a contributor to worse COPD outcomes.

Limitations: Included articles are limited by the quality of data on tobacco smoke exposure, primarily reported as a binary risk factor, with lack of availability on duration and intensity of exposure.

Conclusion: There was earlier mortality and reduced FEV_1 in females with COPD, as compared to males with COPD. Thus, sex-specific considerations are important in understanding the pathophysiology of COPD and should be a focus of further research.

Conflict of interest statement

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

- **58 references**

Supplementary info

Grants and fundingExpand

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Cite

33

Ann Med

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. 2026 Dec;58(1):2611466.

doi: 10.1080/07853890.2025.2611466. Epub 2026 Jan 5.

Clinical impact of disease stability on exacerbation and mortality in COPD: a retrospective cohort study

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Affiliations Expand

- **PMID: 41492099**
- **PMCID: PMC12778000**
- **DOI: 10.1080/07853890.2025.2611466**

Abstract

Background: Disease stability is an achievable goal in chronic obstructive pulmonary disease (COPD) management. However, the clinical implications of disease stability in patients with COPD remain unclear.

Methods: We conducted a single-center retrospective cohort study using the electronic medical records of treated patients with symptomatic COPD. Patients

who had newly initiated inhaler therapy with long-acting β2-agonist/long-acting muscarinic antagonist (LABA/LAMA) or inhaled corticosteroid/LABA/LAMA combinations were included. Disease stability was defined over a one-year assessment period as meeting all of the following criteria: (1) symptom stability; (2) no moderate or severe exacerbations; and (3) no rapid decline in lung function. The outcomes included acute exacerbations and all-cause mortality.

Results: Of the 725 screened patients, 405 were eligible for inclusion in the study. Among them, 158 (39.0%) achieved disease stability. The proportions of patients who met each criterion were 70.4% for symptom stability, 63.7% for no exacerbations, and 71.4% for a non-rapid lung function decline. Only 5.9% met none of these criteria. During the follow up duration of median 62 (interquartile ranges, 30-90) months, disease stability was significantly associated with a reduced risk of moderate-to-severe (adjusted hazard ratio [aHR] 0.521, 95% confidence interval [CI] 0.392-0.692) and severe (aHR 0.393, 95% CI 0.279-0.553) exacerbations after adjusting for confounders. It was also associated with a decreased mortality risk (aHR 0.345, 95% CI 0.135-0.883).

Conclusion: Disease stability was associated with a lower risk of exacerbation and mortality, suggesting its potential role as a treatment target and outcome measure for COPD.

Keywords: Chronic obstructive pulmonary disease; disease progression; exacerbation; mortality; treatment outcome.

Conflict of interest statement

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

- 31 references
- 5 figures

Supplementary info

MeSH terms, SubstancesExpand

Full text links

Proceed to details

Cite

34

Sleep Breath

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. 2026 Jan 5;30(1):17.

doi: 10.1007/s11325-025-03564-0.

Impact of obstructive lung disease and sleep apnea symptoms on cardiovascular risk and all-cause mortality: insights from a community-dwelling cohort

Trygve M Jonassen [1 2], Bjørn Bjorvatn [3 4 5], Sahrai Saeed [6], Tomas M Eagan [3 7], Sverre Lehmann [3 5 7]

Affiliations Expand

- PMID: 41491867
- PMCID: PMC12769650
- DOI: 10.1007/s11325-025-03564-0

Abstract

Purpose: Chronic obstructive pulmonary disease (COPD) and obstructive sleep apnea (OSA) are prevalent conditions with overlapping pathophysiological mechanisms. Their coexistence, termed overlap syndrome, is thought to amplify cardiometabolic risk. This study examined the 10-year risk of major adverse cardiovascular events (MACE) and all-cause mortality in individuals with COPD and OSA symptoms in a community-based cohort.

Methods: Baseline data (1998-1999) from the Hordaland Health Study were linked to national registries on mortality and cardiovascular events. Of 7,456 eligible adults born 1925-1927 and 1950-1951, a random sample of 5,100 was invited, and 3,305 with valid spirometry were included. OSA symptoms were assessed by questionnaire, and chronic airway obstruction (CAO) was defined as post-bronchodilator $FEV_1/FVC < 0.70$. Cox regression estimated hazard ratios (HR) for MACE and all-cause mortality.

Results: CAO independently predicted both MACE (HR 1.48, 95% CI 1.12-1.97, $p < 0.006$) and all-cause mortality (HR 1.78, 95% CI 1.44-2.22, $p < 0.001$). Excessive daytime sleepiness (EDS) was associated with increased mortality (HR 1.37, 95% CI 1.01-1.85, $p = 0.045$). A significant interaction was found between CAO and habitual snoring, with participants displaying both having more than a twofold increased risk of mortality (HR 2.22, 95% CI 1.31-3.76, $p = 0.003$).

Conclusions: CAO and EDS emerged as independent predictors of mortality, while the coexistence of CAO and snoring conferred synergistic risk. These findings highlight the need to recognize OSA symptoms in patients with obstructive lung disease, as they may identify a vulnerable subgroup at heightened risk. Future studies using objective sleep assessments are warranted to clarify mechanisms and guide preventive strategies.

Keywords: Cardiovascular risk; Chronic obstructive pulmonary disease; Mortality; Obstructive sleep apnea; Overlap syndrome.

Conflict of interest statement

Declarations. Ethical approval: The study was conducted in accordance with the ethical standards of the 1964 Helsinki declaration and its later amendments and was approved by the regional ethics committee of Western Norway (REK-Vest) with case number 2010/2560). Financial disclosures: No funding was received for this study. Informed consent: Informed consent was obtained from all individual participants included in the study. Conflict of interest: We wish to confirm that there are no conflicts of interest associated with the enclosed manuscript and there has been no significant financial support for this work that could have influenced its outcome.

- 35 references
- 2 figures

Supplementary info

MeSH termsExpand

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Cite

35

Sci Rep

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. 2026 Jan 4.

doi: 10.1038/s41598-025-34065-5. Online ahead of print.

Enhancing chronic disease management: hybrid graph networks and explainable AI for intelligent diagnosis

Muhammad Aamir [1], Yang Ke Yu [2], Nomica Choudhry [3], Uzair Aslam Bhatti [4]

Affiliations Expand

- PMID: 41486172

- DOI: 10.1038/s41598-025-34065-5

Free article

No abstract available

Keywords: Attention mechanism; Chronic obstructive pulmonary disease; Coronary heart disease; Diabetes mellitus; Explainable artificial intelligence; Graph convolutional neural network; LIME; Medical recommendation systems; SHAP.

Conflict of interest statement

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

- **50 references**

Supplementary info

Grants and fundingExpand

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36

BMC Pulm Med

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. 2026 Jan 5.

doi: 10.1186/s12890-025-04083-0. Online ahead of print.

Efficacy and economic impact of a WeChat-based integrated care model for pulmonary rehabilitation in COPD: a retrospective propensity score matched study

Qiuxia Zheng [1], Xinwen Zhou [1], Peiling Jiang [1], Qingqing Pan [2], Weili Chen [3]

Affiliations Expand

- **PMID: 41486125**

- **DOI: 10.1186/s12890-025-04083-0**

Free article

No abstract available

Keywords: Chronic obstructive pulmonary disease; Health economics; Hospital-community-family integrated care model; Pulmonary rehabilitation; WeChat.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: The research protocol was approved by the Ethics Committee of Lishui Hospital of Traditional Chinese Medicine Affiliated to Zhejiang University of Traditional Chinese Medicine (approval no. 2025029). The written informed consent was waived due to the retrospective study design. The study was conducted in compliance with the Declaration of Helsinki. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

- 31 references

Supplementary info

Grants and fundingExpand

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37

Eur J Med Res

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. 2026 Jan 3.

doi: 10.1186/s40001-025-03739-1. Online ahead of print.

Association between hemoglobin glycation index and mortality in critically ill patients with chronic obstructive pulmonary disease: a retrospective cohort study

Liwei Pan [1], Fengfeng Lu [2], Wenwu Zhang [2], Bihuan Cheng [2], Jie Wang [3], Benji Wang [4]

Affiliations Expand

- PMID: 41484650

- DOI: 10.1186/s40001-025-03739-1

Free article

Abstract

Background: Chronic obstructive pulmonary disease (COPD) is a critical illness with high intensive care unit (ICU) mortality. Traditional glycemic markers like hemoglobin A1c (HbA1c) poorly reflect individual glucose metabolism variability. The hemoglobin glycation index (HGI), derived from the discrepancy between

measured HbA1c and values predicted by fasting plasma glucose (FPG), assesses glycometabolic variability but remains unstudied in critically ill COPD patients.

Methods: This retrospective cohort enrolled 1,125 critically ill COPD patients admitted to the ICU, with data derived from the MIMIC-IV database. HGI was calculated as measured HbA1c minus predicted HbA1c (model: HbA1c = - 0.0095 × FPG + 5.02) and divided into tertiles. Cox regression models, adjusted for demographics, comorbidities, and clinical parameters, evaluated HGI tertile associations with 30-day, 90-day, and 365-day all-cause mortality. Restricted cubic splines (RCS) and threshold analysis explored nonlinear relationships.

Results: Among 1,125 patients, higher HGI tertiles were independently associated with lower mortality at all timepoints. In multivariable-adjusted Model II (age, sex, ethnicity, hematocrit, hemoglobin, SOFA score, SAPS II score, corticosteroid use, sepsis, and mechanical ventilation, diabetes), compared to the lowest tertile (T1), T2 and T3 showed significantly reduced mortality. For the 30-day mortality, the hazard ratios (HRs) were 0.54 (95% confidence interval [CI] 0.36-0.77, P = 0.0012) for T2 and 0.69 (95% CI 0.46-0.98, P = 0.0396) for T3; for the 90-day mortality, the HRs were 0.59 (95% CI 0.42-0.80, P = 0.0015) for T2 and 0.68 (95% CI 0.50-0.96, P = 0.0274) for T3; and for the 365-day mortality, the HRs were 0.67 (95% CI 0.51-0.87, P = 0.0108) for T2 and 0.73 (95% CI 0.57-0.96, P = 0.0277) for T3, all of which showed significant decreasing trends (all P for trend < 0.05). RCS analysis identified a nonlinear relationship between HGI and 30-day mortality (threshold: HGI = 0.865), with HGI increases below this threshold reducing mortality, and no association above it. Subgroup analyses showed no significant interactions.

Conclusions: Lower HGI levels are independently associated with higher short- and long-term mortality in critically ill COPD patients, with a nonlinear threshold effect. HGI may serve as a novel prognostic biomarker, highlighting the need for personalized glycometabolic management.

Keywords: Chronic obstructive pulmonary disease; Hemoglobin glycation index; Intensive care unit; Mortality.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: Ethical approval for the MIMIC-IV database was granted by the institutional review boards (IRBs) at Beth Israel Deaconess Medical Center and the Massachusetts Institute of Technology. Since the database contains no protected health information, the IRBs authorized a waiver of the informed consent requirement as part of the approval process. Competing interests: The authors declare no competing interests.

- 56 references

Supplementary info

Grants and fundingExpand

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38

Review

J Neurol

. 2026 Jan 3;273(1):53.

doi: 10.1007/s00415-025-13602-2.

Brain structural changes in COPD patients with cognitive impairment

He Jia-Kai [1], Tan Yun-Sheng [2], Han Xin-Yu [2], Zhang Shuai [3], Wang Zhi [4], Chen Ze-Hao [5], Meng Yu-Feng [6], Lang Yi [6], Yao Zi-Ang [6], Wang Hong-Tao [6], Wang Yue [7], Feng Cui-Ling [8]

Affiliations Expand

- PMID: 41483230
- PMCID: PMC12764604
- DOI: 10.1007/s00415-025-13602-2

Abstract

Chronic obstructive pulmonary disease (COPD) is increasingly recognized as a systemic condition associated with an elevated risk of cognitive impairment, particularly in domains of executive function and attention, presenting a pattern distinct from Alzheimer's disease. This review synthesizes evidence from multimodal neuroimaging studies to characterize the cerebral alterations in COPD and frame them within the context of accelerated brain aging. Patients with COPD exhibit widespread structural brain changes, including reduced gray matter volume in cognitively critical regions, such as prefrontal cortex, cingulate gyrus, hippocampus, and basal ganglia. Concurrently, white matter damage is evident as microstructural abnormalities in tracts including the cingulum bundle and corona radiata, alongside white matter hyperintensities. These microstructural abnormalities are characterized by decreased fractional anisotropy and increased mean diffusivity. Furthermore, neurovascular uncoupling, indicated by an imbalanced ratio of cerebral blood flow to degree centrality in frontal-temporal areas, contributes to network inefficiency. These neuroimaging abnormalities are

closely associated with deficits in executive function, attention, and visuospatial abilities. The underlying pathophysiology involves synergistic effects of systemic hypoxia, chronic inflammation, and neurovascular-coupling dysfunction, which collectively promote a cascade of brain injury resembling accelerated aging. Elucidating this unique neuropathological profile not only enhances the understanding of COPD-related cognitive decline but also highlights potential shared mechanisms with broader brain aging processes, offering insights for early diagnosis and targeted intervention strategies.

Keywords: Chronic obstructive pulmonary disease; Cognitive impairment; Gray matter atrophy; Multimodal neuroimaging; Neurovascular coupling; White matter damage.

Conflict of interest statement

Declarations. Conflicts of interest: The authors declare that they have no conflict of interest.

- 72 references
- 3 figures

Supplementary info

Publication types, MeSH terms, Grants and funding

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

1

Editorial

J Gen Intern Med

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. 2026 Jan 14.

doi: 10.1007/s11606-026-10199-8. Online ahead of print.

Coordinating Care in Cancer and Multimorbidity: From Personal Adaptation to Integrated Care

Naoyuki Kuse [1], Akira Kuriyama [2]

Affiliations Expand

- PMID: 41535636

- DOI: 10.1007/s11606-026-10199-8

No abstract available

Conflict of interest statement

Declarations. Conflicts of interest: The authors have no Conflicts of interest to declare.

- 10 references

Supplementary info

Publication typesExpand

Full text links

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Cite

2

BMC Health Serv Res

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. 2026 Jan 13.

doi: 10.1186/s12913-026-14045-9. Online ahead of print.

Baseline risk factors associated with all-cause early hospitalization of older patients following admission to Danish municipal temporary stays

Mahan Rajaeigolsefidi [1], Anton Pottegård [2 3], Kasper Edwards [4], Kathrin Kirchner [4]

Affiliations Expand

- PMID: 41530819

- DOI: 10.1186/s12913-026-14045-9

Free article

Abstract

Background: Transitions from hospital to community are high-risk for older adults. In Denmark, municipal temporary stay (TS) facilities provide short-term, bed-based post-acute support, but determinants of early (re)hospitalization after TS admission are not well described. We estimated baseline risk factors for 30-day and 180-day hospitalization among TS patients.

Methods: We performed a register-based cohort study that includes adults with TS admission in 14 municipalities (2016-2023). Individual-level linkages captured demographics, diagnosis history, healthcare-utilization markers, and characteristics of recent hospitalization episodes. Outcomes were all-cause hospitalization within 30 and 180 days after the index TS admission, with death treated as a competing event. We estimated cumulative incidence using the Aalen-Johansen method and fitted additive competing-risk regression with inverse failure probability weighting, which allows us to directly model absolute risk ratios (ARRs). Discrimination for 30-day risk was assessed with time-dependent c-index and Brier score using 3-fold cross-validation.

Results: Among 11,284 patients (median age 81 years), 26.1% were hospitalized, and 7.6% died within 30 days without prior hospitalization. In adjusted models, male sex (ARR 1.16, 95% CI 1.09-1.24), higher multimorbidity (1-2 vs 0: 1.17, 1.04-1.31; ≥3 vs 0: 1.43, 1.27-1.61), and recent hospitalization (1.24, 1.14-1.34) increased 30-day risk, whereas older age decreased it per 10 years (0.96, 0.93-0.98). Several morbidities were associated with higher 30-day risk (cancer-related morbidities, cirrhosis, chronic kidney disease, chronic heart failure, atrial fibrillation, chronic pulmonary disease, diabetes), while dementia and prior stroke/TIA were associated with lower risk. Healthcare-utilization markers showed dose-response relations (≥4 prior hospitalizations: 1.58; ≥10 medications: 1.28; ≥3 procedures: 1.34). In the recently hospitalized subgroup, a fall-injury primary diagnosis reduced 30-day risk (0.88), recent surgery increased it (1.09), and hospital stays > 14 days conferred higher risk (1.31). The best 30-day model yielded a c-index of 0.623 and Brier score of 0.186.

Conclusions: Early (re)hospitalization after TS admission is common and patterned by sex, multimorbidity, intensive prior healthcare use, and selected morbidities. Although model discrimination was modest, the identified risk factors can inform targeted interventions in transitional care delivered at TS settings.

Clinical trial number: Not applicable.

Keywords: Competing risks; Denmark; Hospital readmission; Hospitalization; Intermediate care; Older adults; Post-acute care; Risk regression; Temporary stay; Transitional care.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This research project has been conducted in accordance with the principles of the Helsinki Declaration and further adheres to the legal requirements of the study country. This study was register-based, only anonymized data was used, data is presented in aggregate and anonymous form, and study participants were not contacted nor required any active participation. According to Danish law, approval from an ethics committee and

informed consent to participate are not required for register-based studies (section 14.2 of the Act on Research Ethics Review of Health Research Projects and section 10 of the Data Protection Act). In terms of data protection, the study was registered at the University of Southern Denmark inventory (record no. 11.436). Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

- 64 references

Full text links

Cite

3

Med Clin (Barc)

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. 2026 Jan 12;166(1):107232.

doi: 10.1016/j.medcli.2025.107232. Online ahead of print.

Impact of an integrated transitional care programme for older patients with multimorbidity and repeated emergency department visits

[Article in English, Spanish]

Antonio San-José [1], María José Abadías [2], Emmanuel Giménez [3], Marta Losada [4], Carmen Pérez-Bocanegra [5], María Gabriela Carrizo [1], María Arranz [6], Jordi Acezat [7], Jordi Ibáñez [8], Miriam Barrecheguren [9], Ana Belén Méndez [10], Neus Gual [11]

Affiliations Expand

- **PMID: 41529580**

- **DOI: 10.1016/j.medcli.2025.107232**

Abstract

Background: With an ageing population, the prevalence of multimorbidity is increasing. This leads to increasing frailty and repeated Emergency Department (ED) visits. This study aim was to evaluate the impact of an integrated transitional care programme on ED revisits and Health-Related-Quality-of-Life (HRQoL) in older patients with multimorbidity.

Methods: Prospective intervention pre-post study comparing the programme impact 6 months before and 6 after launching (from November-2022 to June-2023). The programme involved automated daily lists, a patient distribution protocol and a specialized case - manager nurse. Patients included had two or more ED visits in the 6 months prior due to Heart Failure (HF) decompensation or Chronic Obstructive Pulmonary Disease (COPD) exacerbation with multimorbidity. The programme involved the tertiary, intermediate and primary care centres of an integrated care health area of a Spanish city.

Results: In 126 older patients with multimorbidity and repeated ED visits (91 HF, 29 COPD, 6 both), an integrated transitional care programme resulted in a significant 33% reduction in ED visits after six months. The reduction was higher among women (39.6% reduction vs 27.6% in men) and patients experiencing HF (38.7% vs 17.2% in COPD). Most participants (68.2%) reported an improvement or maintenance of quality of life.

Conclusion: A combined intervention between automated lists, territorial consensus, and a specialized case-manager nurse is efficacious to achieve ED re-visits decreases with a majority of patients having maintained or improved HRQoL.

Keywords: Atención integrada; Calidad de vida relacionada con la salud; Chronic disease; Enfermedad crónica; Health related quality of life; Integrated care; Multimorbidity; Multimorbilidad; Repeated visit to Emergency Department; Transición asistencial; Transitional care; Visitas recurrentes al servicio de urgencias.

doi: 10.14336/AD.2025.1012. Online ahead of print.

