23-FEB-1-MARCH-2026

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

Sci Rep

. 2026 Feb 28.

doi: 10.1038/s41598-026-41831-6. Online ahead of print.

A comprehensive nationwide registry study of noncommunicable disease comorbidities and death in cancer patients in Norway-the NCDNOR project

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Affiliations Expand

- PMID: 41760872

- DOI: 10.1038/s41598-026-41831-6

Abstract

Noncommunicable disease (NCD) comorbidities are common in cancer patients due to shared risk factors, but few studies have mapped their occurrence across cancer types using detailed national data. In this nationwide cohort study, we used data from Norwegian mandatory health registries to comprehensively describe NCD comorbidities at and after cancer diagnosis of 19 cancers. We included 269,956 adults registered with a first cancer in the Cancer Registry of Norway 2009-2019. Comorbidities included second cancers, cardiovascular diseases (CVDs), chronic obstructive pulmonary disease, diabetes and mental health disorders (MDs). We used intersection diagrams to examine NCD comorbidity patterns at first cancer diagnosis, and multi-state models to estimate five-year post-cancer probabilities of NCD comorbidities and death. We also provide a publicly available online application [https://ncdapp.onrender.com/] with additional results and details. Comorbidity prevalence at cancer diagnosis ranged from 35% (skin cancer) to 83% (lung cancer). CVD was most prevalent, usually co-occurring with MDs or diabetes. Lowest prevalences were found for younger patients and women. Conditioning on surviving five years, comorbidity probability exceeded 50% in all sites. Our findings show substantial comorbidity burden in cancer patients, varying by cancer site, age, and sex. Knowledge of these patterns could improve NCD prevention, treatment and surveillance.

Keywords: Cancer comorbidities; Cohort study; Comorbidity patterns; Multi-state models; National registries; Noncommunicable diseases.

Conflict of interest statement

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

- 41 references

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Cite

2

BMJ Open Respir Res

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doi: 10.1136/bmjresp-2025-003752.

Community-based prediction models of cardiovascular events, acute exacerbations and all-cause mortality in individuals with chronic obstructive pulmonary disease: a systematic review and meta-analysis on behalf of the International Cardiovascular and Respiratory Alliance

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- PMID: 41760356

- DOI: 10.1136/bmjresp-2025-003752

Abstract

Introduction: Preventable morbidity and mortality from chronic obstructive pulmonary disease (COPD) accrue from major adverse cardiovascular events (MACEs) and acute exacerbations of COPD (AECOPD). The study aims to summarise models for the prediction of these cardiopulmonary events in community-based settings.

Methods: We searched for studies of multivariable models derived, validated or augmented for the prediction of cardiopulmonary events in COPD and used community-based data sources using MEDLINE and Embase from inception through 10 April 2025. Discrimination measures for the model with C-statistic data from ≥3 cohorts were pooled by Bayesian meta-analysis, and heterogeneity and risk of bias assessments were undertaken.

Results: No models were identified that predicted cardiopulmonary events in COPD using community-based data. Of the 71 models included, 5 predicted cardiovascular events, 32 predicted AECOPD and 30 predicted all-cause mortality. None were eligible for meta-analysis for the prediction of cardiovascular events or AECOPD. For all-cause mortality, age, dyspnoea and airflow obstruction-surprise question (ADO-SQ) (0.763, 95% CI 0.533 to 0.942) and body mass index, airflow obstruction, dyspnoea score and exercise capacity (BODE) (0.753, 95% CI 0.583 to 0.907) demonstrated good prediction performance, while ADO

(0.638, 95% CI 0.443 to 0.827) demonstrated adequate prediction performance. The risk of bias was high for 57.9% of studies, and none had clinical utility evaluated.

Conclusions: Despite the high burden of MACE and AECOPD, there is an absence of community-based models that predict this composite outcome. Models to identify individuals with COPD at high risk of cardiopulmonary events could enable targeted clinical intervention.

Prospero registration number: CRD420251026275.

Keywords: COPD Exacerbations; COPD epidemiology.

Conflict of interest statement

Competing interests: RN is funded by HDR UK. MB has received grants paid to his institution from CIHR, AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline, Sanofi and Mereo. He has received speaker and consulting fees from AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline, Sanofi, Valeo and Covis. DBP has advisory board memberships with Amgen, AstraZeneca, Boehringer Ingelheim, Chiesi, Circassia, Mundipharma, Mylan, Novartis, Regeneron Pharmaceuticals, Sanofi Genzyme, Teva Pharmaceuticals and Thermo Fisher; consultancy agreements with Amgen, AstraZeneca, Boehringer Ingelheim, Chiesi, GSK, Mundipharma, Mylan, Novartis, Pfizer, Teva Pharmaceuticals and Theravance and received grants and unrestricted funding for investigator-initiated studies (conducted through the Observational and Pragmatic Research Institute) from AstraZeneca, Boehringer Ingelheim, Chiesi, Circassia, Medscape, Mundipharma, Mylan, Novartis, Pfizer, Regeneron Pharmaceuticals, Respiratory Effectiveness Group, Sanofi Genzyme, Teva Pharmaceuticals, Theravance, the UK National Health Service and Viatris. He has received payment for lectures/speaking engagements from AstraZeneca, Boehringer Ingelheim, Chiesi, Cipla, Inside Practice, GSK, Kyorin, Mundipharma, Mylan, Novartis, Regeneron Pharmaceuticals, Sanofi Genzyme and Teva Pharmaceuticals; payment for the development of educational materials from Mundipharma and Novartis and payment for travel/accommodation/meeting expenses from AstraZeneca, Boehringer Ingelheim, Mundipharma, Mylan, Novartis and Thermo Fisher. He has received funding for patient enrolment or completion of research from Novartis; owns stock/stock options from AKL Research and Development, which produces phytopharmaceuticals; owns 74% of the social enterprise Optimum Patient Care (Australia and UK) and 74% of Observational and Pragmatic Research Institute (Singapore) and owns 5% of Timestamp, which develops adherence monitoring technology. He is a peer reviewer for grant committees of the Efficacy and Mechanism Evaluation programme and Health Technology Assessment and was an expert witness for GSK. CG reports personal fees from AstraZeneca, Amgen, Bayer, Boehringer Ingelheim, Daiichi Sankyo, Lung Health Foundation, Vifor Pharma, Menarini, Wondr Medical, Raisio Group and Oxford University Press. He has received educational and research grants from BMS, Abbott, the British Heart Foundation, the National Institute of Health Research, Horizon 2020 and the European Society of Cardiology, outside the submitted work. All other authors have no competing interests to declare.

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3

BMJ Open Respir Res

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doi: 10.1136/bmjresp-2025-003578.

Characterisation of chronic obstructive pulmonary disease (COPD) in never-smokers and ever-smokers from a population-based cohort

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- PMID: 41760355

- DOI: 10.1136/bmjresp-2025-003578

Abstract

Background: Chronic obstructive pulmonary disease (COPD) in never-smokers may have other clinical characteristics than tobacco smoking-related COPD.

Research question: What are the risk factors, biomarkers, respiratory symptoms and health status in never-smoking individuals with COPD?

Study design and methods: We investigated never-smokers with COPD (n=154, mean age 60 years) from the population-based Swedish CArdioPulmonary bioImage Study (SCAPIS), and compared them with four control groups: never-smokers with normal lung function (n=281), current smokers with normal lung function (n=97), ex-smokers with COPD (n=103) and current smokers with COPD (n=55). COPD was defined as forced expiratory volume in 1 s (FEV_1)/forced vital capacity (FVC) less than the lower limit of normal (LNN) after bronchodilation. We examined fractional exhaled nitric oxide (FeNO), blood biomarkers, respiratory symptoms, health status, medical history and living conditions.

Results: The never-smoker COPD group reported more respiratory symptoms and worse health status than never-smokers with normal lung function, but fewer symptoms, milder airflow limitation and better health status compared with ex-smokers and smokers with COPD. Never-smokers with COPD had more self-reported asthma. Moreover, never-smokers with COPD had higher Immunoglobulin E sensitisations to a mix of aeroallergens, higher geometrical mean FeNO levels and blood eosinophil counts than never-smokers with normal lung function. When participants with self-reported asthma were excluded, never-smokers with COPD still had more wheeze, cough and higher FeNO.

Conclusion: Never-smokers with COPD had more respiratory symptoms and elevated markers of type-2 inflammation, suggesting they might represent a distinct clinical phenotype which may differ from smoking-related COPD. They may therefore need to be treated and followed differently.

Trial registration number: NCT03049202.

Keywords: COPD epidemiology; Emphysema; Physical Examination; Pulmonary Disease, Chronic Obstructive; Respiratory Function Test; Respiratory Measurement.

Conflict of interest statement

Competing interests: None declared.

Supplementary info

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4

J Glob Health

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C-reactive protein predicts respiratory failure in chronic obstructive pulmonary disease: a cohort analysis from the UK Biobank

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- PMID: 41757812

- DOI: 10.7189/jogh.16.04061

Abstract

Background: Respiratory failure (RF) is the leading cause of death in chronic obstructive pulmonary disease (COPD), yet reliable biomarkers for early risk stratification remain unclear. Circulating C-reactive protein (CRP) reflects systemic inflammation, but its prognostic value for incident RF in COPD is controversial.

Methods: A total of 38 933 patients from the UK Biobank with the ratio of Forced Expiratory Volume in 1 second to Forced Vital Capacity (FEV_1/FVC) < 0.70 but without RF at baseline were included, and a maximum of 17.87 years of follow-up was conducted. Participants were divided into five subgroups based on serum CRP concentration. Kaplan-Meier survival analysis was utilised to assess the correlation between CRP stratification, incident RF, all-cause mortality, and COPD-induced mortality. The dose-response relationship between CRP concentration and incident RF was investigated using Cox proportional hazards regression.

Results: Kaplan-Meier curves showed statistically significant differences in RF across all subgroups throughout the entire follow-up period. Additionally, significant differences were observed between groups concerning all-cause mortality and COPD-induced mortality as well. The Cox proportional hazards model demonstrated a clear dose-response relationship between CRP concentration and RF, even after adjustment for several clinical covariates and systemic inflammation index.

Conclusions: Serum CRP concentration may forecast a high risk of incident RF in patients with COPD, indicating further research on the threshold.

Conflict of interest statement

Disclosure of interest: The authors completed the ICMJE Disclosure of Interest Form (available upon request from the corresponding author) and disclose no relevant interests.

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5

Health Sci Rep

. 2026 Feb 24;9(2):e71896.

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Toward Holistic COPD Management: The Case for Mental Health Integration

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- PMID: 41756728

- PMCID: PMC12932974

- DOI: 10.1002/hsr2.71896

Abstract

Background and aims: Chronic obstructive pulmonary disease (COPD) is a growing global public health concern, not only due to its physical effects but also because of the significant psychological distress it causes, including anxiety and depression. This perspective stresses the importance of addressing mental health issues in the management of COPD, discussing current treatment options, which include non-pharmacological interventions.

Methods: This perspective synthesizes current literature on psychological distress in COPD and reviews evidence for non-pharmacological approaches, including pulmonary rehabilitation, cognitive behavioral therapy, self-management programs, telerehabilitation, education, and peer support. It draws on recent literature and guidelines to identify gaps and opportunities for integrated care.

Results: Individuals with COPD experience substantially higher rates of anxiety and depression compared to the general population, and this can negatively impact quality of life, disease progression, and healthcare outcomes. Despite this, mental health symptoms often remain undiagnosed and untreated due to limited awareness, training, and resources. Psychological and non-pharmacological interventions reveal encouraging results in reducing distress and improving overall well-being. Pulmonary rehabilitation, combined with psychological support, demonstrates particular benefits but is underutilized due to patient and systemic barriers. Alternative approaches such as telerehabilitation and remote therapies offer potential for increased access. Moreover, education and peer support play a crucial role in empowering patients, improving coping skills, and fostering social connectedness, which contribute positively to psychological well-being. This perspective advocates for integrated COPD management, which prioritizes mental health literacy, collaborative care models, and patient engagement.

Conclusion: Addressing both the physical and psychological aspects of COPD is essential for holistic care and enhancing the quality of life of individuals with COPD. Further research and healthcare policy efforts are needed to close existing gaps and deliver comprehensive support for people living with COPD.

Keywords: anxiety; biopsychosocial model; chronic obstructive pulmonary disease; depression; holistic health; mental health.

Conflict of interest statement

The authors declare no conflicts of interest.

- 54 references

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6

Eur Respir J

. 2026 Feb 26:2502574.

doi: 10.1183/13993003.02574-2025. Online ahead of print.

Joint statement from GOLD/GLI regarding the use of spirometry to define airflow obstruction and diagnose COPD

David M G Halpin[1,2], Sanja Stanojevic[3,2], Meredith C McCormack[4], Dave Singh[5], David Kamkinsky[6], Claus F Vogelmeier[7], Laura Gochicoa-Rangel[8], Alvar Agusti[9], Brendan Cooper[10,2]

Affiliations Expand

- PMID: 41748283

- DOI: 10.1183/13993003.02574-2025

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BMJ Open

. 2026 Feb 25;16(2):e103595.

doi: 10.1136/bmjopen-2025-103595.

Predictors of unplanned 30-day hospital readmission: a retrospective cohort study in north-east Italy

Gino Sartor[1], Marco Fusco[1], Marzio Milana[1], Elisa Marcon[1], Jessica Battagello[1], Alberto Zardetto[2], Maria Grazia Ruggieri[1], Giulia Grotto[3], Leonardo Rigon[4,5], Giorgio Arcara[4], Pierfranco Conte[4], Alessandra Buja[6]

Affiliations Expand

- PMID: 41748181

- DOI: 10.1136/bmjopen-2025-103595

Free article

Abstract

Objective: Unplanned hospital readmissions within 30 days of discharge measure the quality of healthcare. This study aims to identify the characteristics of patients at higher risk of readmission.

Design: Retrospective cohort study.

Setting: North-east Italy (Marca Trevigiana Local Health Authority).

Data source: The study examined a total of 39 467 index admissions from hospital discharges (SDO) in the 890 000-inhabitant area during 2022.

Outcome measure: Readmission rates and 95% CIs were computed by risk factor, age and type of admission (surgical or medical). A logistic mixed-effects model was used to estimate readmission OR, adjusting for potential confounders.

Results: A total of 2197 readmissions occurred within 30 days of the index admission, resulting in an overall rate of 30-day readmissions of 6.7% (CI 6.4% to 7.0%). The median time to readmission was 11 days (IQR 5 to 20). In the multivariate analysis, after adjusting for age and sex, the following clinical conditions were associated with a higher risk of readmission: alcohol-related disease (OR=2.06, CI 1.36 to 3.13), metastatic cancer (OR=1.98, CI 1.57 to 2.50), epilepsy (OR=1.93, CI 1.36 to 2.75), dialysis or end-stage kidney disease (OR=1.92, CI 1.39 to 2.66), chronic obstructive pulmonary disease (OR=1.88, CI 1.49 to 2.36), stoma (OR=1.72, CI 1.22 to 2.44), transplant (OR=1.62, CI 1.03 to 2.55), being bedridden (OR=1.57, CI 1.28 to 1.93), anaemia (OR=1.57, CI 1.35 to 1.83), urinary tract infection (OR=1.54, CI 1.30 to 1.83), pneumonia (OR=1.52, CI 1.31 to 1.75), dementia (OR=1.49, CI 1.24 to 1.79), diabetes (OR=1.37, CI 1.17 to 1.61) and transfusion (OR=1.34, CI 1.03 to 1.73).

Conclusion: Several chronic and acute conditions at index admission significantly increased the risk of readmission. Strengthening transitional care, outpatient services and palliative care could mitigate readmissions.

Keywords: administrative records; chronic conditions; healthcare policy; readmission; transitional care.

Conflict of interest statement

Competing interests: None declared.

. 2026 Feb 26:21:1070.

doi: 10.5826/mrm.2026.1070.

Single-Inhaler Triple Therapy (SITT) for COPD: An Italian expert opinion paper on improving clinical outcomes and equity of therapeutic access

Andrea Bianco [1], Salvatore D'Antonio [2], Francesco Paolo Lombardo [3], Claudio Micheletto [4], Stefano Palcic [5], Gherardo Siscaro [6], Pietro Pirina [7]

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- PMID: 41744171

- DOI: 10.5826/mrm.2026.1070

Abstract

Chronic Obstructive Pulmonary Disease (COPD) is a leading cause of global morbidity and mortality, with significant burden in Italy. Prevalence estimates vary by data source: Health Search data indicate a prevalence of 2.7% among adults, whereas population-based analyses report higher estimates of approximately 5.6%. Triple therapy combining a long-acting muscarinic antagonist (LAMA), a long-acting beta2-agonist (LABA), and an inhaled corticosteroid (ICS) has been shown to improve lung function, reduce exacerbations, and potentially decrease mortality in moderate-to-severe COPD. Fixed-dose Single-Inhaler Triple Therapy (SITT) provides practical advantages over Multiple-Inhaler Triple Therapy (MITT), including improved treatment adherence, fewer inhaler technique errors, and comparable safety. This expert opinion review summarizes evidence from randomized controlled trials and real-world studies supporting the clinical, practical, and economic benefits of SITT. While access to SITT in Italy is influenced by regulatory frameworks, optimizing prescription practices and aligning treatment strategies with clinical evidence could enhance continuity of care and patient outcomes. The paper highlights strategies to improve COPD management, reduce treatment discontinuation, and ensure equitable access to effective therapies.

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Pulmonology

. 2026 Dec;32(1):2629617.

doi: 10.1080/25310429.2026.2629617. Epub 2026 Feb 26.

Exacerbation history as a predictor of future exacerbations and mortality in COPD patients: A real-world study from a Portuguese integrated care health unit 2013-2018

Paula Simão [1], Ana Luísa Fernandes [1], Carla Ponte [2], Daniela Sousa Santos [2], Mário Bibi [3], Marisa Pardal [4], Julieta Maciel [5], Inês Esteves [5], Carlos Amaral [5], Hugo Martinho [5], Rita Amaral [6], Rita Lopes [7], Cristina Jácome [6 7], Filipa Bernardo [4]

Affiliations Expand

- PMID: 41742848

- DOI: 10.1080/25310429.2026.2629617

Free article

Abstract

Background: This study estimated the risk of exacerbations, cardiovascular (CV) death and all-cause death in COPD patients, according to their exacerbation profile.

Methods: A real-world, retrospective study, based on electronic health records from the Unidade Local de Saúde de Matosinhos, was conducted. Individuals ≥40 years, diagnosed with COPD between 2013 and 2018 and with 1 year of history prior to diagnosis were followed for 1 year. Patients were divided based on their exacerbation history: Cohort A: no exacerbations; Cohort B: one moderate exacerbation; Cohort C: ≥2 moderate exacerbations; Cohort D: one severe exacerbation; Cohort E: ≥2 exacerbations, with ≥1 severe. The 1-year risk of exacerbations, CV death and all-cause death were estimated based on Cox proportional hazard models (reference Cohort A).

Results: In total, 5696 COPD cases were identified, with median age increasing from Cohort A to E (68 to 74 years). The risk of moderate exacerbations was higher in Cohorts C (hazard ratio, HR = 1.95; 95% CI 1.70-2.25) and D (HR = 1.69; 95% CI 1.51-1.90). For severe exacerbations, cohorts D (HR = 2.95; 95% CI 2.51-3.46) and E (HR = 3.12; 95% CI 2.59-3.77) showed an increased risk. Cohort E also had the highest risk of CV death (HR = 1.65; 95% CI 1.17-2.34). Cohort D had the highest risk of all-cause death (HR = 1.65; 95% CI 1.24-2.18).

Discussion: A higher number and severity of prior exacerbations in patients with COPD increase their risk of future exacerbations, all-cause and CV death. These findings highlight the importance of implementing effective strategies to prevent exacerbations and improve disease management.

Keywords: Chronic obstructive pulmonary disease; cardiovascular; exacerbations; mortality; real-world.

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Trials

. 2026 Feb 25.

doi: 10.1186/s13063-025-09210-0. Online ahead of print.

Supporting Evidence-based Responses to Emotional Needs in Emphysema (SERENE): protocol for a randomized, open-label mechanistic trial comparing Coping Skills Training and disease-specific education for depressive symptoms conducted in United States health systems

Joanna L Hart[1 2 3 4], Daniel Carter[5], Chloe Hinton[5], James Grilli[5], Lily A Brown[6], Nora Brier[6], Yingying Lu[5], Casey Whitman[5], Michael O Harhay[5 7 8], Michael Sims[7], Carmen Alvarez[9], Lisa R Miller-Matero[10], C Virginia O'Hayer[11]

Affiliations Expand

- PMID: 41742282

- DOI: 10.1186/s13063-025-09210-0

Free article

Abstract

Background: Depressive symptoms and anxiety are highly prevalent among people with chronic obstructive pulmonary disease (COPD), strongly associated with poor outcomes, and rarely recognized or treated. Integrating families into interventions may amplify supportive care treatment effects and overcome common challenges, yet this strategy is understudied. The Supporting Evidence-based Responses to Emotional Needs in Emphysema (SERENE) trial's main objective is to identify the mechanisms through which a family-partnered Coping Skills Training (CST) reduces depressive symptoms among patients with COPD, testing five putative mechanisms: family relationship quality, patient and caregiver self-efficacy, patient loneliness, and caregiver psychological distress.

Methods: SERENE will enroll 375 patient-support person (i.e., family caregiver) dyads from two academic health systems. Eligible patients have documented COPD, elevated levels of depressive symptoms (i.e. PHQ-8 scores ≥ 8), and age ≥ 18 years old. Ineligible participants are those with new or changing behavioral health treatments or behavioral health emergencies. After enrollment by research staff, we randomize dyads in a 2:1 ratio to receive either a 12-week CST program or a 12-week COPD education program, respectively. Both are delivered to the dyads via phone or videoconferencing sessions and, therefore, arm assignment is not blinded to staff nor participants. We will test whether randomization to receipt of CST leads to improvements in patients' depressive symptoms and test mechanisms of efficacy. The primary efficacy outcome is PHQ-9 scores 14 weeks following enrollment. Our five putative mechanisms, corresponding to those previously specified, are measured with the Family Emotional Involvement and Criticism Scale, the General Self-efficacy Scale, the UCLA Loneliness Scale, the PHQ-9, and the Generalized Anxiety Disorder-7. We will measure secondary outcomes through 12 months. Those performing data analyses will remain blinded to group assignments at the individual level until completion of the primary analyses. The study team identifies and reports serious adverse events (i.e., suicidal behaviors or psychiatric hospitalizations).

Discussion: SERENE will determine how scalable supportive care interventions that strengthen existing social networks, including the crucial support of family caregivers, improve outcomes in COPD. The results will lay the foundation for paradigm-shifting approaches to managing COPD and similar illnesses through family-directed supportive care interventions.

Trial registration: ClinicalTrials.gov Identifier NCT06600126. Registered 6 September 2024, https://clinicaltrials.gov/study/NCT06600126. The first enrollment occurred on 30 September 2024.

Keywords: Caregivers; Chronic obstructive pulmonary disease; Coping skills; Patient-centered care; Psychological adaptation; Psychological distress; Social environment.

Conflict of interest statement

Declarations. Ethics approval and consent to participate {24}: The trial has been approved by Penn's Institutional Review Board (852619, with HFH ceding) and registered at ClinicalTrials.gov (NCT06600126). The protocol is consistent with the principles of the Declaration of Helskini. Informed consent is obtained from all participants prior to trial enrollment. Consent for publication {32}: Not applicable. Competing interests {28}: The authors declare that they have no competing interests.

- 44 references

Supplementary info

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Respir Res

. 2026 Feb 25.

doi: 10.1186/s12931-025-03481-6. Online ahead of print.

Distinct pulmonary pathophysiological mechanisms in COPD, bronchiectasis, and primary immunodeficiency: a multi-omics investigation of disease heterogeneity via sputum and blood profiling

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Affiliations Expand

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- DOI: 10.1186/s12931-025-03481-6

Free article

No abstract available

Keywords: Biomarkers; Blood; Bronchiectasis; COPD; Immunodeficiency; Inflammation; Neutrophils; Proteomics; Sputum; Transcriptomics.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: All subjects provided written informed consent to participate in this study. The study was reviewed and approved by the Melbourne Health Human Research Ethics Committee (HREC ethical approval 2019.085) and conducted in accordance with the ethical standards of the Declaration of Helsinki and local regulatory requirements. Consent for publication: Not applicable. Competing interests: The following contributors were employees and/or shareholders of CSL during the study: SG, NG, MW, LC, MS, JR, KM, NW, JF, NW, CPR, IS, AScha, ASchn, MH and AF. JD declares that she received honoraria for educational presentations and/or served on advisory boards for Sanofi-Aventis, Novartis, GSK, Astra-Zeneca, Shire, Sequiris, Immunosis, Stallergenes and CSL. She has undertaken contracted research on behalf of GSK, Novartis, Immunosis, AstraZeneca, Sanofi-Aventis, Grifols, BioCryst and Equilium. She had had royalties paid for Fast Facts: Asthma and has a personal superannuation shareholding with CSL. SC, ASt and MR declare no competing interests related to this study.

- 43 references

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12

BMC Pulm Med

. 2026 Feb 25.

doi: 10.1186/s12890-026-04202-5. Online ahead of print.

Persistently low blood eosinophils identify a high-risk phenotype in COPD

Wen Zhang[1,2], Si Yuan Chew[3], Xiaoli He[4], Yanlin Wu[4], Mariko Siyue Koh[3,5], Guansong Wang[4], Zhi Xu[6], Pei Yee Tiew[3,5,7]

Affiliations Expand

- PMID: 41742158

- DOI: 10.1186/s12890-026-04202-5

Free article

No abstract available

Keywords: Blood eosinophil count; COPD; Longitudinal stability; Mortality; Phenotype.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: Study approval statement: This study was conducted in accordance with the World Medical Association Declaration of Helsinki. The protocol for the primary Singapore cohort was reviewed and approved by the SingHealth Centralized Institutional Review Board (approval numbers: CIRB 2018/2186 and 2013/184/C). The protocol for the independent validation cohort in China was reviewed and approved by the Institutional Review Board of Xinqiao Hospital of Army Medical University (approval number: 2025-154-01). Consent to participate statement: Written informed consent was obtained from all participants in the Singapore prospective cohort. For the Chinese retrospective validation cohort, the requirement for informed consent was waived by the local ethics committee due to its retrospective nature. Competing interests: The authors declare no competing interests.

- 47 references

Supplementary info

Grants and fundingExpand

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BMC Pulm Med

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Pulmonary vasodilator therapy is associated with improved survival in COPD-PH with pulmonary vascular predominance

Taylor Caton[1], Jay Pescatore[2], Mario Naranjo[2], Shameek Gayen[2]

Affiliations Expand

- PMID: 41742144

- DOI: 10.1186/s12890-026-04203-4

Free article

No abstract available

Keywords: COPD; Pulmonary hypertension; Pulmonary vasodilator therapy.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: Our study met approval for waiver of informed consent by the Western Institutional Review Board (IRB, Protocol # 31795). Ethics approval was waived after review in accordance with national regulations as reviewed by the Western IRB. Procedures were followed in accordance with the ethical standards of the Western IRB and the Helsinki Declaration of 1975. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

- 32 references

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Review

Eur Respir Rev

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Physical inactivity in chronic airways disease: an important candidate in the treatable traits paradigm

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Affiliations Expand

- PMID: 41741005
- PMCID: PMC12933259
- DOI: 10.1183/16000617.0165-2025

Abstract

Background: Physical inactivity is a common and potentially modifiable trait in individuals with chronic airways disease, yet disease-specific physical activity profiles and clinical determinants remain poorly defined.

Methods: We conducted a systematic review and meta-analysis in accordance with PRISMA guidelines to characterise physical activity profiles across the spectrum of chronic airways disease. Studies reporting objectively measured physical activity in adults with COPD, asthma, noncystic fibrosis bronchiectasis, cystic fibrosis or primary ciliary dyskinesia were included. Primary outcomes were daily step count and time spent in moderate-to-vigorous physical activity (MVPA). Univariate and multivariate regression analysis was used to explore disease-specific determinants and associations with established clinical outcome measures.

Results: 236 studies (353 cohorts, n=25 278 with chronic airways disease) met the eligibility criteria. The mean daily step count was 5494 (95% CI 5152-5636) and MVPA was 48.2 min·day^{-1} (95% CI 33.8-62.6), with the lowest levels observed in COPD. Physical activity levels were consistently lower than matched healthy controls. Disease-specific determinants of physical activity remained elusive; body mass index and percent predicted forced expiratory volume in 1 s (FEV_1) were significant in COPD and asthma. Step count associated positively with FEV_1 % pred and 6-min walk distance, and negatively with modified Medical Research Council scores.

Conclusion: Physical inactivity is highly prevalent across chronic airways diseases and is consistently associated with established clinical outcome measures. These findings highlight the clinical relevance of objective physical activity assessment and support its consideration within the treatable traits framework as part of routine disease evaluation and management.

Conflict of interest statement

Conflict of interest: The authors have no real or perceived conflict of interest in respect of this manuscript.

- 78 references
- 6 figures

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Review

Cell Biochem Biophys

. 2026 Feb 25.

doi: 10.1007/s12013-026-02031-1. Online ahead of print.

Phosphodiesterase-4 Inhibitors in Chronic Obstructive Pulmonary Disease: Molecular Mechanisms, Current Therapeutics, and Future Perspectives

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- PMID: 41739321

- DOI: 10.1007/s12013-026-02031-1

No abstract available

Keywords: Chronic obstructive pulmonary disease (COPD); Cyclic adenosine monophosphate (cAMP) pathway; Emphysema; Inflammation; Phosphodiesterase 4 (PDE4); Roflumilast.

Conflict of interest statement

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

- 112 references

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16

Tuberc Respir Dis (Seoul)

. 2026 Feb 25.

doi: 10.4046/trd.2025.0202. Online ahead of print.

Imaging in Chronic Obstructive Pulmonary Disease: Ready for Prime Time?

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- PMID: 41736372

- DOI: 10.4046/trd.2025.0202

Free article

Abstract

Chronic obstructive pulmonary disease (COPD) is a major global health burden, affecting over 392 million individuals and causing approximately 3.3 million deaths annually. Although spirometry remains the cornerstone for diagnosing airflow limitation, it incompletely reflects the structural and biological heterogeneity of the disease, and many smokers with preserved spirometry exhibit substantial parenchymal and airway abnormalities. Advances in imaging-particularly quantitative CT (QCT), magnetic resonance imaging (MRI), and positron emission tomography (PET)-enable comprehensive assessment of structural, functional, and inflammatory processes in COPD. QCT-derived emphysema metrics, including the 15th percentile lung density, mean lung density, and low-attenuation area percentage, are reproducible, sensitive to progression, and widely used as outcome measures. Small airway disease can be characterized using parametric response mapping and complementary voxel-based indices that detect subclinical gas trapping and regional volume changes. The concept of mechanically affected lung highlights functionally impaired regions adjacent to emphysema that contribute to disease progression and mortality. Airway remodeling metrics, such as Pi10, PiSlope, tapering slope, and airway fractal dimension, further provide prognostic information. Mucus plug burden independently predicts mortality and represents a potential surrogate endpoint in therapeutic trials. Advanced MRI techniques and ^18F-FDG PET offer radiation-free or inflammatory insights, respectively. Current evidence supports that imaging is ready to evolve from an adjunct to a core element of COPD research and care.

Keywords: Chronic obstructive pulmonary disease; emphysema; imaging biomarkers; magnetic resonance imaging; positron emission tomography; quantitative computed tomography; small airway disease.

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Semin Respir Crit Care Med

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Non-pharmacological treatment of AECOPD

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- DOI: 10.1055/a-2818-1471

Abstract

Acute exacerbations of chronic obstructive pulmonary disease (AECOPDs) are acute events characterized by rapid worsening of dyspnea, cough, and sputum production, often leading to gas exchange impairment, ventilatory failure, and hospitalization. While pharmacological therapy remains central for managing the acute phase, non-pharmacological interventions play a crucial role in stabilizing patients, reducing complications, and promoting functional recovery. Respiratory strategies-including conventional oxygen therapy (COT), high-flow nasal cannula (HFNC), non-invasive ventilation (NIV), and invasive mechanical ventilation (IMV)-is tailored to disease severity and underlying pathophysiology, aiming to unload respiratory muscles, improve ventilation, and optimize gas exchange. Pulmonary rehabilitation (PR) is essential to counteract skeletal and respiratory muscle dysfunction, sarcopenia, and exercise intolerance, thereby enhancing quality of life (QoL) and physical performance. Nutritional management addresses malnutrition, negative energy balance, and micronutrient deficiencies, supporting muscle preservation, immune function, and overall recovery. Home-based care models, including hospital-at-home programs and tele-rehabilitation, reduce hospital stays, facilitate early discharge, and improve access to structured PR programs. Structured self-management strategies and individualized exacerbation action plans empower patients, enhance symptom control, and reduce hospital readmissions, though their effectiveness may vary according to patient health literacy. Integrating these interventions into a comprehensive, multidisciplinary care pathway addresses both acute physiological derangements and long-term functional decline. Emerging digital health solutions-including telemonitoring, wearable sensors, and artificial intelligence-based predictive models-offer opportunities for early detection, personalized interventions, and enhanced patient engagement. This review synthesizes current evidence on non-pharmacological management of AECOPD, highlighting practical strategies to optimize respiratory support, rehabilitation, nutritional interventions, and self-management, ultimately aiming to accelerate recovery, prevent relapse, and improve QoL in this high-risk patient population.

Conflict of interest statement

Lara Pisani has received lectures fees and travel expense coverage to attend scientific meetings from Fisher and Paykel, Resmed and MediCair. Lara Pisani has also received consultant fees from VitalAir SpA. The authors have no other relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript apart from those disclosed.

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Semin Respir Crit Care Med

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The Impact of Acute Exacerbations of COPD on Patient Outcomes

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- PMID: 41734785

- DOI: 10.1055/a-2803-3367

Abstract

Acute exacerbations of chronic obstructive pulmonary disease (ECOPD) represent major inflection points in the natural history of the disease, driving accelerated functional decline, reduced autonomy, and increased cardiovascular and mortality risk. This narrative review synthesizes current evidence on the multidimensional impact of ECOPD on patient outcomes, spanning respiratory physiology, muscle function, exercise capacity, inflammation, cardiovascular vulnerability, survival, and performance status. Across physiological domains, ECOPD induces sustained functional impairments that may take weeks to months to normalize. Muscular and functional consequences are similarly profound: Skeletal and diaphragmatic muscle dysfunction, reduced mobility, and long-lasting decrements in exercise tolerance contribute to prolonged disability and reduced quality of life. Systemic and airway inflammation often persists long after the acute phase, promoting recurrent exacerbations, progressive lung injury, and cardiometabolic complications. Cardiovascular instability is a defining feature of the post-ECOPD period, with markedly elevated short- and medium-term risks of myocardial infarction, stroke, arrhythmias, and acute heart failure. Mortality remains substantial post-ECOPD, and recurrent readmissions reflect ongoing physiological fragility. Autonomy, performance status, and health-related quality of life frequently remain impaired months after discharge, emphasizing the long-term functional burden of ECOPD. ECOPD recovery is therefore a subacute, high-risk phase of multisystem instability that requires integrated respiratory, cardiovascular, functional, and rehabilitative strategies. Future directions should prioritize personalized post-ECOPD care, guided by treatable traits, performance-based assessments, biomarkers, and digital monitoring. The development of ECOPD-specific functional endpoints and patient-centered outcomes represents a critical unmet need to advance research and improve long-term prognosis.

Conflict of interest statement

The authors declare that they have no conflict of interest.

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19

Clin Infect Dis

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Respiratory Syncytial Virus Hospitalizations in Adults ≥50 Years of Age and Those with Congestive Heart Failure or Chronic Obstructive Pulmonary Disease Exacerbations, 2018-2020

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- PMID: 41733233

- DOI: 10.1093/cid/ciag134

Abstract

Introduction: Respiratory syncytial virus (RSV) is a leading cause of acute respiratory illness (ARI) in older adults and those with comorbidities. Understanding disease burden could guide prevention efforts.

Methods: We performed active surveillance for RSV among adults aged ≥50 years hospitalized with ARI and adults of any age hospitalized with congestive heart failure (CHF) or chronic obstructive pulmonary disease (COPD) exacerbations from Georgia Health District 3 at two Atlanta hospitals during two respiratory seasons (2018-2019 & 2019-2020). All participants were tested for RSV using the BioFire Respiratory Panel (nasopharyngeal and oropharyngeal swabs); subsets also had serology and standard-of-care results. Annual population-based incidences of RSV-related hospitalizations were estimated by age strata and study group, adjusting for differences in sampling, diagnostic testing, and test sensitivity. Denominators for ARI incidence estimates were from the US Census. CHF and COPD denominators were limited to individuals with underlying CHF or COPD, respectively, as defined by NHANES data.

Results: Of 3,090 eligible patients, 1558 were included; 757 (48.6%) had ARI, 490 (31.4%) CHF exacerbation, and 311 (20.0%) COPD exacerbation. Overall, 92 (5.9%) participants tested positive for RSV. Based on data from two seasons, annual population-based incidences among adults aged ≥50 years were 74 per 100,000 (95%CI: 73, 77) for laboratory-confirmed RSV-related ARI hospitalizations alone, and 58% higher when including all laboratory-confirmed RSV-related hospitalizations (ARI and CHF/COPD exacerbations): 117 per 100,000 (95%CI: 114, 123).

Conclusions: RSV was associated with a substantial burden of hospitalizations among adults aged ≥50 years, particularly when CHF and COPD exacerbations were included.

Keywords: CHF; COPD; Incidence; RSV; elderly; older adults.

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20

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The rise of artificial intelligence in respiratory primary care and pulmonology: a scoping review

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- PMID: 41730897

- DOI: 10.1038/s41533-026-00487-5

Free article

Abstract

Artificial intelligence (AI) is rapidly advancing respiratory disease management, from diagnosis to population lung health. This scoping review synthesizes the most promising uses of AI in respiratory medicine, with a particular focus on pulmonologists and family physicians interested in lung health. In diagnostics, deep-learning systems streamline chest-imaging workflows by triaging radiographs, detecting COVID-19 pneumonia, and classifying lung nodules on CT. In pulmonary function testing, algorithms detect technical errors and classify spirometric patterns, some claiming to outperforming pulmonologists. Acoustic analysis of cough, breathing, and speech captured on smartphones or wearables offers non-invasive decision support. For monitoring and prediction, AI helps shorten weaning from mechanical ventilation and guides closed-loop strategies for acute respiratory distress. In chronic care, connected devices integrated with environmental data help to forecast asthma and COPD exacerbations, while telehealth and predictive models enable earlier, more personalized interventions. Additional gains are emerging in paediatrics, sleep medicine, lung ultrasounds, and public health. Realizing these benefits will require rigorous multicentre validation and real-world evidence. It will also require proactive bias detection and mitigation with inclusive sampling and equity audits. High-quality, interoperable data and explainable models are needed to enable human oversight. Practical issues such as digital literacy, device access, and usability for children, older adults, and other vulnerable populations also matter for applications requiring patient interaction. With sustained collaboration among clinicians, engineers, AI experts, industry, regulators, and scientific societies, AI can increase the time invested in a satisfactory clinician-patient relationship. With all likelihood, AI can also measurably improve efficiency and accuracy across multiple domains of respiratory care.

Conflict of interest statement

Competing interests: The authors declare no competing interests.

- 53 references

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Editorial

Thorax

. 2026 Feb 23:thorax-2025-224630.

doi: 10.1136/thorax-2025-224630. Online ahead of print.

Elastic parametric response mapping: localising reversible small airway disease in COPD

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- PMID: 41730677

- DOI: 10.1136/thorax-2025-224630

No abstract available

Keywords: Forced Expiratory Volume; Imaging/CT MRI etc; Pulmonary Disease, Chronic Obstructive.

Conflict of interest statement

Competing interests: None declared.

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Semin Respir Crit Care Med

. 2026 Feb 23.

doi: 10.1055/a-2818-1526. Online ahead of print.

Inflammatory Response in Exacerbations of COPD: Clinical and Predictive Roles of C-Reactive Protein

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Affiliations Expand

- PMID: 41730300

- DOI: 10.1055/a-2818-1526

Abstract

Acute exacerbations of chronic obstructive pulmonary disease (ECOPD) are pivotal events that accelerate lung function decline, impair quality of life, and increase the risk of hospitalization and mortality. Beyond episodic airway deterioration, ECOPD should be conceptualized as a systemic inflammatory syndrome driven by dysregulated responses to infectious or environmental triggers. Among inflammatory biomarkers, C-reactive protein (CRP) is the most extensively studied in ECOPD because of its rapid kinetics, wide availability, and clinical accessibility. This narrative review aims to summarize the diagnostic, therapeutic, and prognostic role of CRP in ECOPD. CRP levels rise sharply during exacerbations, particularly in pneumonic events, supporting diagnostic stratification and differentiation from non-bacterial or eosinophilic phenotypes. When inegrated with clinical assessment, CRP improves diagnostic accuracy and informs antibiotic stewardship; CRP-guided strategies have been shown to reduce unnecessary antibiotic use without compromising clinical outcomes. Elevated CRP at presentation is associated with greater exacerbation severity, increased need for ventilatory support, and longer hospital stay. Persistently elevated CRP at discharge is linked to early relapse and readmission, while higher levels have also been associated with thromboembolic and cardiovascular risk, highlighting the systemic consequences of ECOPD. Despite these advantages, CRP is inherently nonspecific, influenced by comorbidities and timing of measurement, and optimal thresholds vary across clinical settings. CRP is a robust and accessible biomarker that provides valuable diagnostic, therapeutic, and prognostic information in ECOPD. Its incorporation into routine clinical practice can improve patient stratification, support antibiotic stewardship, and enhance monitoring of individuals at high-risk of adverse outcomes. Future advances are likely to rely on longitudinal interpretation of CRP and its integration into multimarker panels and predictive models, combined with clinical variables and digital health data, to enable phenotype-driven management and precision medicine approaches in ECOPD.

Conflict of interest statement

The authors declare that they have no conflict of interest.

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Epidemiology of COPD exacerbations

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- PMID: 41730299

- DOI: 10.1055/a-2818-1414

Abstract

COPD exacerbations represent the most common acute event and the one with the greatest medium- to long-term clinical and prognostic impact, acting as a key driver of functional decline, deterioration in quality of life, and a substantial share of the morbidity, mortality, and healthcare costs attributable to the disease. This review synthesizes the most relevant epidemiological evidence on the frequency, distribution, and environmental determinants of exacerbations, with particular emphasis on longitudinal trends, seasonal patterns, and economic burden. Overall, the last decades have seen a decline in exacerbation rates within the context of clinical trials; however, analyses based on hospital registries are constrained by methodological limitations, notably reliance on International Classification of Diseases-coded case identification and a predominant focus on severe events. Temporal trajectories also vary by region: in Spain, decreases followed by subsequent rebounds have been described, with a more pronounced increase among women, while other European and non-European settings report divergent patterns. Seasonality emerges as a robust feature in temperate climates, with winter peaks and a consistent association between low temperatures (and thermal variability) and higher admission rates and exacerbation severity. Ambient air pollution (PM2.5/PM10, NO_2, SO_2, O_3) is linked to an increased risk of exacerbation, potentially with lagged effects, through biologically plausible pathways mediated by oxidative stress and inflammation. Finally, we discuss the impact of exposures arising from environmental disasters (wildfires, volcanic eruptions, and oil spills), illustrated by recent events in Spain, and integrate the economic dimension, underscoring that exacerbations account for a large proportion of the total cost of COPD.

Conflict of interest statement

JLLC has received honoraria during the last 3 years for lecturing, scientific advice, participation in clinical studies or writing for publications for (alphabetical order): AstraZeneca, Bial, Boehringer, Chiesi, CSL Behring, Faes, Gebro, Grifols, GSK, Menarini, Sanofi, Zambon. The rest of the authors declare no conflicts of interest

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JAMA Intern Med

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Comparative Effectiveness and Safety of LAMA-LABA Inhalers in Chronic Obstructive Pulmonary Disease

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- PMID: 41729543

- PMCID: PMC12931475 (available on 2027-02-23)

- DOI: 10.1001/jamainternmed.2025.8087

Abstract

Importance: Dual bronchodilator therapy with a long-acting muscarinic antagonist (LAMA) and a long-acting β2-agonist (LABA) is recommended for most patients with symptomatic chronic obstructive pulmonary disease (COPD). Fixed-dose LAMA-LABA therapies are available in metered-dose, dry powder, and soft mist inhalers. However, metered-dosed inhalers are associated with greater greenhouse gas emissions than either dry powder or soft mist inhalers, and questions persist about potential intraclass differences among LAMA-LABAs given variability in their active ingredients, dosing schedules, and delivery devices.

Objective: To evaluate the comparative effectiveness and safety of once-daily umeclidinium-vilanterol dry powder inhalers, twice-daily glycopyrrolate-formoterol metered-dosed inhalers, and once-daily tiotropium-olodaterol soft mist inhalers.

Design, setting, and participants: This observational active-comparator study analyzed claims of patients (≥40 years) newly treated with LAMA-LABA inhalers and continuously enrolled in a large commercial health insurance or Medicare Advantage plan during the 183-day baseline period. Patients were propensity score matched 1:1 into 3 cohorts with index dates ranging from May 1, 2016, to February 28, 2025. Data were analyzed from July to August 2025.

Exposures: Patients treated with umeclidinium-vilanterol, glycopyrrolate-formoterol, or tiotropium-olodaterol fixed-dose inhalers.

Main outcomes and measures: Time to the first moderate or severe COPD exacerbation, major adverse cardiovascular event, urinary tract infection, and pneumonia hospitalization.

Results: The cohorts included 9479 matched pairs of patients receiving umeclidinium-vilanterol vs glycopyrrolate-formoterol (mean age, 68.9 [SD, 9.0] years; 10 319 women [54.4%]; 8636 men [45.6%]), 9598 receiving tiotropium-olodaterol vs glycopyrrolate-formoterol (mean age, 69.2 [SD, 8.7] years; 10 513 women [54.8%]; 8680 men [45.2%]), and 36 740 receiving umeclidinium-vilanterol vs tiotropium-olodaterol (mean age, 71.5 [SD, 8.4] years; 39 429 women [53.7%]; 34 044 men [46.3%]). Umeclidinium-vilanterol was associated with a 14% lower hazard of a first moderate or severe COPD exacerbation than glycopyrrolate-formoterol (hazard ratio [HR], 0.86; 95% CI, 0.81-0.91; number needed to treat [NNT], 17) and was

associated with a 3% lower hazard than tiotropium-olodaterol (HR, 0.97; 95% CI, 0.94-0.99; NNT, 100). Tiotropium-olodaterol was associated with a 6% lower hazard of a first moderate or severe COPD exacerbation than glycopyrrolate-formoterol (HR, 0.94; 95% CI, 0.89-1.00). Similar risks of first major adverse cardiovascular event, urinary tract infection, and pneumonia hospitalization were observed among patients in all 3 cohorts.

Conclusions and relevance: This cohort study found that umeclidinium-vilanterol was associated with improved clinical outcomes compared with glycopyrrolate-formoterol and tiotropium-olodaterol. Patients, prescribers, and health systems may consider once-daily umeclidinium-vilanterol dry powder inhalers over alternatives among new users of LAMA-LABA therapy.

Conflict of interest statement

Conflict of Interest Disclosures: Dr Wang reported receiving grants from the National Institutes of Health (NIH) during the conduct of the study; personal fees from Cytel Inc, the ICA Group, and MITRE, a federally funded research and development center for the Centers for Medicare & Medicaid Services outside the submitted work. Dr Suissa reported serving on an advisory board for Atara Advisory, Novartis, and Panalgo and speaker fees from CSL Behring, and Covispharma outside the submitted work. Dr Feldman reported serving as a consultant for Alosa Health and as an expert witness in litigation against inhaler manufacturers outside the submitted work. No other disclosures were reported.

- 56 references

JCI Insight

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New approaches to uncover COPD pathobiology and develop therapies

Yohannes Tesfaigzi[1], Ali Önder Yildirim[2,3,4], Francesca Polverino[5], Thomas M Conlon[2], Venkataramana Sidhaye[6], Maor Sauler[7], S Vamsee Raju[8], Renata Z Jurkowska[9], Divay Chandra[10], Michael H Cho[1,11], Edwin K Silverman[11], Ramon C Sun[12], Peter Castaldi[11], Purushothama Rao Tata[13], Kambez H Benam[14], Linto Antony[8], Mareike Lehmann[2,15,16], Beata Kosmider[17], Karim Bahmed[17], Zerihun H Negasi[1], Kamakshi Bankoti[1], Carter Swaby[4,18], Dave A Lagowala[19], Yeşim Vural[4,10], Hasan Bayram[4,20,21], Rosa Faner[22], George Washko[1], Dinh Son Bui[23], Bartolome Celli[1], Roxana Maria Wasnick[2], Enid Neptune[6]

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- PMID: 41729077

- DOI: 10.1172/jci.insight.199693

Free article

Abstract

Chronic obstructive pulmonary disease (COPD) was the third leading cause of global mortality in 2011 but receives limited attention and research funding. This Review describes the current knowledge on COPD risk factors, including genetic and epigenetic determinants and their interactions with the microbiome and environmental exposures. Preclinical models are being refined and single-cell transcriptomic, metabolomic, and proteomic technologies are being implemented to investigate the molecular mechanisms of disease progression. Patient cohorts to define biomarkers of early disease and the latest approaches to diagnose pre-COPD are essential to accelerate the development of novel and effective therapeutic interventions and translate new findings into clinical trials. This Review is a summary of topics covered by a symposium organized by the COPD-iNET consortium, an international network of researchers who have established a platform that facilitates collaboration of this multidisciplinary group of preclinical, translational, and clinical researchers.