Mortality among Older Adults Across Multimorbidity Categories and Lifestyle Patterns

Rafael Ogaz-González [1], Qian Zou [1], Javier Maroto-Rodriguez [2], Luis Miguel Gutiérrez-Robledo [3], Ricardo Escamilla-Santiago [4], Malaquías López-Cervantes [4], Eva Corpeleijn [1]

Affiliations Expand

- PMID: 41525180

- DOI: 10.14336/AD.2025.1012

Abstract

Multimorbidity is common in older adults, and certain combinations of chronic conditions may confer higher mortality risk. Unhealthy lifestyle behaviours are also linked to shorter life expectancy. This study examined whether lifestyle patterns (LPs) modify the association between multimorbidity configurations (MCs) and mortality. We analysed data from 20,853 adults aged 60 and older in the Northern Netherlands Lifelines cohort, followed for a mean of 12 years. Five LPs were previously identified via latent class analysis, based on diet, physical activity, substance use, sleep, social connection, and stress. Multimorbidity was defined both as a disease count (≥2 non-communicable diseases [NCDs]) and as five latent MCs reflecting distinct NCD combinations. All-cause mortality was estimated using Kaplan-Meier plots and Cox models, reporting hazard ratios (HRs) with 95% confidence intervals (CIs), stratified by LPs. Compared to having no NCDs, mortality risk differed across MCs, with associations varying by LPs. Among participants with a 'Healthy in a balanced way' lifestyle, the 'Complex-Treatment' (HR 3.18, 95%CI: 2.24-4.51) and 'CVD-&-Vascular' (HR 2.35, 95%CI: 1.97-2.79) configurations showed the highest risks. In the 'Unhealthy but no substance use' group, mortality risk across MCs was more heterogeneous, with larger effect sizes. In contrast, multimorbidity defined by disease count showed limited variation in effect sizes across other LPs. LPs shape the mortality risk associated with multimorbidity. Risk variability across MCs was more pronounced in healthier lifestyles. These findings support the value of considering specific multimorbidity profiles-beyond disease count-for prognostic assessment and targeted interventions in older adults.

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Expert Rev Pharmacoecon Outcomes Res

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. 2026 Jan 12:1-13.

doi: 10.1080/14737167.2025.2610206. Online ahead of print.

Real-world healthcare resource utilization and medical costs in patients with overweight or obesity and multimorbidity treated with semaglutide in the United States

Prachi Arora [1], Firas Dabbous [2], Sariya Udayachalerm [2], Cynthia Saiontz-Martinez [2], Zhenxiang Zhao [1], Briain O Hartaigh [3], Anthony Fabricatore [4], Matthew Bassan [3], Sara Alvarez [3], Angela Fitch [5]

Affiliations Expand

- PMID: 41524543

- DOI: 10.1080/14737167.2025.2610206

Abstract

Background: Patients with overweight or obesity (OW/OB) are at increased risk for multimorbidity (≥2 obesity-related complications [ORCs]) and accompanying increases in mortality and excess costs.

Research design and methods: A retrospective, observational cohort study using the Komodo Health claims database assessed healthcare resource utilization and medical costs in patients with OW/OB and multimorbidity who received semaglutide compared with propensity-score matched obesity medication non-users (controls).

Results: Patients taking semaglutide (mean follow-up 101 days) had 27% lower all-cause total medical costs ($891 vs $1,213 per patient per month [PPPM]), 59% lower inpatient costs ($115 vs $283) and 18% lower outpatient costs ($746 vs $906) vs. controls (all $p < 0.0001$). ORC-related total medical costs were 36% lower ($522 vs. $812 PPPM), inpatient costs were 59% lower ($107 vs $259) and outpatient costs were 26% lower ($399 vs $540) among patients taking semaglutide than controls (all $p < 0.0001$). Use of semaglutide was associated with significant improvements in almost all cardiometabolic markers assessed from baseline to Weeks 52 and 104.

Conclusions: Patients treated with semaglutide had lower all-cause and ORC-related total medical costs than non-users, with a yearly reduction of $3,870 and $3,482, respectively. Cost reductions were driven by significantly lower inpatient hospitalization rates and costs.

Keywords: Healthcare resource utilization; medical costs; multimorbidity; obesity; semaglutide.

Plain language summary

People with overweight or obesity often have additional conditions related to excess weight (e.g. heart disease, stroke, diabetes) and most have two or more of these conditions (called multimorbidity). These patients cost more to treat compared with patients who do not have obesity-related complications. Semaglutide is a therapy that helps patients to lose excess weight. In this study, we

analyzed real-world data from routine clinical practice to compare healthcare resource use (HCRU) including hospital stays, outpatient visits, and emergency room visits and the cost of medical care for patients treated with semaglutide vs. similar patients who did not use any obesity medications (controls).Patients taking semaglutide had 27% lower total costs ($891 vs $1,213), 59% lower hospital costs ($115 vs $283) and 18% lower outpatient costs ($746 vs $906) per month vs. controls. When including only costs related to multimorbidity, semaglutide-treated patients had 36% lower total costs ($522 vs. $812), 59% lower hospital costs ($107 vs $259) and 26% lower outpatient costs ($399 vs $540) per month than controls. Over one year, total medical costs in patients taking semaglutide could be $3,870 lower and obesity-related multimorbidity costs could be $3,482 lower. Semaglutide-treated patients lost more weight after 52 weeks compared to controls (−15.3% of their body weight vs. −0.65%.) and had large improvements in blood sugar, cholesterol, and blood pressure after 52 and 104 weeks of treatment. Use of semaglutide in people with overweight or obesity and multimorbidity was associated with health benefits and lower healthcare costs.

6

Qual Life Res

. 2026 Jan 9;35(2):40.

doi: 10.1007/s11136-025-04120-9.

Analysing the impact of complex multimorbidity on health-related quality of life

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Affiliations Expand

- PMID: 41511562
- PMCID: PMC12789114
- DOI: 10.1007/s11136-025-04120-9

No abstract available

Keywords: Complex multimorbidity; EQ-5D-5L; Health-related quality of life; Multivariate ordered probit model.

Plain language summary

Multimorbidity, is the co-existence of two or more chronic conditions in an individual, including physical and mental health conditions, non-communicable diseases, and long-term infectious diseases. It is a growing concern for policy makers for several reasons. Firstly, it can have a significant impact on the individual, in terms of their quality of life, psychological well-being and physical function. In addition, it has an impact on the health system, as individuals with multimorbidity tend to require more complex care, involving multiple medical specialties. In this context, this paper provides important estimates of the impact of multimorbidity on health-related quality of life. We find that having multimorbidity leads to a significant decrease in health-related quality of life across five dimensions - mobility, self-care, usual activities, pain/discomfort and anxiety/depression. This means that if we can develop new models of care that delay or prevent the onset and progression of multimorbidity, it is likely to result in significant health benefits for the individual, and by extension, the health system.

Conflict of interest statement

Declarations. Competing interests: The authors declare that they have no competing interests. Ethics approval and consent to participate: The SPPiRE randomised controlled trial received ethical approval from the College of General Practitioners Research Ethics Committee. The national EQ-5D-5L study received ethical approval from the University of Galway Research Ethics Committee.

- **65 references**

Cite

7

J Med Internet Res

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. 2026 Jan 8:28:e74304.

doi: 10.2196/74304.

Developing an AI-Assisted Tool That Identifies Patients With Multimorbidity and Complex Polypharmacy to Improve the Process of Medication Reviews: Qualitative Interview and Focus Group Study

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Affiliations Expand

- PMID: 41505743

- DOI: 10.2196/74304

Free article

Abstract

Background: Structured medication reviews (SMRs) are an essential component of medication optimization, especially for patients with multimorbidity and polypharmacy. However, the process remains challenging due to the complexities of patient data, time constraints, and the need for coordination among health care professionals (HCPs). This study explores HCPs' perspectives on the integration of artificial intelligence (AI)-assisted tools to enhance the SMR process, with a focus on the potential benefits of and barriers to adoption.

Objective: This study aims to identify the key user requirements for AI-assisted tools to improve the efficiency and effectiveness of SMRs, specifically for patients with multimorbidity, complex polypharmacy, and frailty.

Methods: A qualitative study was conducted involving focus groups and semistructured interviews with HCPs and patients in the United Kingdom. Participants included physicians, pharmacists, clinical pharmacologists, psychiatrists from primary and secondary care, a policy maker, and patients with multimorbidity. Data were analyzed using a hybrid inductive and deductive thematic analysis approach to identify themes related to AI-assisted tool functionality, workflow integration, user-interface visualization, and usability in the SMR process.

Results: Four major themes emerged from the analysis: innovative AI potential, optimizing electronic patient record visualization, functionality of the AI tool for SMRs, and facilitators of and barriers to AI tool implementation. HCPs identified the potential of AI to support patient identification and prioritizing those at risk of medication-related harm. AI-assisted tools were viewed as essential in detecting prescribing gaps, drug interactions, and patient risk trajectories over time. Participants emphasized the importance of presenting patient data in an intuitive format, with a patient interface for shared decision-making. Suggestions included color-coding blood results, highlighting critical medication reviews, and providing timelines of patient medical histories. HCPs stressed the need for AI tools to integrate seamlessly with existing electronic patient record systems and provide

actionable insights without overwhelming users with excessive notifications or "pop-up" alerts. Factors influencing the uptake of AI-assisted tools included the need for user-friendly design, evidence of tool effectiveness (though some were skeptical about the predictive accuracy of AI models), and addressing concerns around digital exclusion.

Conclusions: The findings highlight the potential for AI-assisted tools to streamline and optimize the SMR process, particularly for patients with multimorbidity and complex polypharmacy. However, successful implementation depends on addressing concerns related to workflow integration, user acceptance, and evidence of effectiveness. User-centered design is crucial to ensure that AI-assisted tools support HCPs in delivering high-quality, patient-centered care while minimizing cognitive overload and alert fatigue.

Keywords: AI; artificial intelligence; health technology; medicine optimization; risk stratification; structured medication reviews.

8

Curr Med Res Opin

. 2026 Jan 8:1-13.

doi: 10.1080/03007995.2025.2610782. Online ahead of print.

Comorbidity and comedication burden in people living with HIV in the United States: updated findings from a contemporary cohort (2020-2024)

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Affiliations Expand

- **PMID: 41505208**

- **DOI: 10.1080/03007995.2025.2610782**

Abstract

Objective: To describe comorbidity and comedication burden among people living with HHIV(PLWH) compared with matched people without HIV and evaluate 5-year trends among PLWH from 2020-2024.

Methods: This retrospective study used administrative claims data (01/01/2016-01/31/2025) from Optum's de-identified Clinformatics Data Mart Database. The PLWH cohort included adults with ≥1 medical or pharmacy claim for an antiretroviral therapy (ART) agent in 2024 or, for those not treated with ART, an HIV diagnosis code alone (index date: earliest ART or HIV claim). People without HIV were matched 2:1 to PLWH based on age group, sex, race/ethnicity, region, and insurance type. Baseline characteristics, comorbidity burden, and comedication burden were compared between matched cohorts.

Results: 26,078 PLWH and 52,156 matched people without HIV were included (mean age: 59 years). Compared with people without HIV, PLWH had greater baseline Quan-Charlson comorbidity index scores (mean [SD]: 1.24 [1.86] vs. 0.99 [1.85]; $p < 0.001$) and greater numbers of comorbid conditions (3.70 [3.63] vs. 3.14 [3.79]; $p < 0.001$) and non-ART comedications (9.2 [7.58] vs 7.1 [7.48]; $p < 0.001$). Multimorbidity (≥2 comorbidities: 66.4% vs. 53.6%) and polypharmacy (≥5 non-ART drugs: 68.5% vs. 52.7%) were significantly more prevalent in PLWH (both $p < 0.001$). The most prevalent comorbidities were hypertension (46.9% vs. 41.2%; $p < 0.001$), hyperlipidemia (46.0% vs. 34.4%; $p < 0.001$), and type 2 diabetes (21.8% vs. 22.1%, $p = 0.393$).

Conclusions: PLWH have greater comorbidity and comedication burdens than people without HIV. The findings suggest clinicians should consider these factors when choosing ART to minimize drug interactions and adverse events, thereby improving the long-term health of PLWH.

Keywords: HIV; comedication; comorbidity; multimorbidity; polypharmacy.

. 2026 Jan 8.

doi: 10.1186/s12916-025-04599-6. Online ahead of print.

Frailty progression: The role of multimorbidity configurations in frailty transitions and predicting mortality risk among older adults

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Affiliations Expand

- PMID: 41501836

- DOI: 10.1186/s12916-025-04599-6

Free article

Abstract

Background: Different patterns of non-communicable diseases (NCDs) in older adults may lead to distinct transitions of frailty progression and mortality risk. This study aimed to determine whether specific multimorbidity patterns of configurations (MCs) are associated with differences in frailty transitions and mortality risk.

Methods: Longitudinal data from 14,511 adults aged ≥ 60 years in the Lifelines cohort were analyzed, with median follow-up of 3.8 years for frailty and 5.6 years for mortality. Multimorbidity was assessed both by accumulation (≥ 2 NCDs) and by MCs previously identified through latent class analysis. Frailty was measured using a 32-item index and categorized as robust, pre-frail, or frail. Multistate Markov models estimated transitions between frailty states and to death; mixed-effects models assessed frailty average-changes over time.

Results: The prevalence of multimorbidity by NCD accumulation increased monotonically with frailty, whereas the distribution of MCs varied across frailty categories. The type of multimorbidity influenced the risk of transitioning between frailty states and to death. The 'Complex Treatment' group had the highest baseline frailty. The 'Major CVD & Vascular' and 'Heart & Vascular' configurations showed the steepest increases in frailty, while the 'Vascular' and 'Metabolic' groups presented lower frailty levels and a higher likelihood of recovery. Participants in the 'CVD & Vascular' group were more likely to transition from pre-frailty or frailty to death compared to other configurations.

Conclusions: Frailty transitions and mortality risk varied across MCs, identifying moderate- and high-risk profiles. MCs provide a more detailed interpretation of into how multimorbidity shapes frailty and mortality than simple disease accumulation.

Keywords: Frailty; Mortality; Multimorbidity patterns; Older adults; Transitions.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: The Lifelines study adhered to the principles outlined in the Declaration of Helsinki and followed the research code of the University Medical Center Groningen. Approval for the study was obtained from the medical ethics committee of the University Medical Center Groningen under number 2007/152. All participants voluntarily agreed to participate in the study and provided written informed consent. Consent for publication: "Not applicable". Competing interests: The authors declare no competing interests.

- 56 references

Full text links

Cite

10

BMC Anesthesiol

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. 2026 Jan 8.

doi: 10.1186/s12871-025-03605-x. Online ahead of print.

Comparative analysis of six large language models in perioperative decision support for geriatric patients with multimorbidity: a three-dimensional evaluation framework

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Affiliations Expand

- **PMID: 41501659**
- **DOI: 10.1186/s12871-025-03605-x**

Free article

No abstract available

Keywords: Geriatric patients; Guideline compliance; Large language models; Multimorbidity; Perioperative management; Safety redundancy.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: Not applicable. There is no ethics requirement for this as this is a simulated case. Competing interests: The authors declare no competing interests.

- **31 references**

Full text links

Cite

11

PLoS One

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. 2026 Jan 7;21(1):e0338721.

doi: 10.1371/journal.pone.0338721. eCollection 2026.

Multimorbidity and cancer treatment among the older patients in the United States

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Affiliations Expand

- **PMID: 41499448**
- **PMCID: PMC12779064**
- **DOI: 10.1371/journal.pone.0338721**

Abstract

Introduction: The number of individuals who are diagnosed with cancer and other comorbidities continues to increase, and the average number of comorbidities among racial/ethnic minority patients is higher than non-Hispanic (N.H.)-white patients. Therefore, we explored the association between race/ethnicity, comorbidities, and cancer treatment among older Americans diagnosed with the four most common cancer types.

Methods: In this retrospective cohort study, SEER-Medicare linked data were used to identify 692,159 individuals over 65 years old diagnosed with female breast,

colorectal, lung, or prostate cancer from 1992-2011. Multimorbidity was defined as having cancer plus two or more comorbidities. Modified Poisson regression models were used to assess the association between comorbidities and race/ethnicity on cancer treatment within 6 months of diagnosis.

Results: For all cancers, the percentage of patients receiving treatment declined over time and with increasing age, number of comorbidities, and advanced cancer stage. Variability in receipt of treatment by race/ethnicity was observed: 76% for NH-White, 75% for Hispanic, and 68% for NH-Black patients. Concurrently, multimorbidity was increasing over time for all patients. Adjusting for other covariates, patients with multimorbidity were less likely to receive cancer treatment (RR = 0.987-0.947, all p-value<0.001). Moreover, NH-Black (RR = 0.955-0.865, all p-value<0.001) and Hispanic (RR = 0.987-0.951, all p-value<0.001) patients without multimorbidity were less likely to be treated compared to NH-White patients without multimorbidity.

Conclusions: Our findings suggest that the prevalence of multimorbidity among older patients with cancer has increased and negatively affected cancer treatment among this population. Racial disparities may exist in cancer treatment and seem to be more pronounced in patients without multimorbidity.

Conflict of interest statement

NO authors have competing interests.

- 58 references
- 3 figures

Supplementary info

MeSH termsExpand

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Cite

12

Nat Med

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. 2026 Jan 5.

doi: 10.1038/s41591-025-04165-w. Online ahead of print.

Blood biomarkers reveal pathways associated with multimorbidity

No authors listed

- PMID: 41491110

- DOI: 10.1038/s41591-025-04165-w

No abstract available

- 4 references

Full text links

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

1

Editorial

World J Pediatr

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. 2026 Jan 14.

doi: 10.1007/s12519-025-01012-3. Online ahead of print.

Climate change and thunderstorm asthma in children: challenges and responses

Peng Han [1], Kun-Ling Shen [2 3]

Affiliations Expand

- PMID: 41535524

- DOI: 10.1007/s12519-025-01012-3

No abstract available

Conflict of interest statement

Declarations. Conflict of interest: The authors have no financial or non-financial conflict of interest relevant to this paper to disclose. Author Kun-Ling Shen is an Associate Editor for World Journal of Pediatrics. The paper was handled by a different Editor and has undergone rigorous peer review. Author Kun-Ling Shen was not involved in the review of, or decisions related to, this manuscript. Ethical approval: Not applicable.

- 39 references

Supplementary info

Publication typesExpand

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2

Review

Eur Respir Rev

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. 2026 Jan 14;35(179):250186.

doi: 10.1183/16000617.0186-2025. Print 2026 Jan.

Efficacy of biologic agents in patients with comorbid asthma and chronic rhinosinusitis with nasal polyps: a systematic review and meta-analysis of randomised controlled trials

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Affiliations Expand

- **PMID: 41534885**

- **DOI: 10.1183/16000617.0186-2025**

Free article

Abstract

Background: Multiple biologics targeting type 2 inflammation have been evaluated for the treatment of severe asthma and chronic rhinosinusitis with nasal polyps (CRSwNP) separately.

Objective: To evaluate the efficacy and safety of biologics in patients with comorbid asthma and CRSwNP.

Methods: A systematic review of randomised controlled trials (RCTs) from Medline, Embase, Web of Science and Scopus (up to 31 October 2025) was conducted. Random-effects meta-analysis assessed efficacy and safety outcomes.

Results: 16 studies involving 3598 patients were included in the meta-analysis. Overall, biologics reduced asthma exacerbations by 73% (rate ratio 0.27, 95% CI 0.21-0.34), increased forced expiratory volume in 1 s by 0.21 L (95% CI 0.11-0.30), improved asthma control questionnaire score by -0.70 points (95% CI -0.83--0.56) and asthma quality of life questionnaire score by 0.71 points (95% CI 0.49-0.93). Regarding sino-nasal outcomes, the sino-nasal outcome test 22 (SNOT-22) score was reduced by 15.15 points (95% CI -19.64--10.66), the nasal polyp score by 1.39 points (95% CI -1.88--0.89), the Lund-Mackay computed tomography score by 6.64 points (95% CI -8.88--4.40) and the nasal congestion/obstruction score by 0.84 points (95% CI -1.13--0.54). Heterogeneity across biologic classes varied by outcome, ranging from low to substantial. Overall, biologics exhibited a favourable safety profile.