Supplementary info

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Review

Metabol Open

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GLP-1 receptor agonists and obstructive lung disease: Beyond metabolic control to respiratory outcomes

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- PMID: 41717504

- PMCID: PMC12914190

- DOI: 10.1016/j.metop.2026.100449

Abstract

Chronic obstructive pulmonary disease (COPD) and asthma are increasingly recognized as systemic conditions shaped by metabolic comorbidities, particularly obesity and type 2 diabetes mellitus (T2DM). Beyond traditional airway-directed therapies, increasing attention has turned to whether metabolic interventions may influence respiratory outcomes. In this context, glucagon-like peptide-1 receptor agonists (GLP-1RAs), widely used for the treatment of T2DM and obesity, have emerged as unexpected candidates with potential relevance for obstructive lung disease control. The aim of this review is to synthesize emerging clinical, real-world, and mechanistic evidence linking GLP-1RA therapy to respiratory outcomes in COPD and asthma. Accumulating real-world evidence from population-based cohorts, comparative effectiveness studies, and recent meta-analyses consistently associates GLP-1RA use with reduced rates of moderate and severe exacerbations in patients with COPD or asthma and comorbid T2DM, particularly when compared with sulfonylureas and dipeptidyl peptidase-4 inhibitors. Notably, these associations appear most pronounced among patients with obesity, frequent exacerbations, or high healthcare utilization. In contrast, randomized cardiovascular outcome trials of GLP-1RAs have generally shown neutral effects on respiratory endpoints, a finding that likely reflects the absence of prespecified pulmonary outcomes and limited event capture rather than a true absence of biological effect. Importantly, recent proof-of-principle disease-focused randomized trials in obesity-related COPD have begun to report respiratory-specific benefits, complementing large real-world and nationwide observational data. From a mechanistic perspective, the observed respiratory signal may reflect a combination of indirect metabolic effects, such as weight loss, improved glycemic control, and reduced systemic inflammation, together with direct airway and immune-modulatory actions mediated by GLP-1R expression in airway smooth muscle and immune cells. Importantly, recent proof-of-principle and disease-focused randomized trials in obesity-related asthma and COPD are now specifically designed to interrogate these pathways and address limitations inherent to observational data. Although the current evidence base remains largely observational and subject to residual confounding, its consistency across diverse settings supports that GLP-1RAs may act as systemic metabolic modulators with potential respiratory relevance. Prospective RCTs with prespecified respiratory endpoints will be important to establish causality and define the role of GLP-1RAs beyond metabolic control, toward clinically meaningful respiratory outcomes in obstructive lung disease.

Keywords: Asthma; Chronic obstructive pulmonary disease; GLP-1; Glucagon-like peptide-1 receptor agonists; Metabolic inflammation; Obesity; Respiratory outcomes; Type 2 diabetes mellitus.

Conflict of interest statement

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Given her role as co-Editor-in-chief, Prof Maria Dalamaga had no involvement in the peer review of this article and had no access to information regarding its peer review. Full responsibility for the editorial process for this article was delegated to another journal editor. All authors have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

- 35 references
- 1 figure

Supplementary info

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doi: 10.1055/a-2811-3019. Online ahead of print.

Physiopathology of Exacerbation of Chronic Obstructive Pulmonary Disease

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- PMID: 41679730

- DOI: 10.1055/a-2811-3019

Abstract

Acute exacerbations of chronic obstructive pulmonary disease (ECOPD) represent crucial events in the natural history of the disease. These are mainly characterized by abrupt worsening of respiratory symptoms, that is, dyspnea, cough, and sputum production. Defined by the Global Initiative for Chronic Obstructive Lung Disease (GOLD) as acute symptom deterioration requiring additional therapy, ECOPD markedly worsens lung function and has strong clinical outcomes for any patient involved. Pathobiology is multidimensional, arising from inflammatory, mechanical, and cardiovascular perturbations that are linked to each other and are likely to generate a self-reinforcing cycle of respiratory derangement and/or failure. Indeed, lung inflammation and injuries intensify airflow limitation, which in turn promotes air trapping and dynamic hyperinflation, increases elastic loads, and predisposes to respiratory muscle dysfunction. The resulting alterations of the blood gases may lead to even severe respiratory system failure and to an increased risk of death.

Conflict of interest statement

R.T. and E.C. are co-founders of IREC Ltd. (VAT 02959080355; Reggio Emilia, Italy). R.T. received travel support and fees from GSK, SEDA, Guidotti, and United HealthCare Services. E.C. received support and fees from AstraZeneca, Menarini, GSK, Boehringer Ingelheim, Chiesi Italia, and Lusofarmaco. Other authors have no competing interests with any organization or entity with a financial interest in competition with the subject matter or materials discussed in the manuscript.

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J Med Chem

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Discovery, Synthesis, and Biological Evaluation of Novel Quinoline-Based PDE4 Inhibitors with Potent Anti-Chronic Obstructive Pulmonary Disease Activity

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Abstract

Phosphodiesterase 4 (PDE4) is a key target for COPD anti-inflammatory drugs. The approved oral PDE4 inhibitor for COPD causes side effects such as nausea and vomiting due to high systemic exposure. Developing highly selective PDE4 inhibitors suitable for inhaled delivery represents an effective alternative strategy. Herein, we report the identification of P29, a PDE4 inhibitor exhibiting picomolar inhibitory potency (IC_{50} = 0.019 nM) and high selectivity (>10,000) over other PDEs. Subsequent studies demonstrated that P29 effectively suppressed LPS-induced TNF-α release in PBMCs. Notably, the fractions absorbed via pulmonary deposition and orally absorbed fractions were rapidly metabolized, reducing systemic exposure and minimizing adverse reactions. P29 significantly improved pulmonary function, inhibited inflammatory cell activity, reduced release of inflammatory cytokines, and ameliorated lung tissue damage in rat models of COPD induced by cigarette smoke and LPS. Collectively, our data highlight the therapeutic potential of P29 in COPD.

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Review

Respir Med

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Influence of chronic obstructive pulmonary disease on cardiovascular outcomes and mortality benefits of sodium glucose co-transporter inhibitors in heart failure patients: A systematic review and meta-analysis

Rohab Sohail [1], Zaraq Ahmad Khan [2], Ridda Khattak [3], Prakhar Anand [4], Vyom Patel [5], Marcos Alberto [6], Mark Georgy [7], Karan Dhand [8], Andrei Feldiorean [9], Seemab Fatima [10], Sana Murtaza [11], Manjeet Singh [12], Syed Nazeer Mehmood [13]

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- PMID: 41643785

- DOI: 10.1016/j.rmed.2026.108685

Abstract

Background: By 2030, healthcare expenditures related to congestive heart failure (CHF) in the United States are projected to surpass $70 billion. Despite substantial advances in guideline-directed medical therapy, morbidity and mortality remain unacceptably high, particularly among patients with concomitant chronic obstructive pulmonary disease (COPD), a comorbidity reported in approximately 5%-41% of individuals with CHF. Although COPD is independently associated with worse CHF outcomes, its influence on the mortality benefit conferred by sodium-glucose cotransporter-2 (SGLT-2) inhibitors remains poorly defined.

Objective: To evaluate whether COPD alters the cardiovascular and mortality benefit of SGLT-2 inhibitors in CHF patients.

Methods: PubMed, Cochrane and Google Scholar were searched from inception to February 2025 to identify studies meeting inclusion criteria. Review Manager was employed to calculate results in the form of relative risk (RR) with 95% confidence interval.

Results: Our analysis of 15,058 patients (1725 (11%) COPD patients) showed that COPD was associated with significantly higher risks of composite outcomes (RR = 1.63; 95% CI: 1.49-1.79; $p < 0.00001$), CV mortality (RR = 1.62; 95% CI: 1.39-1.88; $p < 0.0001$), heart failure hospitalization (RR = 1.84; 95% CI: 1.40-2.40; $p < 0.00001$), and all-cause mortality (RR = 1.59; 95% CI: 1.42-1.78; $p < 0.00001$). Additionally, adverse outcomes were more frequent in COPD patients, including volume depletion (RR = 1.34; 95% CI: 1.25-1.51; $p < 0.00001$), and adverse renal events (RR = 1.46, 95% CI: 1.17-1.82; P = 0.0007).

Conclusion: Our analysis indicates that heart failure (HF) patients with COPD may drive a somewhat attenuated benefit from SGLT-2 inhibitors, underscoring a clinical profile that merits careful consideration.

Keywords: Cardiovascular outcomes; Chronic obstructive pulmonary disease; Drug-related adverse effects; Heart failure; Sodium glucose co-transport inhibitors.

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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Review

Respir Med

. 2026 Mar:253:108696.

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Adherence to pulmonary rehabilitation in COPD patients: A systematic review of measurement tools

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Abstract

Background: Adherence is an important factor contributing to the effectiveness of pulmonary rehabilitation (PR) in patients with chronic obstructive pulmonary disease (COPD). However, there appears to be a lack of reliable and validated measures to assess adherence in PR.

Objective: The purpose of this study was to systematically review and analyze existing PR adherence assessment tools, describe their application effects in different contexts, and explore the scientific validity and applicability of each assessment method.

Methods: MEDLINE, PubMed, Web of Science and other data sources were searched for target articles. To ensure all pertinent papers were included, reference lists from articles that met the inclusion criteria were reviewed. A combination of EndNote 21 software and manual screening of the literature was used for quality assessment, employing the JBI Critical Appraisal Checklist. Both researchers conducted the entire process independently, without interfering with each other.

Results: Three studies were included, reporting three tools in three different countries. The quality and validity of these three articles are high. Two of the tools were developed specifically for the COPD population, one tool was developed initially for athlete participant but used to assess the adherence of PR in patients with COPD.

Conclusion: The results show a gap in the literature for well-developed tools that capture adherence for PR of patients with COPD.

Keywords: Adherence; COPD; Measurement tools; Pulmonary rehabilitation.

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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J Cardiopulm Rehabil Prev

. 2026 Mar 1;46(2):79-87.

doi: 10.1097/HCR.0000000000001005. Epub 2026 Feb 2.

Investigating the Role of Pulmonary Rehabilitation on Cognition in Patients With Chronic Obstructive Pulmonary Disease: A Systematic Review

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- PMID: 41627068

- DOI: 10.1097/HCR.0000000000001005

Abstract

Purpose: Chronic obstructive pulmonary disease (COPD) is characterized by respiratory symptoms and problems, but it may also cause mild cognitive impairment in patients. The purpose of this systematic review is to investigate the effect of pulmonary rehabilitation (PR) on cognition in patients with COPD.

Review methods: A comprehensive literature search of 4 databases, including PubMed, Google Scholar, Science Direct, and Web of Science from inception to April 2024 was conducted. The review included studies investigating the effect of PR on cognition in patients with COPD. Two reviewers independently examined the titles and abstracts and extracted the data using a standardized form.

Summary: Our systematic review included 10 studies comprising 346 patients with COPD and 190 controls. Results provide evidence that PR may have an effect on cognitive function in patients with COPD, particularly when combined with cognitive training. However, the heterogeneity of study designs and outcomes underscores the need for further research to better understand the mechanisms underlying these effects and to inform the development of effective interventions for improving cognitive function in patients with COPD.

Keywords: chronic obstructive pulmonary disease; cognition; pulmonary rehabilitation.

Conflict of interest statement

We attest that all authors have no conflicts of interest or financial support related to this manuscript.

- 66 references

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32

Respir Med

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The impact of stepping up treatment from LABA/LAMA to extrafine single inhaler triple therapy on exacerbations of Greek patients with Chronic Obstructive Pulmonary Disease: The IMPROVE study

Epaminondas Kosmas[1], Konstantinos Bartziokas[2], Stylianos Loukides[3], Petros Bakakos[4], Nikoletta Rovina[4], Niki Georgatou[5], Dimosthenis Papapetrou[5], Panos Katerelos[6], Evangelia Papapostolou[7], Petros Efstathopoulos[8], Paschalis Steiropoulos[9], Konstantinos Kostikas[10]

Affiliations Expand

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- DOI: 10.1016/j.rmed.2026.108682

Free article

Abstract

Objective: Extrafine single inhaler triple therapy (efSITT) with beclometasone dipropionate, formoterol fumarate, and glycopyrronium (BDP/FF/G 87/5/9 μg) has shown clinical benefits in Chronic Obstructive Pulmonary Disease (COPD) patients, including fewer exacerbations in randomized controlled trials. The IMPROVE study evaluated its real-world effectiveness in Greece in COPD patients previously treated with dual bronchodilation, focusing on exacerbations and other clinical outcomes.

Methods: This prospective, multicenter, observational study was conducted over 52 weeks. The 1103 eligible patients had moderate-to-severe COPD, an indication for treatment with efSITT, and were symptomatic despite receiving dual bronchodilation. The number of exacerbations, COPD Assessment Test (CAT) score, lung function parameters, use of rescue medication and adherence were recorded at baseline (visit 1), 6 months (visit 2), and 12 months (visit 3) after treatment.

Results: The percentage of patients with ≥1 exacerbation decreased from 100 % at visit 1 to 23.1% at visit 3 ($p < 0.001$). The mean CAT score decreased from 22.5 points at visit 1, to 16.6 at visit 2 and 14.2 at visit 3 ($p < 0.001$ for all pair comparisons). The mean TAI score increased from 44.6 points at visit 1, to 47.1 at visit 2 and 47.6 at visit 3. ($p < 0.001$ for V1/2 and V1/3 pairs, $p = 0.024$ for V2/3). Between visit 1 and visit 3, mean FEV1 increased from 1.6 L to 1.7 L ($p < 0.001$, $n = 396$).

Conclusions: The IMPROVE findings indicate that extrafine BDP/FF/G improves clinical outcomes in symptomatic COPD patients previously treated with dual bronchodilation in a real-world setting in Greece.

Keywords: COPD; Exacerbations; Extrafine; Health status; Real-world; Single inhaler triple therapy.

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: Epaminondas Kosmas, Niki Georgatou, Dimosthenis Papapetrou, Panos Katerelos, Paschalis Steiropoulos and Konstantinos Kostikas reports financial support was provided by Chiesi Hellas S.A. Epaminondas Kosmas reports a relationship with Chiesi Hellas S.A. that includes: consulting or advisory, speaking and lecture fees, and travel reimbursement. Epaminondas Kosmas reports a relationship with AstraZeneca that includes: consulting or advisory, speaking and lecture fees, and travel reimbursement. Epaminondas Kosmas reports a relationship with Boehringer Ingelheim that includes: consulting or advisory and speaking and lecture fees. Epaminondas Kosmas reports a relationship with GSK that includes: consulting or advisory, speaking and lecture fees, and travel reimbursement. Epaminondas Kosmas reports a relationship with Menarini Hellas SA that includes: speaking and lecture fees and travel reimbursement. Epaminondas Kosmas reports a relationship with Guidotti that includes: speaking and lecture fees. Epaminondas Kosmas reports a relationship with Elpen Pharmaceuticals that includes: consulting or advisory, speaking and lecture fees, and travel reimbursement. Konstantinos Bartziokas reports a relationship with Chiesi Hellas S.A. that includes: speaking and lecture fees and travel reimbursement. Konstantinos Bartziokas reports a relationship with GSK that includes: speaking and lecture fees and travel reimbursement. Konstantinos Bartziokas reports a relationship with Elpen Pharmaceuticals that includes: speaking and lecture fees and travel reimbursement. Konstantinos Bartziokas reports a relationship with Menarini Hellas SA that includes: speaking and lecture fees and travel reimbursement. Konstantinos Bartziokas reports a relationship with Specialty Therapeutics that includes: speaking and lecture fees. Konstantinos Bartziokas reports a relationship with Guidotti that includes: travel reimbursement. Stylianos Loukides reports a relationship with AstraZeneca that includes: speaking and lecture fees and travel reimbursement. Stylianos Loukides reports a relationship with GSK that includes: funding grants and speaking and lecture fees. Stylianos Loukides reports a relationship with Menarini Hellas SA that includes: speaking and lecture fees and travel reimbursement. Stylianos Loukides reports a relationship with Guidotti that includes: speaking and lecture fees. Stylianos Loukides reports a relationship with Elpen Pharmaceuticals that includes: speaking and lecture fees and travel reimbursement. Stylianos Loukides reports a relationship with Chiesi Hellas S.A. that includes: speaking and lecture fees and travel reimbursement. Stylianos Loukides reports a relationship with Hellenic Thoracic Society that includes: board membership. Petros Bakakos reports a relationship with Menarini Hellas SA that includes: consulting or advisory and speaking and lecture fees. Petros Bakakos reports a relationship with GSK that includes: consulting or advisory and speaking and lecture fees. Petros Bakakos reports a relationship with AstraZeneca that includes: consulting or advisory and speaking and lecture fees. Petros Bakakos reports a relationship with Guidotti that includes: consulting or advisory and speaking and lecture fees. Petros Bakakos reports a relationship with Chiesi Hellas S.A. that includes: consulting or advisory and speaking and lecture fees. Petros Bakakos reports a relationship with Hellenic Thoracic Society that includes: board membership. Nikoletta Rovina reports a relationship with AstraZeneca that includes: consulting or advisory, speaking and lecture fees, and travel reimbursement. Nikoletta Rovina reports a relationship with Pfizer that includes: speaking and lecture fees. Nikoletta Rovina reports a relationship with Chiesi Hellas S.A. that includes: speaking and lecture fees and travel reimbursement. Nikoletta Rovina reports a relationship with GSK that includes: consulting or advisory, speaking and lecture fees, and travel reimbursement. Nikoletta Rovina reports a relationship with Guidotti that includes: consulting or advisory, speaking and lecture fees, and travel reimbursement. Nikoletta Rovina reports a

relationship with Menarini Hellas SA that includes: speaking and lecture fees and travel reimbursement. Nikoletta Rovina reports a relationship with Hellenic Thoracic Society that includes: board membership. Niki Georgatou reports a relationship with Menarini Hellas SA that includes: speaking and lecture fees. Dimosthenis Papapetrou reports a relationship with Menarini Hellas SA that includes: speaking and lecture fees and travel reimbursement. Dimosthenis Papapetrou reports a relationship with Guidotti that includes: speaking and lecture fees and travel reimbursement. Dimosthenis Papapetrou reports a relationship with AstraZeneca that includes: speaking and lecture fees and travel reimbursement. Dimosthenis Papapetrou reports a relationship with Elpen Pharmaceuticals that includes: travel reimbursement. Dimosthenis Papapetrou reports a relationship with RAFARM S.A. that includes: travel reimbursement. Paschalis Steiropoulos reports a relationship with AstraZeneca that includes: consulting or advisory, speaking and lecture fees, and travel reimbursement. Paschalis Steiropoulos reports a relationship with Boehringer Ingelheim that includes: consulting or advisory, speaking and lecture fees, and travel reimbursement. Paschalis Steiropoulos reports a relationship with Chiesi Hellas S.A. that includes: consulting or advisory, speaking and lecture fees, and travel reimbursement. Paschalis Steiropoulos reports a relationship with Elpen Pharmaceuticals that includes: consulting or advisory, speaking and lecture fees, and travel reimbursement. Paschalis Steiropoulos reports a relationship with GSK that includes: consulting or advisory, speaking and lecture fees, and travel reimbursement. Paschalis Steiropoulos reports a relationship with Guidotti that includes: consulting or advisory and speaking and lecture fees. Paschalis Steiropoulos reports a relationship with Menarini Hellas SA that includes: consulting or advisory, speaking and lecture fees, and travel reimbursement. Paschalis Steiropoulos reports a relationship with Specialty Therapeutics that includes: consulting or advisory and speaking and lecture fees. Konstantinos Kostikas reports a relationship with AstraZeneca that includes: consulting or advisory, funding grants, speaking and lecture fees, and travel reimbursement. Konstantinos Kostikas reports a relationship with Boehringer Ingelheim that includes: consulting or advisory, funding grants, speaking and lecture fees, and travel reimbursement. Konstantinos Kostikas reports a relationship with Chiesi Hellas S.A. that includes: consulting or advisory, funding grants, speaking and lecture fees, and travel reimbursement. Konstantinos Kostikas reports a relationship with Elpen Pharmaceuticals that includes: consulting or advisory, funding grants, and speaking and lecture fees. Konstantinos Kostikas reports a relationship with GSK that includes: consulting or advisory, funding grants, and speaking and lecture fees. Konstantinos Kostikas reports a relationship with Menarini Hellas SA that includes: consulting or advisory, funding grants, speaking and lecture fees, and travel reimbursement. Konstantinos Kostikas reports a relationship with Pfizer that includes: consulting or advisory, speaking and lecture fees, and travel reimbursement. Konstantinos Kostikas reports a relationship with Sanofi that includes: consulting or advisory, speaking and lecture fees, and travel reimbursement. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Respir Med

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Eligibility for biological treatments in COPD patients experiencing a severe COPD exacerbation

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Free article

Abstract

Introduction: Chronic obstructive pulmonary disease (COPD) exacerbations are important events in the natural history of the disease with debilitating consequences which include more rapid lung function decline, quality of life deterioration and increased risk of cardiovascular events and mortality. Inflammation in COPD is complex and is intrinsically less responsive to corticosteroids compared to asthma. Biologics could possibly reduce the burden of inflammation in selected patients.

Methods: In this single center retrospective study, we evaluated the eligibility of COPD patients hospitalized during the last 6 years in the respiratory department of a tertiary hospital for a severe COPD exacerbation, to receive either dupilumab or mepolizumab according to the inclusion criteria of their respective randomized controlled trials and GOLD 2026 recommendations.

Results: 496 patients were included in the study, 83 (16.7 %) patients were eligible for treatment with mepolizumab and 29 (5.8 %) for treatment with dupilumab, while 413 (83.3 %) were not eligible for any of the biologics currently approved for COPD treatment. Patients who were eligible for biologics had lower FEV_1/FVC ratio and had experienced more COPD exacerbations and more hospitalizations for COPD exacerbations in the previous year compared to those characterized as non-eligible. The main factor missing from non-eligible patients was treatment with triple inhaled medication, prior to hospitalization.

Conclusion: Only a minority of patients hospitalized due to severe COPD exacerbation would have been eligible to receive biologic therapy. Optimization of medical treatment including inhaled medication in addition to disease phenotyping are pivotal for the recognition of the patients which will benefit from the use of biologics.

Keywords: Biologics; COPD; Eosinophils; Exacerbations; Hospital admission.

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:Nektarios Anagnostopoulos has received honoraria for lectures and, presentations from Menarini, Guidotti, Astra Zeneca and GSK and for expert testimony from Menarini, Chiesi, Astra Zeneca, GSK Vivisol and ELPEN.Petros Bakakos has received Consulting fees from Astra Zeneca, GSK, Chiesi and Guidotti, honoraria for lectures from Astra Zeneca, GSK, Chiesi, Menarini Pfizer and GuidottiAndriana I Papaioannou has received consulting fees from Astra Zeneca and GSK and honoraria for lectures from Astra Zeneca, GSK, Chiesi, Menarini Pfizer, ELPEN, Alector, Opella, Specialty Therapeutics and Guidotti and support for attending meetings from Astra Zeneca, GSK, Chiesi,

Menarini Pfizer, ELPEN, Alector, Opella, Specialty Therapeutics and Guidotti.Nikoleta Rovina has received honoraria for lectures from Astra Zeneca, Chiesi, Menarini Pfizer, ELPEN, MSD and Guidotti, support for attending meetings from Menarini, Astra Zeneca, Chiesi and Guidotti, and fees for participation in advisory boards from Menarini, Astra Zeneca, Chiesi and Guidotti.All other authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this article.

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Review

Curr Opin Pulm Med

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Advanced bronchoscopy therapies for emphysema: current state and future potentials

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- PMID: 41606822

- DOI: 10.1097/MCP.0000000000001236

Abstract

Purpose of review: Emphysema is a phenotype of chronic obstructive pulmonary disease that is characterized by irreversible parenchyma destruction and loss of elastic recoil, resulting in air trapping and hyperinflation. Despite optimal medical management, many patients remain symptomatic. Bronchoscopic lung volume reduction (BLVR) techniques provide minimally invasive alternatives to surgery. This review summarizes the current role and future directions of advanced bronchoscopic therapies for emphysema.

Recent findings: Established BLVR approaches aim to induce atelectasis of diseased, hyperinflated lobes using endobronchial valves or thermal vapor ablation. Patient selection and clinical efficacy is critically influenced by emphysema distribution and the presence of collateral ventilation. To address these limitations, novel therapies are being developed. Sealants are under investigation as adjuncts to valve therapy to overcome collateral ventilation. Endobronchial coils mechanically re-tension the lung parenchyma, improving elastic recoil and airway patency. Airway stents and scaffolds are designed to facilitate expiratory flow by either bypassing or preventing closure of collapsible airways. These emerging modalities may extend treatment options to patients with homogeneous disease and those with significant collateral ventilation, groups traditionally with limited existing interventions.

Summary: Current BLVR therapies remain limited in homogeneous disease and collateral ventilation-positive patients. Research into novel treatments have shown promise in an expanding therapeutic landscape, though long-term safety, durability, and patient selection criteria require further study.

Keywords: airway scaffolds; airway stents; bronchoscopic lung volume reduction; bronchoscopic thermal vapor ablation; endobronchial coils; endobronchial valves.

- 36 references

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Am J Physiol Lung Cell Mol Physiol

. 2026 Mar 1;330(3):L211-L221.

doi: 10.1152/ajplung.00155.2025. Epub 2026 Jan 20.

Early detection of small airway dysfunction in smokers and people with COPD via forced oscillation technique and its association with biomarkers: a pilot study

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- PMID: 41556836

- DOI: 10.1152/ajplung.00155.2025

Abstract

Early airflow changes associated with tobacco smoking often occur without observable obstruction or symptoms. Spirometry, the gold standard, has limitations in detecting early disease highlighting the need for sensitive diagnostic methods. We aimed to evaluate the utility of the forced oscillation technique (FOT) and biomarkers in detecting early airway abnormalities in smokers and patients with chronic obstructive pulmonary disease (COPD), and to explore the correlation between FOT parameters, spirometry measures, and biomarkers of airway inflammation. A cross-sectional study was conducted on 71 participants divided into three groups: patients with COPD (CP, *n* = 27), normal lung function smokers (NS, *n* = 22), and healthy controls (HC, *n* = 22). Lung function was assessed using spirometry and FOT, with biomarkers of inflammation (MMP-9, TIMP-1, and TIMP-2) measured from venous blood samples. Statistical analyses included group comparisons and correlation between lung function parameters and biomarker levels. Patients with COPD had significantly lower spirometry and higher FOT values compared with NS and HC (*P* <

0.01). In contrast, NS participants had similar spirometry values to HC, except for FEF25-75% and peak expiratory flow (PEF). The NS group exhibited significantly higher values for R5 compared with HC ($P <$ 0.05). FOT parameters, particularly R5, demonstrated comparable diagnostic accuracy with spirometry in smokers, and all other parameters showed excellent discriminatory ability in patients with COPD. MMP-9 correlated positively with percentage predicted FOT parameters, R5-R20 and AX, and X5 (r' = 0.29, 0.30, and 0.31; P = 0.02, 0.04, and 0.02, respectively) in the combined group of smokers and patients with COPD and positively with percentage predicted Fres (r' = 0.30; P = 0.01) when all groups were analyzed together. FOT may be a sensitive and complementary measure to detect early airway changes in smokers and patients with COPD. MMP-9 correlating with FOT further supports the role of FOT combined with biomarkers in detecting early airway abnormalities in smokers and earlier stages of COPD.**NEW & NOTEWORTHY** This study highlights the utility of the forced oscillation technique (FOT) and biomarkers in detecting early airway changes in smokers and patients with COPD. FOT, along with biomarkers for airway remodeling can provide a sensitive measure and insight into early airway dysfunction, complementing traditional spirometry. These findings underscore the importance of early detection of airway abnormalities and the potential of FOT as a clinical tool for managing at-risk populations.

Keywords: COPD; biomarkers; forced oscillation technique; small airway dysfunction; smokers.

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Review

Curr Opin Pulm Med

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Integrated disease management in outpatient chronic obstructive pulmonary disease

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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

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Review

Curr Opin Pulm Med

. 2026 Mar 1;32(2):115-120.

doi: 10.1097/MCP.0000000000001242. Epub 2025 Dec 29.

Chronic obstructive pulmonary disease exacerbations for the academic hospitalist: an opportunity to learn and improve care

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Affiliations Expand

- PMID: 41460068

- DOI: 10.1097/MCP.0000000000001242

Abstract

Purpose of review: Hospitalists are at the forefront of managing chronic obstructive pulmonary disease (COPD) exacerbations. While patients may be followed by a pulmonologist outpatient, their care in the hospital is largely managed by internists. Our review addresses critical aspects of COPD care for the patient admitted to the hospital under the care of internal medicine.

Recent findings: When patients are hospitalized for COPD, the hospitalist has a critical opportunity to address tobacco cessation, vaccinations, and end-of-life issues. For hospitalists who are in academic medicine, teaching trainees the important mimickers of COPD exacerbations and how to establish the diagnosis are critical for their training. While these patients are hospitalized, ensuring adequate sleep and avoiding unnecessary night-time nebulizer use allows for patient recovery and wellbeing.

Summary: COPD exacerbations represent an opportunity for hospitalists to provide high-quality, comprehensive care for the patient and invaluable teaching for the trainee.

Keywords: COPD exacerbations; end-of-life care; hospitalist medicine; smoking cessation; teach by example; vaccinations.

- 43 references

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Review

J Thorac Imaging

. 2026 Mar 1;41(2):e0867.

doi: 10.1097/RTI.0000000000000867.

Quantitative CT and Artificial Intelligence in Chronic Lung Disease

Andrea S Oh[1], Stephen M Humphries[2], Augustine Chung[3], S Samuel Weigt[3], Matthew Brown[1], Grace Hyun J Kim[1], David Lee[1], John A Belperio[3], Jonathan G Goldin[1]

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- PMID: 41417666

- DOI: 10.1097/RTI.0000000000000867

Abstract

Computed tomography (CT) is routinely used in diagnosing and managing patients with chronic lung diseases such as chronic obstructive pulmonary disease (COPD) and fibrosing interstitial lung disease (ILD). Visual assessment of disease morphology/phenotype and extent correlates with lung function and patient prognosis, but it is limited by reader subjectivity and interobserver variability. Quantitative CT (QCT) techniques based on density and texture-based features of the lungs have shown stronger correlations with physiologic and survival outcomes in both COPD and ILD cohort studies. Moreover, recent advances in computer processing capabilities have led to the implementation of machine and deep learning-based approaches, allowing for greater robustness and reproducibility beyond visual assessment and density-based methods. This review focuses on QCT and artificial intelligence (AI) techniques for COPD, ILD, and bronchiolitis obliterans syndrome in lung and hematopoietic stem cell transplant recipients. Current challenges and limitations for adoption of these techniques and future directions of QCT and AI in thoracic imaging are also discussed.

Keywords: artificial intelligence; chronic obstructive pulmonary disease; interstitial lung disease; quantitative CT.

Conflict of interest statement

S.M.H. reports grants or contracts from NHLBI, Boehringer Ingelheim Pharmaceuticals and Perceptive, and US Patents 10,706,533; 11,4685,64; 11,494,902 and 11,922,626 (unlicensed and assigned to my institution). A.C. reports salary support from Boehringer Ingelheim Pharmaceuticals. M.B. is a board member of Voiant Clinical, LLC. GHK reports grant support from Boehringer Ingelheim Pharmaceuticals. The remaining authors declare no conflicts of interest.

- 96 references

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39

J Cardiopulm Rehabil Prev

. 2026 Mar 1;46(2):125-131.

doi: 10.1097/HCR.0000000000000990. Epub 2025 Nov 26.

Depression Symptoms in Patients With COPD: A Randomized Study of Home-Based Pulmonary Rehabilitation With Health Coaching

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Affiliations Expand

- PMID: 41295266

- DOI: 10.1097/HCR.0000000000000990

Abstract

Purpose: Patients with chronic obstructive pulmonary disease (COPD) and symptoms of depression have increased health care utilization and lower quality of life. There is a knowledge gap regarding feasible and effective approaches for the management of depressive symptoms in patients with COPD. The objective of this randomized clinical trial sub-study is to determine whether 12-weeks of home-based pulmonary rehabilitation (PR) with health coaching is feasible and effective for improving depressive symptoms in patients with COPD.

Methods: Patients with severe COPD and symptoms of depression (Patient Health Questionnaire-9 [PHQ-9] ≥5 points) randomized to the intervention (N = 90) or control (N = 78) groups in the parent study were included. The primary outcome of this sub-study was the 12-week change in the PHQ-9 score. Secondary outcomes included dyspnea, fatigue, emotions, and mastery (self-management) as measured by the Chronic Respiratory Questionnaire (CRQ) and daily physical activity and sleep measured by ActiGraph.

Results: Home-based PR with health coaching was associated with improved measures of depression (P = .07), dyspnea, fatigue, emotion, and mastery (self-management) (P < .001). Being in the intervention group was associated with a higher odds of improving by the minimal clinically important difference on the PHQ-9 (OR = 2.10: 95% CI, 1.06-4.27), CRQ-Dyspnea (OR = 2.37: 95% CI, 1.11-5.26), CRQ-Fatigue (OR = 3.35: 95% CI, 1.59-7.35), CRQ-Emotions (OR = 4.59: 95% CI, 2.13-10.40), and CRQ-Mastery (OR = 3.36: 95% CI 1.60-7.28) after multivariable adjustment. The improvement in depression symptoms was maintained for 3 and 6 months after finishing the intervention.

Conclusion: Home-based PR with health coaching is feasible and possibly effective in improving depressive symptoms and quality of life in patients with COPD and symptoms of depression.

Keywords: COPD; depression; health coaching; quality of life.

- 29 references

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40

Presse Med

. 2026 Mar;55(1):104321.

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Difficult-to-treat COPD: from concept to practice

Lucile Regard [1], Nicolas Roche [2]

Affiliations Expand

- PMID: 41218686

- DOI: 10.1016/j.lpm.2025.104321

Free article

Abstract

Most patients with Chronic Obstructive Pulmonary Disease (COPD) can be managed effectively through standard therapeutic strategies. However, a significant proportion remains symptomatic, experiences recurrent exacerbations, or shows accelerated lung function decline despite apparently appropriate care. These patients often fall into what could be referred to as "difficult-to-treat COPD", a term still lacking formal definition. Drawing parallels with asthma, this article proposes to consider the concept of disease control in COPD as a key driver of COPD management, not representing a fixed target but a dynamic construct reflecting daily impact and long-term stability. We provide a structured framework for reassessing diagnosis accuracy, evaluating treatment adequacy, and identifying unresolved pathophysiological drivers in patients who remain uncontrolled. Core domains include persistent dyspnea, chronic bronchitis, frequent or severe exacerbations, and rapid lung function decline. Each is explored with a focus on clinical reasoning, diagnostic tools, and phenotype- or endotype-based treatable trait-specific strategies. Importantly, the article argues that in patients remaining uncontrolled despite guideline-concordant care, the clinical response paradigm should shift from escalation to recharacterization. Practical pathways beyond standard care such as biologic therapy, lung volume reduction and transplantation, access to research protocols, and early integration of palliative care are reviewed. In the conclusion, we advocate for broader implementation of multidisciplinary case discussions and for using loss of disease control as a clinical trigger to prompt timely reassessment. Rather than defining a new phenotype, the aim is to promote a dynamic, precision-based approach to COPD management that aligns therapeutic strategies with evolving disease trajectories.

Keywords: Biotherapy; COPD; Control; Dyspnea; Exacerbations; Inhaled maintenance therapy.

Conflict of interest statement

Declaration of competing interest LR reports personal fees from AstraZeneca, Chiesi, GSK, and Sanofi, and institutional support for meeting attendance from AstraZeneca, Chiesi, and Sanofi. NR reports personal fees from GSK, AstraZeneca, Sanofi, Chiesi, Pfizer, Austral, Biosency, Zambon, MSD, and Menarini for consulting or speaking engagements, and institutional support from Chiesi, GSK, and Pfizer. He also serves as Chair of the ERS Science Council.

Presse Med

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Pre-COPD: Impact on prevention, detection, and treatment

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Affiliations Expand

- PMID: 41218685

- DOI: 10.1016/j.lpm.2025.104316

Free article

Abstract

Background and objectives: The ability to identify individuals at risk for progression to chronic obstructive pulmonary disease (COPD) remains challenging. The concept of pre-COPD has been proposed as a framework to identify patients without current airflow obstruction at greatest risk for progression to COPD using a constellation of symptoms, physiologic changes, and structural changes on chest imaging. While multiple biomarkers are linked to the subsequent development of COPD in at-risk individuals, no single biomarker has emerged as the best predictor. The goal of this review is to define the concept of pre-COPD, summarize known biomarkers associated with later development of COPD, and address the impact of pre-COPD on patient care.

Methods: Narrative Review CONCLUSION: The concept of pre-COPD can help meet current gaps in screening and care for patients at risk of progression to COPD. A framework definition of pre-COPD allows for identification of individuals at risk for progression to COPD and indicates increased morbidity and mortality. While the ideal biomarker for pre-COPD has not been identified, multimodal risk prediction scores and practical clinical definitions are emerging for use in clinical practice. Additional research is needed to better understand optimal clinical screening and management of patients with pre-COPD.

Keywords: COPD; CT imaging; Chronic bronchitis; Pre-COPD; Tobacco.

Conflict of interest statement

Declaration of interests The authors declare the following financial interests/personal relationships which may be considered as potential competing interests. MeiLan H. Han reports: financial support was provided by National Heart Lung and Blood Institute; a relationship with National Institutes of Health that includes: funding grant; a relationship with COPD Foundation that includes: funding grants; a relationship with American Lung Association that includes: funding grants; a relationship with Sanofi that includes: consulting or advisory and funding grants; a relationship with Nuvaira that includes: funding grants; a relationship with Sunovion that includes: funding grants; a relationship with Gala Therapeutics that includes: funding grants; a relationship with AstraZeneca that includes: consulting or advisory, funding grants, non-financial support, and speaking and lecture fees; a relationship with Boehringer Ingelheim that includes: consulting or advisory, funding grants, non-financial support, and speaking and lecture fees; a relationship with Biodesix that includes: funding grants; a relationship with Regeneron that includes: consulting or advisory and funding grants; a relationship with Wolters Kluwer UpToDate that includes: consulting or advisory; a

relationship with GlaxoSmithKline Inc that includes: consulting or advisory and speaking and lecture fees; a relationship with Novartis that includes: consulting or advisory, funding grants, and non-financial support; a relationship with Pulmonx that includes: consulting or advisory; a relationship with Teva that includes: consulting or advisory; a relationship with Verona that includes: consulting or advisory; a relationship with Merck that includes: consulting or advisory; a relationship with Mylan that includes: consulting or advisory; a relationship with DevPro that includes: consulting or advisory; a relationship with Aerogen that includes: consulting or advisory; a relationship with Polarian that includes: consulting or advisory; a relationship with Altesa Biosciences that includes: consulting or advisory and equity or stocks; a relationship with Amgen that includes: consulting or advisory; a relationship with Roche that includes: consulting or advisory; a relationship with RS Biotherapeutics that includes: consulting or advisory; a relationship with Apreo Health that includes: consulting or advisory; a relationship with Genentech that includes: consulting or advisory; a relationship with Cipla that includes: speaking and lecture fees; a relationship with Chiesi that includes: speaking and lecture fees; a relationship with Medscape that includes: speaking and lecture fees; a relationship with Integrity that includes: speaking and lecture fees; a relationship with NACE that includes: speaking and lecture fees; a relationship with Medwiz that includes: speaking and lecture fees; a relationship with GSK that includes: non-financial support; a relationship with Meissa Vaccines that includes: equity or stocks. MeiLan K. Han receives royalties or licenses from UpToDate, Norton Publishing, and Penguin Random House for previous work. MeiLan K. Han is a member of the GOLD Scientific committee, and has participated in the COPD Foundation Board, COPD Foundation Scientific Advisory Committee, and the ALA Advisory committee. She has served as an editor for the American Thoracic Society journal. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Curr Opin Pulm Med

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doi: 10.1097/MCP.0000000000001228. Epub 2025 Nov 7.

Artificial intelligence in chronic obstructive pulmonary disease: recent advances in imaging and physiological monitoring

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Affiliations Expand

- PMID: 41208246

- DOI: 10.1097/MCP.0000000000001228

Abstract

Purpose of review: Chronic obstructive pulmonary disease (COPD) is a leading cause of worldwide morbidity and mortality, yet significant barriers in its diagnosis and management persist. Artificial intelligence is rapidly emerging as a powerful tool to address these challenges. This review summarizes recent trends in its application to advance the care of patients with COPD, focusing on imaging and physiologic parameters.

Recent findings: Recent literature demonstrates significant progress in artificial intelligence enhanced imaging, with deep learning models applied to chest radiographs and computed tomography showing high accuracy in detecting COPD, quantifying disease features, and predicting clinical outcomes including exacerbations and mortality. Machine learning algorithms are improving the interpretation of pulmonary function tests and leveraging novel data streams from cough sounds and wearable smart devices for noninvasive diagnosis, severity assessment, and the prediction of acute exacerbations.

Summary: While artificial intelligence holds immense potential to shift COPD care toward a more proactive and personalized model, most applications remain in early developmental stages, with critical challenges including the need for rigorous clinical validation, addressing algorithmic bias, and establishing standardized evaluation metrics.

Keywords: artificial intelligence; chronic obstructive pulmonary disease; computed tomography; machine learning; physiologic monitoring.

- 56 references

Supplementary info

Publication types, MeSH termsExpand

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43

Presse Med

. 2026 Mar;55(1):104320.

doi: 10.1016/j.lpm.2025.104320. Epub 2025 Oct 30.

Integrated care in COPD

Jean Bourbeau[1], Claudia LeBlanc[2]

Affiliations Expand

- PMID: 41175926

- DOI: 10.1016/j.lpm.2025.104320

Abstract

COPD is a chronic condition that comes with a significant symptoms burden and healthcare utilization. It is the fourth leading cause of death worldwide and its prevalence is expected to rise in the years to come. We know that pharmacological treatment has a preponderant role to play in the management of this disease, but we also know that the non-pharmacological aspect of care is the cornerstone. In the last years, it has been increasingly recognized that education, self-management and integrated care are key components of COPD patients care trajectory. This review article presents the evolution of integrated care throughout the years and highlights the evidence of randomized clinical trials and on patient perspective behind this care model as well as the challenges healthcare professionals are still facing. This review also presents an illustrative example of integrated care in COPD which has been implemented over 2 decades, building on evidence from RCT to real-world evidence adoption in healthcare settings for broader reach and sustainability.

Keywords: COPD; Care coordination; Chronic disease; Integrated care; Multidisciplinary team; Self-management.

Conflict of interest statement

Declaration of competing interest None

Full text links

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44

Presse Med

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Personalizing COPD care: Phenotypes, endotypes, GETomics, the trajectome, syndemics and treatable traits

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Affiliations Expand

- PMID: 41173442

- DOI: 10.1016/j.lpm.2025.104318

Abstract

Our understanding and management of chronic obstructive pulmonary disease (COPD) has changed significantly over the past few years. We now recognize that COPD is a complex and heterogeneous condition that requires personalized and precise management. Here we review these recent novel concepts, including those of Phenotypes (i.e., the observable characteristics of an individual), Endotypes

(i.e., the biologic mechanism(s) underlying a given phenotype), GETomics (i.e., a new paradigm that incorporates of the time axis (age) into our understanding of different gene-environment interactions through the life time), the Trajectome (i.e., the range of potential lung function trajectories that exists in the general population, including normal, low and supra-normal trajectories with different clinical implications), Syndemics (i.e., a term that refers to the fact that most COPD patients suffer of other co-occurrent diseases (multimorbidity) that share mechanisms and risk factors), and Treatable Traits (i.e., specific endo-phenotypes that contribute to the clinical presentation and prognosis of the patient that deserve specific and personalized treatment), and discuss how to best transfer them into clinical practice (e.g. lung tracker). Collectivelly, these concepts have radically changed our understanding of COPD and can facilitate a more personalized and precise clinical management of the patients that suffer such a frequent and impactful disease.

Keywords: Chronic bronchitis; Chronic obstructive pulmonary disease; Emphysema; Smoking; Treatment.

Conflict of interest statement

Disclosure of interest Both authors declare no conflicts of interest related to this manuscript.

45

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Pharmacological management of COPD

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Affiliations Expand

- PMID: 41173441

- DOI: 10.1016/j.lpm.2025.104319

Free article

Abstract

The pharmacological management of chronic obstructive pulmonary disease (COPD) focuses on the alleviation of symptoms coupled with exacerbation prevention. Inhaled treatments are the mainstay of management, ensuring adequate lung delivery while minimising the potential for adverse systemic effects. Combination inhalers with long acting bronchodilators, with and without inhaled corticosteroids (ICS), are in widespread use to treat COPD on the basis of clinical trial evidence alongside the practical advantages associated with using a single inhaler in the real life world. There is also a personalised approach to ICS use,

as blood eosinophil counts can help identify individuals with a greater probability of responding to treatment. Biological treatments have demonstrated positive results in COPD clinical trials, and will also be used in a precision approach in future. The positive clinical trial results for dupilumab (a monoclonal antibody directed against the shared IL-4 and IL-13 receptor) and ensifentrine (an inhibitor of phosphodiesterase 3 and 4) represent significant advances in the pharmacological management of COPD. This review describes the recent progress in COPD pharmacology, covering novel molecules, new evidence and changes in clinical practice.

Keywords: Blood eosinophil counts; COPD pharmacological management; Precision medicine.

Conflict of interest statement

Declaration of competing interest A. Beech has no DOI. D. Singh has received sponsorship to attend and speak at international meetings, honoraria for lecturing or attending advisory boards from the following companies: Aerogen, AstraZeneca, Boehringer Ingelheim, Chiesi, Cipla, CSL Behring, Epiendo, Genentech, GlaxoSmithKline, Glenmark, Gossamerbio, Kinaset, Menarini, Novartis, Pulmatrix, Sanofi, Teva, Theravance and Verona.

Cite

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Presse Med

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COPD exacerbations: Major events in the course of the disease

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- PMID: 41173440

- DOI: 10.1016/j.lpm.2025.104317

Abstract

Exacerbations of chronic obstructive pulmonary disease (COPD) lead to significant mortality, morbidity and healthcare expenditure globally. COPD exacerbations are heterogenous events; triggers and risk factors include respiratory infections, air pollution and co-morbidities. Exacerbations have an important effect on disease progression through their effect on lung function decline and functional impairment. In turn, these factors increase the susceptibility to the risk factors for exacerbations, thus leading to a cycle of exacerbations. Rigorous prevention and treatment of exacerbations is needed to break this cycle and achieve the goal of exacerbation-free COPD.

Keywords: Chronic obstructive pulmonary disease; Exacerbation; Infection; Lung function; Prevention.

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: Jadwiga A. Wedzicha reports a relationship with AstraZeneca Pharmaceuticals LP that includes: consulting or advisory, funding grants, and speaking and lecture fees. Jadwiga A. Wedzicha reports a relationship with Boehringer Ingelheim Ltd that includes: funding grants and speaking and lecture fees. Jadwiga A. Wedzicha reports a relationship with Chiesi Pharmaceuticals Inc that includes: funding grants. Jadwiga A. Wedzicha reports a relationship with GSK that includes: consulting or advisory, funding grants, and speaking and lecture fees. Jadwiga A. Wedzicha reports a relationship with Novartis that includes: funding grants and speaking and lecture fees. Jadwiga A. Wedzicha reports a relationship with Genentech Inc that includes: funding grants. Jadwiga A. Wedzicha reports a relationship with 37Clinical that includes: funding grants. Jadwiga A. Wedzicha reports a relationship with EpiEndo Pharmaceuticals that includes: consulting or advisory. Jadwiga A. Wedzicha reports a relationship with Gilead Sciences Inc that includes: consulting or advisory. Jadwiga A. Wedzicha reports a relationship with Pieris Pharmaceuticals Inc that includes: consulting or advisory. Jadwiga A. Wedzicha reports a relationship with PULMATRiX Inc that includes: consulting or advisory. Jadwiga A. Wedzicha reports a relationship with Empiricio that includes: consulting or advisory. Jadwiga A. Wedzicha reports a relationship with Sanofi SA that includes: consulting or advisory and speaking and lecture fees. Jadwiga A. Wedzicha reports a relationship with Roche that includes: consulting or advisory. Jadwiga A. Wedzicha reports a relationship with Pfizer that includes: consulting or advisory. Jadwiga A. Wedzicha reports a relationship with NEATstix that includes: consulting or advisory. Jadwiga A. Wedzicha reports a relationship with Recipharm Inc that includes: speaking and lecture fees. Jadwiga A. Wedzicha reports a relationship with Virtus that includes: board membership. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Review

Curr Opin Pulm Med

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Lung transplantation for chronic obstructive pulmonary disease patients: an overview

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- PMID: 41065562

- DOI: 10.1097/MCP.0000000000001226

Abstract

Purpose of review: To provide an overview of current indications for lung transplantation (LTx) in COPD patients, to describe the different transplantation options, to compare the outcome of COPD and alpha1-antitrypsin deficiency (AATD) patients versus non-AATD COPD patients and to discuss the possible complications, also specifically related to COPD, AATD patients and the transplantation procedure.

Recent findings: Some 30-50% of all lung LTx worldwide are performed in COPD patients, with the majority being operated via double lung transplantation (DLTx). Unilateral lung transplantation (SLTx) remains an option, depending on the donor availability and the center's experience. The mean survival after LTx for COPD remains somewhat lower compared to other underlying diseases, especially after SLTx, which may lead to specific complications such as native lung hyperinflation and development of a native lung cancer.

Summary: LTx for end-stage COPD remains an accepted treatment modality in selected patients, which increases the QOL and the survival. The global 5-year survival is around 60%; somewhat better for AATD, compared to non-AATD COPD and after DLTx compared to SLTx. The best procedure of choice remains a matter for further discussion, although most centers prefer to perform DLTx, certainly in patients with underlying AATD.

Keywords: alpha1 antitrypsin deficiency; chronic obstructive pulmonary disease; double lung; lung transplantation; single lung.

- 39 references

Supplementary info

Publication types, MeSH termsExpand

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48

BJGP Open

. 2026 Feb 24:BJGPO.2024.0263.

doi: 10.3399/BJGPO.2024.0263. Online ahead of print.

Between-practice variation in chronic obstructive pulmonary disease diagnosis guideline compliance: an observational study

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Affiliations Expand

- PMID: 40846571

- DOI: 10.3399/BJGPO.2024.0263

Free article

Abstract

Background: Early chronic obstructive pulmonary disease (COPD) diagnosis is vital, but little is known about compliance with relevant diagnostic guidelines or variation in primary care.

Aim: To quantify between-practice variations in guideline compliance and over time.

Design & setting: An observational study in English primary care.

Method: The Clinical Practice Research Datalink was used to assess the use of four pre-diagnostic investigations (spirometry, chest X-ray, full blood count [FBC], and body mass index [BMI]) by GP practices for patients with COPD recorded first in primary care, in three time periods: 2006-2007 (cohort 1), 2016-2017 (cohort 2), and March-August 2020 (cohort 3). Multilevel logistic regression models quantified the non-random variation between GP practices in spirometry around diagnosis. Funnel plots counted the proportion of outliers.