Conclusions: Biologics significantly reduced asthma exacerbations, improved lung function, asthma control and quality of life, and alleviated sino-nasal outcomes in patients with comorbid asthma and CRSwNP, with an acceptable safety profile.

Conflict of interest statement

Conflict of interest: C. Kyriakopoulos and G. Ntritsos have nothing to disclose. A. Gogali reports consultancy fees from Boehringer Ingelheim and Chiesi, and payment or honoraria for lectures, presentations, manuscript writing or educational events from AstraZeneca, Boehringer Ingelheim, Chiesi, ELPEN, GSK and Novartis. A. Papanikolaou, V. Angelopoulos and E.D. Oikonomou have nothing to disclose. K. Kostikas reports grants from AstraZeneca, Boehringer Ingelheim, Chiesi, Innovis, ELPEN, GSK, Menarini, Novartis and NuvoAir, consulting fees from AstraZeneca, Boehringer Ingelheim, Chiesi, CSL Behring, ELPEN, GSK, Menarini, Novartis, Pfizer and Sanofi Genzyme, payment or honoraria for lectures, presentations, manuscript writing or educational events from Alector Pharmaceuticals, AstraZeneca, Boehringer Ingelheim, Chiesi, CSL Behring, ELPEN, GILEAD, GSK, Menarini, MSD, Novartis, Sanofi Genzyme, Pfizer and WebMD, and reports a leadership role with GOLD Assembly.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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3

Review

Respir Med

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. 2026 Jan 12:108647.

doi: 10.1016/j.rmed.2026.108647. Online ahead of print.

Fractional Exhaled Nitric Oxide in Monitoring Biological Treatment for Severe Asthma in Adults: Clinical Implications and Future Perspectives

Mauro Maniscalco [1], Claudio Candia [2], Pasquale Ambrosino [3], Maria Gabriella Matera [4], Mario Cazzola [5]

Affiliations Expand

- PMID: 41534721

- DOI: 10.1016/j.rmed.2026.108647

Abstract

Severe asthma (SA) is a heterogeneous disease that remains uncontrolled despite optimized, high-dose inhaled therapy and is associated with substantial morbidity, corticosteroid exposure, and healthcare burden. The advent of targeted biologic therapies has transformed SA management, making accurate biomarker-guided phenotyping essential. Fractional exhaled nitric oxide (FeNO) is a noninvasive biomarker of IL-4/IL-13-driven airway inflammation widely used in asthma, but its interpretation in SA is complex. This narrative review provides a biology-driven analysis of FeNO in SA, focusing on mechanistic foundations, interpretive limitations, and biologic-specific behavior. Chronic exposure to high-dose inhaled or systemic corticosteroids, overlap with reference ranges in healthy populations, and common SA comorbidities, such as obesity, chronic rhinosinusitis with nasal polyps, and bronchiectasis, can substantially modify FeNO levels, limiting the usefulness of fixed cutoffs. We summarize evidence on FeNO dynamics across biologic classes, highlighting the rapid and pronounced suppression observed with anti-IL-4Rα and anti-TSLP therapies, contrasted with the variable and often modest changes seen with anti-IL-5/IL-5R agents. We also review data linking baseline FeNO

values and early FeNO trajectories to clinical outcomes and asthma remission. FeNO should not be used in isolation but integrated with blood eosinophils, IgE, sputum cytology, and clinical features to guide biologic selection and longitudinal monitoring. Key evidence gaps include the need for prospective FeNO-guided biologic trials, harmonized SA-specific FeNO thresholds, and integration with multi-omics approaches to fully realize the role of FeNO as a precision biomarker in SA.

Conflict of interest statement

Declaration of Competing Interest Mauro Maniscalco reports grants or contracts (with payments to Istituti Clinici Scientifici Maugeri IRCCS) from GlaxoSmithKline and AstraZeneca, and payments or honoraria for lectures, presentations, speaker bureaus, manuscript writing or educational events from GlaxoSmithKline, AstraZeneca, Damor and Chiesi, outside the submitted work. The other authors have nothing to disclose. This research was partially supported by the Ricerca Corrente funding scheme of the Italian Ministry of Health-

Supplementary info

Publication typesExpand

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J Allergy Clin Immunol

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. 2026 Jan 12:S0091-6749(26)00002-3.

doi: 10.1016/j.jaci.2025.12.1008. Online ahead of print.

First-in-human study for londamocitinib (AZD4604), an inhaled, selective JAK1 inhibitor

Tina Jellesmark Jensen [1], Camille Riff [2], Julia Lund [2], Zala Jevnikar [3], Maria G Belvisi [4], Christina Keen [5], Jukka Mäenpää [6], John Mo [6], Szilárd Nemes [7], Pablo Forte Soto [8], Adam Platt [9], Rajkumar Chetty [10], Dave Singh [11], Davinder P S Dosanjh [12], Pernilla Zingmark [13], Kyriakos V Konstantinidis [14], Rod Hughes [15]

Affiliations Expand

- PMID: 41534719

- DOI: 10.1016/j.jaci.2025.12.1008

Abstract

Background: Janus kinase (JAK) 1 is a promising target for asthma treatment; it may address inflammation not controlled by inhaled corticosteroids. Londamocitinib (AZD4604) is a selective JAK1 inhibitor designed for inhaled delivery.

Objective: Three-part, randomised, placebo-controlled phase 1 study (NCT04769869) in healthy volunteers (N=85) and participants with mild asthma (N=18) investigating safety, tolerability, pharmacokinetics, and lung and systemic target engagement (TE) of londamocitinib.

Methods: Single (0.025-6mg) and multiple (0.4-3mg, inhaled) doses of londamocitinib were administered to healthy volunteers and participants with mild asthma for up to 10 days. Effect on fractional exhaled nitric oxide (FeNO), a type 2 inflammation marker, was assessed in participants with mild asthma with elevated FeNO.

Results: Londamocitinib was well-tolerated after single and multiple dosing. Post-inhalation, londamocitinib was quickly absorbed and systemic exposure increased approximately dose proportionally. Following twice-daily dosing to achieve steady state, 2- to 4-fold accumulation was observed. Approximately 50% reductions in mean FeNO were seen for 1.4 and 3mg doses of londamocitinib in participants with mild asthma after 3 days, which persisted to Day 10 of dosing, versus no significant reduction with placebo. Transient, minimal suppression of systemic TE (IL-4-induced STAT6 phosphorylation in peripheral CD3+ T cells) was seen with the 3mg but not the 1.4mg londamocitinib dose.

Conclusion: Twice-daily administration of londamocitinib provides rapid and effective reduction of FeNO in patients with mild asthma with elevated FeNO.

Clinical implication: Londamocitinib demonstrates acceptable safety and tolerability, and shows potential as a candidate drug for future asthma treatment.

Keywords: Asthma; JAKi; Janus kinase inhibitors; fractional exhaled nitric oxide; inflammation; pharmacokinetics; target engagement.

Med Clin (Barc)

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. 2026 Jan 13;166(2):107289.

doi: 10.1016/j.medcli.2025.107289. Online ahead of print.

Chronic cough as a disease: A mechanism-based framework for diagnosis and management

[Article in English, Spanish]

Miguel Jiménez-Gómez [1]

Affiliations Expand

- **PMID: 41534397**

- **DOI: 10.1016/j.medcli.2025.107289**

Abstract

Chronic cough (CC) has traditionally been attributed to asthma, rhinosinusitis, and gastroesophageal reflux disease. Yet in many patients, symptoms persist despite targeted treatment, revealing a mismatch between clinical need and current strategies. A new paradigm has emerged: refractory and unexplained CC are increasingly recognized as manifestations of cough hypersensitivity syndrome. Diagnosis should follow a lean pathway emphasizing focused history, exclusion of red flags, essential baseline tests, and addressing treatable traits. Recognition of hypersensitivity features (allotussia, hypertussia, laryngeal paresthesia) is supported by validated tools such as the CHQ and TOPIC. Severity assessment requires integrating objective cough counts with robust patient-reported outcomes (MCSQ, CSD, LCQ, CQLQ), which capture clinical burden and guide referral. Management should be mechanism-based: early access to multimodal speech therapy, judicious neuromodulators, and emerging peripherally targeted therapies such as P2X3 antagonists. Establishing CC as a disease entity is essential to align research, regulation, and care with patient suffering.

Keywords: Antagonistas P2X3; Cough hypersensitivity; Cuestionarios; Hipersensibilidad tusígena; Logopedia; P2X3 antagonists; Patient-reported outcomes; Questionnaires; Refractory chronic cough; Resultados referidos por el paciente; Speech pathology and language therapy; Tos crónica refractaria.

Supplementary info

Publication typesExpand

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Cite

6

Crit Care Med

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. 2026 Jan 14.

doi: 10.1097/CCM.0000000000007025. Online ahead of print.

Association Between Noninvasive Positive Pressure Ventilation Use and Clinical Outcomes During a Severe Asthma Exacerbation: A Cohort Study

Matthew R Abbott [1], Kayla P Carpenter [1], Samrah Razi [1], Charles W Goss [2], Joanna Buss [2], Matthew Keller [3], Patrick G Lyons [4], Mario Castro [5], James G Krings [1]

Affiliations Expand

- PMID: 41532815

- DOI: 10.1097/CCM.0000000000007025

Abstract

Objectives: The evidence supporting the use of noninvasive positive pressure ventilation (NPPV) during severe asthma exacerbations is limited. We determined the annual trend in NPPV use, endotracheal intubations, and in-hospital mortality among all hospitalizations for an asthma exacerbation. We additionally evaluated the association between NPPV use and subsequent endotracheal intubation and in-hospital mortality.

Design: Retrospective, propensity-score-matched cohort study.

Setting: Administrative data from Healthcare Cost and Utilization Project's State Inpatient Databases for New York and Florida, 2006-2019.

Patients: Patients 5-80 years old hospitalized with an asthma exacerbation.

Interventions: Receipt of NPPV.

Measurements and main results: Among 296,788 hospitalizations for an asthma exacerbation between 2006 and 2018, NPPV use for an asthma exacerbation increased from 1.2% to 7.4% (absolute difference, 6.1%; 95% CI, 5.6-6.7%) in adults and from 0.7% to 7.1% (absolute difference, 6.4%; 95% CI, 5.5-7.3%) in pediatric patients. Among 41,902 ICU encounters, we propensity-score matched 1,972 adult and 1,622 pediatric patients who received NPPV with 6,510 adults and 4,766 pediatric patients who did not receive NPPV. NPPV use was associated with a decreased risk of subsequent intubation (risk ratio [RR], 0.48; 95% CI, 0.40-0.57) and improved in-hospital mortality (RR, 0.33; 95% CI, 0.21-0.54) in adults. In pediatric patients, use of NPPV was associated with a decreased risk of intubation (RR, 0.50; 95% CI, 0.29-0.89), but not significant for an improvement in in-hospital mortality (RR, 0.41; 95% CI, 0.15-1.11).

Conclusions: NPPV use for asthma exacerbations has increased. In adult and pediatric patients, NPPV use for an asthma exacerbation was associated with a decreased risk of endotracheal intubation. Furthermore, NPPV use for an asthma exacerbation was associated with improved in-hospital mortality in adult patients.

Keywords: asthma; asthma exacerbation; critical care; intensive care; noninvasive ventilation.

Conflict of interest statement

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- **50 references**

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Nat Commun

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. 2026 Jan 13.

doi: 10.1038/s41467-025-67947-3. Online ahead of print.

Predicting age of respiratory syncytial virus infection from birth timing

Chris G McKennan [1], Tebeb Gebretsadik [2], Steven M Brunwasser [3], Michael Nodzenski [4], Daniel J Jackson [5], James E Gern [5], Pingsheng Wu [2 6], Tina V Hartert [7 8]

Affiliations Expand

- PMID: 41530161

- DOI: 10.1038/s41467-025-67947-3

Free article

Abstract

Respiratory syncytial virus (RSV) infects nearly all children by age 2 to 3 years, and early-life infection-defined using active and passive surveillance with quantitative polymerase chain reaction- and serology-identified infection-has been implicated as a causal factor in childhood asthma. As such, identifying infants that are likely to be infected with RSV during this critical susceptibility window has important implications for identifying individuals at risk for chronic respiratory sequelae. However, determining the age of RSV infection in large populations is challenging because many infections are asymptomatic, making accurate detection dependent on intensive and costly surveillance. To address this, we developed a probability model for age of first RSV infection. It uses an infant's birthdate, demographic covariates, and publicly available RSV circulation data to determine the probability they were first infected at any age from birth to one year. Our model is interpretable, accounts for nearly 37% of the variance in age at first infection, and generalizes across four independent datasets collected from participants in the United States, where we use it to accurately predict age of first infection in two independent cohorts. Our work facilitates reliable estimation of the age of infant RSV infection during the first year of life without the need for active surveillance.

Conflict of interest statement

Competing interests: CGM reports grants from NIH during the conduct of the study and personal fees from SignatureDx outside the submitted work. TVH is a member of the NIH/NHLBI Council, the Parker B. Francis Family Foundation Council of scientific advisors as a grant reviewer, serves as the co-chair of the ATS Vaccines and Immunization Initiative, content writer for UpToDate, and a member of the RSV vaccine program DSMB for Pfizer. JEG is a consultant and has stock options in Meissa Vaccines Inc. The remaining authors declare no competing interests.

- 38 references

Supplementary info

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8

Case Reports

An Pediatr (Engl Ed)

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. 2026 Jan 12:504053.

doi: 10.1016/j.anpede.2025.504053. Online ahead of print.

Thunderstorm asthma

Beatriz Salamanca-Zarzuela [1], Lara Arnelas Gil [2], Paula Parro Olmo [2], Eva Vicente Navarro [2], Alba Hernández Prieto [2]

Affiliations Expand

- **PMID: 41530033**
- **DOI: 10.1016/j.anpede.2025.504053**

No abstract available

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9

Emerg Nurse

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. 2026 Jan 13.

doi: 10.7748/en.2026.e2250. Online ahead of print.

Recognising and managing acute asthma attacks in adults in the emergency department

Scott Colton [1]

Affiliations Expand

- **PMID: 41527381**

- **DOI: 10.7748/en.2026.e2250**

Abstract

Asthma affects an estimated 7.2 million people in the UK and is characterised by airway inflammation, bronchoconstriction and variable airflow obstruction. Emergency nurses frequently encounter adults experiencing an acute asthma attack in the emergency department, making a sound understanding of asthma essential for safe and effective care. This article provides an overview of respiratory anatomy and physiology and of asthma pathophysiology, linking it to clinical presentation and severity classification. It outlines key pharmacological and non-pharmacological interventions used during acute asthma attacks, including bronchodilators, corticosteroids, supplemental oxygen, patient positioning and reassurance. The importance of objective measures of respiratory function, such as peak expiratory flow rate, is discussed. The article also highlights the role of emergency nurses in patient education to support self-management and help prevent future exacerbations.

Keywords: accident and emergency; asthma; cardiorespiratory; clinical; emergency care; lung diseases; patient education; respiratory.

Conflict of interest statement

None declared

Full text links

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10

Lancet Respir Med

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. 2026 Jan 8:S2213-2600(25)00358-3.

doi: 10.1016/S2213-2600(25)00358-3. Online ahead of print.

Redefining asthma relievers: from immediate relief to disease modification

Mona Al-Ahmad [1], Asmaa Ali [2]

Affiliations Expand

- PMID: 41520677

- DOI: 10.1016/S2213-2600(25)00358-3

No abstract available

Conflict of interest statement

MA-A has received lecture and advisory board honoraria from GSK, Sanofi, AstraZeneca, and Novartis. AA declares no competing interests. MA-A and AA contributed equally. During the preparation of this work the authors used Google Gemini AI in order to check errors. After using this service, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

Full text links

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Lancet Respir Med

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Budesonide-formoterol versus terbutaline reliever in adults with asthma using maintenance inhaled corticosteroids in New Zealand (INFORM ASTHMA): an open-label, parallel-group, randomised, controlled, phase 4 trial

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Collaborators, Affiliations Expand

- PMID: 41520676

- DOI: 10.1016/S2213-2600(25)00327-3

Abstract

Background: Recommendations for the use of inhaled corticosteroid-formoterol reliever-based regimens are limited by the absence of randomised controlled trials (RCTs) in patients with asthma using maintenance inhaled corticosteroids, and scarce evidence for the effect on type 2 airway inflammation. We aimed to examine the clinical efficacy and safety of maintenance inhaled corticosteroids plus budesonide-formoterol reliever or terbutaline reliever in patients with mild-to-moderate asthma.

Methods: This open-label, parallel-group, randomised, controlled, phase 4 trial was conducted at Wellington Hospital and two community-based primary care facilities in New Zealand. Eligible participants were aged 16-75 years, had a self-reported doctor's diagnosis of asthma, were using reliever only therapy or maintenance inhaled corticosteroids with short-acting β2-agonist reliever therapy, and were registered with a general practitioner. Participants had to have reported mean reliever use on two or more occasions per week in the 12 weeks before enrolment and had evidence of airway inflammation (FeNO ≥25 parts per billion [ppb]) at screening. Participants were randomly assigned (1:1) to budesonide-formoterol

(budesonide 200 µg and formoterol 6 µg) reliever or terbutaline 250 µg reliever therapy using a computer-generated sequence in block sizes of four and six, stratified by region, baseline inhaled corticosteroids maintenance dose, and history of severe asthma exacerbation in the previous 12 months. All participants received maintenance budesonide 200 µg. During a 26-week treatment period, participants attended visits at weeks 0 (screening and randomisation), 13, and 26. The primary outcome was FeNO at week 26, measured in the intention-to-treat (ITT) population. This trial is registered with the Australian New Zealand Clinical Trials Registry, ACTRN12622001304729 (completed).

Findings: Between March 28, 2023, and Aug 27, 2024, 290 participants were assessed for eligibility, 109 were ineligible, and 181 were randomly assigned to budesonide-formoterol (n=93) or terbutaline reliever therapy (n=88; ITT population). Participants had a mean age of 33·91 years (SD 15·54). 119 (66%) of 181 participants were female and 62 (34%) were male. Geometric mean FeNO was 62·18 ppb (SD 1·86) at baseline and 39·65 ppb (2·12) at week 26, for the budesonide-formoterol group and 68·03 ppb (1·97) at baseline and 52·98 ppb (2·27) at week 26 for the terbutaline group. Budesonide-formoterol reliever therapy resulted in a mean reduction in geometric mean FeNO of 18·50% (95% CI 2·72-31·73; p=0·024) at week 26 compared with terbutaline reliever therapy. 77 (83%) of 93 participants in the budesonide-formoterol group versus 69 (78%) of 88 in the terbutaline group had at least one adverse event (relative risk 1·06 [95% CI 0·91-1·22]; p=0·46). There were no deaths in the study.

Interpretation: Budesonide-formoterol reliever therapy resulted in a reduction in FeNO compared with terbutaline reliever in adults with asthma using maintenance inhaled corticosteroids. Budesonide-formoterol reliever is a safe and effective alternative to short-acting β2-agonist reliever therapy for adults using maintenance inhaled corticosteroids.

Funding: AstraZeneca.

Conflict of interest statement

Declaration of interests RWB received institutional research funding from AstraZeneca, Health Research Council of New Zealand, Teva, CureKids NZ, and Perpetual Guardian; personal fees from AstraZeneca, Avillion, Teva, and Cipla; participates in advisory boards for AstraZeneca and Teva; is the chair of the Asthma Foundation of New Zealand adolescent and adult asthma guidelines group; was a member of the board of directors of the Global Initiative for Chronic Obstructive Lung Disease; and reviews Global Initiative for Asthma guidelines. IDP received personal fees from GSK, AstraZeneca, Sanofi (Regeneron), Chiesi, Upstream Bio, Amgen, Menarini, and Circassia. All other authors declare no competing interests.

Cite

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Pulm Pharmacol Ther

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. 2026 Jan 8:92:102407.

doi: 10.1016/j.pupt.2025.102407. Online ahead of print.

Effectiveness of Mepolizumab and Dupilumab in patients with asthma-COPD overlap (ACO) compared to severe uncontrolled asthma (SUA): A retrospective observational cohort study

Belén Muñoz-Sánchez [1], Antonio León-Lloreda [2], David Carlos Echavarría [2], María Polonio-González [2], Juan Francisco Medina-Gallardo [2], Marta Ferrer-Galván [2], Auxiliadora Romero-Falcón [2], Javier Díez-Sierra [2], Francisco Javier Álvarez-Gutiérrez [2]

Affiliations Expand

- PMID: 41519429

- DOI: 10.1016/j.pupt.2025.102407

Abstract

Background: The coexistence of asthma and chronic obstructive pulmonary disease (COPD), known as asthma-COPD overlap (ACO), presents unique diagnostic and therapeutic challenges. Although biological therapies such as Mepolizumab and Dupilumab have transformed the management of severe eosinophilic asthma, their role in ACO remains poorly defined due to the exclusion of this phenotype from most clinical trials.

Methods: This retrospective observational study aimed to evaluate the real-world effectiveness of Mepolizumab and Dupilumab in patients with ACO compared to those with severe uncontrolled asthma (SUA). We included 212 patients treated in a specialized asthma unit between 2017 and 2024, all with at least 12 months of follow-up. Treatment response was assessed using clinical tools (EXACTO scale and SEPAR-REMAS criteria).

Results: Among Mepolizumab-treated patients (ACO n = 10; SUA n = 132), those with ACO had significantly lower baseline FEV_1 and lower rates of good/complete response (14.2 % vs. 60 %, $p < 0.03$) and clinical remission (0 % vs. 20.9 %). In the Dupilumab group (ACO n = 10; SUA n = 60), ACO patients showed lower baseline ACT scores and FEV_1, with reduced response rates (25 % vs. 55 %) and no clinical remission, although differences were not statistically significant. Despite limited

power due to small ACO sample sizes, the magnitude of these differences suggests a clinically relevant reduction in biologic effectiveness in ACO.

Conclusion: These findings emphasize the urgent need for dedicated studies in ACO, a population with a high disease burden and limited treatment guidance. Individualized therapeutic approaches should be prioritized until robust clinical trial data becomes available.

Keywords: Asthma; Biologic therapy; Chronic obstructive pulmonary disease (COPD); Clinical remission; Real-world study; Therapeutic response.

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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Observational Study

Crit Care Explor

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. 2026 Jan 9;8(1):e1346.

doi: 10.1097/CCE.0000000000001346. eCollection 2026 Jan 1.

Ketamine for Severe Asthma Exacerbation

Emily M Wagner [1], Gretchen L Sacha [1], Eduardo Mireles-Cabodevila [2], Samin Mujanovic [2], Heather Torbic [1]

Affiliations Expand

- PMID: 41511832

- PMCID: PMC12795028

- DOI: 10.1097/CCE.0000000000001346

Abstract

This study aimed to evaluate ventilator requirements, gas exchange, and safety outcomes before and after initiation of continuous infusion ketamine in intubated patients with severe asthma exacerbations (SAEs) in ICUs. This retrospective observational study included 38 intubated patients 18 years old or older experiencing an SAE who received a continuous infusion of ketamine for greater than or equal to 1 hour. The primary outcome was change in Pco2 before and after ketamine initiation. The median Pco2 before ketamine initiation was 67.65 mm Hg (56-81 mm Hg) and 64 mm Hg (56-77 mm Hg) after. The median pH before and after ketamine initiation was 7.21 (7.12-7.3) and 7.24 (7.14-7.3), respectively. The median maximum rate of ketamine was 1.2 mg/kg/hr (0.7-1.5 mg/kg/hr). Mortality occurred in 15.8% of patients. Tachycardia occurred in 52.6% of patients, and hypotension occurred in 50% of patients. The rate of emergence reactions was 13.2%. In this study, continuous infusion ketamine was not associated with an improvement in Pco2.

Keywords: asthma; bronchodilation; intubation; ketamine; mechanical ventilation.

Conflict of interest statement

The authors have disclosed that they do not have any potential conflicts of interest.

- 10 references

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Review

Curr Allergy Asthma Rep

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. 2026 Jan 9;26(1):3.

doi: 10.1007/s11882-025-01246-1.

Chronic Rhinosinusitis Optimisation of Nasal Outcomes and Scores (CHRONOS): An Italian Delphi Consensus on Long-Term Management with Biologics

Eugenio De Corso [1], Frank Rikki Mauritz Canevari [2 3], Marco Caminati [4 5], Carlotta Pipolo [6], Enrico Heffler [7 8], Matteo Lazzeroni [9 10], Veronica Seccia [11], Massimiliano Garzaro [12], Giancarlo Ottaviano [13], Elena Cantone [14 15], Fabio Pagella [16 17], Giulia Gramellini [18], Ignazio La Mantia [19], Stefania Gallo [20 21], Antonio Moffa [22 23], Ernesto Pasquini [24], Antonella Loperfido [25], Sara Torretta [26], Lorenzo Cecchi [27], Gian Luca Fadda [28], Giandomenico Maggiore [29], Stefano Pelucchi [30], Lucia Iannuzzi [31], Daniela Lucidi [32], Alberto Macchi [20 21], Roberto Padoan [33], Vincenzo Patella [34 35], Giulia Dané [36], Jan Schroeder [37], Claudio Montuori [38], Marco Corbò [1 38], Giorgio Walter Canonica [7 8], Gianenrico Senna [39 40]

Affiliations Expand

- PMID: 41507601

- DOI: 10.1007/s11882-025-01246-1

Abstract

Purpose of review: This review synthesizes current evidence and expert consensus on the long-term management of severe chronic rhinosinusitis with nasal polyps (CRSwNP) treated with biologics, as established by the Italian CHRONOS project.

Recent findings: Accumulating real-world and clinical trial data confirm the sustained efficacy and safety of biologics targeting type 2 inflammation, enabling durable control and remission in a significant proportion of patients. Personalized dosing regimens, including dose-spacing strategies, appear feasible. The CHRONOS project provides practical guidance for optimizing long-term biologic therapy in severe CRSwNP. Response assessment should combine subjective and objective measures, especially for olfactory testing. Biologics may be considered before surgery only in selected complex cases. Dose-spacing strategies may be appropriate in stable patients but require multidisciplinary oversight in those with comorbid asthma. Adverse events are uncommon. The concept of disease modification is endorsed, recognizing biologics' potential to alter the natural history of CRSwNP.

Keywords: Biological therapy; Chronic rhinosinusitis with nasal polyps; Disease modification; Dupilumab; Long-term management; Mepolizumab; Omalizumab; Remission; Type 2 inflammation.

Conflict of interest statement

Declarations. Conflicts of Interest: The authors declare no competing interests. Human and Animal Rights and Informed Consent: This article does not contain any studies with human or animal subjects performed by any of the authors.

- **47 references**

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

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15

J Allergy Clin Immunol

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. 2026 Jan 6:S0091-6749(25)02260-2.

doi: 10.1016/j.jaci.2025.11.016. Online ahead of print.

Skin tape strips identify age-specific immune, metabolic and barrier dysregulation signatures in children, adolescents, and adults with allergic asthma

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Affiliations Expand

- **PMID: 41506478**

- **DOI: 10.1016/j.jaci.2025.11.016**

Abstract

Background: Allergic asthma pathogenesis encompasses systemic immune, metabolic and epithelial barrier dysfunction, however minimally invasive tools to longitudinally explore these processes remain limited.

Objective: To evaluate the potential of minimally invasive skin tape strips to capture age-specific immune, metabolic and epithelial barrier dysregulation in children, adolescents, and adults with allergic asthma and their association with asthma-related outcomes.

Methods: We collected tape strips from healthy-appearing skin of patients with moderate or severe allergic asthma and age-matched controls. RNA sequencing and differential gene expression (DEGs) analyses were performed to identify unique and common asthma-associated immune and barrier genes across age-groups. Gene-set-variation-analyses, pathway enrichment, correlation with clinical outcomes and biomarker classification using ROC analysis were conducted.

Results: Children demonstrated the greatest transcriptomic dysregulation, including robust downregulation of barrier-related genes (FLG, CDH19, JAM2), upregulation of oxidative phosphorylation genes (NDUFS4, COX15), and T1 immune skewing. Adolescents exhibited attenuated barrier and immune changes compared to children and adults, suggestive of a transitional state. Severe adult asthma patients showed dominant T2/T17-skewing, metabolic suppression, and fewer barrier alterations compared to pediatric patients. Several DEGs correlated with asthma outcomes: ENG and MUC4 with small airway resistance in children, and inflammatory coding genes (CD1C, IL3RA, CCL17) with annual exacerbation rates in adults. The two-gene classifiers HOXA5-KDM6B and PCGF1-SLC39A2 accurately distinguished asthmatics from controls (AUC = 1.0), with olfactory receptors and immune-related genes uniquely classifying adolescent asthma patients. Future head-to-head studies between cutaneous and respiratory samples are required to further validate these findings.

Conclusions: Skin tape-strips identify age-specific immune, epithelial barrier, and metabolic signatures in allergic asthma, offering a minimally invasive tool to explore disease mechanisms.

Keywords: Allergic asthma; disease endotypes; epithelial barrier; immune dysregulation; immune metabolism; tape strips.

Cite

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Respir Med

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. 2026 Jan 6:252:108631.

doi: 10.1016/j.rmed.2025.108631. Online ahead of print.

The EUFOREA pocket guide on paediatric asthma: A step forward in patient care

Milos Jesenak [1], Zuzana Diamant [2], Diego Conti [3], Dario Antolin-Amerigo [4], Vibeke Backer [5], Leif Bjermer [6], Wojciech Feleszko [7], Peter Hellings [8], Outi Jauhola [9], Katerina Khaleva [10], Mika Mäkela [11], Nikolaos Papadopoulos [12], Helena Pite [13], Petr Pohunek [14], Santiago Quirce [15], Zuzana Rennerova [16], Glenis Scadding [17], Boony Thio [18], Susanne Lau [19]

Affiliations Expand

- **PMID: 41506400**

- **DOI: 10.1016/j.rmed.2025.108631**

No abstract available

Keywords: Asthma management; EUFOREA; Paediatric; Patient care; Pocket guide.

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: MJ reports consulting fees from Novartis, GSK, BerlinChemie Menarini, Sanofi, AstraZeneca, AbbVie, ALK Slovakia; honoraria and speaker's fee from Takeda, ALK Slovakia, BerlinChemie Menarini, AbbVie, Sanofi, Novartis, Stallergenes-Greer, Chiesi, Pfizer; travel grants from Takeda, Novartis, ALK Slovakia, AbbVie; served as a member of Advisory boards for SOBI, Novartis, Takeda, AstraZeneca, Chiesi, Stallergenes-Greer; and served as a president of Slovak Society of Allergy and Clinical Immunology; EB member of Allergy, and Respiratory Medicine – associated editor. ZD reports consulting fees from Aclaris, Arcede, Arrowheadpharma, Biosion, Curovir, Foresse Pharmaceuticals, Galenus Health, Pleuran, QPS-Netherlands, TPG; received honoraria and speaker's fee from GSK, Sanofi Genzyme Regeneron; served as am EAACI Asthma section chair, EUFOREA expert panel chair and Respiratory Medicine – associated editor. DC reports serving as an academic manager at the EUFOREA and associated editor in Frontiers in Allergy. DAA reports receiving grant from Spanish Society of Allergology and Clinical Immunology; receiving consulting fees from ALK-Abello, AstraZeneca, Chiesi, and Gebro; receiving honoraria and speaker's fee from AstraZeneca, Gebro, GlaxoSmithKline, Leti Pharma, Menarini, Roxall, and Sanofi-Regeneron; travel grants from AstraZeneca and serving as a vice-president of the Spanish Society of Allergology and Clinical Immunology. VB reports no conflict of interests. LB reports receiving honoraria or speaker's fee from AstraZeneca, Acucort, Bork Pharma, GlaxoSmithKline, and Sanofi-Genzyme; serving as a member of Advisory Board for AstraZeneca, Acucort, Birk pharma, GlaxoSmithKline, and Sanofi-Genzyme. WF reports receiving grant from Polpharma; payment or speaker's honoraria from Polpharma, OM Pharma, Adamed, BerlinChemie, Teva, AstraZeneca, Sandoz, and Orion; travel grants from OM Pharma; PH reports receiving consulting fees from Sanofi-Regeneron, Novartis, GlaxoSmithKline, Medtronic, and Viatris; honoraria or speaker's fee from Sanofi-Regeneron, Novartis, GlaxoSmithKline, Medtronic, and Viatris. OJ reports no conflict of interests. KK report receiving grants from 3RT European Union IMI2 and asthma, Allergy and Inflammation Research. MM reports no conflict of interests. NP reports royalties or licenses from Capricare, Nestle, Numil, Vianex, and REG; receiving honoraria or speaker's fee

from Abbott, AbbVie, AstraZeneca, GlaxoSmithKline, HAL, Medscape, Menarini/Faes Farma, Mylan, Novartis, Nutricia, OM Pharma, and Sanofi-Regeneron; serving as a member of Advisory boards for Abbott, AbbVie, AstraZeneca, GlaxoSmithKline, HAL, Medscape, Menarini/Faes Farma, Mylan, Novartis, Nutricia, OM Pharma, and Sanofi-Regeneron; HP reports receiving honoraria of speaker's fee from AstraZeneca, FAES Farma, GlaxoSmithKline, JABA Recordati, Medinfar, Menarini, OM Pharma, Organon, Stallergenes, Tecnimede, and Viatris; travel grants from Medinfar and Menarini. PP reports receiving institutional grant from Chiesi; consulting fees from GlaxoSmithKline, AstraZeneca and Chiesi; honoraria and speaker's fee from Chiesi, AstraZeneca, GlaxoSmithKline and Novartis; travel grants from GlaxoSmithKline, AstraZeneca, and Chiesi; serving as Advisory board member for GlaxoSmithKline and performed fiduciary role in Czech Initiative for Asthma. SQ reports receiving consulting fees from GlaxoSmithKline and AstraZeneca; honoraria or speaker's fee from GlaxoSmithKline, AstraZeneca, Sanofi-Regeneron, Gebro, and Chiesi. ZR reports honoraria and speaker's fee from MSD, Schwabe, Pleuran, BerlinChemie Menarini, Danone/Nutricia, Ewopharma, Chiesi, Angelini Pharma; received travel grants from Sanofi, BerlinChemie Menarini, Novartis, ALK, Stallergenes-Greer; served as a member of Advisory board for ALK Slovakia. GS reports receiving consulting fees from ALK, Bayer, Chiesi, GlaxoSmithKline, Haleon, Noucor, Sanofi-Regeneron, and Viatris; honoraria or speaker's fee from Abbott, AbbVie, AstraZeneca, GlaxoSmithKline, HAL, Medscape, Menarini/Faes Farma, Mylan, Novartis, Nutricia, OM Pharma, and Sanofi-Regeneron; serving as a Member of advisory board for ALK, Bayer, Chiesi, GlaxoSmithKline, Haleon, Nousor, Sanofi-Regeneron, and Viatris; serving as a chair of BSACI rhinitis guidelines, scientific editor – Frontier in Allergy, vice-president for EUFOREA and chair of Data Monitoring Committees on SLIT for ALK. BT reports no conflict of interests. SL reports receiving honoraria or speaker's fee from DBV, ALK, Allergopharma, GlaxoSmithKline, AstraZeneca, Sanofi, Leo Pharma, Viatris, and Lilly; serving as a member of advisory board for DBV, AstraZeneca, Sanofi, and Galderma.

Supplementary info

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J Asthma

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. 2026 Jan 10:1-8.

doi: 10.1080/02770903.2026.2612741. Online ahead of print.

Small airway abnormalities in asthmatic patients with persistent airflow limitation

Marco Contoli [1 2], Federico Baraldi [1], Luca Morandi [2], Giulia Gnesini [2], Tommaso Bigoni [2], Alberto Papi [1 2]

Affiliations Expand

- PMID: 41504313

- DOI: 10.1080/02770903.2026.2612741

Abstract

Background: A subset of patients with asthma develops persistent airflow limitation (PAL) despite optimal treatment. The role of small airways dysfunction (SAD) in this phenotype, and its relationship with symptoms, remains incompletely understood.

Objectives: To assess small airways function in asthmatic patients with PAL and compare it with patients with fully reversible asthma and with COPD; and to explore correlations between small airway indices and patient-reported outcomes.

Methods: We enrolled 60 patients (20 with asthma and PAL, 20 with fully reversible asthma, 20 with COPD) matched for age, sex, and pre-bronchodilator FEV1. Small airways function was evaluated using impulse oscillometry (IOS; R5-R20) and single-breath nitrogen washout test (SBNWT; dN2). Patients completed a daily symptom diary (dyspnea, cough, sputum, and rescue medication use) over four weeks.

Results: Compared with fully reversible asthma, asthmatic patients with PAL showed significantly higher dN2 and R5-R20 values, though less pronounced than in COPD. SAD (R5-R20 > 0.07 kPa·L^{-1}·s) was present in all COPD patients, 79% of PAL patients, and 37% of reversible asthma patients ($p < 0.001$). In PAL, R5-R20 correlated strongly with dyspnea scores ($r = 0.64$, $p < 0.001$). In reversible asthma, R5-R20 correlated with cough and rescue medication use, whereas in COPD, symptoms were primarily related to residual volume.

Conclusions: Small airways dysfunction is highly prevalent in asthmatic patients with PAL and significantly contributes to daily symptom burden. Its intermediate severity between COPD and reversible asthma suggests that SAD plays a central role in the pathogenesis of fixed obstruction, suggesting a potential role for targeted diagnostic and therapeutic strategies.

Keywords: COPD; Small airways; abnormalities; asthma; function.

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Observational Study

Respir Res

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. 2026 Jan 7;27(1):5.

doi: 10.1186/s12931-025-03439-8.

Outcomes after biologic initiation among patients with severe asthma and normal lung function in the CHRONICLE study

Reynold A Panettieri Jr [1], Arjun Mohan [2], Njira L Lugogo [2], Dennis K Ledford [3], Donna D Carstens [4], Christopher S Ambrose [5]

Affiliations Expand

- PMID: 41501790

- PMCID: PMC12781776

- DOI: 10.1186/s12931-025-03439-8

Abstract

A subset of patients with severe asthma (SA) has normal lung function, defined by a pre-bronchodilator (BD) forced expiratory volume in 1 second (FEV_1) of ≥80% of predicted normal value. The effect of biologic treatments on patients with SA and normal lung function is not well understood. This analysis assessed the effectiveness of biologics among adults with SA and normal lung function using data from CHRONICLE (NCT03373045), a real-world observational study of United States patients with SA. Among the 233 patients in this analysis, 28.8% (n=67) had normal lung function, whereas 71.2% (n=166) had reduced lung function (pre-BD FEV_1 <80% of predicted normal). In the 12 months before initiating biologic treatment, annualized exacerbation rates were 1.19 (95% confidence interval [CI]: 0.95-1.49) in patients with normal lung function and 1.42 (95% CI: 1.24-1.61) in those with reduced lung function. Exacerbation rates were reduced by 50% (p<0.0001) and by 59% (p<0.0001) among those with normal and reduced lung function, respectively. Rates of exacerbation-related emergency department (ED) visits in the 12 months before initiating biologic treatment in patients with normal lung function and reduced lung function were 0.18 (95% CI: 0.09-0.31) and 0.38 (95% CI: 0.29-0.49), respectively. The rate of exacerbation-related ED visits was reduced by 44% (p=0.03) and 63% (p<0.0001) among those with normal and reduced lung function,

respectively. Biologic treatments showed similar effectiveness in reducing exacerbations and exacerbation-related ED visits in patients with SA and normal lung function compared with patients with reduced lung function.Clinical trial registration ClinicalTrials.gov identifier: NCT03373045.