Results: Cohort totals were 31 676 (cohort 1), 37 393 (cohort 2), and 3368 (cohort 3). Overall, the mean age was 68.3 years (standard deviation 12.0), with 46.1% female. The use of pre-diagnosis spirometry improved a little in cohort 2 (74.2%) on cohort 1 (62.8%) but fell back for the COVID-19-era group (61.1%). In contrast, chest X-ray, FBC, and BMI all improved after cohort 1 and were maintained for the COVID-19 cohort; almost all patients received one of these investigations. The proportion receiving all four investigations before diagnosis jumped from 26.6% in cohort 1 to 46.7% in cohort 2 and was maintained in cohort 3 (43.0%). Modelling and funnel plots showed considerable non-random variation in spirometry use by practice, although with some improvement since cohort 1.

Conclusion: The recording of spirometry and chest X-rays warrants further and consistent improvement in the context of COPD care.

Keywords: chronic obstructive pulmonary disease; guidelines; large database research; observational study; primary health care; respiratory illness.

The Value of FeNO and Peripheral Blood Eosinophils in Assessing Airway Eosinophilic Inflammation in Patients With Acute Exacerbations of Chronic Obstructive Pulmonary Disease

HongXu Zhang[1], MengYu Lian[1], Nafeisa Dilixiati[1], Jie Song[1], JingJing Yang[1], RuiYan Lin[1], JinXiang Wang[1]

Affiliations Expand

- PMID: 40751386

- DOI: 10.1111/cyt.70009

Abstract

Background: To evaluate the clinical value of fractional exhaled nitric oxide (FeNO) levels and peripheral blood eosinophil (EOS) counts and percentages in assessing airway eosinophilic inflammation in patients with acute exacerbations of chronic obstructive pulmonary disease (AECOPD).

Methods: In total, 119 AECOPD patients were included in the study. Patients were divided based on the percentage of EOS in their sputum into the airway EOS inflammation group (29 patients) and the non-airway EOS inflammation group (90 patients). The diagnostic values of FeNO and peripheral blood EOS for detecting airway EOS inflammation in AECOPD patients were assessed.

Results: The airway EOS inflammation group had higher peripheral blood EOS counts and percentages. FeNO, peripheral blood EOS counts and percentages were significantly correlated with sputum EOS percentages. ROC curve analysis showed that the optimal cut-off values for predicting airway EOS inflammation were 18.5 ppb for FeNO, with sensitivities and specificities of 76% and 61%, respectively; 0.335×10^9/L for peripheral blood EOS count, with sensitivities and specificities of 41% and 98%, respectively; and 3.56% for peripheral blood EOS percentage, with sensitivities and specificities of 59% and 86%, respectively.

Conclusions: FeNO, peripheral blood EOS counts and percentages have a strong correlation with airway EOS inflammation. The levels of FeNO and peripheral blood EOS counts and percentages can effectively predict airway EOS inflammation in AECOPD patients.

Keywords: acute exacerbation; airway inflammation; chronic obstructive pulmonary disease; eosinophils; exhaled nitric oxide; peripheral blood; sputum.

- 45 references

Supplementary info

MeSH terms, Substances, Grants and fundingExpand

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

1

J Clin Nurs

. 2026 Feb 25.

doi: 10.1111/jocn.70266. Online ahead of print.

Relationships Among Symptom Burden, Self-Care, and Quality of Life Among Individuals Living With Heart Failure and Multimorbidity: A Cross-Sectional Study

Soo Hyun Kim [1], Arum Lim [1], Chitchanok Benjasirisan [1], Cheryl R Himmelfarb [1], Patricia M Davidson [2], Rebecca Wright [1], Binu Koirala [1]

Affiliations Expand

- PMID: 41741378

- DOI: 10.1111/jocn.70266

Abstract

Aim: To examine factors, including symptom burden profiles and self-care, associated with quality of life among individuals with heart failure and multimorbidity.

Design: A cross-sectional design.

Methods: 353 adults aged 50 years or older with heart failure and at least one additional chronic condition were recruited from a university-affiliated hospital. Three symptom burden groups were identified (low, moderate, and high) through latent profile analysis of the Edmonton Symptom Assessment Scale scores. The Heart Failure Self-care Index and EuroQoL-5D-5L measured self-care behaviours and quality of life. This study examined group differences and associations overall and stratified by symptom burden groups via multivariable linear regression.

Results: A higher disease burden and the high symptom burden group compared to the low symptom burden group were associated with lower quality of life. Self-care maintenance was positively associated with a higher quality of life, but not in the high-burden group. Among individual symptoms, pain and depression were associated with lower quality of life. In the high-burden group, older age was positively associated with quality of life. Higher symptom burden groups included a greater proportion of women and middle-aged adults.

Conclusion: Symptom burden and self-care maintenance show significant associations with quality of life in multimorbidity. Symptom burden profiles identified through latent profile analysis may complement conventional approaches by targeting high-risk individuals, such as middle-aged individuals and women with high symptom burden, for follow-up and integrated multimorbidity management.

Impact: For healthcare providers, including nurses, these findings underscore the importance of holistic, symptom-based care approaches combined with routine

support for self-care maintenance. Adopting a life-course approach, through early identification and management of high-risk individuals, may help promote aging in place with a better quality of life for those with heart failure and multimorbidity.

Reporting method: STROBE checklist.

Patient or public contribution: No patient or public contribution.

Keywords: heart failure; multimorbidity; quality of life; symptom burden.

- **48 references**

Supplementary info

Grants and fundingExpand

Full text links

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2

Heart Lung Circ

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. 2026 Feb 23:S1443-9506(25)01758-5.

doi: 10.1016/j.hlc.2025.11.015. Online ahead of print.

Cardiovascular Disease, Frailty, and Multimorbidity as Predictors of Adverse Outcomes in Older Adults Admitted to Acute Geriatric Settings: A Secondary Analysis

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Affiliations Expand

- **PMID: 41735159**

- **DOI: 10.1016/j.hlc.2025.11.015**

Abstract

Background: Despite the high prevalence of concomitant cardiovascular disease (CVD), multimorbidity and frailty, the clinical characteristics and longer-term outcomes for older adults admitted to acute geriatric settings remain poorly understood.

Method: A secondary analysis of the Western Sydney Clinical Frailty Registry was undertaken. Frailty was assessed using the Clinical Frailty Scale. CVD was defined as a history of either heart failure (HF), stroke, or atrial fibrillation. Multimorbidity was assessed using the updated Charlson Comorbidity Index. Adverse outcomes of interest included rehospitalisation and mortality. The incidence rate and the survival probabilities were calculated for the occurrence of adverse outcomes. Cox proportional hazard models were fitted to identify the predictors of rehospitalisation and mortality.

Results: The mean age of the 592 older adults was 81.20±7.76 years, and 59.0% of the participants were female. Almost half had a history of CVD (n=265), 174 were classified as non-frail, 295 were mild-to-moderately frail, and 123 were severely frail. The incidence rate of rehospitalisation and mortality was 12.15 per 100 person-months. Participants with a history of HF or atrial fibrillation had significantly lower event-free survival (χ^2 (1)=19.27; p=0.00, χ^2 (1)=5.22; p=0.02, respectively), whereas a history of stroke was not significantly associated with reduced event-free survival (χ^2 (1)=0.04, p=0.84). Key predictors of rehospitalisation and mortality included severe frailty, the strongest predictor overall (adjusted hazard ratio [aHR] 2.12; 95% confidence interval [CI] 1.59-2.84), followed by mild to moderate frailty (aHR 1.57; 95% CI 1.23-2.00), HF (aHR 1.47; 95% CI 1.06-2.03) and a higher Charlson score (aHR 1.05; 95% CI 1.01-1.90).

Conclusions: Frailty, CVD, and multimorbidity are significant predictors of rehospitalisation and mortality in older adults. These results underscore the importance of routine frailty and multimorbidity assessments during hospitalisation to identify high-risk individuals and inform clinical decision-making.

Keywords: Cardiovascular disease; Frailty; Mortality; Multimorbidity; Rehospitalisation.

Conflict of interest statement

Declaration of Competing Interests There are no conflicts of interest to disclose.

Full text links

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Cite

3

J Am Heart Assoc

-

. 2026 Feb 24:e040612.

doi: 10.1161/JAHA.124.040612. Online ahead of print.

Multimorbidity in Atrial Fibrillation: Impact on Outcomes

Sheila M Manemann [1], Alvaro Alonso [2], Peter A Noseworthy [3], Konstantinos C Siontis [3], Bernard J Gersh [3], Véronique L Roger [1 4], Euijung Ryu [1], Jill M Killian [1], Susan A Weston [1], Lisa E Vaughan [1], Alanna M Chamberlain [1 3]

Affiliations Expand

- PMID: 41733064

- DOI: 10.1161/JAHA.124.040612

Free article

Abstract

Background: Multimorbidity is common in patients with atrial fibrillation (AF); however, the impact of the number and type of comorbid conditions on outcomes remains uncertain.

Methods: This cohort study included patients with new-onset AF from a Midwest region between 2013 and 2017. Eighteen chronic conditions at the time of AF were classified into groups: cardiometabolic, other somatic, and mental health. Cox regression determined associations between the number of each condition type with death, ischemic stroke/transient ischemic attack, and congestive heart failure, stratified by age.

Results: Among 16 509 patients with AF (mean age, 74 years; 43% women), the mean number of cardiometabolic, other somatic, and mental health conditions was 2.7, 1.4, and 0.5, respectively. The number and type of conditions had a varying impact on outcomes and differed by age. A higher number of cardiometabolic conditions were associated with increased risk of death within 90 days only in people aged ≥85 years (≥4 conditions versus 0: hazard ratio [HR], 1.74 [95% CI, 1.05-2.87]), whereas for death after 90 days, associations were strongest in the youngest age group (<65 years: HR, 1.83 [95% CI, 1.35-2.46]; 65-74 years: HR, 1.34 [95% CI, 1.04-1.73]; 75-84 years: HR, 1.32 [95% CI, 1.09-1.60]; ≥85 years: HR, 1.14 [95% CI, 0.96-1.35]). Associations with outcomes were generally strongest in the youngest age group and attenuated with older age for higher number of other somatic conditions, whereas the pattern was less consistent for mental health conditions.

Conclusions: Along with cardiometabolic-related conditions, other somatic and mental health conditions are important predictors of outcomes in AF, with effects differing by age, and should be considered when caring for these patients.

Keywords: atrial fibrillation; chronic conditions; multimorbidity; outcomes.

Full text links

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Lipids Health Dis

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. 2026 Feb 23.

doi: 10.1186/s12944-026-02904-7. Online ahead of print.

The combined effects of cardiometabolic index and high sensitivity C-reactive protein on cardiometabolic multimorbidity risk: a prospective analysis based on CHARLS

Hao Hua [1], Jinglin Zhao [1], Zihan Zhou [1], Shiyu He [1], Siqi Mei [1], Xiaoyu Fei [1], Xinyu Xu [1], Xiaohui Yan [1], Li Li [1], Jian Zhu [2], Qiudi Wu [3], Wenlei Li [4]

Affiliations Expand

- PMID: 41731484

- DOI: 10.1186/s12944-026-02904-7

Free article

No abstract available

Keywords: Cardiometabolic index; Cardiovascular Diseases; China; Cohort studies; High sensitivity C-reactive protein; Metabolic Diseases; Multimorbidity.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: Ethical approval was obtained from Peking University's Ethics Review Committee, with written informed consent obtained from all participants. Competing interests: The authors declare no competing interests.

- 39 references

Supplementary info

Grants and fundingExpand

Full text links

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Int J Older People Nurs

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. 2026 Mar;21(2):e70065.

doi: 10.1111/opn.70065.

What Is Essential for Older People With Multi-Morbidity During Discharge Planning? A Qualitative Study

Sara Shamim [1], Mette Geil Kollerup [2], Gitte Bunkenborg [3], Connie Berthelsen [1]

Affiliations Expand

- PMID: 41656631

- DOI: 10.1111/opn.70065

Abstract

Background: For older people with multi-morbidity, discharge planning is crucial to manage their healthcare needs at home. Knowledge of their perspectives is important so that their essential needs are included during discharge planning. This study aimed to understand what is essential for them during discharge planning in two medical hospital departments.

Methods: We used a hermeneutic approach grounded in Gadamerian philosophy and conducted 15 semi-structured interviews in two medical departments. We audio-recorded, transcribed and analysed the interviews using reflexive thematic analysis.

Results: Two themes were identified: practical discharge preparation and personal discharge preparation.

Conclusion: It is essential for older people to get health-related information and personal contact with healthcare professionals. However, limited contact with healthcare professionals and practical preparation hindered the fulfilment of these needs. Future discharge initiatives must find ways to better accommodate the personal needs of older people and also fit into the healthcare environment of medical departments.

Keywords: discharge; experiences; interview; multi-morbidity; needs; older people; reflexive thematic analysis.

- **53 references**

Supplementary info

MeSH terms, Grants and fundingExpand

Full text links

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Review

Inn Med (Heidelb)

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. 2026 Mar;67(3):282-288.

doi: 10.1007/s00108-025-02051-8. Epub 2026 Jan 16.

[Aspects of palliative pharmacotherapy in geriatric patients: what is rational in the presence of severe frailty? : Shared decision-making as the basis for finding solutions]

[Article in German]

Achim Rehlaender [1], E V Pfeiffer [2]

Affiliations Expand

- **PMID: 41543743**

- **DOI: 10.1007/s00108-025-02051-8**

Abstract

in English, German

Difficulties with polypharmacy are a recognized problem in geriatric patients suffering from multimorbidity. Clinical science has developed several solutions to this problem. The most widely endorsed approach is the use of medication lists, which methodically categorize substances or substance classes. The risk of drug interactions or prescription cascades increases with the number of medications. In the case of severe frailty or life-limiting disease within a palliative context, modification of treatment objectives is imperative. Reevaluation of the existing pharmacotherapy is required. In order to correspond most individually to patients' wishes and values, substantial knowledge of patients' needs and contextual factors (physical and psychological symptom burden, availability of care, social situation) is essential. This is necessary for a good risk-benefit analysis under patients' involvement.

Keywords: Decision making, shared; Deprescribing; Multimorbidity; Palliative medicine; Polypharmacy.

Conflict of interest statement

Einhaltung ethischer Richtlinien. Interessenkonflikt: A. Rehlaender und E.V. Pfeiffer geben an, dass kein Interessenkonflikt besteht. Für diesen Beitrag wurden von den Autor/-innen keine Studien an Menschen oder Tieren durchgeführt. Für die aufgeführten Studien gelten die jeweils dort angegebenen ethischen Richtlinien.

- **17 references**

Supplementary info

Publication types, MeSH termsExpand

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Cite

7

Review

Curr Opin Support Palliat Care

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. 2026 Mar 1;20(1):5-10.

doi: 10.1097/SPC.0000000000000790. Epub 2026 Jan 27.

Practical aspects of managing multimorbidity in older adults with cancer

Shane O'Hanlon [1 2], Mark Baxter [3 4], Gabor Liposits [5]

Affiliations Expand

- **PMID: 41460166**

- **DOI: 10.1097/SPC.0000000000000790**

Abstract

Purpose of review: Managing multimorbidity in older adults with cancer is a central, complex challenge in modern oncology. Historically, this population was underrepresented in clinical trials, leaving clinicians without practical guidance. This review synthesizes recent evidence that moves beyond simply documenting frailty to deploying targeted, evidence-based interventions to improve supportive and palliative care.

Recent findings: The literature supports a practical 2-step approach to assessment, using screening tools like the Geriatric-8 to trigger a full Comprehensive Geriatric Assessment (CGA) with management, which is proven to reduce treatment toxicity. Goal-aligned deprescribing has emerged as an active clinical skill to manage polypharmacy. In decision-making, the focus has shifted from guideline-concordant to goal-concordant care. Finally, a needs-based paradigm for integrating palliative care is replacing older, prognosis-based models, distinguishing between generalist skills for all clinicians and specialist consultation for complex cases.

Summary: Recent evidence provides clinicians with practical approaches. By using validated screening, CGA-led interventions, systematic deprescribing, and needs-based palliative care, clinical teams can reduce treatment toxicity, lessen medication burden, and align complex cancer care with the personal priorities and quality-of-life goals of older patients.

Keywords: comprehensive geriatric assessment; geriatric oncology; multimorbidity; palliative care; supportive care.

- **43 references**

Supplementary info

Publication types, MeSH termsExpand

Full text links

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8

Review

Vet Clin North Am Small Anim Pract

. 2026 Mar;56(2):419-430.

doi: 10.1016/j.cvsm.2025.09.029. Epub 2025 Nov 3.

Managing Comorbidity: Coordinating Care for Complex Geriatric Cases

Tyler Carmack [1]

Affiliations Expand

- PMID: 41188176

- DOI: 10.1016/j.cvsm.2025.09.029

Abstract

Geriatric companion animals often present with multimorbidity, requiring a shift from disease-centered to functional, quality-of-life-centered care. Effective management integrates thorough diagnostics, client-reported outcomes, and individualized treatment strategies that account for drug interactions, treatment burden, and caregiver capacity. Multimodal pain and symptom management, nutritional and environmental support, and regular medication review are central to sustaining comfort. Interdisciplinary collaboration, accurate record-keeping, and shared decision-making with owners help align medical goals with patient welfare. Ethical considerations, including transitions to hospice care, ensure compassionate, context-driven management that honors both the patient's dignity and the caregiver's values.

Keywords: Comorbidity; Functional status; Multimorbidity; Palliative care; Polypharmacy; Quality of life (QoL); Veterinary hospice.

Conflict of interest statement

Disclosure No competing interests exist.

Supplementary info

Publication types, MeSH termsExpand

Full text links

Cite

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Presse Med

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. 2026 Mar;55(1):104318.

doi: 10.1016/j.lpm.2025.104318. Epub 2025 Oct 30.

Personalizing COPD care: Phenotypes, endotypes, GETomics, the trajectome, syndemics and treatable traits

Alvar Agusti [1], Rosa Faner [2]

Affiliations Expand

- PMID: 41173442

- DOI: 10.1016/j.lpm.2025.104318

Abstract

Our understanding and management of chronic obstructive pulmonary disease (COPD) has changed significantly over the past few years. We now recognize that COPD is a complex and heterogeneous condition that requires personalized and precise management. Here we review these recent novel concepts, including those of Phenotypes (i.e., the observable characteristics of an individual), Endotypes (i.e., the biologic mechanism(s) underlying a given phenotype), GETomics (i.e., a new paradigm that incorporates of the time axis (age) into our understanding of different gene-environment interactions through the life time), the Trajectome (i.e., the range of potential lung function trajectories that exists in the general population, including normal, low and supra-normal trajectories with different clinical implications), Syndemics (i.e., a term that refers to the fact that most COPD patients suffer of other co-occurrent diseases (multimorbidity) that share mechanisms and risk factors), and Treatable Traits (i.e., specific endo-phenotypes that contribute to the clinical presentation and prognosis of the patient that deserve specific and personalized treatment), and discuss how to best transfer them into clinical practice (e.g. lung tracker). Collectivelly, these concepts have radically changed our understanding of COPD and can facilitate a more personalized and precise clinical management of the patients that suffer such a frequent and impactful disease.

Keywords: Chronic bronchitis; Chronic obstructive pulmonary disease; Emphysema; Smoking; Treatment.

Conflict of interest statement

Disclosure of interest Both authors declare no conflicts of interest related to this manuscript.

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

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BMJ Open Respir Res

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. 2026 Feb 27;13(1):e003578.

doi: 10.1136/bmjresp-2025-003578.

Characterisation of chronic obstructive pulmonary disease (COPD) in never-smokers and ever-smokers from a population-based cohort

Pernilla Sönnerfors [1 2], Petra Kristina Jacobson [3], Anders Andersson [4 5], Leif Hilding Bjermer [6], Anders Blomberg [7], Heléne Blomqvist [8 9], Jonas S Erjefält [10], Iryna Kolosenko [8 9], Andrei Malinovschi [11], Terezia Pinicikova [8 9 12], Ellen Tufvesson [6], Åsa M Wheelock [8 9], Christer Janson [13], Hans Lennart Persson [3], Magnus Sköld [8 9]

Affiliations Expand

- **PMID: 41760355**

- **DOI: 10.1136/bmjresp-2025-003578**

Abstract

Background: Chronic obstructive pulmonary disease (COPD) in never-smokers may have other clinical characteristics than tobacco smoking-related COPD.

Research question: What are the risk factors, biomarkers, respiratory symptoms and health status in never-smoking individuals with COPD?

Study design and methods: We investigated never-smokers with COPD (n=154, mean age 60 years) from the population-based Swedish CArdioPulmonary bioImage Study (SCAPIS), and compared them with four control groups: never-smokers with normal lung function (n=281), current smokers with normal lung function (n=97), ex-smokers with COPD (n=103) and current smokers with COPD (n=55). COPD was defined as forced expiratory volume in 1 s (FEV_1)/forced vital capacity (FVC) less than the lower limit of normal (LNN) after bronchodilation. We examined fractional exhaled nitric oxide (FeNO), blood biomarkers, respiratory symptoms, health status, medical history and living conditions.

Results: The never-smoker COPD group reported more respiratory symptoms and worse health status than never-smokers with normal lung function, but fewer symptoms, milder airflow limitation and better health status compared with ex-smokers and smokers with COPD. Never-smokers with COPD had more self-reported asthma. Moreover, never-smokers with COPD had higher Immunoglobulin E sensitisations to a mix of aeroallergens, higher geometrical mean FeNO levels and blood eosinophil counts than never-smokers with normal lung function. When participants with self-reported asthma were excluded, never-smokers with COPD still had more wheeze, cough and higher FeNO.

Conclusion: Never-smokers with COPD had more respiratory symptoms and elevated markers of type-2 inflammation, suggesting they might represent a distinct clinical phenotype which may differ from smoking-related COPD. They may therefore need to be treated and followed differently.

Trial registration number: NCT03049202.

Keywords: COPD epidemiology; Emphysema; Physical Examination; Pulmonary Disease, Chronic Obstructive; Respiratory Function Test; Respiratory Measurement.

Conflict of interest statement

Competing interests: None declared.

Supplementary info

Associated dataExpand

Proceed to details

Cite

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Respir Res

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. 2026 Feb 27.

doi: 10.1186/s12931-026-03597-3. Online ahead of print.

Multidomain clinical and biological remission with tezepelumab in severe asthma: a 12-month multicentre real-world study

Juan Luis García-Rivero [1 2], Adil Hannaoui Anaaoui [3], Abel Pallarés-Sanmartín [4], Marina Blanco-Aparicio [5], Raquel García-Hernáez [6], Victoria García-Gallardo Sanz [7], Uxío Calvo-Álvarez [8], Luis Carazo-Fernández [9], Tamara Hermida-Valverde [10], Silvia Dorronsoro [11], Inés Carrascosa-Anguiano [12], Ignacio Lobato

Astiárraga [13], Idania de Los Santos [14], Ana Isabel Enríquez-Rodríguez [10], Luis Perez de Llano [15], Pablo Álvarez Vega [16], Beatriz Abascal-Bolado [17], Miguel Santibañez [18] [19]

Affiliations Expand

- PMID: 41761198

- DOI: 10.1186/s12931-026-03597-3

No abstract available

Keywords: Allergic asthma; Asthma phenotypes; Asthma remission; Eosinophilic asthma; Oral corticosteroid sparing; Real-world evidence; Severe asthma; T2-low biomarkers; Tezepelumab; Type 2 inflammation.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: The study was approved by the Clinical Research Ethics Committee of Cantabria (Spain) and was subsequently acknowledged by all participating centres. All patients provided written informed consent prior to inclusion, and the study was conducted in accordance with the Declaration of Helsinki and national regulations on observational research. Consent for publication: Not applicable. The manuscript does not contain any individual person's data in any form (including individual images, videos or recordings). Competing interests: The authors declare no competing interests.

- 28 references

Proceed to details

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Thorax

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. 2026 Feb 26:thorax-2025-223465.

doi: 10.1136/thorax-2025-223465. Online ahead of print.

2024 BTS/NICE/SIGN asthma guidelines have the potential to improve UK asthma outcomes, but we must act now

Michael G Crooks [1] [2], Dominic L Sykes [3] [2], Robert R Horne [4], Helena Cummings [2] [5], Kay Roy [6], Alex Fynney [7], Andrew Whittamore [7] [8], Shoaib Faruqi [2], Daryl Freeman [5] [9], Jennifer K Quint [10] [11], Katherine Hickman [5] [12], Bev Bostock [5] [13], Joanne King [14] [15], Judith Dyson [16]

Affiliations Expand

- **PMID: 41760103**

- **DOI: 10.1136/thorax-2025-223465**

No abstract available

Keywords: Asthma; Asthma Guidelines; Asthma Pharmacology; Asthma in primary care.