Keywords: Asthma; Biological therapy; Exacerbation; Forced expiratory volume; Observational study.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: The CHRONICLE study was performed in accordance with ethical principles consistent with the Declaration of Helsinki, International Council for Harmonisation Good Clinical Practice guidelines, guidelines for Good Pharmacoepidemiology Practices, the Health Insurance Portability and Accountability Act, and applicable legislation for observational studies. The study protocol was approved by a central institutional review board (Advarra, Columbia, MD). All patients provided written informed consent at enrolment. Consent for publication: Not applicable. Competing interests: RAP has served on advisory boards and received grant support from AstraZeneca, Genentech, Novartis, Regeneron Pharmaceuticals and Sanofi. AM has served on the advisory board for Regeneron Pharmaceuticals and Verona Pharmaceuticals. NLL has served as an advisor and consultant for AbbVie, Amgen, Apogee, AstraZeneca, Avillion, Foresee, Genentech, GSK, Niox, Novartis, Regeneron Pharmaceuticals, Sanofi, and Teva Pharmaceuticals; and has received grant support from Amgen, AstraZeneca, Avillion, Bellus, Evidera, Gossamer Bio, Genentech, GSK, Janssen, Novartis, Regeneron Pharmaceuticals, Roche, Sanofi, and Teva Pharmaceuticals. She is an honorary faculty member of the Observational and Pragmatic Research Institute but does not receive compensation for this role. DKL has received consulting fees from AstraZeneca and GSK; has received speaker fees from AstraZeneca, Genentech/Roche, GSK, and Sanofi/Regeneron Pharmaceuticals; and has received research support paid to the institution by AstraZeneca. DDC and CSA are employees of AstraZeneca and may own stock or stock options in AstraZeneca.

- 9 references
- 1 figure

Supplementary info

Publication types, MeSH terms, Substances, Associated dataExpand

Full text links

Cite

. 2026 Jan 5:S0091-6749(25)02236-5.

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From genotype to phenotype in early childhood asthma

Signe Kjeldgaard Jensen [1], Kasper Fischer-Rasmussen [2], Anders Eliasen [3], Laura Marie Hesselberg [2], Nicklas Brustad [2], Mathias Elsner Melgaard [2], Thomas Werge [4], Jonas Bybjerg-Grauholm [5], Mette Nyegaard [5], Simon Kebede Merid [6], Erik Melen [7], Elizabeth George [8], Qingling Duan [9], Padmaja Subbarao [10], Ann-Marie Malby Schoos [11], Jakob Stokholm [12], Bo Chawes [13], Casper Emil Tingskov Pedersen [2], Klaus Bønnelykke [14]

Affiliations Expand

- PMID: 41500470

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Free article

Abstract

Background: Asthma and recurrent wheeze in the first years of life represent a heterogenous and poorly understood syndrome with a need to understand to which extent phenotypes reflect distinct underlying mechanisms.

Objective: To investigate if specific genetic asthma mechanisms, represented by genetic risk loci, are associated with specific disease courses and asthma phenotypes.

Methods: Known childhood asthma risk loci (GSDMB, CDHR3, FUT2, ABO, HLA-DQA1, IL33, IL1RL1, IL13, and TSLP) were analyzed in relation to redeemed prescriptions for asthma and allergy medication from birth to age 15 years in more than 23,000 children from the iPSYCH study. Gene variants were studied separately and as combined scores based on putative similar mechanisms. Association with atopic and non-atopic asthma phenotypes was examined in more than 6,000 children from the COPSAC, BAMSE and CHILD birth cohorts.

Results: GSDMB and CDHR3 were the strongest risk loci for asthma prescriptions in the first years of life with effects continuing into school-age, although with attenuating effect size. CDHR3 was characterized by associations present already in the first year of life and a strong interaction with GSDMB genotype. Suspected T2-related loci were characterized by a slightly later onset around 2-3 years of age with increasing or stable effect size to age 15, and increased risk of allergic rhinitis. Only GSDMB and CDHR3 were associated with early transient disease while most loci were associated with both persistent and late-onset disease and with both atopic and non-atopic asthma.

Conclusion: Risk loci of early childhood asthma seem to involve different disease mechanisms as illustrated by their specific age-related effects. However, risk loci generally showed associations across classical age- and atopy-related phenotypes, suggesting that specific asthma mechanisms are not well captured by classical phenotyping.

Keywords: Genetic risk variants; allergy; asthma; asthma endotypes; asthma subtypes; asthma traits; asthma trajectories; genetic risk scores; single nucleotide polymorphism; wheeze.

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ERJ Open Res

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. 2026 Jan 5;12(1):00268-2025.

doi: 10.1183/23120541.00268-2025. eCollection 2026 Jan.

Key spirometric determinants of future airflow obstruction in children with asthma

Francine M Ducharme [1 2 3], Anna Smyrnova [3], Melissa Yu [3]

Affiliations Expand

- **PMID: 41497330**
- **PMCID: PMC12766468**
- **DOI: 10.1183/23120541.00268-2025**

Abstract

Background: There is increasing concern about children with asthma developing progressive lung function impairment. The objective of the present study was to identify the best spirometric determinants of subsequent development of airflow obstruction (AO) in children with asthma in the clinic setting.

Methods: We assembled two retrospective cohort studies of children aged 6-17 years, managed in tertiary-care asthma clinics, with medical and drug coverage, and repeated spirometry testing. The primary outcome was AO, defined as pre-bronchodilation (pre-BD) forced expiratory volume in 1 s (FEV_1)/forced vital capacity (FVC) ratio below the lower limit of normal (LLN). Multiple lung function parameters, prior to index visit, were adjusted for potential covariates/confounders in multivariable logistic regression models, by cohort and clinical scenario (≥1 *versus* ≥2 prior visits with spirometry); cohort estimates were meta-analysed using inverse-variance-weighted average.

Results: Of 509 eligible children (mean age: 10 years), 17% subsequently developed AO. In patients with ≥1 prior visit, the likelihood of future AO independently increased by almost 4-fold (adjusted OR 3.91 (95% CI 2.54-6.01)) for every 1 z-score lower FEV_1/FVC ratio. In patients with ≥2 prior visits, the likelihood of future AO increased by 3.31 (1.98-5.54) for every 1 z-score lower FEV_1/FVC ratio at the last visit and by 1.50 (1.10-2.12) for every 1 z-score maximum between-visit variation in FEV_1.

Interpretation: Two spirometric parameters independently increased the likelihood of subsequently developing AO, namely FEV_1/FVC in the low range of normal and high between-visit FEV_1 variation, appearing as practical determinants of future impairment, before reaching the LLN.

Conflict of interest statement

Conflict of interest: F.M. Ducharme reports grants from Jamieson, Banque Scotia Foundation, Covis Pharma, GlaxoSmithKline, and MEDteq in partnership with Thorasys Inc.; consultancy fees from Institut d'excellence en soins et services sociaux du Québec, Covis Pharma, Sanofi, Teva and Thorasys Inc.; and payment or honoraria for lectures, presentations, manuscript writing or educational events from Association des Médecins omnipraticiens du Richelieu Saint-Laurent, Covis Pharma, Fédération des Médecins spécialistes du Quebec, Réseau québécois en santé respiratoire, Sanofi-Regeneron, Thorasys and Trudell Medical International. A. Smyrnova and M. Yu have nothing to disclose.

- 40 references
- 4 figures

21

ERJ Open Res

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. 2026 Jan 5;12(1):00604-2025.

doi: 10.1183/23120541.00604-2025. eCollection 2026 Jan.

A novel method to assess airway eosinophilia using sputum plugs

Zil Patel [1 2], Nadia Suray Tan [3 2], Alex Huynh [3], Katherine Radford [4], Nicola Calma [4], Lisa Harper [4], Snehal Somalwar [4], Chynna Huang [4], Melanie Kjarsgaard [4], Anmar Ayoub [3], Parameswaran Nair [3], Manali Mukherjee [3]

Affiliations Expand

- PMID: 41497329
- PMCID: PMC12766467
- DOI: 10.1183/23120541.00604-2025

Abstract

Background: Sputum cytology utilising routine dithiothreitol (DTT) processing is a well-established method to assess airway eosinophilia. However, the multi-step nature of this protocol requires substantial resources, thereby limiting its broader clinical applicability. To address this, we evaluated formalin-fixed, paraffin-embedded (FFPE) sputum plugs as a simplified method for measuring airway eosinophilia.

Methods: Excess sputum plugs from 113 patients with complex airway disease and 16 asthma patients on corticosteroid or monoclonal antibodies were fixed in 10% formalin and embedded in paraffin (Sputum-Minimising Processing, Maximising Clinical Outcomes (SSIMPLE) method). FFPE blocks were sectioned, stained with haematoxylin and eosin, and assessed by four blinded observers, who performed a differential cell count on 400 total nonsquamous cells. Eosinophil proportions were then compared between matched FFPE and DTT-processed sputum slides. Airway eosinophilia was defined as ≥2.2% sputum eosinophils in DTT-processed samples.

Results: Of the 113 FFPE slides, 96% were adequate for cellular analysis, with 90% having matched DTT-processed sputum slides. The SSIMPLE method demonstrated excellent interobserver reproducibility (consistency: 0.975; agreement: 0.976). Eosinophil proportions obtained from SSIMPLE and DTT processing were significantly correlated ($\rho=0.9$, $p<0.0001$) and showed agreement (Bland-Altman, -0.38±9.51). A cut-off of 2.6% detected airway eosinophilia with high sensitivity (85.4%) and specificity (93.0%) using the SSIMPLE method, showing strong agreement with the routine DTT method, as indicated by an area under the curve of 0.957. Additionally, the method effectively assessed treatment responsiveness to monoclonal antibody therapy.

Conclusion: The SSIMPLE method is a reliable, noninferior approach to DTT processing for detecting airway eosinophilia in complex airway diseases, with high reproducibility and strong concordance in monitoring treatment responsiveness.

Conflict of interest statement

Conflict of interest: M. Mukherjee reports research grants from AstraZeneca, Sanofi, Methapharm Specialty Pharmaceuticals and Mirimus, consulting fees from AstraZeneca, Sanofi, Respiplus, GSK, and Mirimus, and is an associate editor of this journal. P. Nair reports research grants from AstraZeneca, Teva, Sanofi, and Foresee; and consulting fees from AstraZeneca, Teva, Sanofi, Equillium and Arrowhead Pharma. All other authors have no conflict of interest within the scope of the submitted work.

- **28 references**
- **5 figures**

22

Thorax

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. 2026 Jan 6:thorax-2025-223714.

doi: 10.1136/thorax-2025-223714. Online ahead of print.

Disparities in lung function trajectories among tobacco-exposed individuals

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Affiliations Expand

- **PMID: 41494907**
- **DOI: 10.1136/thorax-2025-223714**

Free article

Abstract

Background: The relationship of social determinants of health (SDOH), environmental exposures and medical history to lung function trajectories is underexplored. A better understanding of these relationships could inform preventive strategies for lung health.

Methods: We analysed data from COPDGene, a US longitudinal, observational study. Participants were tobacco-exposed (≥10 pack-years of smoking) non-Hispanic Black and non-Hispanic White adults aged 45-80 years. We analysed 2990 males and 2945 females, using Bayesian trajectory modelling on post-bronchodilator forced expiratory volume in one second (FEV_1) and forced vital capacity (FVC). We applied multinomial logistic regression to assess the association of SDOH, environmental exposures and medical history with lung function trajectories.

Measurements and main results: Six trajectories were identified within each sex. Non-Hispanic Black race was more prevalent in trajectories characterised by lower FEV1 and FVC values (ie, lower lung function trajectories) compared with non-Hispanic White adults. In adjusted models, non-Hispanic Black race, residence in the Southeastern USA, lifetime asthma and a father with COPD were associated with significantly higher odds of the lowest trajectory (ie, trajectory six vs the reference trajectory) for both sexes. Higher income and private insurance showed inverse associations with lower lung function trajectories. The Social Vulnerability Index socioeconomic theme (based on census-level poverty, unemployment, income and educational attainment) was associated with the lowest trajectory in males.

Conclusions: Significant disparities in lung function trajectories exist between non-Hispanic Black adults and non-Hispanic White adults. Individual- and community-level factors are associated with lower lung function trajectory in people exposed to tobacco.

Keywords: Pulmonary Disease, Chronic Obstructive.

Conflict of interest statement

Competing interests: None declared.

Full text links

JACC Case Rep

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. 2026 Jan 7;31(1):106045.

doi: 10.1016/j.jaccas.2025.106045. Epub 2025 Nov 14.

Coronary Vasospasm in Eosinophilic Granulomatosis With Polyangiitis Presenting as Acute Coronary Syndrome Treated With Anti-IL-5

Priyanka Thota [1], Shubhangi Sharma [2], Usman Mohammed [3]

Affiliations Expand

- PMID: 41236472

- DOI: 10.1016/j.jaccas.2025.106045

Free article

Abstract

Background: Eosinophilic granulomatosis with polyangiitis (EGPA) is a rare vasculitis that may involve the coronary arteries, even in ANCA-negative cases.

Case summary: A 58-year-old woman with a history of asthma, eosinophilia, and prior percutaneous coronary interventions presented with exertional dyspnea and chest tingling. Electrocardiogram showed transient anterior ST-segment elevations. Coronary angiography revealed multivessel coronary vasospasm with 100% occlusion of the mid left anterior descending artery, reversible with intracoronary nitroglycerin. Laboratory work-up confirmed ANCA-negative EGPA. The patient was initially treated with steroids and vasodilators, then transitioned to benralizumab owing to disease recurrence and steroid dependence. Her symptoms resolved, and eosinophil counts remained suppressed.

Discussion: Cardiac involvement in EGPA is uncommon but potentially fatal. This case highlights the importance of considering EGPA in recurrent acute coronary syndrome with eosinophilia and demonstrates the successful use of IL-5-targeted biologic therapy.

Take-home messages: EGPA should be considered in recurrent acute coronary syndrome with eosinophilia. Benralizumab offers a steroid-sparing strategy in cardiac EGPA.

Keywords: acute coronary syndrome; anti–IL-5 therapy; benralizumab; coronary vasospasm; eosinophilic granulomatosis with polyangiitis (EGPA).

Conflict of interest statement

Funding Support and Author Disclosures The authors have reported that they have no relationships relevant to the contents of this paper to disclose.

Supplementary info

Publication types

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

1

Ann Allergy Asthma Immunol

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. 2026 Jan 14:S1081-1206(26)00004-9.

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Mold Exposure and Rhinitis Symptoms among Children Attending Head Start Centers in New York City

Jin Feng [1], Luis Acosta [2], Maxine Ashby Thompson [3], Judith S Jacobson [4], Matthew S Perzanowski [5]

Affiliations Expand

- **PMID: 41544696**

- **DOI: 10.1016/j.anai.2026.01.003**

No abstract available

Keywords: Asthma; Lower-income Household; Mold Exposure; Rhinitis; Rhinorrhea; Seasonal Variance; Urban; Wheezing.

Conflict of interest statement

Declaration of competing interest None

Full text links

Cite

2

Review

Eur Respir Rev

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. 2026 Jan 14;35(179):250186.

doi: 10.1183/16000617.0186-2025. Print 2026 Jan.

Efficacy of biologic agents in patients with comorbid asthma and chronic rhinosinusitis with nasal polyps: a systematic review and meta-analysis of randomised controlled trials

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Affiliations Expand

- **PMID: 41534885**

- **DOI: 10.1183/16000617.0186-2025**

Free article

Abstract

Background: Multiple biologics targeting type 2 inflammation have been evaluated for the treatment of severe asthma and chronic rhinosinusitis with nasal polyps (CRSwNP) separately.

Objective: To evaluate the efficacy and safety of biologics in patients with comorbid asthma and CRSwNP.

Methods: A systematic review of randomised controlled trials (RCTs) from Medline, Embase, Web of Science and Scopus (up to 31 October 2025) was conducted. Random-effects meta-analysis assessed efficacy and safety outcomes.

Results: 16 studies involving 3598 patients were included in the meta-analysis. Overall, biologics reduced asthma exacerbations by 73% (rate ratio 0.27, 95% CI 0.21-0.34), increased forced expiratory volume in 1 s by 0.21 L (95% CI 0.11-0.30), improved asthma control questionnaire score by -0.70 points (95% CI -0.83--0.56) and asthma quality of life questionnaire score by 0.71 points (95% CI 0.49-0.93). Regarding sino-nasal outcomes, the sino-nasal outcome test 22 (SNOT-22) score was reduced by 15.15 points (95% CI -19.64--10.66), the nasal polyp score by 1.39 points (95% CI -1.88--0.89), the Lund-Mackay computed tomography score by 6.64 points (95% CI -8.88--4.40) and the nasal congestion/obstruction score by 0.84

points (95% CI -1.13--0.54). Heterogeneity across biologic classes varied by outcome, ranging from low to substantial. Overall, biologics exhibited a favourable safety profile.

Conclusions: Biologics significantly reduced asthma exacerbations, improved lung function, asthma control and quality of life, and alleviated sino-nasal outcomes in patients with comorbid asthma and CRSwNP, with an acceptable safety profile.

Conflict of interest statement

Conflict of interest: C. Kyriakopoulos and G. Ntritsos have nothing to disclose. A. Gogali reports consultancy fees from Boehringer Ingelheim and Chiesi, and payment or honoraria for lectures, presentations, manuscript writing or educational events from AstraZeneca, Boehringer Ingelheim, Chiesi, ELPEN, GSK and Novartis. A. Papanikolaou, V. Angelopoulos and E.D. Oikonomou have nothing to disclose. K. Kostikas reports grants from AstraZeneca, Boehringer Ingelheim, Chiesi, Innovis, ELPEN, GSK, Menarini, Novartis and NuvoAir, consulting fees from AstraZeneca, Boehringer Ingelheim, Chiesi, CSL Behring, ELPEN, GSK, Menarini, Novartis, Pfizer and Sanofi Genzyme, payment or honoraria for lectures, presentations, manuscript writing or educational events from Alector Pharmaceuticals, AstraZeneca, Boehringer Ingelheim, Chiesi, CSL Behring, ELPEN, GILEAD, GSK, Menarini, MSD, Novartis, Sanofi Genzyme, Pfizer and WebMD, and reports a leadership role with GOLD Assembly.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

Cite

3

Respir Res

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. 2026 Jan 13.

doi: 10.1186/s12931-025-03484-3. Online ahead of print.

Mediterranean diet and asthma in adults: a multicentre case-control study in a general population sample

Maria Carelli [# 1], Jessica Miotti [# 2], Maria Elisabetta Zanolin [2], Maria Beatrice Bilò [3 4], Roberto Bono [5], Mattia Cominacini [6], Angelo Guido Corsico [7], Pietro Pirina [8], Ernesto Crisafulli [9], Marcello Ferrari [# 9], Lucia Cazzoletti [# 10]

Affiliations Expand

- PMID: 41530778

- DOI: 10.1186/s12931-025-03484-3

Free article

No abstract available

Keywords: Asthma; Mediterranean diet; Neutrophils; Oxidative stress; Rhinitis.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: Ethical approval was obtained in each centre and informed consent was obtained from each participant. Consent for publication: Not applicable. Competing interests: MBB has received payments for lectures for ALK, ASTRA, GSK, Sanofi. All other authors declare that they have no competing interests.

- 69 references

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Ital J Dermatol Venerol

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. 2026 Jan 12.

doi: 10.23736/S2784-8671.25.08315-X. Online ahead of print.

T2-Reg: a regional web registry on Th2-mediated diseases

Martina D'Onghia [1], Giovanni Rubegni [2], Flavia Manzo Margiotta [3 4], Laura Calabrese [1], Sofia Lo Conte [5], Manfredi Magliulo [6], Giulio Montesi [6], Marco Mandalà [7], Lorenzo Salerni [7], Gianmarco Tosi [2], Paolo Cameli [8], Aldo Cuccia [9], Alessia Gori [10], Michela Magnano [11], Leonardo Pescitelli [12], Emiliano Antiga [13], Nicola Milanesi [14], Martina Vispi [15], Camilla Peccianti [15], Massimo

Gola [6], Carlo Mazzatenta [16], Laura Lazzeri [1], Marco Romanelli [3], Nicola Pimpinelli [13], Pietro Rubegni [1], Alessandra Cartocci [17]

Affiliations Expand

- PMID: 41524336

- DOI: 10.23736/S2784-8671.25.08315-X

Abstract

Background: Systemic type 2 inflammation, driven by T helper 2 (Th2)-type immune responses, is central to allergic inflammatory diseases, including atopic dermatitis, allergic rhinitis, asthma, nasal polyposis, and food allergy. These conditions frequently coexist and share common immunological mechanisms. The objective of this study is to describe the design and development of T2-Reg, a regional registry for Th2-mediated diseases, aimed at collecting real-life data to improve patient management and research.

Methods: This multicentric retrospective and prospective observational study has been conducted through an electronic web registry. Ethical approval was obtained (N° 22045). Patients with atopic dermatitis, allergic asthma, or allergic rhinitis have been enrolled from dermatology, pulmonology, and otolaryngology units across multiple hospitals in Tuscany, Italy. Data have been collected via REDCap, ensuring security and compliance with GDPR. The registry includes demographic, clinical, and laboratory data, treatment history, and disease-specific clinometric scores.

Results: From June 2022 to December 2024, 619 patients were enrolled, with an equal gender distribution and diverse educational backgrounds. Atopic comorbidities were present in 73% of cases, with allergic rhinitis being the most common. Disease severity indices and treatment history were recorded, including systemic and biologic therapies.

Conclusions: T2-Reg serves as a valuable tool for tracking disease progression, treatment outcomes, and comorbidities. Its integration with AI and interoperability with national and international registries enhances research potential. Despite some limitations, such as data entry burden and missing information, T2-Reg contributes to personalized medicine and public health initiatives in atopic diseases.

5

J Laryngol Otol

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. 2026 Jan 9:1-19.

doi: 10.1017/S0022215125104258. Online ahead of print.

Intranasal cryotherapy for refractory chronic rhinitis: a prospective study

Charlotte Arnold [1,2], Simon Morris [2], Owen Bodger [3], Heikki Whittet [1]

Affiliations Expand

- **PMID: 41508810**

- **DOI: 10.1017/S0022215125104258**

No abstract available

Full text links

Proceed to details

Cite

6

Review

Curr Allergy Asthma Rep

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. 2026 Jan 9;26(1):3.

doi: 10.1007/s11882-025-01246-1.

Chronic Rhinosinusitis Optimisation of Nasal Outcomes and Scores (CHRONOS): An Italian Delphi Consensus on Long-Term Management with Biologics

Eugenio De Corso [1], Frank Rikki Mauritz Canevari [2,3], Marco Caminati [4,5], Carlotta Pipolo [6], Enrico Heffler [7,8], Matteo Lazzeroni [9,10], Veronica Seccia [11], Massimiliano Garzaro [12], Giancarlo Ottaviano [13], Elena Cantone [14,15], Fabio Pagella [16,17], Giulia Gramellini [18], Ignazio La Mantia [19], Stefania Gallo [20,21], Antonio Moffa [22,23], Ernesto Pasquini [24], Antonella Loperfido [25], Sara Torretta [26], Lorenzo Cecchi [27], Gian Luca Fadda [28], Giandomenico Maggiore [29], Stefano Pelucchi [30], Lucia Iannuzzi [31], Daniela Lucidi [32], Alberto Macchi [20,21], Roberto Padoan [33], Vincenzo Patella [34,35], Giulia

Dané [36], Jan Schroeder [37], Claudio Montuori [38], Marco Corbò [1 38], Giorgio Walter Canonica [7 8], Gianenrico Senna [39 40]

Affiliations Expand

- PMID: 41507601

- DOI: 10.1007/s11882-025-01246-1

Abstract

Purpose of review: This review synthesizes current evidence and expert consensus on the long-term management of severe chronic rhinosinusitis with nasal polyps (CRSwNP) treated with biologics, as established by the Italian CHRONOS project.

Recent findings: Accumulating real-world and clinical trial data confirm the sustained efficacy and safety of biologics targeting type 2 inflammation, enabling durable control and remission in a significant proportion of patients. Personalized dosing regimens, including dose-spacing strategies, appear feasible. The CHRONOS project provides practical guidance for optimizing long-term biologic therapy in severe CRSwNP. Response assessment should combine subjective and objective measures, especially for olfactory testing. Biologics may be considered before surgery only in selected complex cases. Dose-spacing strategies may be appropriate in stable patients but require multidisciplinary oversight in those with comorbid asthma. Adverse events are uncommon. The concept of disease modification is endorsed, recognizing biologics' potential to alter the natural history of CRSwNP.

Keywords: Biological therapy; Chronic rhinosinusitis with nasal polyps; Disease modification; Dupilumab; Long-term management; Mepolizumab; Omalizumab; Remission; Type 2 inflammation.

Conflict of interest statement

Declarations. Conflicts of Interest: The authors declare no competing interests. Human and Animal Rights and Informed Consent: This article does not contain any studies with human or animal subjects performed by any of the authors.

- 47 references

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

7

BMC Public Health

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. 2026 Jan 7.

doi: 10.1186/s12889-025-26058-w. Online ahead of print.

Association between early childhood infections and adolescent chronic diseases: a nationwide cohort analysis

Jongmin Oh [#1,2,3], Ji Hyen Lee [#2,4], Yoorim Bang [5], Ji Young Lee [6], Eunhee Ha [#7,8,9], Surabhi Shah [#10]

Affiliations Expand

- PMID: 41501763

- DOI: 10.1186/s12889-025-26058-w

Free article

Abstract

Background: Early childhood infections remain major contributors to the global disease burden in children under five years of age. Beyond their acute effects, such infections may influence susceptibility to non-communicable diseases later in life. It was hypothesized that common early childhood infections are associated with an increased risk of chronic diseases during adolescence.

Methods: A 18-year, nationwide, population-based cohort study was conducted using the Korean National Health Information Database (2002-2019), including 3,942,947 children aged 0-4 years (2002-2006) at baseline who were followed until ages 13-17 years (2016-2019). Cox proportional hazards models were used to estimate associations between early childhood infections and subsequent adolescent chronic diseases, adjusting for age and gender.

Results: Acute upper respiratory tract infections (URTI) at multiple sites (9.7%) and acute nasopharyngitis (9.2%) were the most prevalent infections in early childhood. In adolescence, allergic rhinitis (2.6%) and chronic sinusitis (0.9%) were most frequent. Early-life acute URTI at multiple sites was modestly associated with adolescent allergic rhinitis (HR: 1.03, 95% CI: 1.00-1.06), while acute laryngitis and tracheitis was associated with chronic bronchitis (HR: 1.09, 95% CI: 1.00-1.20) and acute enteritis was associated with chronic noninfective gastroenteritis and colitis (HR: 1.21, 95% CI: 1.06-1.40). Stratified analyses demonstrated slightly stronger associations among boys for allergic rhinitis and urticaria and among girls for chronic noninfective gastroenteritis and colitis.

Conclusion: In this nationwide cohort, early childhood respiratory and gastrointestinal infections were consistently associated with chronic conditions such as allergic rhinitis, bronchitis, and gastroenteritis and colitis in adolescents. These findings suggest potential early-life origins of chronic disease and highlight the need for targeted prevention strategies to reduce the long-term burden of chronic illnesses in children.

Keywords: Adolescent; Children; Chronic diseases; Disease transition; Early-life infections.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study was approved by the Institutional Review Board of Ewha Womans University Seoul Hospital (SEUMC2024-01-034). With the approval by the Institutional Review Board of principal investigator's affiliation, we applied for the access to the Korean National Health Information database (NHID) approved by the Korean National Health Insurance Service (NHIS) (NHIS-2024-10-1-029) in accordance with the ethical principles outlined in the Declaration of Helsinki. Informed consent was not obtained because the data was already anonymized and de-identified by the NHIS before analysis. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

- **31 references**

Full text links

8

J Allergy Clin Immunol

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. 2026 Jan 5:S0091-6749(25)02236-5.

doi: 10.1016/j.jaci.2025.12.1006. Online ahead of print.

From genotype to phenotype in early childhood asthma

Signe Kjeldgaard Jensen [1], Kasper Fischer-Rasmussen [2], Anders Eliasen [3], Laura Marie Hesselberg [2], Nicklas Brustad [2], Mathias Elsner Melgaard [2], Thomas Werge [4], Jonas Bybjerg-Grauholm [5], Mette Nyegaard [5], Simon Kebede Merid [6], Erik Melen [7], Elizabeth George [8], Qingling Duan [9], Padmaja Subbarao [10], Ann-Marie Malby

Schoos [11], Jakob Stokholm [12], Bo Chawes [13], Casper Emil Tingskov Pedersen [2], Klaus Bønnelykke [14]

Affiliations Expand

- PMID: 41500470

- DOI: 10.1016/j.jaci.2025.12.1006

Free article

Abstract

Background: Asthma and recurrent wheeze in the first years of life represent a heterogenous and poorly understood syndrome with a need to understand to which extent phenotypes reflect distinct underlying mechanisms.

Objective: To investigate if specific genetic asthma mechanisms, represented by genetic risk loci, are associated with specific disease courses and asthma phenotypes.

Methods: Known childhood asthma risk loci (GSDMB, CDHR3, FUT2, ABO, HLA-DQA1, IL33, IL1RL1, IL13, and TSLP) were analyzed in relation to redeemed prescriptions for asthma and allergy medication from birth to age 15 years in more than 23,000 children from the iPSYCH study. Gene variants were studied separately and as combined scores based on putative similar mechanisms. Association with atopic and non-atopic asthma phenotypes was examined in more than 6,000 children from the COPSAC, BAMSE and CHILD birth cohorts.

Results: GSDMB and CDHR3 were the strongest risk loci for asthma prescriptions in the first years of life with effects continuing into school-age, although with attenuating effect size. CDHR3 was characterized by associations present already in the first year of life and a strong interaction with GSDMB genotype. Suspected T2-related loci were characterized by a slightly later onset around 2-3 years of age with increasing or stable effect size to age 15, and increased risk of allergic rhinitis. Only GSDMB and CDHR3 were associated with early transient disease while most loci were associated with both persistent and late-onset disease and with both atopic and non-atopic asthma.

Conclusion: Risk loci of early childhood asthma seem to involve different disease mechanisms as illustrated by their specific age-related effects. However, risk loci generally showed associations across classical age- and atopy-related phenotypes, suggesting that specific asthma mechanisms are not well captured by classical phenotyping.

Keywords: Genetic risk variants; allergy; asthma; asthma endotypes; asthma subtypes; asthma traits; asthma trajectories; genetic risk scores; single nucleotide polymorphism; wheeze.

9

Review

Expert Opin Investig Drugs

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. 2026 Jan 7:1-14.

doi: 10.1080/13543784.2025.2612328. Online ahead of print.

The latest investigational drugs for patients with allergic rhinitis

Dandan Fang [1 2], Yuan Zhang [1 2 3 4], Luo Zhang [1 2 3]

Affiliations Expand

- PMID: 41474293

- DOI: 10.1080/13543784.2025.2612328

Abstract

Introduction: Allergic rhinitis (AR) is a prevalent IgE-mediated inflammatory disease with significant global health and economic burdens. Common treatments include pharmacotherapy and allergen-specific immunotherapy (AIT), but challenges remain in managing some of the moderate-to-severe patients, driving development on targeted biologics.

Areas covered: This review covers recent advances in AR management, including optimized pharmacotherapy, biologics targeting type 2 inflammation and innovations in AIT.

Expert opinion: The management toward AR should fully consider the phenotypic and endotypic characteristics of the patients and develop stepwise, comprehensive, and personalized care pathways that combine pharmacotherapy, AIT, and biologics. Further studies are needed to validate long-term efficacy and safety and optimize precision medicine approaches.

Keywords: Allergic rhinitis; allergen specific immunotherapy; biologics; combined pharmacotherapy; type 2 inflammation.

Supplementary info

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Cite

10

JAMA

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. 2026 Jan 13;335(2):175-176.

doi: 10.1001/jama.2025.19748.

Climate Change, Allergic Rhinitis, and Sinusitis

Duncan A Meiklejohn [1], Neelima Tummala [2], M Lauren Lalakea [3]

Affiliations Expand

- **PMID: 41335404**

- **DOI: 10.1001/jama.2025.19748**

No abstract available

Plain language summary

This JAMA Insights explores how climate change could lead to increased incidence of allergic rhinitis and chronic rhinosinusitis due to such factors as air pollution and pollen levels.

Full text links

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

1

Curr Pediatr Rev

. 2026 Jan 8.

doi: 10.2174/0115733963356686251201052241. Online ahead of print.

Captopril-induced Cough: Does it Matter in Children? A Retrospective Cohort Study

Michael Coffey [1], Brian McCrossan [2], Rachel Moore [1], Michael Shields [1 3]

Affiliations Expand

- PMID: 41540530

- DOI: 10.2174/0115733963356686251201052241

Abstract

Introduction: ACE inhibitors are commonly prescribed in children. Anecdotally, captopril- induced cough is not thought to occur in children as frequently as in adults.

Methods: We performed a retrospective cohort study in 100 paediatric cardiology patients taking regular ACE inhibitors (ACE-I). Telephone interviews and questionnaires were used to ask patients and their families about their experience of ACE-I-related cough symptoms.

Results: Of the 100 patients, 15% reported symptoms of captopril-related cough. Only 1% required a change in medication due to their cough.

Discussion: Captopril-related cough appears to be less significant in children than in adult populations. The reason for this is unclear, but it may be related to differences in ACE expression between adult and paediatric lungs.

Conclusion: The results suggest that cough associated with ACE-I use may be more prevalent in children than previously thought; however, it is generally well tolerated and rarely necessitates a change in management.

Keywords: Cough; captopril; captopril cough; cardiology; pediatrics.; pharmacology.

Cite

2

Review

Med Clin (Barc)

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. 2026 Jan 13;166(2):107289.

doi: 10.1016/j.medcli.2025.107289. Online ahead of print.

Chronic cough as a disease: A mechanism-based framework for diagnosis and management

[Article in English, Spanish]

Miguel Jiménez-Gómez [1]

Affiliations Expand

- PMID: 41534397

- DOI: 10.1016/j.medcli.2025.107289

Abstract

Chronic cough (CC) has traditionally been attributed to asthma, rhinosinusitis, and gastroesophageal reflux disease. Yet in many patients, symptoms persist despite targeted treatment, revealing a mismatch between clinical need and current strategies. A new paradigm has emerged: refractory and unexplained CC are increasingly recognized as manifestations of cough hypersensitivity syndrome. Diagnosis should follow a lean pathway emphasizing focused history, exclusion of red flags, essential baseline tests, and addressing treatable traits. Recognition of hypersensitivity features (allotussia, hypertussia, laryngeal paresthesia) is supported by validated tools such as the CHQ and TOPIC. Severity assessment requires integrating objective cough counts with robust patient-reported outcomes (MCSQ, CSD, LCQ, CQLQ), which capture clinical burden and guide referral. Management should be mechanism-based: early access to multimodal speech therapy, judicious neuromodulators, and emerging peripherally targeted therapies such as P2X3 antagonists. Establishing CC as a disease entity is essential to align research, regulation, and care with patient suffering.

Keywords: Antagonistas P2X3; Cough hypersensitivity; Cuestionarios; Hipersensibilidad tusígena; Logopedia; P2X3 antagonists; Patient-reported

outcomes; Questionnaires; Refractory chronic cough; Resultados referidos por el paciente; Speech pathology and language therapy; Tos crónica refractaria.

Supplementary info

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3

ERJ Open Res

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. 2026 Jan 12;12(1):00840-2025.

doi: 10.1183/23120541.00840-2025. eCollection 2026 Jan.

Efficacy of morphine on cough in patients with repeat expansions of *RFC1* and refractory chronic cough

Laurent Guilleminault [1 2 3], Pauline Chazelas [4 5 3], Corinne Magdelaine [4 5], Thomas Villeneuve [2], Anne-Sophie Lia [4 5 6], Laurent Magy [5 7]

Affiliations Expand

- PMID: 41532091
- PMCID: PMC12794244
- DOI: 10.1183/23120541.00840-2025

Abstract

Repeat expansion of *RFC1* (RE-*RFC1*) is associated with refractory chronic cough but no treatment has emerged as a therapeutic option on cough in patients with RE-*RFC1*. Here, we show that morphine has a beneficial effect on cough in patients with RE-*RFC1*. https://bit.ly/4g3iviQ.

Conflict of interest statement

Conflict of interest: L. Guilleminault reports personal fees from Bayer and MSD; participation in clinical trials for Bayer and MSD; grants, personal fees and nonfinancial support from AstraZeneca, GSK and Novartis; personal fees from Chiesi; and personal fees and nonfinancial support from Sanofi, outside from the submitted work. The other authors declare no disclosure of interests in this field.

- **10 references**
- **1 figure**

Supplementary info

Publication typesExpand

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Cite

4

BMC Med

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. 2026 Jan 13.

doi: 10.1186/s12916-025-04613-x. Online ahead of print.

The efficacy and safety of duloxetine in treating refractory chronic cough: a randomized clinical trial

Shengyuan Wang [#1], Heng Wu [#2], Yaxing Zhou [#1], Wanzhen Li [1], Tongyangzi Zhang [1], Cuiqin Shi [1], Li Yu [#3], Xianghuai Xu [#4]

Affiliations Expand

- **PMID: 41530764**
- **DOI: 10.1186/s12916-025-04613-x**

Free article

Abstract

Background: Enhanced cough sensitivity is proposed as a potential cause for refractory chronic cough (RCC), and modulation of sensory nerve

hyperresponsiveness is suggested as an effective treatment. However, the treatment of RCC has considerable potential for enhancement, particularly in terms of the targets and side effects. We aimed to investigate the efficacy and safety of duloxetine, a selective 5-HT and norepinephrine reuptake inhibitor, in patients with RCC.

Methods: This is a prospective, randomized, double-blind trial. RCC patients without mood disorders in the Tongji Hospital of Tongji University outpatient clinic were invited to participate in this study. Patients were randomly assigned to the duloxetine group or placebo group, with both patients and investigators being masked. The co-primary endpoint was the change in Leicester cough questionnaire (LCQ) score and cough frequency.

Results: Between Oct 2020 and May 2024, 98 patients were randomly assigned to duloxetine (n = 49) and placebo (n = 49) groups. After an 8-week treatment phase and a 3-week follow-up period, the mean number of coughs per hour in the duloxetine group was reduced from 83.96 ± 28.95 to 33.12 ± 22.99, showing a significant decrease than that of the placebo group (87.67 ± 31.75 to 80.36 ± 31.75) ($p < 0.001$). In addition, duloxetine significantly improved scores on the LCQ (12.75 ± 2.44 to 14.88 ± 2.45), whereas no significant reduction was observed in the placebo group (12.17 ± 2.64 to 12.81 ± 2.32) ($P < 0.001$ between groups). However, adverse events such as nausea 5 (11.36%), dizziness 7 (15.91%), and somnolence 4 (9.09%) occurred more frequently in the duloxetine group (all $P < 0.05$).

Conclusions: Duloxetine reduced cough frequency and sensitivity, which appears to be a novel therapeutic approach for RCC.

Trial registration: The study was approved by the Ethics Committee of Shanghai Tongji Hospital (2020-KYSB-160, 2021-086) and registered in the Chinese Clinical Trial Registry (ChiCTR2000037429).