Conflict of interest statement

Competing interests: No funding has been received by individual authors or their affiliated institutions for their contributions to this manuscript. MGC has received honouraria and/or non-financial support from AZ, BI, Chiesi, Orion and Sanofi. MGC has participated in advisory boards for AZ, Chiesi, Orion and Synairgen. MGC has received grants from Asthma & Lung UK, AZ, BI, Chiesi and NIHR (grants paid to employing institutions). DLS has received honouraria from AZ and Trevi, and speaker's fees from AZ and Chiesi. RH is a director of Spoonful of Sugar, which has received royalties and/or consultancy fees from AZ, Biomerieux, Daiichi, Eli Lilly, Eisai, Gilead, GSK, Novartis, Pfizer, Sanofi, Sciencus, Teva, UCB and Vertex. RH has received honouraria from AbbVie, Abbott, Amgen, Astellas, AZ, Biogen, Biomerieux, BI, Gilead, GSK, Janssen, MSD, Novartis, Pfizer, P&G, Roche, Sanofi, Shire, Teva and UCB. RH has participated in advisory boards for Abbott, AZ, Novartis and UCB. HC has received speaker and conference fees from AZ, Sanofi/Regeneron and GSK. HC is contributing to a joint working project in collaboration with AZ. KR has received honouraria for education and conference fees from AZ and Chiesi. AF is employed by Asthma & Lung UK with no other conflicts of interest to declare. AW is the Clinical Lead for Asthma & Lung UK and has no other conflicts of interest to declare. SF has received speaker fees and/or support to attend meetings from AZ, GSK, Novartis, Chiesi, J&J and Adenium. DF is a PCRS committee member and has received honouraria for providing educational meetings for Chiesi and AZ. DF has taken part in non-promotional meetings and initiatives for AZ. JQ has been supported by institutional research grants from MRC, NIHR, HDR UK, GSK, BI, AZ, Insmed and Sanofi and has received personal fees for advisory board participation, consultancy or speaking fees from GSK, BI, Sanofi, Chiesi and AZ. KH is Chair of the PCRS and has no other conflicts of interest to declare. BB has received honouraria from Amarin, Aspire, AZ, Bayer, BI, Chiesi, Daiichi Sankyo, GSK, Leo, Lilly, Menarini, MSD, Napp, Novartis, Novo Nordisk, Orion, Pfizer, Sanofi and Teva. BB is a Committee Chair for ARNS and PCRS and is President-Elect of the PCCS. JK has received honouraria from AZ, Chiesi, GSK and ARNS and has received conference fees and travel support from Chiesi. JD has received speaker and consultancy fees from AZ.

Proceed to details

Cite

4

Pediatr Allergy Immunol

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. 2026 Mar;37(3):e70272.

doi: 10.1111/pai.70272.

DOMINICA protocol: A study of benralizumab for severe eosinophilic asthma in children

Theresa W Guilbert [1], Maria Jison [2], Lena Börjesson Sjö [3], Viktoria Werkström [3], Hanna Grindebacke [3], Tomasz Durżyński [4], Aadarsh Lal [5], Jonathan Grigg [6]

Affiliations Expand

- **PMID: 41759040**

- **DOI: 10.1111/pai.70272**

No abstract available

Keywords: benralizumab; biologics; eosinophils; exacerbation; pediatric patients; severe eosinophilic asthma; study design.

- **10 references**

Supplementary info

Publication types, Grants and fundingExpand

Proceed to details

Cite

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J Allergy Clin Immunol Pract

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. 2026 Feb 24:S2213-2198(26)00153-4.

doi: 10.1016/j.jaip.2026.02.015. Online ahead of print.

Long-term efficacy of dupilumab versus tezepelumab in asthma: a matching-adjusted indirect comparison

Kenneth R Chapman [1], Nick Freemantle [2], Patricia Guyot [3], Olivier Ledanois [4], Mena Soliman [5], Zhixiao Wang [6], Yingxin Xu [7], Shaun Abeysinghe [8], Wei-Han Cheng [9]

Affiliations Expand

- PMID: 41747935

- DOI: 10.1016/j.jaip.2026.02.015

Abstract

Background: Dupilumab is approved for moderate-to-severe asthma with an eosinophilic phenotype in the United States (US) and for severe asthma with type 2 inflammation in ex-US countries. Tezepelumab is globally approved for severe asthma. However, their long-term relative efficacy is unknown.

Objective: To estimate the long-term relative efficacy of dupilumab versus tezepelumab using an unanchored matching-adjusted indirect comparison.

Methods: Individual patient data for dupilumab from TRAVERSE (N=1,368) and associated parent randomized controlled trials (RCTs) were re-weighted to match aggregate tezepelumab data from DESTINATION (N=475) and associated parent RCTs for prognostic factors and treatment effect modifiers. Outcomes included annualized exacerbation rate (AER) of all asthma exacerbations, AER of asthma exacerbations leading to hospitalization and/or emergency room (ER) visits (baseline of RCTs until the end of TRAVERSE/DESTINATION), and change from baseline (CFB) in pre-bronchodilator forced expiratory volume in 1s (pre-BD FEV_1) (baseline of RCTs to Week 100/104). Sensitivity analysis (SA) explored key characteristics from the primary analysis.

Results: Dupilumab demonstrated a significantly lower AER of all asthma exacerbations (mean difference [MD]: -0.269, 95%CI: -0.372; -0.166, p<0.0001) and a comparable AER of asthma exacerbations leading to hospitalization and/or ER visits (MD: 0.006, 95%CI: -0.016; 0.027, p=0.62) compared with tezepelumab. Dupilumab exhibited numerically greater improvement in pre-BD FEV_1 (MD: -0.064L, 95%CI: -0.132; 0.005, p=0.07), with a significantly higher CFB in SA (MD: -0.153L; 95%CI: -0.207; -0.099, p<0.0001).

Conclusion: In the matched cohort, long-term dupilumab treatment resulted in a lower AER of all asthma exacerbations relative to tezepelumab, with lung function improvements observed in SA.

Keywords: Asthma; dupilumab; exacerbations; lung functions; matching-adjusted indirect comparison; severe asthma; tezepelumab.

Cite

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Review

Eur Respir Rev

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. 2026 Feb 25;35(179):250165.

doi: 10.1183/16000617.0165-2025. Print 2026 Jan.

Physical inactivity in chronic airways disease: an important candidate in the treatable traits paradigm

Benjamin Griffiths [1], Reem Alajmi [1 2], Ian J Clifton [3 4], Rebecca J Birch [4], Daniel Peckham [3 4], Oliver J Price [5 3]

Affiliations Expand

- PMID: 41741005

- PMCID: PMC12933259

- DOI: 10.1183/16000617.0165-2025

Abstract

Background: Physical inactivity is a common and potentially modifiable trait in individuals with chronic airways disease, yet disease-specific physical activity profiles and clinical determinants remain poorly defined.

Methods: We conducted a systematic review and meta-analysis in accordance with PRISMA guidelines to characterise physical activity profiles across the spectrum of chronic airways disease. Studies reporting objectively measured physical activity in adults with COPD, asthma, noncystic fibrosis bronchiectasis, cystic fibrosis or primary ciliary dyskinesia were included. Primary outcomes were daily step count and time spent in moderate-to-vigorous physical activity (MVPA). Univariate and multivariate regression analysis was used to explore disease-specific determinants and associations with established clinical outcome measures.

Results: 236 studies (353 cohorts, n=25 278 with chronic airways disease) met the eligibility criteria. The mean daily step count was 5494 (95% CI 5152-5636) and MVPA was 48.2 min·day^{-1} (95% CI 33.8-62.6), with the lowest levels observed in COPD. Physical activity levels were consistently lower than matched healthy

controls. Disease-specific determinants of physical activity remained elusive; body mass index and percent predicted forced expiratory volume in 1 s (FEV_1) were significant in COPD and asthma. Step count associated positively with FEV_1 % pred and 6-min walk distance, and negatively with modified Medical Research Council scores.

Conclusion: Physical inactivity is highly prevalent across chronic airways diseases and is consistently associated with established clinical outcome measures. These findings highlight the clinical relevance of objective physical activity assessment and support its consideration within the treatable traits framework as part of routine disease evaluation and management.

Conflict of interest statement

Conflict of interest: The authors have no real or perceived conflict of interest in respect of this manuscript.

- **78 references**
- **6 figures**

Supplementary info

Publication typesExpand

Full text links

Cite

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Pediatr Qual Saf

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. 2026 Feb 23;11(1):e867.

doi: 10.1097/pq9.0000000000000867. eCollection 2026 Jan-Feb.

Improving Single Maintenance and Reliever Therapy for Patients Admitted for Asthma Exacerbation

Katherine A Pumphrey [1], Jessica K Hart [2], Joseph J Zorc [2 3], Michelle B Dunn [2], Colleen M Shannon [2], Levon H Utidjian [2 3], Chén C Kenyon [2 3 4]

Affiliations Expand

- PMID: 41737566
- PMCID: PMC12928965
- DOI: 10.1097/pq9.0000000000000867

Abstract

Introduction: In 2020, single maintenance and reliever therapy (SMART) became guideline-recommended care for school-age children in the United States with poorly controlled, persistent asthma. Pediatric inpatient providers are well positioned to prescribe SMART, as they often care for patients with poorly controlled asthma. Our interdisciplinary team aimed to increase the proportion of SMART prescriptions at discharge for eligible pediatric patients admitted for asthma exacerbation from 17% to 40% by September 2023, consistent across strata of payor type, race, and Child Opportunity Index (COI).

Methods: Four primary drivers of SMART prescription at discharge were identified: familiarity, prescriber culture, decision support, and logistics. Interventions targeting these drivers, including education and clinical decision support, were implemented during 10 Plan-Do-Study-Act cycles. This quality improvement project included patients who were prescribed an inhaled controller medication on admission and had 2 or more hospitalizations and/or emergency room visits for asthma exacerbation requiring systemic corticosteroids within 12 months. The outcome measure was SMART prescription at discharge, stratified by payor type, race, and COI.

Results: Between January 2021 and December 2023, 312 hospital encounters involving 215 unique patients occurred. SMART prescription at discharge increased from 17% at baseline to 38% and was sustained for 19 months. Similar increases in SMART prescriptions at discharge were observed among Black patients, those with government-sponsored health insurance, and those with very low COI.

Conclusions: Using quality improvement methodology, SMART prescriptions increased at discharge for pediatric patients admitted for asthma exacerbation, including in demographic strata where disparities are often observed.

Conflict of interest statement

Disclosure: The authors have no financial interest to declare in relation to the content of this article.

- 33 references
- 3 figures

Proceed to details

Cite

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ERJ Open Res

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. 2026 Feb 23;12(1):00699-2025.

doi: 10.1183/23120541.00699-2025. eCollection 2026 Jan.

Treatable traits in asthma associated with hospitalisations

Marina Labor [1 2], Christer Janson [3], Andreas Palm [3], Andrei Malinovschi [4], Mathias Holm [5], Linda Ekerljung [6], Sven-Erik Dahlén [7], Lars Modig [8], Össur Ingi Emilsson [3 9]

Affiliations Expand

- PMID: 41736743

- PMCID: PMC12926817

- DOI: 10.1183/23120541.00699-2025

Abstract

Background: Personalised medicine targets treatable traits with tailored therapy. Extrapulmonary traits, modifiable and related to asthma, were analysed for their association with hospitalisation rates.

Methods: We conducted an observational study of a general population cohort in Sweden, based on the Respiratory Health in Northern Europe (RHINE) and Global Allergy and Asthma European Network (GA^{2}LEN) studies. Participants completed questionnaires in 2008-2010, including respiratory symptoms, smoking habits and education level. Data were linked with national health registers to obtain information on hospitalisations with asthma.

Results: Of 31 000 participants, 2341 had current asthma. Asthma patients exhibited a higher prevalence of airway comorbidities, such as rhinitis, allergic rhinitis and chronic rhinosinusitis, which were associated with increased hospitalisation rates. Obesity, insomnia and snoring were also significant risk factors for hospitalisation. A clear trend of increasing hospitalisations was observed with a higher number of treatable traits, especially in asthma patients aged <60 years, who had significantly increased odds of hospitalisation when presenting with three or more traits (adjusted OR 1.88, 95% CI 1.03-3.42). Chronic rhinosinusitis contributed the most to hospitalisations (10.7% population attributable fraction), followed by obesity (8.6% population attributable fraction). On average, each increase in number of treatable traits was associated with a 13% increased risk of hospitalisation (HR 1.13, 95% CI

1.02-1.25, p=0.02). Smoking and damp/mould exposure had a negligible contribution to the overall burden of hospitalisations with asthma.

Conclusion: Recognising extrapulmonary traits like obesity and chronic rhinosinusitis is vital in asthma management, as they increase the risk of future hospitalisations.

Conflict of interest statement

Conflict of interest: M. Labor has received consulting fees from Pierre Fabre and MSD; honoraria for speaking engagements from MSD, AstraZeneca, Chiesi, Menarini, GSK, Novartis, Boehringer Ingelheim and Sanofi; and reimbursement for attending the ELCC 2025 symposium from MSD; all unrelated to the topic of this manuscript. Outside this work, A. Palm has received personal fees for lectures and educational activities from ResMed, unrelated to the topic of this manuscript. Ö.I. Emilsson has received honoraria for advisory boards and participating in educational activities for AstraZeneca, unrelated to the topic of this manuscript. C. Janson, A. Malinovschi, M. Holm, L. Ekerljung, S-E. Dahlén and L. Modig have nothing to declare.

- **32 references**
- **3 figures**

Proceed to details

Cite

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Editorial

ERJ Open Res

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. 2026 Feb 23;12(1):01312-2025.

doi: 10.1183/23120541.01312-2025. eCollection 2026 Jan.

Treatable traits and hospitalisations in asthma: the comorbidity conundrum

Vanessa M McDonald [1], Peter G Gibson [1]

Affiliations Expand

- **PMID: 41736742**

- PMCID: PMC12926814

- DOI: 10.1183/23120541.01312-2025

Abstract

Comorbid treatable traits increase the risk of hospitalisation in asthma and can be targeted by treatment https://bit.ly/3X7Wiaq.

Conflict of interest statement

Conflict of interest: V.M. McDonald reports personal fees from AstraZeneca, GlaxoSmithKline, Menarini and Boehringer Ingelheim, and other grants from AstraZeneca and GlaxoSmithKline, that are unrelated to this work; and is an associate editor of this journal. P.G. Gibson reports personal fees from AstraZeneca, GlaxoSmithKline and Sanofi, and other grants from GlaxoSmithKline, that are unrelated to this work.

- 17 references

Supplementary info

Publication typesExpand

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10

ERJ Open Res

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. 2026 Feb 23;12(1):00183-2025.

doi: 10.1183/23120541.00183-2025. eCollection 2026 Jan.

FRONTIER-3: a randomised phase 2a study to investigate tozorakimab, an anti-interleukin-33 monoclonal antibody, in early-onset asthma

Jonathan Corren [1], Fred Reid [2], Rachel Moate [3], Eulalia Jimenez [4], Muhammad Waqas Sadiq [5], Adam Williams [6], Mateusz Rytelewski [7], Sophia Cameron-Christie [8], Daniel Muthas [9], Benjamin Georgi [9], Dennis Brooks [10], Eva Lindqvist [11], Chris Kell [2], Adam Platt [12], Maria G Belvisi [13 14], Hitesh Pandya [2]

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- PMID: 41736737

- PMCID: PMC12926823

- DOI: 10.1183/23120541.00183-2025

Abstract

Background: Interleukin (IL)-33 is implicated in the initiation and progression of asthma. FRONTIER-3 (NCT04570657) was a phase 2a study to investigate tozorakimab, an anti-IL-33 monoclonal antibody, in adults with moderate-to-severe early-onset asthma receiving standard of care.

Methods: Patients were randomised 1:1:1 to tozorakimab 600 mg, tozorakimab 300 mg or placebo, once every 4 weeks subcutaneously. The primary end-point was change from baseline to week 16 in pre-bronchodilator (pre-BD) forced expiratory volume in 1 s (FEV_1) measured in clinic. Secondary and exploratory end-points included home pre-BD FEV_1, home peak expiratory flow (PEF), rescue medication use, CompEx, pharmacokinetics, immunogenicity and safety.

Results: The intent-to-treat (ITT) population included 235 patients with a median disease duration of >30 years; a majority had a baseline blood eosinophil count (BEC) <300 cells·μL^{-1}. At week 16, tozorakimab did not show a statistically significant improvement in change from baseline in clinic pre-BD FEV_1 *versus* placebo (least-squares mean difference (LSMD) (80% CI), 600 mg: 4 mL (-71-79), p=0.473; 300 mg: 36 mL (-38-111), p=0.267). Compared with the ITT population, a pre-specified subgroup of patients with ≥2 prior exacerbations showed greater improvements in clinic pre-BD FEV_1 at week 16 with tozorakimab *versus* placebo (LSMD (80% CI), 600 mg: 212 mL (102-322), p=0.007; 300 mg: 77 mL (-34-187), p=0.186). Tozorakimab also showed greater improvements in home FEV_1 and home PEF *versus* placebo at week 16 in patients with ≥2 prior exacerbations than in the ITT population. Tozorakimab was well tolerated.

Conclusions: Although FRONTIER-3 did not meet the primary study end-point, tozorakimab treatment showed encouraging efficacy signals in patients with early-onset asthma and a history of exacerbations.

Conflict of interest statement

Conflict of interest: F. Reid, R. Moate, E. Jimenez, M.W. Sadiq, M. Rytelewski, S. Cameron-Christie, D. Muthas, B. Georgi, D. Brooks, E. Lindqvist, C. Kell, A. Platt, M.G. Belvisi and H. Pandya are employees of AstraZeneca and may hold stock or stock options. A. Williams is a former employee of AstraZeneca and may hold stock or stock options. J. Corren has received grants and personal fees from AstraZeneca, Genentech and Vectura, and has received grants from Optinose, Sanofi and Teva Pharmaceuticals.

- 28 references
- 3 figures

Cite

11

Editorial

ERJ Open Res

. 2026 Feb 23;12(1):01202-2025.

doi: 10.1183/23120541.01202-2025. eCollection 2026 Jan.

IL-33 blockade in asthma: a story of hype, hope and hindsight

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Affiliations Expand

- PMID: 41736734
- PMCID: PMC12926830
- DOI: 10.1183/23120541.01202-2025

Abstract

Despite negative phase 2 trials including the FRONTIER-3 study in asthma, tozorakimab and other IL-33 targeting strategies have strong potential in asthma and beyond https://bit.ly/3JnWak2.

Conflict of interest statement

Conflicts of interest: S.N. Georas reports support for the present study from NIH/NIAID and NIH/NHLBI, consultancy fees from AstraZeneca, ARS Pharma and Chiesi USA Inc., support for attending meetings from EEACI, participation on a data safety monitoring board or advisory board with COPDGene and AstraZeneca and a leadership role with the PrecISE Asthma Network. A. Bourdin reports grants from AstraZeneca, Boehringer Ingelheim and GSK, consultancy fees from AstraZeneca, GSK, Sanofi, Chiesi, Celltrion, Boehringer Ingelheim and Novartis, payment or honoraria for lectures, presentations, manuscript writing or educational events from Sanofi Regeneron, AstraZeneca, GSK, Novartis and Boehringer Ingelheim, support

for attending meetings from AstraZeneca and Sanofi and participation on a data safety monitoring board or advisory board with AB Science.

- 33 references
- 1 figure

Supplementary info

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12

ERJ Open Res

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. 2026 Feb 23;12(1):00486-2025.

doi: 10.1183/23120541.00486-2025. eCollection 2026 Jan.

Clinical relevance of CompEx Asthma and impact on disease trajectory: benralizumab effect

Clare Bolton [1], Praveen Akuthota [2], Njira Lugogo [3], Peter Barker [4], Thomas Bengtsson [5], Stefan Peterson [5], Salman Siddiqui [6], Carla A Da Silva [7 8]

Affiliations Expand

- PMID: 41736726
- PMCID: PMC12926827
- DOI: 10.1183/23120541.00486-2025

Abstract

Background: Severe exacerbations (SevEx), the typical endpoint when evaluating asthma therapies, may provide incomplete assessment, as it relies on patient perception of disease and physician action. CompEx, a composite outcome that includes SevEx and acute worsening events (AWEs) (evaluated from e-diary entries using deterioration in peak expiratory flow (PEF), reliever medication use and worsening asthma symptoms), should provide more objective assessment. The correlation of CompEx event subtypes - SevEx only, AWE only or mixed SevEx/AWE - with disease trajectory and effect of benralizumab in the SIROCCO and CALIMA trials were evaluated.

Methods: This was a *post hoc* analysis of patients (aged ≥12 years) with severe, uncontrolled asthma treated with benralizumab 30 mg or placebo every 8 weeks. PEF, symptoms and reliever medication use around CompEx event subtype occurrence, forced expiratory volume in 1 s (FEV_1) trajectories and patient-reported outcomes were evaluated.

Results: 953 patients were included (benralizumab, n=465; placebo, n=488). Greater increases in asthma symptoms and reliever medication use, declines in PEF and slower return to baseline were seen around AWE and mixed SevEx/AWE than SevEx, according to treatment utilisation. Overall, patients without a CompEx event had the best FEV_1 trajectory and patient-reported outcomes, compared with those with any CompEx event. Benralizumab reduced SevEx risk in patients experiencing SevEx only or mixed SevEx/AWEs; no effect was seen in patients with AWE only.

Conclusions: CompEx includes SevEx and AWEs, both of which are clinically relevant events, providing a more comprehensive assessment of asthma worsening than SevEx alone. AWEs are particularly important contributors to poor asthma outcomes and should not be ignored when evaluating treatments.

Conflict of interest statement

Conflict of interest: S. Siddiqui has received funding for research from AstraZeneca and GSK and served on advisory boards/received advisory fees from GSK, AstraZeneca, Roche, Areteia Therapeutics, Owlstone Medical and Chiesi; he has received compensation for the development of continuing medical education (CME) from Medscape and serves on the ERS Science Council. N. Lugogo has received research funding from Sanofi, GSK, Genentech, Teva, Regeneron and AstraZeneca; has received consulting fees from AstraZeneca, GSK and Teva; has served on advisory boards for Sanofi, AstraZeneca, Genentech, Teva, Amgen and GSK; was a Spanish speaker at a national conference on allergy that was sponsored by AstraZeneca; and has received compensation for the development of CME content for IKH and Medscape. P. Akuthota has received consultancy fees and research support from AstraZeneca, GSK, Sanofi, Amgen and Connect Biopharma; has received research support from the American Partnership for Eosinophilic Disorders, the National Institutes of Health and Regeneron Pharmaceuticals; and has received royalties from UpToDate. C. Bolton, P. Barker and C.A. Da Silva are employees of, and own stock in, AstraZeneca. T. Bengtsson and S. Peterson are employees of StatMind, which received funding from AstraZeneca to complete the statistical analyses.

- **17 references**
- **7 figures**

Proceed to details

Cite

13

Pediatr Infect Dis J

. 2026 Feb 25.

doi: 10.1097/INF.0000000000005193. Online ahead of print.

Association Between Hospitalization for Respiratory Syncytial Virus Infection in Early Life and Risk of Childhood Asthma: A Retrospective Cohort Study

Kaiyue Shen [1 2], Qinghui Chen [3], Liling Chen [4], Jianmei Tian [3], Genming Zhao [1 2], Xuejun Shao [3], Tao Zhang [1 2 5]

Affiliations Expand

- PMID: 41736202

- DOI: 10.1097/INF.0000000000005193

Abstract

Background: Respiratory syncytial virus (RSV) is a leading cause of acute lower respiratory tract infection (ALRI) in early life, and severe infection may increase the risk of childhood asthma. The effect of age at RSV hospitalization is not well understood. We aimed to assess the association between RSV hospitalization before age 2 and subsequent childhood asthma, and how this association was affected by age at severe infection.

Methods: We conducted a population-based retrospective cohort study of children born in 2017-2018 in Suzhou, China. Participants were classified into 3 groups based on hospitalization for ALRI and RSV testing before age 2: RSV-positive hospitalization, RSV-negative hospitalization and population controls without hospitalization. The incidence of asthma and recurrent wheeze before age 6 was compared across groups. Poisson regression with robust variance estimation was used to estimate adjusted risk ratios, and stratified analyses assessed the effect of age at severe RSV infection.

Results: We observed children with RSV-positive ALRI hospitalization before age 2 had approximately a 2-fold higher risk of asthma and a 2.6-fold higher risk of recurrent wheeze than matched controls, but the associations waned and were no longer significant after 4 years. The highest risk of asthma occurred in children hospitalized between 12 and <24 months, while the greatest risk of recurrent wheeze was observed between 6 and <12 months.

Conclusions: Hospitalization for RSV-ALRI in the first 2 years, especially between 12 and <24 months, was associated with an increased risk of childhood asthma, providing new evidence for RSV prevention strategies.

Keywords: age at respiratory syncytial virus infection; asthma; recurrent wheeze; respiratory syncytial virus hospitalization; severe respiratory syncytial virus infection.

Conflict of interest statement

The authors have no conflicts of interest to disclose.

- **31 references**

Full text links

Proceed to details

Cite

14

Review

J Paediatr Child Health

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. 2026 Feb 24.

doi: 10.1111/jpc.70329. Online ahead of print.

Risk Factors for Recurrent Respiratory Tract Infections in Preschool Children: A Meta-Analysis

Xiaohong Lu [1], Jianying Xu [1], Xinjia Gu [1], Peifen Shao [1]

Affiliations Expand

- **PMID: 41735803**

- **DOI: 10.1111/jpc.70329**

Abstract

Objective: This study aims to systematically retrieve observational studies on risk factors for recurrent respiratory tract infection (RRTI) in preschool children globally and perform a meta-analysis to comprehensively evaluate the effect sizes of major risk factors.

Methods: This study systematically searched databases including PubMed, Embase, Wiley Library, China National Knowledge Infrastructure (CNKI), Wanfang and VIP Chinese Journals Database (VIP) for relevant literature from inception to September 2025. The subjects included were preschool children, the outcome was the diagnosis or occurrence of RRTI and the study types were limited to

observational studies. Evaluated indicators included household economic status, maternal age at childbirth, duration of breastfeeding (< 6 months), frequent snack intake (> 7 times/week), passive smoking, asthma and vitamin A deficiency.