Keywords: Cough; Duloxetine; Hypersensitivity.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study was approved by the Ethics Committee of Tongji Hospital (Approval No. 2020-KYSB-160, 2021–086) and registered in the Chinese Clinical Trial Registry (ChiCTR2000037429). Written informed consent was obtained from all participants. Consent for publication: All authors have approved the manuscript for submission and publication. Competing interests: The authors declare no competing interests.

- **32 references**

Supplementary info

Grants and fundingExpand

Full text links

5

Case Reports

SAGE Open Med Case Rep

. 2026 Jan 8:14:2050313X251411124.

doi: 10.1177/2050313X251411124. eCollection 2026.

Pertussis is identified among common respiratory diseases: A case report

Jiajia Chen [1], Yongchang Wu [1], Jiamei Tang [1], Jiguang Guo [2], Yu Zhai [1]

Affiliations Expand

- PMID: 41523323
- PMCID: PMC12783567
- DOI: 10.1177/2050313X251411124

Abstract

Pertussis, caused by *Bordetella pertussis*, is increasingly recognized in adults who often present with atypical symptoms, leading to underdiagnosis. We report a case of a 64-year-old woman with a persistent cough and sore throat initially treated as refractory community-acquired pneumonia. Despite empirical antibiotic therapy, her symptoms persisted. Conventional diagnostic tests, including sputum and bronchoalveolar lavage fluid cultures, were negative. Metagenomic next-generation sequencing of bronchoalveolar lavage fluid identified *Bordetella pertussis* with high sequence coverage (7497 reads). The patient showed no clinical improvement with azithromycin, prompting a switch to trimethoprim-sulfamethoxazole, after which she improved and was discharged to complete a 14-day course. At 1-month follow-up, she was asymptomatic with resolved radiographic findings. This case highlights that pertussis can mimic refractory pneumonia in adults without typical features such as whooping cough, and underscores the diagnostic value of metagenomic next-generation sequencing when conventional methods fail. Clinicians should consider pertussis in adults with prolonged cough unresponsive to standard community-acquired pneumonia therapy and be aware of potential macrolide

resistance, which may necessitate alternative antibiotics like trimethoprim-sulfamethoxazole.

Keywords: case report; pertussis; pneumonia.

Conflict of interest statement

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

- 17 references
- 4 figures

Supplementary info

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Cite

6

Int J Infect Dis

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. 2026 Jan 9:108381.

doi: 10.1016/j.ijid.2026.108381. Online ahead of print.

Clinical Characteristics and Prognostic Differences Between RSV and Influenza A Virus Infections in Hospitalized Adult Patients

Rui Su [1], Wei Li [2], Xingyao Tang [3], Minghui Shi [3], Jisong Yan [4], Binghuai Lu [2], Ke Huang [5], Ting Yang [2]

Affiliations Expand

- PMID: 41520773

- DOI: 10.1016/j.ijid.2026.108381

Free article

Abstract

Introduction: Respiratory syncytial virus (RSV) and influenza A virus are primary causes of lower respiratory tract infections in adults. However, there is limited comparative data on their clinical characteristics and prognostic impact in hospitalized patients. We aimed to describe the clinical characteristics and differences in prognosis among individuals aged 18 years and older admitted to the hospital with RSV, compared to influenza A.

Methods: This study was conducted at a teaching hospital in Beijing, China, across a respiratory season (November 1, 2023- January 30, 2024). All hospitalized adults with laboratory-confirmed RSV or influenza A infection were enrolled. Patients were divided into three groups: those with RSV infection, those with influenza A infection, and those with co-infection with both viruses. We compared clinical features, comorbidities, laboratory and radiological findings, treatments, complications, and outcomes across the groups. Multivariable logistic regression identified factors associated with adverse outcomes in inpatients with RSV infection.

Results: A total of 538 patients were included, comprising 162 (30.1%) with RSV infection, 355 (66.0%) with influenza A, and 21 (3.9%) with co-infection. Co-infected patients were older (72 years; $p < 0.001$), predominantly smokers (90.5%; $p < 0.001$), and more frequently presented with hypoxemia (71.4%; $p = 0.007$) and dyspnea (76.2%; $p = 0.032$). RSV patients showed higher rates of productive cough (62.3%; $p = 0.014$), whereas influenza A was associated with fever (64.8%; $p = 0.002$) and myalgia (14.6%; $p = 0.028$). Use of antiviral therapy was lowest in RSV (24.1%; $p < 0.001$), while influenza A had the highest complication burden (99.2%; $p < 0.001$). Mechanical ventilation was most frequently required in co-infections (42.9%; $p = 0.013$), although overall mortality and Intensive Care Unit (ICU) admission did not differ across groups. In multivariate analysis of RSV patients, current smoking (adjusted OR, 2.61; 95% CI, 1.98-6.91; $p = 0.044$), chronic obstructive pulmonary disease (COPD) (adjusted OR, 2.99; 95% CI, 1.21-7.35; $p = 0.017$), chronic heart failure (adjusted OR, 3.71; 95% CI, 1.62-8.46; $p = 0.002$), and pneumonia (adjusted OR, 3.14; 95% CI, 1.26-7.81; $p = 0.014$) independently predicted adverse outcomes.

Conclusion: RSV and influenza A infections share a high complication burden but exhibit distinct clinical features. RSV patients with COPD, heart failure, or pneumonia face greater risks, and co-infections further worsen severity, including an increased rate of mechanical ventilation, underscoring the need for tailored preventive and therapeutic strategies, including RSV vaccination.

Keywords: Adverse outcome; Clinical features; Influenza A; Respiratory syncytial virus.

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.

Full text links

Cite

7

Editorial

Eur Respir J

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. 2026 Jan 8;67(1):2502142.

doi: 10.1183/13993003.02142-2025. Print 2026 Jan.

The search for placebo biosignatures in chronic cough: looking through the lens of neurobiology

Woo-Jung Song [1]

Affiliations Expand

- PMID: 41506683

- DOI: 10.1183/13993003.02142-2025

No abstract available

Conflict of interest statement

Conflict of interest: W-J. Song reports grants from Merck Sharp & Dohme Corp., Daewoong Pharmaceutical and AstraZeneca, consultancy fees from Merck, Bellus, AstraZeneca, Shionogi and GSK, lecture fees from Thermo Fischer/Immunotek, Celltrion, Merck, AstraZeneca, GSK, Sanofi and Novartis, and is a member of the editorial board of the European Respiratory Journal and Chief Editor of ERJ Open Research.

Comment on

- Placebo effect on brainstem activity associated with capsaicin-evoked urge to cough in healthy humans.

Moe AAK, Bautista TG, Leech J, Mazzone SB, Farrell MJ.Eur Respir J. 2026 Jan 8;67(1):2500645. doi: 10.1183/13993003.00645-2025. Print 2026 Jan.PMID: 40967768 Free PMC article.

Supplementary info

Publication typesExpand

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Multicenter Study

PLoS One

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. 2026 Jan 8;21(1):e0340308.

doi: 10.1371/journal.pone.0340308. eCollection 2026.

The investigation and prevalence of pulmonary embolism among emergency department patients with acute exacerbations of chronic obstructive pulmonary disease (AECOPD): A multi-centered linked administrative database study

Brian H Rowe [1], Esther H Yang [1 2], Cristina Villa-Roel [1], Bo Zheng [1], Irvin Mayers [3]

Affiliations Expand

- PMID: 41505482

- PMCID: PMC12782416

- DOI: 10.1371/journal.pone.0340308

Abstract

Background: Although patients with acute exacerbation of chronic obstructive pulmonary disease (AECOPD) may be investigated for pulmonary embolism (PE) in the emergency department (ED), little is known about the prevalence of PE and factors associated with investigation. We sought to evaluate the PE prevalence among patients presenting to the ED with AECOPD.

Methods: All adult patients presenting with AECOPD to six EDs between January 2015 and June 2021 using ICD-10-CA codes from administrative data. The primary

outcomes were the investigation for and prevalence of PE. Conventional, age-adjusted D-dimer (AADD) and chest imaging are reported. A multivariable logistic regression was used to identify predictors of investigations for PE among patients with AECOPD, including demographic characteristics, comorbidities, and ED presentation data as covariates.

Results: Of the 25,510 patients with AECOPD, 12,164 (48%) patients (median age 70 years, 50% males, 46% hospitalized) were included after applying exclusion criteria. Overall, 2,072 (17%) patients received at least one test for PE: 84% had a D-dimer, 44% had a chest CT and 2% had lung scans. Overall, 68 (0.5%) patients received a diagnosis of PE; 41 (0.3%) received a PE co-diagnosis in the ED and 27 (0.2%) patients received a primary PE diagnosis while hospitalized. Use of an AADD could reduce CT image ordering by approximately 13%. Overall, 852 (7%) returned to the ED and 490 (4%) died within 30 days. The presence of chest pain (aOR=2.71; 95% CI: 2.24-3.28) and cough/congestion (aOR=0.57; 95% CI: 0.46-0.70) increased and decreased PE investigations, respectively.

Conclusion: The overall prevalence of PE among patients presenting to the ED with AECOPD was low (less than 1%). While acknowledging PE may occur concurrently with AECOPD, clinicians should be cautious to avoid over-investigation, which has a negative impact on operational flow, increases costs, and may be harmful to patients. Evidence-based pathways using information readily available at presentation and selective investigations (e.g., decision rules and AADD cut-offs) have the potential to improve resource use and facilitate shared decision-making in the acute setting.

Conflict of interest statement

No authors have competing interests.

- **19 references**
- **2 figures**

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Cite

9

J Asthma

. 2026 Jan 10:1-8.

doi: 10.1080/02770903.2026.2612741. Online ahead of print.

Small airway abnormalities in asthmatic patients with persistent airflow limitation

Marco Contoli [1 2], Federico Baraldi [1], Luca Morandi [2], Giulia Gnesini [2], Tommaso Bigoni [2], Alberto Papi [1 2]

Affiliations Expand

- PMID: 41504313

- DOI: 10.1080/02770903.2026.2612741

Abstract

Background: A subset of patients with asthma develops persistent airflow limitation (PAL) despite optimal treatment. The role of small airways dysfunction (SAD) in this phenotype, and its relationship with symptoms, remains incompletely understood.

Objectives: To assess small airways function in asthmatic patients with PAL and compare it with patients with fully reversible asthma and with COPD; and to explore correlations between small airway indices and patient-reported outcomes.

Methods: We enrolled 60 patients (20 with asthma and PAL, 20 with fully reversible asthma, 20 with COPD) matched for age, sex, and pre-bronchodilator FEV1. Small airways function was evaluated using impulse oscillometry (IOS; R5-R20) and single-breath nitrogen washout test (SBNWT; dN2). Patients completed a daily symptom diary (dyspnea, cough, sputum, and rescue medication use) over four weeks.

Results: Compared with fully reversible asthma, asthmatic patients with PAL showed significantly higher dN2 and R5-R20 values, though less pronounced than in COPD. SAD (R5-R20 > 0.07 kPa·L^{-1}·s) was present in all COPD patients, 79% of PAL patients, and 37% of reversible asthma patients ($p < 0.001$). In PAL, R5-R20 correlated strongly with dyspnea scores ($r = 0.64$, $p < 0.001$). In reversible asthma, R5-R20 correlated with cough and rescue medication use, whereas in COPD, symptoms were primarily related to residual volume.

Conclusions: Small airways dysfunction is highly prevalent in asthmatic patients with PAL and significantly contributes to daily symptom burden. Its intermediate severity between COPD and reversible asthma suggests that SAD plays a central role in the pathogenesis of fixed obstruction, suggesting a potential role for targeted diagnostic and therapeutic strategies.

Keywords: COPD; Small airways; abnormalities; asthma; function.

Cite

10

Indian J Pediatr

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. 2026 Jan 7.

doi: 10.1007/s12098-025-05887-y. Online ahead of print.

Ketamine-Fentanyl Versus Ketamine-Midazolam for Sedation in Children Undergoing Flexible Fiber-optic Bronchoscopy - An Open-label Randomized Controlled Trial

Gopika Ramesh [1], Golla Ramakrishna [1], Ketan Kumar [1], Aarushi Chokhani [2], Rashmi Ranjan Das [1], Sasmita Behera [1], Satyajeet Misra [3], Krishna Mohan Gulla [4]

Affiliations Expand

- PMID: 41495577

- DOI: 10.1007/s12098-025-05887-y

Abstract

Objectives: To compare the number of severe cough episodes during flexible fiberoptic bronchoscopy (FOB) in children receiving intravenous (IV) ketamine and fentanyl (KF) to those receiving IV ketamine and midazolam (KM).

Methods: A parallel-group, open-label, randomized controlled trial was conducted at a tertiary care center. Children aged 6 mo to 15 y undergoing FOB were enrolled, excluding those with anticipated difficult airway, significant respiratory compromise, hemodynamic instability, and those undergoing interventional procedures. Video recordings of the entire procedure were reviewed by a blinded observer to assess the primary outcome.

Results: Seventy-five participants were enrolled; 38 in the KM group and 37 in the KF group. The KF group had a lower median number of severe cough episodes [1 (0-4) vs. 3 (1-6), P = 0.054], though not statistically significant. No significant differences were found in time to reach Ramsay Sedation Scale (RSS) 4, bronchoscopy scores, need for additional sedation, or adverse events. No participants developed bradycardia, hypotension, apnea, laryngospasm, or deep

desaturation. Post-hoc analysis showed a lower frequency of severe cough episodes (per minute procedure time) in the KF group [0.1 (0-0.4) vs. 0.35 (0.1-0.6), P = 0.008].

Conclusions: This RCT did not demonstrate a significant difference in severe cough episodes with the ketamine-fentanyl combination compared to ketamine-midazolam in children undergoing FOB. However, the post-hoc analysis does indicate some benefit with the use of ketamine-fentanyl. There was no increase in adverse events with the combination.

Keywords: Opioids; Pediatric bronchoscopy; Procedural sedation.

Conflict of interest statement

Declarations. Conflict of Interest: None.

- 15 references

Full text links

Proceed to details

Cite

11

Eur J Clin Microbiol Infect Dis

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. 2026 Jan 6.

doi: 10.1007/s10096-025-05393-1. Online ahead of print.

Clinical efficacy comparison of Doxycycline versus Azithromycin combined with Methylprednisolone in the treatment of macrolide-unresponsive Mycoplasma pneumoniae pneumonia in children

Kui Zheng [#1], Shu Hong Zhou [#2], Zhou Bo Han [3]

Affiliations Expand

- PMID: 41493745

- DOI: 10.1007/s10096-025-05393-1

Abstract

Background: The escalating prevalence of macrolide-resistant Mycoplasma pneumoniae (MRMP) in China has posed substantial challenges for pediatricians managing mycoplasma pneumoniae pneumonia (MPP). This study aimed to compare the clinical efficacy and prognostic outcomes between two treatment strategies for pediatric patients with macrolide-unresponsive mycoplasma pneumoniae pneumonia (MUMPP) following initial 72-hour intravenous azithromycin therapy: (1) continuation of intravenous azithromycin combined with methylprednisolone, versus (2) switch to oral doxycycline monotherapy.

Methods: We performed a retrospective analysis of children hospitalized for MPP at our institution between November 2023 and October 2024. Children with MPP who showed no clinical response to an initial 72-hour course of intravenous azithromycin were assigned to two groups: (1) intravenous azithromycin combined with methylprednisolone (AZM + methylprednisolone group), and (2) doxycycline monotherapy (DXC group). Clinical efficacy and prognosis were compared between groups using 1:1 propensity score matching (PSM) to adjust for baseline confounding, followed by calculation of statistical power for the primary outcomes.

Results: A total of 1,112 children with MPP were screened, of whom 493 (44.33%) met the criteria for MUMPP, and 382 were included in the final analysis. The DXC group showed a significantly higher rate of pulmonary imaging improvement at discharge compared to the AZM + methylprednisolone group (94.29%vs.77.14%, $P < 0.05$). No significant intergroup differences were observed in the time to fever resolution or cough relief ($P > 0.05$). The AZM + methylprednisolone group had a significantly longer hospital stay than the DXC group [8 (7, 9) days vs. 6 (5, 7) days, $P < 0.05$]. Additionally, the refractory rate was higher in the AZM + methylprednisolone group (14.29% vs. 4.29%, $P < 0.05$). At 3-month follow-up, the incidence of new infections or diseases was significantly higher in the AZM + methylprednisolone group (32.86% vs. 4.29%, $P < 0.05$), whereas no significant difference was found in the complete imaging absorption rate between groups within 3 months (98.57% vs. 94.29%,$P > 0.05$). Notably, no cases of tooth discoloration-related adverse reactions were observed in the DXC group.

Conclusion: For pediatric cases of MUMPP, doxycycline yields superior efficacy over the combination regimen of azithromycin plus methylprednisolone in improving radiological findings at discharge, shortening hospital stays, reducing the rate of refractory disease, and lowering the incidence of post-discharge recurrent infection or disease exacerbation.

Keywords: Azithromycin; Children; Doxycycline; Macrolide-unresponsive mycoplasma pneumoniae pneumonia.

Conflict of interest statement

Declarations. Ethics approval and consent toparticipate: This study strictly adhered to the ethical principles outlined in the Declaration of Helsinki for human medical research and was approved by the Ethics Committee of the Bishan Hospital of Chongqing Medical University (approval number: Cqbykyll-29240918-79).Written informed consent was waived by the Ethics Board of the Bishan Hospital of Chongqing Medical University due to the retrospective nature of the study. Consent

for publication: Not applicable. Competing interests: The authors declare no competing interests.

- 24 references

Supplementary info

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Eur Respir J

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. 2026 Jan 8;67(1):2500645.

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Placebo effect on brainstem activity associated with capsaicin-evoked urge to cough in healthy humans

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Affiliations Expand

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- PMCID: PMC12780329
- DOI: 10.1183/13993003.00645-2025

Abstract

Background: Placebo effects are common in studies of cough and antitussive medications, suggestive of a profound influence of brain activity over cough neural processing. We previously reported placebo intervention-associated reductions in the urge-to-cough and the associated higher order brain network activity evoked by capsaicin inhalation, an effect involving increased activation of the prefrontal cortex.

Objective: In this study, we set out to advance the understanding of placebo antitussive brain circuitry by testing the hypothesis that the activity of brainstem nuclei during capsaicin inhalation will similarly be altered by placebo intervention.

Methods: Using an expectation-dependent placebo induction design during blood oxygen level-dependent (BOLD) functional magnetic resonance imaging optimised for quantifying brainstem activity, we compared regional brainstem responses evoked by capsaicin inhalation in 16 healthy individuals during no-intervention *versus* placebo-intervention trials.

Results: Capsaicin-induced urge-to-cough subjective ratings were significantly lower during the placebo-intervention trials than no-intervention trials. Placebo intervention resulted in a significant reduction in capsaicin-induced BOLD signal activation across many brainstem nuclei, including the medullary brainstem sites where airway vagal sensory neurons are known to terminate.

Conclusion: These data confirm the inhibitory effects of placebo intervention on capsaicin-evoked urge-to-cough and suggest the existence of a "top-down" brain circuit controlling cough sensory neural processing at the level of the brainstem during placebo conditions.

Conflict of interest statement

Conflict of interest: A.A.K. Moe reports grants from Merck and Bellus Health. S.B. Mazzone reports support for the present study from NHMRC of Australia, grants from Merck, Reckitt Benckiser and Bellus Health Inc, consultancy fees from Bellus Health, Merck, Reckitt Benckiser, Trevi Therapeutics, Chiesi and NeRRe Therapeutics and participation on data safety monitoring board or advisory boards with Merck, Reckitt Benkiser and Trevi Therapeutics. M.J. Farrell reports grants from Merck and Bellus Health. The remaining authors have no potential conflicts of interest to disclose.

Comment in

- The search for placebo biosignatures in chronic cough: looking through the lens of neurobiology.

Song WJ.Eur Respir J. 2026 Jan 8;67(1):2502142. doi: 10.1183/13993003.02142-2025. Print 2026 Jan.PMID: 41506683 No abstract available.