Results: A total of 12 studies involving 170 915 children were included. Meta-analysis showed that asthma (OR = 3.26, 95% CI: 1.85-5.7), passive smoking (OR = 1.50, 95% CI: 1.20-1.87) and frequent snack intake (OR = 1.61, 95% CI: 1.35-1.92) were significant risk factors for RRTI in preschool children. Higher maternal age at childbirth (OR = 0.941, 95% CI: 0.913-0.97) showed a protective association. However, no statistically significant associations were found for household economic status (OR = 0.95, 95% CI: 0.82-1.10), breastfeeding for less than 6 months (OR = 1.24, 95% CI: 0.96-1.61) or vitamin A deficiency (OR = 1.42, 95% CI: 0.85-2.36). Sensitivity analyses indicated robust results for the main findings but publication bias could not be assessed due to the limited number of studies included in each meta-analysis.

Conclusion: The occurrence of RRTI in preschool children is influenced by multiple factors. This study confirms that asthma, passive smoking and an unhealthy diet (frequent snack intake) are established risk factors, whilst older maternal age may be protective. For household economic status, breastfeeding duration and vitamin A levels, the current pooled evidence did not establish statistically significant associations with RRTI. Prevention strategies could therefore prioritise asthma management, avoidance of tobacco smoke and promotion of healthy eating to reduce the risk of RRTI.

Keywords: meta-analysis; preschool children; recurrent respiratory tract infection; risk factors.

- 24 references

Supplementary info

Publication typesExpand

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15

Curr Opin Pulm Med

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. 2026 Feb 24.

doi: 10.1097/MCP.0000000000001255. Online ahead of print.

From guidelines to algorithms: the future of AI-augmented asthma care

Rachel Culver [1], Anissa Johnson [1], Laren Tan [1 2]

Affiliations Expand

- PMID: 41733145

- DOI: 10.1097/MCP.0000000000001255

Abstract

Purpose of review: Artificial intelligence (AI) has emerged as an increasingly accessible and influential resource within both public and clinical domains. The role of AI in asthma care is expanding; therefore, it must be discussed in the context of evolving management strategies for both clinician and patient.

Recent findings: Recent literature demonstrates that AI can integrate evidence-based guidelines with large-scale clinical data to support diagnostic interpretation and therapeutic decision-making in asthma care. Studies have shown that AI platforms can accurately assess asthma symptoms, monitor disease progression, and generate recommendations aimed at reducing exacerbations across diverse clinical scenarios. AI has also demonstrated utility in patient education and self-management support, with variable performance depending on the complexity of clinical inputs and the level of personalization required.

Summary: The integration of AI into asthma care offers meaningful opportunities to enhance patient engagement, improve consistency in guideline-based management, and facilitate timely escalation of therapy. For clinicians, AI may serve as a supportive decision-making tool, while for patients, it may provide guidance when healthcare access is limited. Although further validation and oversight are necessary, the increasing use of AI in asthma management has the potential to enhance overall disease control and clinical outcomes.

Keywords: artificial intelligence; asthma algorithms; asthma management; clinical decision support.

- 29 references

Full text links

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Cite

16

Curr Opin Pulm Med

. 2026 Feb 24.

doi: 10.1097/MCP.0000000000001260. Online ahead of print.

As-needed inhaled corticosteroids in asthma: from evidence to implementation

Eric Merrell [1 2], Sandhya Khurana [1 2]

Affiliations Expand

- PMID: 41733139

- DOI: 10.1097/MCP.0000000000001260

Abstract

Purpose of review: This review aims to clarify the role of as-needed ICS through the severity spectrum of adult asthma and explores the challenges associated with implementation. This review is timely following the recent US Food and Drug Administration (FDA) approval of an ICS/SABA combination inhaler.

Recent findings: In 2019, the Global Initiative for Asthma (GINA) recommended against the use of short-acting beta agonist (SABA) monotherapy and officially endorsed the use of as-needed inhaled corticosteroid with a fast-acting bronchodilator [anti-inflammatory reliever (AIR)] as the preferred strategy across all treatment steps. In 2020, the US NHLBI asthma guidelines recommended ICS+SABA at step 2, and ICS/formoterol to be used as maintenance and reliever therapy (MART) at treatment steps 3 and 4. Despite these strong recommendations, uptake of this strategy in the United States has been slow. Barriers to MART implementation are explained, and implementation strategies are reviewed.

Summary: Transition to a single ICS/formoterol inhaler as MART from traditional multiinhaler regimens offers the opportunity for multidomain benefits. The role of novel ICS/SABA combination inhalers remains to be determined across the continuum of asthma.

Keywords: anti-inflammatory reliever; asthma; maintenance and reliever therapy.

- 43 references

Full text links

Wolters Kluwer FULL TEXT

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17

Curr Opin Pulm Med

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. 2026 Feb 24.

doi: 10.1097/MCP.0000000000001258. Online ahead of print.

Emerging biologic targets in type 2 and non-type 2 asthma

Andrea E Davis [1 2], Sarah Rhoads [2], Michael E Wechsler [2]

Affiliations Expand

- PMID: 41733134

- DOI: 10.1097/MCP.0000000000001258

Abstract

Purpose of review: Severe asthma continues to be a significant cause of global morbidity and mortality despite the dramatic change in landscape of asthma management dramatically over the last two decades, However, there are a variety of novel therapeutic agents under investigation whose goals are to enable patients with severe asthma to achieve remission.

Recent findings: New strategies in drug development include an ultra-long-acting mechanism with reduced administration frequency, biologics used in combinations, oral therapies and novel therapeutic targets. These targets include bruton tyrosine kinase, OX-40 ligand, janus kinase, CC-chemokine receptor4 (CCR4), and GATA-3, among others reviewed here.

Summary: Many patients have benefited tremendously from the currently available asthma biologics in achieving better symptoms control, improved quality of life, and reduced cumulative dose of systemic steroids. Despite this, most patients are unable to achieve remission, potentially related to shortcomings of these therapies in addressing asthma's heterogeneous pathophysiology. As such, a variety of novel therapeutic mechanisms and targets are being investigated and are discussed in this review.

Keywords: asthma; biologic; remission.

- 65 references

Full text links

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Cite

18

Allergy Asthma Clin Immunol

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. 2026 Feb 24.

doi: 10.1186/s13223-026-01018-0. Online ahead of print.

Estimation of short-course systemic corticosteroid risks on adverse outcomes in childhood asthma

Brian R Earl [1 2 3], Ewa Sucha [2], Richard Webster [2], Alexandra Ahmet [1 2 3], Dhenuka Radhakrishnan [4 5 6]

Affiliations Expand

- PMID: 41731556

- DOI: 10.1186/s13223-026-01018-0

Free article

No abstract available

Keywords: Adverse outcomes; Asthma exacerbations; Corticosteroids; Emergency department; Pediatrics; Steroid bursts.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study was approved by the Children's Hospital of Eastern Ontario Research Ethics Board (CHEOREB# 22/02X). Data availability: The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request. Competing interests: The authors declare that they have no competing interests.

- 41 references

Full text links

Proceed to details

Cite

19

NPJ Prim Care Respir Med

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. 2026 Feb 24.

doi: 10.1038/s41533-026-00487-5. Online ahead of print.

The rise of artificial intelligence in respiratory primary care and pulmonology: a scoping review

Joan B Soriano [1 2 3], Sara Lumbreras [4]

Affiliations Expand

- PMID: 41730897

- DOI: 10.1038/s41533-026-00487-5

Free article

Abstract

Artificial intelligence (AI) is rapidly advancing respiratory disease management, from diagnosis to population lung health. This scoping review synthesizes the most promising uses of AI in respiratory medicine, with a particular focus on pulmonologists and family physicians interested in lung health. In diagnostics, deep-learning systems streamline chest-imaging workflows by triaging radiographs, detecting COVID-19 pneumonia, and classifying lung nodules on CT. In pulmonary function testing, algorithms detect technical errors and classify spirometric patterns, some claiming to outperforming pulmonologists. Acoustic analysis of cough, breathing, and speech captured on smartphones or wearables offers non-invasive decision support. For monitoring and prediction, AI helps shorten weaning from mechanical ventilation and guides closed-loop strategies for acute respiratory distress. In chronic care, connected devices integrated with environmental data help to forecast asthma and COPD exacerbations, while telehealth and predictive models enable earlier, more personalized interventions. Additional gains are emerging in paediatrics, sleep medicine, lung ultrasounds, and public health. Realizing these benefits will require rigorous multicentre validation and real-world evidence. It will also require proactive bias detection and mitigation with inclusive sampling and equity audits. High-quality, interoperable data and explainable models are needed to enable human oversight. Practical issues such as digital literacy, device access, and usability for children, older adults, and other vulnerable populations also matter for applications requiring patient interaction. With

sustained collaboration among clinicians, engineers, AI experts, industry, regulators, and scientific societies, AI can increase the time invested in a satisfactory clinician-patient relationship. With all likelihood, AI can also measurably improve efficiency and accuracy across multiple domains of respiratory care.

Conflict of interest statement

Competing interests: The authors declare no competing interests.

- 53 references

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nature portfolio

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Cite

20

Randomized Controlled Trial

BMJ Open Respir Res

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. 2026 Feb 23;13(1):e003657.

doi: 10.1136/bmjresp-2025-003657.

Impact of breathing frequency on respiratory oscillometry measurements: a randomised cross-over and observational study of asthma patients

Ben Knox-Brown [1 2], Olga Carozzo [3], Karl P Sylvester [3 2]

Affiliations Expand

- PMID: 41730585
- PMCID: PMC12931548
- DOI: 10.1136/bmjresp-2025-003657

Abstract

Introduction: The impact of breathing frequency on respiratory oscillometry measurements is unknown. We aimed to investigate the impact of different breathing frequencies in patients with asthma.

Method: We recruited patients from the severe asthma clinic at Cambridge University Hospitals. Using a randomised-crossover design, participants performed the forced oscillation technique at three different breathing frequencies (15, 30, 40 bpm) in a randomised order for each participant. A metronome was used to ensure the correct breathing frequency. Analysis of variance (ANOVA) and Friedman tests were utilised to assess the significance of any differences across the breathing frequencies. We then leveraged cross-sectional data from asthma patients who performed respiratory oscillometry and investigated the determinants of self-selected breathing frequency using multivariable linear regression.

Results: We recruited 59 patients. Mean age 54.1 years, 58% female, median forced expiratory volume in 1 s (FEV_1)/FVC z-score -2.56 (-3.26 to -1.96). As breathing frequency increased from 15 bpm to 40 bpm, there was a significant reduction (-8.6%, $p<0.001$) in total airway resistance (Rrs at 5 Hz), which was not mediated by changes in tidal volume or flow rate. There was also a significant reduction (-14.9%, $p<0.001$) in Delta R5-R19, and an increase (+10.9%, $p=0.081$) in reactance (Xrs at 5 Hz). At higher breathing frequencies, 5% of study participants were reclassified as having respiratory oscillometry measurements within normal limits. Data from 796 asthma patients were extracted for the cross-sectional analysis. The median (range) self-selected breathing frequency was 16.55 bpm (8.0, 42.0). Demographic data and lung function explained 23.5% of the variation in breathing frequency.

Conclusion: Higher breathing frequencies significantly reduce total Rrs . When performing respiratory oscillometry, breathing frequency should be controlled at approximately 15 bpm to reduce risk of misclassification.

Keywords: Asthma; Lung Physiology; Respiratory Function Test.

Conflict of interest statement

Competing interests: KPS receives consultation fees from ndd Medical Technologies. All other authors report no conflicts of interest.

- 30 references
- 4 figures

Supplementary info

Publication types, MeSH termsExpand

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BMJ Free Full Text

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Cite

21

Review

Metabol Open

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. 2026 Feb 9:29:100449.

doi: 10.1016/j.metop.2026.100449. eCollection 2026 Mar.

GLP-1 receptor agonists and obstructive lung disease: Beyond metabolic control to respiratory outcomes

Vasiliki Epameinondas Georgakopoulou [1], Maria Dalamaga [2]

Affiliations Expand

- PMID: 41717504
- PMCID: PMC12914190
- DOI: 10.1016/j.metop.2026.100449

Abstract

Chronic obstructive pulmonary disease (COPD) and asthma are increasingly recognized as systemic conditions shaped by metabolic comorbidities, particularly obesity and type 2 diabetes mellitus (T2DM). Beyond traditional airway-directed therapies, increasing attention has turned to whether metabolic interventions may influence respiratory outcomes. In this context, glucagon-like peptide-1 receptor agonists (GLP-1RAs), widely used for the treatment of T2DM and obesity, have emerged as unexpected candidates with potential relevance for obstructive lung disease control. The aim of this review is to synthesize emerging clinical, real-world, and mechanistic evidence linking GLP-1RA therapy to respiratory outcomes in COPD and asthma. Accumulating real-world evidence from population-based cohorts, comparative effectiveness studies, and recent meta-analyses consistently associates GLP-1RA use with reduced rates of moderate and severe exacerbations in patients with COPD or asthma and comorbid T2DM, particularly when compared with sulfonylureas and dipeptidyl peptidase-4 inhibitors. Notably, these associations appear most pronounced among patients with obesity, frequent exacerbations, or high healthcare utilization. In contrast, randomized cardiovascular outcome trials of GLP-1RAs have generally shown neutral effects on respiratory endpoints, a finding that likely reflects the absence of prespecified pulmonary outcomes and limited event capture rather than a true absence of biological effect.

Importantly, recent proof-of-principle disease-focused randomized trials in obesity-related COPD have begun to report respiratory-specific benefits, complementing large real-world and nationwide observational data. From a mechanistic perspective, the observed respiratory signal may reflect a combination of indirect metabolic effects, such as weight loss, improved glycemic control, and reduced systemic inflammation, together with direct airway and immune-modulatory actions mediated by GLP-1R expression in airway smooth muscle and immune cells. Importantly, recent proof-of-principle and disease-focused randomized trials in obesity-related asthma and COPD are now specifically designed to interrogate these pathways and address limitations inherent to observational data. Although the current evidence base remains largely observational and subject to residual confounding, its consistency across diverse settings supports that GLP-1RAs may act as systemic metabolic modulators with potential respiratory relevance. Prospective RCTs with prespecified respiratory endpoints will be important to establish causality and define the role of GLP-1RAs beyond metabolic control, toward clinically meaningful respiratory outcomes in obstructive lung disease.

Keywords: Asthma; Chronic obstructive pulmonary disease; GLP-1; Glucagon-like peptide-1 receptor agonists; Metabolic inflammation; Obesity; Respiratory outcomes; Type 2 diabetes mellitus.

Conflict of interest statement

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Given her role as co-Editor-in-chief, Prof Maria Dalamaga had no involvement in the peer review of this article and had no access to information regarding its peer review. Full responsibility for the editorial process for this article was delegated to another journal editor. All authors have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

- 35 references
- 1 figure

Supplementary info

Publication typesExpand

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22

Review

Immunol Rev

. 2026 Mar;338(1):e70102.

doi: 10.1111/imr.70102.

Sex Differences in Lung Immunity

Franz Puttur [1], Clare M Lloyd [1]

Affiliations Expand

- PMID: 41693197
- PMCID: PMC12907607
- DOI: 10.1111/imr.70102

Abstract

Biological sex has a significant impact on how the immune system develops and responds to foreign and self-antigens. Sex differences exist in innate and adaptive immune cells, both at homeostasis and in the context of infection and inflammatory diseases such as asthma, cancer, and autoimmune disorders. Women generate stronger immune responses and are more susceptible to developing autoimmune conditions, while males are more prone to acute viral infections and developing certain cancers. Some immunological differences persist throughout life, while others emerge only after puberty and before reproductive senescence. Additionally, environmental exposures can affect the influence of biological sex in regulating immune function. This is particularly pertinent at mucosal surfaces such as the lungs, where lung immune defenses are constantly exposed to foreign material during respiration. Consequently, environmental factors together with genetics, age and sex hormones play a vital role in governing lung tissue immune responses between the sexes. In this context, we highlight studies that support the need for considering sex as an important biological variable in lung immunological research. This knowledge will provide a benchmark for understanding sex-driven immunological mechanisms that underpin disease development and may inform new avenues targeted for generating sex-specific therapies in lung disease.

Keywords: aging; allergy; biological sex; inflammation; lung; processes; sex hormones; tissues.

Conflict of interest statement

The authors declare no conflicts of interest.

- **174 references**
- **3 figures**

Supplementary info

Publication types, MeSH terms, Substances, Grants and fundingExpand

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23

Klin Padiatr

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. 2026 Mar;238(2):110-112.

doi: 10.1055/a-2787-2111. Epub 2026 Feb 10.

Near-Fatal Asthma Due to Severe Airway Mucus Plugging in a 12-Year-Old Boy

Wanda Naumann [1 2 3], Dominik Leitz [1 2 3 4], Mirjam Völler [1 2 3 4], Vladimir Skrypnikov [5], Martin Ruß [5], Björn Weiß [5], Viktoria Martiny [1 2 3], Stefanie Hort [1 2 3], Anke Wendt [1 2 3], Susanne Lau [1 2 3], Alexander Gratopp [1 2 3], Marcus Alexander Mall [1 2 3]

Affiliations Expand

- **PMID: 41667078**

- **DOI: 10.1055/a-2787-2111**

No abstract available

Conflict of interest statement

Dr. D. Leitz und Dr. M. Völler are participants in the BIH Charité Clinician Scientist Program funded by the Deutsches Zentrum für Kinder- und Jugendgesundheit (DZKJ). The remaining authors declare that they have no conflict of interest.

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24

Respir Med

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. 2026 Mar:253:108672.

doi: 10.1016/j.rmed.2026.108672. Epub 2026 Jan 30.

Profiles of circulating T follicular helper (cTfh) cell subpopulations in patients with asthma, COPD and asthma-COPD overlap (ACO)

Vanesa Cunill [1], Valero Andreu [2], Amanda Iglesias [3], María Berman [2], Núria Toledo-Pons [4], Elisabet Pol-Pol [5], Mireia Vicens [6], Miguel A Estévez [5], Jaume Sauleda [7], Javier Verdú [4], Joana M Ferrer [8], Borja G Cosío [7], Jaime Pons [9]

Affiliations Expand

- PMID: 41621491

- DOI: 10.1016/j.rmed.2026.108672

Abstract

Background: Asthma, chronic obstructive pulmonary disease (COPD) and asthma-COPD Overlap (ACO) are inflammatory diseases characterized by specific T helper (Th) phenotypes. CD4 T follicular helper (Tfh) cells constitute a heterogeneous subset of T cells (Tfh1, Tfh2, Tfh17, Tfh17.1 and Tfr) essential for B cell differentiation and immunoglobulin production. Although alterations in their distribution and/or function have been associated with several pathologies, little is known about their relevance in these airway diseases.

Methods: We sought to evaluate, by flow cytometry, the pattern of blood follicular and non-follicular Th cell subpopulations in patients with asthma, COPD and ACO.

Results: We found a distinct and characteristic T cell pattern in these three inflammatory conditions: a predominance of cTfh2 in asthma patients, a Th17.1 and cTfh17.1 inflammatory profile in COPD patients, and a Th1 pattern in ACO patients. Regarding tobacco smoke, COPD patients who were active smokers had a higher ratio Th1/Th17 compared to ex-smokers with COPD, a trend not observed in ACO patients.

Conclusions: These results suggest that the assessment of the characteristic inflammatory profile for each of these pathologies could help to understand the pathobiology and to identify the most appropriate therapeutic target.

Keywords: ACO; Asthma; COPD; Circulating T follicular helper (cTfh); T helper (Th).

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: Jaime Pons reports financial support was provided by Spanish Society of Pneumology and Thorax Surgery. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Randomized Controlled Trial

Obstet Gynecol

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. 2026 Mar 1;147(3):383-393.

doi: 10.1097/AOG.0000000000006162. Epub 2026 Jan 22.

Childhood Pulmonary Outcomes After Late Preterm Antenatal Corticosteroids

Cynthia Gyamfi-Bannerman[1], Rebecca G Clifton, Robert A Wise, Alan T N Tita, Jessica A de Voest, Sharon A McGrath-Morrow, Elizabeth C Matsui, Sean C Blackwell, Monica Longo, Sabine Z Bousleiman, Felecia Ortiz, Sankaran Krishnan, Dwight J Rouse, Torri D Metz, George R Saade, Maged M Costantine, Kent D Heyborne, John M Thorp Jr, Kelly S Gibson, Geeta K Swamy, William A Grobman, Yasser Y El-Sayed, George A Macones; Eunice Kennedy Shriver National Institute of Child Health and Human Development Maternal-Fetal Medicine Units Network and the National Heart, Lung, and Blood Institute

Affiliations Expand

- **PMID: 41570323**

- **DOI: 10.1097/AOG.0000000000006162**

Abstract

Objective: To evaluate whether antenatal betamethasone affects childhood respiratory impairment.

Methods: This was a prospective follow-up study of children aged 6 years and older from parents in the ALPS (Antenatal Late Preterm Steroids) trial randomized to betamethasone or placebo from 34 0/7 to 36 6/7 weeks of gestation. Primary outcome composite included the following: 1) abnormal spirometry, forced expiratory volume in 1 second (FEV 1) below the lower limit of normal, FEV 1 /forced vital capacity (FVC) below the lower limit of normal, or FVC below the lower limit of normal, defined as below the 5th percentile by the Global Lung Initiative; 2) physician-diagnosed asthma and daily asthma medication; or 3) daily asthma medication use in the past year. Children whose parents were enrolled in a concurrent trial were recruited to provide a term reference cohort for lung function. Adjusted analyses were performed controlling for confounders.

Results: Of 2,831 ALPS children, 1,218 enrolled, and 1,194 (98.0%) completed spirometry. There were no differences in the primary outcome (35.3% betamethasone, 35.8% placebo; adjusted relative risk [RR] 1.02, 95% CI, 0.87-1.18) or its individual components, although ever-noting wheezing or whistling in the chest was less common (40.7% betamethasone, 45.5% placebo, adjusted RR 0.88, 95% CI, 0.77-0.996). Compared with 432 children from the term reference cohort, ALPS children had more wheezing with exercise in the past year (7.2% betamethasone vs 4.4% term control group, adjusted RR 1.77, 95% CI, 1.03-3.06; 8.8% placebo vs term control group, adjusted RR 2.09, 95% CI, 1.25-3.48).

Conclusion: Among children aged 6 years or older, late preterm antenatal exposure to betamethasone was associated with lower rates of wheezing or whistling in the chest but no differences in other respiratory outcomes.

Conflict of interest statement

Financial Disclosure The authors did not report any potential conflicts of interest.

- **18 references**

Supplementary info

Publication types, MeSH terms, Substances, Grants and fundingExpand

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26

J Allergy Clin Immunol Glob

. 2025 Dec 17;5(2):100627.

doi: 10.1016/j.jacig.2025.100627. eCollection 2026 Mar.

Untangling obese asthma: Design of proof-of-concept study of semaglutide in poorly controlled asthma

Alessandra Tomasello [1], Leonard B Bacharier [2], Patrice M Becker [3], Caeden Dempsey [3], Pingsheng Wu [1], R Stokes Peebles [1], Kevin Niswender [4], William D Dupont [5], Gordon Bernard [1], Katherine N Cahill [1]

Affiliations Expand

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- PMCID: PMC12816845
- DOI: 10.1016/j.jacig.2025.100627

Abstract

Background: The intersection of obesity and asthma represents a complex clinical challenge characterized by increased symptom burden, reduced treatment efficacy, and multifactorial pathophysiology. Obesity-associated asthma is a heterogeneous condition shaped by underlying metabolic dysfunctions such as insulin resistance and altered inflammatory processes.

Objectives: Current research often oversimplifies the relationship between obesity and asthma by relying primarily on body mass index as a measure, thereby overlooking key metabolic factors that may influence disease severity and treatment response. There is a critical need for clinical trials that account for this metabolic complexity, so we designed a proof-of-concept study with this in mind.

Methods: Using the GLP-1R Agonists in the Treatment of Adult, Symptomatic, Obese Asthma (GATA-3) trial (ClinicalTrials.gov NCT05254314) as a conceptual framework, we propose an evolved model for future asthma research. While not a direct report of GATA-3 findings, it emphasizes the integration of comprehensive metabolic profiling-including insulin sensitivity and body composition-alongside traditional inflammatory and respiratory metrics in randomized controlled asthma trials.

Results: The GATA-3 study design serves as an example of the first placebo-controlled trial to evaluate the glucagon-like peptide 1 receptor pathway's role in asthma management independent of weight loss. The trial underscores essential design elements such as accurate asthma diagnosis, recognition of endotype heterogeneity, and implementation of outcome measures tailored to this phenotype.

Conclusion: Advancing our understanding of obesity-associated asthma requires moving beyond body mass index-focused models to fully consider the metabolic complexity of the disease. Integrating detailed metabolic assessments into research and clinical practice will be vital for identifying responsive subpopulations, optimizing treatment strategies, and ultimately improving patient outcomes.

Keywords: Asthma; adiposity; metabolic endotype; obesity; randomized-clinical trial.