- 39 references
- 6 figures

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

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Review

Respir Med

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. 2026 Jan 12:108647.

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Fractional Exhaled Nitric Oxide in Monitoring Biological Treatment for Severe Asthma in Adults: Clinical Implications and Future Perspectives

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Affiliations Expand

- **PMID: 41534721**

- **DOI: 10.1016/j.rmed.2026.108647**

Abstract

Severe asthma (SA) is a heterogeneous disease that remains uncontrolled despite optimized, high-dose inhaled therapy and is associated with substantial morbidity, corticosteroid exposure, and healthcare burden. The advent of targeted biologic therapies has transformed SA management, making accurate biomarker-guided phenotyping essential. Fractional exhaled nitric oxide (FeNO) is a noninvasive biomarker of IL-4/IL-13-driven airway inflammation widely used in asthma, but its interpretation in SA is complex. This narrative review provides a biology-driven analysis of FeNO in SA, focusing on mechanistic foundations, interpretive limitations, and biologic-specific behavior. Chronic exposure to high-dose inhaled or systemic corticosteroids, overlap with reference ranges in healthy populations, and common SA comorbidities, such as obesity, chronic rhinosinusitis with nasal polyps, and bronchiectasis, can substantially modify FeNO levels, limiting the usefulness of fixed cutoffs. We summarize evidence on FeNO dynamics across biologic classes, highlighting the rapid and pronounced suppression observed with anti-IL-4Rα and anti-TSLP therapies, contrasted with the variable and often modest changes seen with anti-IL-5/IL-5R agents. We also review data linking baseline FeNO values and early FeNO trajectories to clinical outcomes and asthma remission. FeNO should not be used in isolation but integrated with blood eosinophils, IgE,

sputum cytology, and clinical features to guide biologic selection and longitudinal monitoring. Key evidence gaps include the need for prospective FeNO-guided biologic trials, harmonized SA-specific FeNO thresholds, and integration with multi-omics approaches to fully realize the role of FeNO as a precision biomarker in SA.

Conflict of interest statement

Declaration of Competing Interest Mauro Maniscalco reports grants or contracts (with payments to Istituti Clinici Scientifici Maugeri IRCCS) from GlaxoSmithKline and AstraZeneca, and payments or honoraria for lectures, presentations, speaker bureaus, manuscript writing or educational events from GlaxoSmithKline, AstraZeneca, Damor and Chiesi, outside the submitted work. The other authors have nothing to disclose. This research was partially supported by the Ricerca Corrente funding scheme of the Italian Ministry of Health-

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Chest

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. 2026 Jan 12:S0012-3692(26)00010-3.

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Efficacy of Anti-Inflammatory Therapies for Adults with Non-Cystic Fibrosis Bronchiectasis: A Systematic Review and Network Meta-Analysis

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Affiliations Expand

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- **DOI: 10.1016/j.chest.2025.12.035**

Abstract

Background: Non-cystic fibrosis bronchiectasis (NCFB) is characterized by chronic respiratory symptoms and radiologic airway dilatation. Sustained neutrophilic inflammation is a key driver, prompting interest in anti-inflammatory pharmacotherapy as a new treatment paradigm; however, comparisons among anti-inflammatory agents are lacking.

Research question: What is the current profile concerning efficacy and safety of anti-inflammatory therapies for bronchiectasis?

Study design and methods: We performed a systematic review and network meta-analysis (NMA) of randomized controlled trials that evaluated inhaled or oral anti-inflammatory agents in adults with CT-confirmed bronchiectasis. PubMed, Embase, CENTRAL, Web of Science, ICTRP, and ClinicalTrials.gov were searched. Trials enrolling adults and employing ≥4 weeks of treatment were eligible. The primary outcome was the rate of overall and severe exacerbations; secondary outcomes were quality of life, 6-min walk distance, FEV_1, and adverse events. The certainty of evidence was rated with GRADE.

Results: Thirty-one trials (n = 4,092) evaluating eight anti-inflammatory agents were included. Compared with placebo, macrolides (rate ratio [RR] 0.44, 95 % confidence interval [CI] 0.35-0.56) and DPP-1 inhibitors (RR 0.73, 95% CI 0.60-0.88) reduced overall exacerbation frequency (both moderate certainty). DPP-1 inhibitors reduced the frequency of severe exacerbations (RR 0.70, 95% CI 0.54-0.89; moderate certainty). Macrolides showed a similar downward trend of severe exacerbations with very serious imprecision (RR 0.54, 95 % CI 0.19-1.54; low certainty). Adverse events and treatment discontinuation rates were trivial or small for all interventions. In subgroup analyses, DPP-1 inhibitors remained effective irrespective of baseline long-term macrolide use (with macrolide: RR 0.77, 95% CI 0.60-0.99; without macrolide: RR 0.77, 95% CI 0.67-0.89). Among individual macrolides, azithromycin showed the greatest reduction in exacerbation frequency (RR 0.37, 95% CI 0.29-0.48).

Interpretation: These findings support the use of DPP-1 inhibitors and macrolide antibiotics as anti-inflammatory treatment options for bronchiectasis with frequent exacerbations.

Keywords: Non-cystic fibrosis bronchiectasis; adults; anti-inflammatory agents; network meta-analysis; systematic review.

. 2026 Jan 12:S0012-3692(25)05831-3.

doi: 10.1016/j.chest.2025.11.043. Online ahead of print.

Formation and Growth of a Bronchiectasis and Pulmonary NTM Multidisciplinary Program Using a Patient-Centered and Integrated Care Model Improves Outcomes

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Abstract

Background: Bronchiectasis and pulmonary nontuberculous mycobacteria (NTM) infections are chronic diseases that can cause debilitating respiratory symptoms, exacerbations, and even lead to respiratory failure. Clinical care has historically been provided by individual specialists, but multidisciplinary care teams have recently emerged to improve evaluation of underlying etiology and interventions that disrupt the trajectory of disease progression.

Research question: Does a multidisciplinary care program reduce bronchiectasis exacerbations or improve sputum conversion rates in pulmonary NTM infections?

Study design and methods: This is a retrospective study of INTEGRATE, a multidisciplinary bronchiectasis and NTM care program launched in 2019 and shaped by the principles of a patient-centered and integrated care (PC-IC) model. In those who consistently submitted microbiologic samples and received prescriptions through the program were included in outcome models. Interrupted time series analysis and segmented Poisson regression was used to compare bronchiectasis exacerbation rates before and after INTEGRATE consultation. Sputum culture conversion of NTM was analyzed by Cox hazard regression to estimate the hazard ratio (HR).

Results: The analysis included 453 individuals cared for at INTEGRATE, evaluated for demographics, encounter frequency, and clinical characteristics. INTEGRATE was associated with a 36% reduction in quarterly exacerbations in the year following consultation compared to the pre-consultation trend (rate ratio = 0.64, 95% CI [0.55, 0.74], P = 0.0004). Among individuals with NTM lung infection, those followed at INTEGRATE had shorter time to culture conversion compared to general care (HR=0.68, 95% CI [0.47 - 0.97], P = 0.0311), indicating a higher rate of

conversion over time. Further, an established multidisciplinary conference improved provider comfort and perceived practice safety.

Interpretation: The INTEGRATE multidisciplinary program for bronchiectasis and pulmonary NTM disease has been well received, with PC-IC argued as the ideal model. Further studies are needed to identify specific measures and timing to inform quality improvement and broader implementation.

Keywords: Bronchiectasis; Patient-centered and integrated care (PC-IC); Pulmonary nontuberculous mycobacteria; multidisciplinary care.

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Monaldi Arch Chest Dis

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. 2026 Jan 13.

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Physical activity levels and influencing factors in individuals with bronchiectasis: a cross-sectional study

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Affiliations Expand

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Free article

Abstract

Bronchiectasis is a chronic respiratory condition characterized by irreversible bronchial dilatation, persistent airway inflammation, and impaired mucociliary clearance. Physical activity (PA) plays a key role in improving respiratory health and

quality of life, yet objective data on PA levels and their clinical determinants in bronchiectasis are limited. We aimed to assess PA levels using wrist-worn accelerometry in individuals with non-cystic fibrosis (non-CF) bronchiectasis and to explore their association with clinical, functional, and inflammatory parameters. This cross-sectional study enrolled 27 adults with stable non-CF bronchiectasis (median age: 68.5 years; 40.7% female). Participants wore an AX3 wrist accelerometer for 7 consecutive days and were categorized into light or moderate/vigorous activity groups based on the World Health Organization guidelines. Clinical characteristics, pulmonary function (including airway resistance), and inflammatory markers [eosinophil count, fractional exhaled nitric oxide (FeNO)] were collected and analyzed. Logistic regression models were used to explore associations between these variables and PA levels. Patients with higher PA levels demonstrated lower airway resistance and reduced markers of type 2 inflammation. In univariate analysis, airway resistance, eosinophil count, FeNO, and age were significantly associated with PA levels. However, none of these factors retained significance in the multivariate model. Thus, reduced PA in bronchiectasis appears to be influenced by both airway inflammation and physiological factors such as aging. Inflammatory burden and impaired airway mechanics may limit functional capacity, underscoring the need for comprehensive management strategies that address both inflammation and mobility to improve patient outcomes.

Keywords: Bronchiectasis; actigraphy; airway inflammation; physical activity.

- 31 references

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Multicenter Study

Pulmonology

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. 2026 Dec;32(1):2588945.

doi: 10.1080/25310429.2025.2588945. Epub 2026 Jan 13.

Prevalence, type, and clinical implications of CFTR variants in bronchiectasis

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Affiliations Expand

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Free article

Abstract

Background and objective: Bronchiectasis is a chronic lung condition characterised by persistent respiratory symptoms and permanent bronchial dilation. CFTR variants are commonly reported in patients with bronchiectasis with unclear clinical implications.This study aims to investigate the prevalence of CFTR variants in people with bronchiectasis and their association with clinical characteristics.

Methods: Patients were recruited from two centres in Milan, Italy and screened for CFTR variants. The prevalence of CFTR variants in people with bronchiectasis was compared to that of a control group of healthy blood donors. Sweat chloride levels, pulmonary function tests, airway microbiology, disease severity and respiratory symptoms were compared between CFTR variant carriers and non-carriers.

Results: The study included 454 adults with bronchiectasis and 250 individuals in the control group. Among those with bronchiectasis, 178 individuals (39.2%) carried at least one CFTR variant, with 41 (9.0%) identified as having a CF-causing variant. This prevalence was higher than that observed in the control group (*n* = 10, 4%). The odds ratio of carrying a CF-causing variant among bronchiectasis patients was 2.83 (95% CI: 1.39-5.79, *p* = 0.004). No significant association was found between CFTR carrier status and clinical outcomes.

Conclusions: CFTR variants are frequently observed in patients with bronchiectasis, although they are not associated with increased disease severity.

Keywords: Bronchiectasis; CF-causing variant; CFTR; CFTR2 database; sweat chloride test.

Infection

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. 2026 Jan 11.

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Sex disparities in tuberculosis outcomes: evidence from a multicenter Italian cohort (Italian South TB Network (ISTB-Net)

Francesco Di Gennaro [# 1], Alessandro Cornelli [# 2], Giacomo Guido [# 3], Rosa Buonamassa [# 4], Francesco Cavallin [5], Mariantonietta Pisaturo [2], Lorenzo Onorato [2], Federica Zimmerhofer [6], Giuseppe Bruno [7], Massimo Fasano [8], Agostina Pontarelli [9], Tiziana Iacovazzi [8], Luisa Frallonardo [1], Gianfranco Panico [10], Raffaella Libertone [11], Caterina Monari [2], Alessia Musto [12], Francesca Serapide [13], Mariangela Niglio [14], Sergio Cotugno [15], Roberta Papagni [15], Alberto Enrico Maraolo [16], Loredana Alessio [2], Giulio Viceconte [16], Giuseppina De Iaco [1], Aurelia Ricciardi [10], Rossana Lattanzio [1], Federica De Gregorio [17], Helen Linda Morrone [13], Ylenia Farinaccio [17], Gaetano Brindicci [1], Marinella Cibelli [1], Carmen Pellegrino [18], Giorgia Manco Cesari [19], Vito Spada [18], Paolo Tundo [18], Paola Mencarini [11], Carmen Rita Santoro [1], Giuliana Metrangolo [19], Annamaria Maci [19], Grazia Pietramatera [15], Gina Gualano [11], Salvatore Minniti [12], Giovanni Battista Buccoliero [7], Sergio Lo Caputo [14], Alessandra Prozzo [17], Sergio Carbonara [10], Antonio Cascio [6], Alessandro Russo [13], Ivan Gentile [16], Roberto Parrella [9], Fabrizio Palmieri [11], Nicola Coppola [2], Annalisa Saracino [1]; Italian South T. B. Network (ISTB-Net)

Affiliations Expand

- **PMID: 41520316**

- **DOI: 10.1007/s15010-026-02725-x**

Abstract

Background: Sex disparities in tuberculosis (TB) outcomes are not well characterized, especially in high-income countries where social vulnerability and migration influence access to care. Although men globally experience a higher TB burden, the interaction between sex, migration, and social determinants is complex and extends beyond biological factors. This study evaluated sex differences in clinical and programmatic TB outcomes in a high-income European country with a significant substantial migrant population.

Methods: A retrospective multicentre cohort study was conducted across 16 Infectious Diseases Units in seven Italian regions from (January 2021 to September 2025). Outcomes included time to sputum conversion (in pulmonary TB), length of hospital stay (LOS), adverse events (AEs) and their severity, incomplete treatment (defined as failure, death, or loss to follow-up), and loss to follow-up (LTFU). Mixed-effects models were applied using two prespecified adjustment sets: sex, centre,

and core confounders (Model A); and sex, centre, and clinically relevant baseline imbalances (Model B). Sub-analyses examined the impact of migration status.

Results: Of 982 TB patients, 229 (23.3%) were women and 753 (76.7%) were men. Women exhibited lower rates of smoking (24.4% vs 36.7%), diabetes (7.9% vs 15.8%), and COPD/bronchiectasis (4.5% vs 10.3%). The median sputum conversion time was 21 days for both sexes. Adjusted analysesindicated shorter LOS among women (Model A: - 22% [95%CI - 32 to - 10]; Model B: - 19% [95%CI - 28 to - 9]). Time to sputum conversion was slightly shorter in women in Model A (- 13%; 95%CI -23% to -1%) but not in Model B (- 9%; 95%CI -17% to 1%). The risk and severity of AEs were similar between sexes. In Model B, women had lower odds of incomplete treatment (OR 0.64 [95%CI 0.41 to 0.99]) and LTFU (OR 0.62 [95%CI 0.38 to 0.99]). Migrants experienced worse overall outcomes, but the effect of sex did not differ by migration status.

Conclusion: Women had consistently shorter hospital stays and greater treatment continuity without increased toxicity, indicating that sex differences in TB outcomes are likely attributable to social and behavioural factors rather than biological differences. Supportive associative networks and non-governmental organisations may help reduce sex disparities, underscoring the importance of sex- and migration-responsive TB care models in Europe.

Keywords: Adherence; Health equity; Hospital stay; Italy; Migration; Sex; Treatment outcomes; Tuberculosis.

Conflict of interest statement

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

- 24 references

Supplementary info

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Respir Investig

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Efficacy and safety of brensocatib in Japanese patients with non-cystic fibrosis bronchiectasis: Analysis of the ASPEN trial

Kozo Morimoto [1], James D Chalmers [2], Pierre-Régis Burgel [3], Charles L Daley [4], Anthony De Soyza [5], David Mauger [6], Mark L Metersky [7], Xiangmin Zhang [8], Sherry Li [8], Yuhei Goto [9], Ariel Teper [8], Carlos Fernandez [8], Naoki Hasegawa [10]

Affiliations Expand

- PMID: 41519018

- DOI: 10.1016/j.resinv.2025.101357

Free article

Abstract

Background: In the ASPEN trial (NCT04594369), brensocatib 10 mg and 25 mg significantly reduced the burden of pulmonary exacerbations (annualized rate [primary endpoint], time to first, proportion exacerbation-free) over 52 weeks vs placebo in patients with bronchiectasis; brensocatib 25 mg significantly reduced lung function decline and nominally significantly improved patient-reported symptoms. Here we report efficacy and safety for Japanese patients.

Methods: Adults with bronchiectasis with ≥2 exacerbations in the 12 months before screening were randomized to once-daily brensocatib (10 mg or 25 mg) or placebo for 52 weeks. Endpoints included annualized exacerbation rate, time to first exacerbation, proportion remaining exacerbation-free, change from baseline in lung function, severe exacerbation rate, and change from baseline in patient-reported symptoms.

Results: Baseline characteristics of Japanese patients (n = 87) were generally consistent across groups. Brensocatib 10 mg and 25 mg reduced the annualized exacerbation rate vs placebo (rate ratio, 0.37 [95 % CI, 0.16-0.87]; 0.32 [0.14-0.75]), prolonged time to first exacerbation, and increased odds of remaining exacerbation-free. The annualized severe exacerbation rate was lower with brensocatib 10 mg and 25 mg vs placebo (rate ratio, 0.11 [0.01-1.04]; 0.30 [0.06-1.62]). Brensocatib, particularly at the 25 mg dose, also reduced lung function decline vs placebo (LS mean difference: forced expiratory volume in 1 s, 97 mL [95 % CI, 32-162]; forced vital capacity, 164 mL [84-244]) and improved patient-reported symptoms. Adverse events were similar across groups.

Conclusions: Consistent with overall ASPEN results, brensocatib 10 mg and 25 mg reduced exacerbation frequency vs placebo in Japanese patients with bronchiectasis. Lung function, patient-reported symptoms, and safety data were consistent with overall ASPEN trial results.

Clinical trial registration: NCT04594369.

Keywords: Brensocatib; Bronchiectasis; Dipeptidyl peptidase 1 inhibitor; Neutrophilic inflammation; Pulmonary exacerbation.

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Editorial

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. 2026 Jan 8;67(1):2501783.

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Advances in cystic fibrosis: CFTR modulator triple combinations

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Affiliations Expand

- **PMID: 41309268**
- **PMCID: PMC12780330**
- **DOI: 10.1183/13993003.01783-2025**

Abstract

Triple combinations of CFTR modulators have revolutionised the care of people with CF. Initially developed for the F508del variant, these drugs are effective in many other *CFTR* variants, making them suitable for most, but not all, people with CF. https://bit.ly/49yHjha

Conflict of interest statement

Conflict of interest: The authors report no conflict of interest directly relating to this manuscript. P-R. Burgel reports personal fees for lectures/advisory boards from Air Liquide International, AstraZeneca, Chiesi, GSK, Insmed, Pfizer, Sanofi, MSD, Viatris and Vertex, support for travelling to meetings from AstraZeneca, Viatris and Chiesi, grants from Vaincre la Mucoviscidose, Filière Muco-CFTR, Société Française de la Mucoviscidose and Vertex, a leadership role with the French Cystic Fibrosis Society and is an Associate Editor for the European Respiratory Journal. M.A. Mall reports grants or contracts from the German Research Foundation (DFG), the German Federal Ministry for Education and Research (BMBF), Boehringer Ingelheim, Enterprise Therapeutics, the German Innovation Fund and Vertex Pharmaceuticals, consultancy fees from Boehringer Ingelheim, Enterprise Therapeutics, Kither Biotech, Splisense and Vertex Pharmaceuticals, payment or honoraria for lectures from Vertex Pharmaceuticals, support for attending meetings from Boehringer Ingelheim and Vertex Pharmaceuticals, participation on an advisory board with Boehringer Ingelheim, Enterprise Therapeutics, Kither Biotech, Pari and Vertex Pharmaceuticals, and a patent issued for the Scnn1b-transgenic mouse with the University of North Carolina at Chapel Hill; M.A. Mall is an unpaid fellow of the European Respiratory Society and an Associate Editor for the European Respiratory Journal.

- **44 references**
- **1 figure**

Supplementary info

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