Conflict of interest statement

Supported by the National Institutes of Health (NIH; grants U01 AI155299 and UL1 TR000445). P.M.B.'s and C.D.'s coauthorship of this report does not necessarily represent the views of the National Institute of Allergy and Infectious Diseases, the NIH, or any other agency of the United States government. Disclosure of potential conflict of interest: K. N. Cahill served on scientific advisory boards for AstraZeneca, Sanofi, Genentech, Regeneron, Novartis, GSK, and Eli Lilly; served as a consultant for Ribon Therapeutics, Third Harmonic Bio, Ramble Health, Apogee, and Verantos; reports royalties from UpToDate; and reports research support from Novo Nordisk. L. B. Bacharier is a member of the GINA Science Committee; reports grants from the NIH, National Institute of Allergy and Infectious Diseases, and National Heart, Lung, and Blood Institute; reports personal fees from GlaxoSmithKline, Genentech/Novartis, AstraZeneca, Avillion, WebMD/Medscape, Sanofi/Regeneron, Circassia, OM Pharma, Apogee, and Kinaset; for DSMB from AstraZeneca, DBV Technologies, Aravax, and Vertex; and royalties from Elsevier and UpToDate outside the current report. The rest of the authors declare that they have no relevant conflicts of interest.

- **36 references**
- **2 figures**

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. 2026 Mar;238(2):65-73.

doi: 10.1055/a-2752-7457. Epub 2025 Dec 23.

Severe Asthma in Children and Adolescents: an AWMF Guideline by the German Society for Pediatric Pulmonology

Eckard Hamelmann [1 2], Christina Schorlemer [3], Ernst Eber [4], Michael Gerstlauer [5], Andreas Jung [6], Michael Kabesch [7], Matthias Volkmar Kopp [8], Susanne Lau [9], Christiane Lex [10], Alex Möller [6], Bianca Schaub [11], Nicolaus Schwerk [12], Thomas Spindler [13], Christian Taube [14], Christian Vogelberg [15], Angela Zacharasiewicz [16], Stefan Zielen [17], Antje Schuster [18], Monika Gappa [19]

Affiliations Expand

- PMID: 41435856

- DOI: 10.1055/a-2752-7457

Abstract

in English, German

Asthma is the most common chronic respiratory disease in children and adolescents. While most patients achieve good control with guideline-based treatment, a significant proportion experience persistent symptoms, frequent exacerbations, and impaired quality of life.This guideline aims to define severe and difficult-to-treat asthma in children and adolescents, support diagnostic precision, and provide practical, evidence-based recommendations for assessment and management, including biological therapies.The S1 guideline was developed under the coordination of the German Society for Pediatric Pulmonology following AWMF procedures. A structured consensus process involving experts from pediatric pulmonology, allergology, and general pediatrics was conducted. Existing national and international guidelines and new evidence were systematically reviewed and adapted.Key elements include a stepwise diagnostic algorithm to distinguish difficult-to-treat from truly severe asthma, guidance on assessing adherence, comorbidities, and inflammation biomarkers, and recommendations for targeted biological treatment. This guideline addresses monitoring tools, transition to adult care, and the role of rehabilitation.Children and adolescents with severe asthma require early referral to specialized centers and a structured, interdisciplinary approach. Personalized treatment strategies-including biologics-should be guided by phenotyping and biomarkers. Registry data are essential to improve care quality and generate real-world evidence.

Conflict of interest statement

The authors declare that they have no conflict of interest.

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Cite

28

Randomized Controlled Trial

J Asthma

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. 2026 Mar;63(3):375-388.

doi: 10.1080/02770903.2025.2603331. Epub 2025 Dec 20.

Telemedicine education for caregivers and asthma control in children: a randomized controlled trial

Thang Hoang Le [1], Nghia Quang Bui [1], My Hoang Le [1], Duy-Truong Khac Le [1], Ly Cong Tran [1]

Affiliations Expand

- PMID: 41390740

- DOI: 10.1080/02770903.2025.2603331

Erratum in

- Correction.

[No authors listed]J Asthma. 2026 Mar;63(3):i. doi: 10.1080/02770903.2025.2610069. Epub 2025 Dec 24.PMID: 41441729 No abstract available.

Abstract

Background: Poorly controlled pediatric asthma increases morbidity, reduces quality of life, and raises healthcare use. Caregiver education on asthma and medication use is essential for control. In Vietnam, pediatric asthma services are centralized at tertiary centers, limiting access for many families. Telemedicine may help bridge these gaps.

Objectives: To evaluate the effectiveness of telemedicine education on asthma control in children with uncontrolled asthma and its impact on caregiver knowledge, attitudes, and children's MDI technique.

Methods: We conducted a pragmatic randomized clinical trial among children aged 4-16 years with uncontrolled asthma. Participants were randomized 1:1, stratified by age and sex, to receive either a structured educational video call or a brief

scheduling call. Changes in C-ACT/ACT scores, caregiver knowledge, caregiver attitudes, and children's MDI technique were compared between groups. A multivariable generalized linear model was used to identify factors associated with improvement in asthma control.

Results: Baseline characteristics were comparable between groups. At a median follow-up of five weeks (IQR 4-8), C-ACT scores were higher in the intervention than control group (median 25.0 vs 19.5, $p < .001$), with mean change exceeding the minimal clinically important difference. Caregiver knowledge and attitudes and children's MDI technique also improved more in the intervention group ($p < .001$ for all). In multivariable models, telemedicine education was independently associated with greater improvement in asthma control (β = 4.24, 95% CI: 2.64-5.85, $p < .001$).

Conclusion: Telemedicine-based education improved asthma control and caregiver-related outcomes and may serve as an effective supportive strategy where access to pediatric asthma services is limited.

Keywords: Asthma control; caregivers; pediatrics; randomized controlled trials; telemedicine.

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Observational Study

J Asthma

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. 2026 Mar;63(3):350-355.

doi: 10.1080/02770903.2025.2596655. Epub 2025 Dec 9.

The effect of continuous positive airway pressure therapy in patients with expiratory large airway collapse with and without asthma

Andras Bikov [1 2], M Zahid Hassan [1], Saba Bokhari [1], Stephen J Fowler [1 2]

Affiliations Expand

- PMID: 41321048

- DOI: 10.1080/02770903.2025.2596655

Abstract

Objective: Expiratory large airway collapse (ELAC) is characterized by abnormal (>50%) narrowing of the large airways. It is a potential reason for poor asthma control and increased rate of asthma exacerbations. Continuous positive airway pressure (CPAP) is a potential treatment for ELAC. However, data on adherence to CPAP and its clinical impact in ELAC are limited.

Methods: Sixty-five patients with ELAC [age 61 (55-70) years, 56 females] who were set up on CPAP between December 2014 and May 2022 were included in this retrospective observational cohort study. Etiologies for ELAC included asthma (*n* = 47), COPD (*n* = 4), bronchiectasis (*n* = 3), relapsing polychondritis (*n* = 3), and large hiatus hernia compromising the bronchi (*n* = 1); in 7 cases it was considered idiopathic.

Results: Thirty-nine patients were adherent to CPAP. Adherence was not related to demographics, clinical characteristics or CPAP settings (all $p > 0.05$). Seventy-seven percent perceived benefits in their respiratory symptoms and 95% reported better sleep. In those with asthma, whilst there was no difference in the daily inhaled corticosteroid dose before and after CPAP ($p = 0.90$), the annual number of systemic corticosteroid courses decreased following CPAP ($p = 0.02$).

Conclusions: CPAP is well tolerated in patients with ELAC, and many report improvement in their respiratory and sleep-related symptoms. There is an additional benefit in patients with concomitant asthma in terms of steroid reduction that needs to be investigated in future studies.

Keywords: Asthma; continuous positive airway pressure; exacerbation; excessive dynamic airway collapse; expiratory large airway collapse; tracheobronchomalacia.

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. 2026 Mar;63(3):394-395.

doi: 10.1080/02770903.2025.2592235. Epub 2025 Nov 22.

Letter to the editor regarding "Efficacy of tiotropium bromide on spirometric measurements and control of asthma in real life: data from a 1-year clinical follow-up"

Liping Li [1], Weigang Jia [1], Xingxing Yuan [1]

Affiliations Expand

- PMID: 41263766

- DOI: 10.1080/02770903.2025.2592235

No abstract available

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Randomized Controlled Trial

J Asthma

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. 2026 Mar;63(3):305-311.

doi: 10.1080/02770903.2025.2589794. Epub 2025 Nov 22.

Improved lung function with beclomethasone/formoterol versus beclomethasone alone in asthma: the FORCE2 study

Steven Weinstein [1], Lorenzo Legramandi [2], Kusum S Mathews [2], Heather Passineau [2], Lucio Seregni [2], Giuliana Gandini [2], Lorenza Cretarola [2], Martina Foti [2], Gwen Skloot [2], Gemzel Hernandez [2]

Affiliations Expand

- PMID: 41231513

- DOI: 10.1080/02770903.2025.2589794

Free article

Abstract

Objective: This study aimed to confirm the efficacy and safety of the inhaled fixed-dose combination of beclomethasone dipropionate (BDP) plus formoterol fumarate (FF) vs. BDP in patients with asthma.

Methods: After a two-week run-in period with asthma maintenance therapy switched to BDP *via* pressurized metered-dose inhaler (pMDI), eligible patients were randomized to BDP/FF or BDP, both *via* pMDI, for 12 wk. The primary objective was to demonstrate superiority of BDP/FF over BDP for change from baseline at Week 12 in area under the curve between 0 and 12 h post-dose ($AUC_{0\text{-}12h}$) of forced expiratory volume in 1 sec (FEV_1). The key secondary objective was to demonstrate superiority of BDP/FF over BDP for change from baseline at Week 12 in peak FEV_1 within the first 3 h post-dose. Safety and tolerability were assessed as secondary endpoints.

Results: Of 576 patients randomized to treatment, 543 completed the study (BDP/FF: 276/287 [96.2%]; BDP: 267/289 [92.4%]). The primary and the key secondary objectives were met, with BDP/FF vs. BDP adjusted mean differences of 104 (95% confidence interval 61, 148) mL and 124 (76, 173) mL for FEV_1 $AUC_{0\text{-}12h}$ and peak FEV_1 at Week 12, respectively ($p < 0.001$ for both). A similar proportion of patients experienced adverse events in the two treatment groups (26.9% vs. 26.4%), with most events mild or moderate in severity and not considered related to study drug.

Conclusions: The study met its aims, demonstrating the contribution of FF to BDP in lung function improvement, with both treatments being well tolerated.

ClinicalTrials.gov NCT05292586.

Keywords: Drug therapy; combination; inhaled corticosteroid; long-acting beta2-agonist; respiratory function tests.

Supplementary info

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32

Presse Med

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. 2026 Mar;55(1):104321.

doi: 10.1016/j.lpm.2025.104321. Epub 2025 Nov 9.

Difficult-to-treat COPD: from concept to practice

Lucile Regard [1], Nicolas Roche [2]

Affiliations Expand

- PMID: 41218686

- DOI: 10.1016/j.lpm.2025.104321

Free article

Abstract

Most patients with Chronic Obstructive Pulmonary Disease (COPD) can be managed effectively through standard therapeutic strategies. However, a significant proportion remains symptomatic, experiences recurrent exacerbations, or shows accelerated lung function decline despite apparently appropriate care. These patients often fall into what could be referred to as "difficult-to-treat COPD", a term still lacking formal definition. Drawing parallels with asthma, this article proposes to consider the concept of disease control in COPD as a key driver of COPD management, not representing a fixed target but a dynamic construct reflecting daily impact and long-term stability. We provide a structured framework for reassessing diagnosis accuracy, evaluating treatment adequacy, and identifying unresolved pathophysiological drivers in patients who remain uncontrolled. Core domains include persistent dyspnea, chronic bronchitis, frequent or severe exacerbations, and rapid lung function decline. Each is explored with a focus on clinical reasoning, diagnostic tools, and phenotype- or endotype-based treatable trait-specific strategies. Importantly, the article argues that in patients remaining uncontrolled despite guideline-concordant care, the clinical response paradigm should shift from escalation to recharacterization. Practical pathways beyond standard care such as biologic therapy, lung volume reduction and transplantation, access to research protocols, and early integration of palliative care are reviewed. In the conclusion, we advocate for broader implementation of multidisciplinary case discussions and for using loss of disease control as a clinical trigger to prompt timely reassessment. Rather than defining a new phenotype, the aim is to promote a dynamic, precision-based approach to COPD management that aligns therapeutic strategies with evolving disease trajectories.

Keywords: Biotherapy; COPD; Control; Dyspnea; Exacerbations; Inhaled maintenance therapy.

Conflict of interest statement

Declaration of competing interest LR reports personal fees from AstraZeneca, Chiesi, GSK, and Sanofi, and institutional support for meeting attendance from AstraZeneca, Chiesi, and Sanofi. NR reports personal fees from GSK, AstraZeneca, Sanofi, Chiesi, Pfizer, Austral, Biosency, Zambon, MSD, and Menarini for consulting or speaking engagements, and institutional support from Chiesi, GSK, and Pfizer. He also serves as Chair of the ERS Science Council.

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Review

Paediatr Respir Rev

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. 2026 Mar:57:3-10.

doi: 10.1016/j.prrv.2025.04.003. Epub 2025 May 5.

Long-acting muscarinic antagonists as add-on treatment for asthma in children under age 12: a systematic review and meta-analysis

Gabriel Bolner [1], Yohanna Idsabella Rossi [1], Jonathan Costa Dall'Acqua [1], Artur Vestena Rossato [1], Fabiana Dolovitsch de Oliveira [1], Kauê Bolner [1], Gilberto Bueno Fischer [1], Janice Luisa Lukrafka [1], Helena Teresinha Mocelin [2]

Affiliations Expand

- **PMID: 40441924**

- **DOI: 10.1016/j.prrv.2025.04.003**

Abstract

Introduction: Children under 12 have fewer treatment options for uncontrolled asthma than adolescents and adults. Long-acting muscarinic antagonists (LAMA) can be used as an add-on therapy for asthma in adults, but the evidence in children is unclear.

Methods: We systematically searched PubMed, Embase, and the Cochrane Library for randomized controlled trials (RCTs) and observational studies that evaluated LAMA as an add-on therapy to inhaled corticosteroids in asthmatic children younger than 12. We performed a random-effects meta-analysis for lung function, asthma control, and adverse events. Subgroup analyses were performed for different LAMA dosages.

Results: Four RCTs and two observational studies (n = 1210) were included in our systematic review. The pulmonary function tests indicated that LAMA at any dose significantly improved peak FEV1 (MD 86.16 mL; 95 %CI 18.62-153.71; p < 0.01) and FEF25-75 % (MD 0.2518L; 95 %CI 0.1971-0.3064; p < 0.01), while FVC (MD 9.69 mL; 95 %CI -34.57 to 53.95; p = 0.67) remained unchanged. Asthma control measured by the Asthma Control Questionnaire (MD -0.07; 95 %CI -0.08 to -0.06; p < 0.01) also favoured LAMA treatments. Nighttime awakenings and rescue treatment usage showed no significant differences between groups. Using LAMA was also associated with fewer adverse events (RR 0.88; 95 %CI 0.79-0.98; p = 0.021).

Conclusion: LAMA are safe and effective for moderate/severe asthma for children aged 6-11. Evidence is still slowly evolving for children younger than 6 years.

Keywords: Asthma; LAMA; Meta-analysis; Pediatric; Tiotropium.

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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Review

Paediatr Respir Rev

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. 2026 Mar:57:11-16.

doi: 10.1016/j.prrv.2025.01.006. Epub 2025 Feb 4.

Severe asthma in adolescents: Clinical implications and beyond

Francesca Bonomo [1], Giuliana Ferrante [2], Michele Piazza [1], Laura Tenero [3], Marco Zaffanello [1], Giorgio Piacentini [1]

Affiliations Expand

- PMID: 39965991

- DOI: 10.1016/j.prrv.2025.01.006

Abstract

Severe asthma affects about 6.7% of adolescents worldwide, posing a substantial burden on their physical and psychosocial well-being. The impact of severe asthma on adolescents is multifaceted, with several factors that contribute to this burden, such as comorbidities including obesity, dysfunctional breathing, sleep-disordered breathing and mental health issues. Moreover, daily therapy management is often complex and may require lifestyle modification that could lead to a failure in treatment adherence and to peer-related stressors such as feelings of exclusion. Furthermore, adolescents with severe asthma are prone to risk-taking behaviours, including vaping and substance misuse. While current management strategies often fail to account for their developmental stage, digital technologies offer novel solutions to improve disease management. This narrative review aims to provide a comprehensive overview of the multifaceted impact of severe asthma on adolescents, addressing the main clinical management issues and exploring the role of innovative digital tools to enhance asthma management in this critical population.

Keywords: Adolescents; Burden; Management; Severe asthma.

Conflict of interest statement

Declaration of competing interest The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper. Generative AI and AI-assisted technologies were NOT used in the preparation of this work.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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

Ann Allergy Asthma Immunol
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. 2026 Feb 25:S1081-1206(26)00066-9.
doi: 10.1016/j.anai.2026.02.004. Online ahead of print.

Nasal budesonide mitigates air pollution effects in adults with allergic rhinitis: a randomized trial

Eashan Halbe [1], Christopher F Rider [1], Agnes C Y Yuen [1], Parteek Johal [1], Alisa Hashimoto [1], Julie L MacIsaac [2], Kristy Dever [2], Carley Schwartz [1], Kevin S K Lau [1], Emilia L Lim [3], Tina Afshar [1], Marcia S Jude [2], Chaini Konwar [2], Michael S Kobor [4], Christopher Carlsten [5]
Affiliations Expand

- PMID: 41759721
- DOI: 10.1016/j.anai.2026.02.004

Abstract

Background: Allergic rhinitis (AR) involves nasal inflammation from aeroallergens that is treatable with nasal corticosteroids (NCS). However, NCS efficacy following diesel exhaust (DE) exposure and effects on nasal epigenetic age acceleration (EAA) are unknown.

Objective: To investigate the effects of nasal budesonide on AR-related nasal inflammation and nasal EAA following DE exposure.

Methods: In this double-blinded randomized crossover trial, twenty healthy non-smokers with AR used once-daily 256 mcg budesonide and placebo nasal spray for ≥4 weeks each, with an intervening ≥4-week washout. Initial and re-exposure to allergen and DE was completed over consecutive days in separate periods, preceded by ≥2 weeks of pre-treatment/washout. Nasal lavage fluid, nasal brushings, peak nasal inspiratory flow (PNIF), and total nasal symptom scores (TNSS) were collected at treatment baselines, and before and 24h after each exposure. PNIF and TNSS were additionally collected 0.5h post-exposure. Nasal cytokines and EAA were quantified using multiplex assays and Illumina EPIC arrays, respectively.

Results: Reductions in nasal IL-5 from budesonide pre-treatment persisted 24h after initial and re-exposure to allergen and DE, despite their pro-inflammatory effects. Reductions in IL-17A persisted 24h after initial DE exposure. Budesonide increased PNIF 24h after initial and re-exposure to allergen, and at 0.5h after initial exposure and 24h after re-exposure to DE. Allergen-induced TNSS was suppressed by budesonide at 0.5h and 24h after re-exposure. Budesonide and allergen/DE exposures modulated nasal EAA across different clocks.

Conclusion: In allergic rhinitics, prophylactic nasal budesonide spray attenuated nasal inflammation and modulated nasal EAA and PNIF before and after repeated acute exposures to allergen and DE.

Keywords: Allergic rhinitis; allergic inflammation; budesonide; controlled human exposure; diesel exhaust; epigenetic age acceleration; nasal corticosteroids; traffic-related air pollution.

Proceed to details
Cite
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Int Arch Allergy Immunol
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. 2026 Feb 27:1-43.
doi: 10.1159/000551015. Online ahead of print.

House Dust Mite Sublingual Immunotherapy for Allergic Rhinoconjunctivitis: Comprehensive Review and Meta-Analytical Evidence

Abdulsalam Alqutub, Abdulelah G Abumohssin, Sulafa T Alqutub, Ahmed M Alghamdi, Abdulrahman Alqutub, Sultan A Alghanmi, Amal Aljuhani, Renad A Alrdeeni, Norah Alharbi, Adeeb Mogharbel, Abdulmajeed AlHindi, Sumaiya H Muathen

- PMID: 41758730
- DOI: 10.1159/000551015

Abstract

Background: House dust mites (HDM) are a primary trigger of allergic rhinoconjunctivitis (ARC), a common condition associated with substantial symptom burden and impaired quality of life. Although sublingual immunotherapy (SLIT) of HDM extracts has shown therapeutic potential, its overall efficacy and safety profile in adults and adolescents with ARC remains incompletely defined. We aimed to assess the efficacy and safety of HDM SLIT in adults and adolescents with ARC.

Methods: We conducted a systematic search of PubMed, Scopus, Web of Science (WOS), and Cochrane CENTRAL databases up to May 2025. We included studies comparing HDM SLIT to placebo or pharmacotherapy. The main efficacy outcomes were the combined symptom and medication score (CSMS), rhinitis symptom score (RSS), rhinitis medication score (RMS), and rhinoconjunctivitis quality of life questionnaire (RQLQ). Safety was assessed by analyzing treatment-related adverse events (AEs), serious, severe, and local AEs. A random-effects model was used to pool standardized mean differences (SMD) and risk ratios (RR).

Results: A total of 45 studies involving 30,288 participants were included in the systematic review, with 28 providing data for the meta-analysis. SLIT significantly improved multiple efficacy outcomes, including RSS and RMS, with a pooled SMD and 95% CI (-0.98, [-1.65, -0.31], $p < 0.001$) and (-1.00, [-1.80, -0.20], $p = 0.01$), respectively. SLIT was associated with a higher risk of treatment-related AEs with a pooled RR and 95% CI (1.16, [1.02, 1.33], $p = 0.02$), which were predominantly mild, local, and transient.

Conclusion: This study confirms that standardized HDM SLIT is an effective and safe disease-modifying therapy for adults and adolescents with ARC. It provides clinically meaningful reductions of symptoms and medication use and improves quality of life. The favorable safety profile supports its use as a foundational treatment in the management of HDM-induced ARC.

S. Karger AG, Basel.

Supplementary info
Publication typesExpand
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Pediatr Allergy Immunol
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. 2026 Mar;37(3):e70320.
doi: 10.1111/pai.70320.

Azelastine-fluticasone intranasal therapy: A paradigm shift in pediatric allergic rhinitis management. A point of view of the Italian Society of Pediatric Allergy and Immunology

Gianluigi Marseglia [1,2], Michele Miraglia Del Giudice [3], Amelia Licari [1,2], Cristiana Indolfi [3], Maria Angela Tosca [4], Giorgio Ciprandi [5]
Affiliations Expand

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- DOI: 10.1111/pai.70320

Abstract

Background: Allergic rhinitis (AR) is one of the most prevalent chronic conditions in children and adolescents, significantly impacting quality of life and scholastic performance. Effective management requires therapeutic approaches that address the complex pathophysiology while ensuring safety and tolerability.

Methods: This paper reviews the evidence supporting azelastine-fluticasone combination intranasal therapy in pediatric allergic rhinitis, with a focus on efficacy, safety, and clinical implementation. This paper encompassed clinical trials, guidelines (ARIA), consensus statements (SIAIP Delphi Consensus), and real-world evidence gathered from Italian primary care pediatricians managing children and adolescents with AR.

Results: Azelastine-fluticasone combination therapy demonstrates superior efficacy compared to monotherapy, exhibiting a rapid onset of action (15-30 min) and sustained symptom control. Its dual mechanism effectively addresses both early-phase (H1-receptor antagonism) and late-phase (glucocorticoid anti-inflammatory effects) allergic responses. Clinical trials conducted in adolescents aged 12-18 years confirm an excellent safety profile, with no significant effects observed on growth or the Hypothalamic-Pituitary-Adrenal (HPA) axis. Emerging evidence further may support its potential utility in younger children aged 6-12 years. The SIAIP Delphi Consensus on AR management, involving 42 pediatricians, achieved over 80% agreement on key management principles, particularly emphasizing the control of type 2 inflammation. Survey data collected from 864 Italian primary care pediatricians, collectively managing 81,231 children, indicates high adherence to ARIA guidelines (exceeding 70%) and a notable increase in the adoption of combination therapy, reaching up to 20% of cases.

Conclusion: Azelastine-fluticasone combination intranasal therapy represents a significant paradigm shift in pediatric allergic rhinitis management. It offers superior efficacy, an excellent safety profile, and practical advantages that foster better treatment adherence. This therapeutic approach is well-aligned with contemporary guidelines and is increasingly being adopted in clinical practice for the management of moderate to severe AR in children and adolescents.

Keywords: ARIA guidelines; SIAIP Delphi consensus; allergic rhinitis; azelastine; combination therapy; fluticasone; pediatric.

- 39 references
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. 2026 Feb 23;12(1):00699-2025.
doi: 10.1183/23120541.00699-2025. eCollection 2026 Jan.
Treatable traits in asthma associated with hospitalisations
Marina Labor [1 2], Christer Janson [3], Andreas Palm [3], Andrei Malinovschi [4], Mathias Holm [5], Linda Ekerljung [6], Sven-Erik Dahlén [7], Lars Modig [8], Össur Ingi Emilsson [3 9]
Affiliations Expand
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• PMCID: PMC12926817
• DOI: 10.1183/23120541.00699-2025
Abstract
Background: Personalised medicine targets treatable traits with tailored therapy. Extrapulmonary traits, modifiable and related to asthma, were analysed for their association with hospitalisation rates.
Methods: We conducted an observational study of a general population cohort in Sweden, based on the Respiratory Health in Northern Europe (RHINE) and Global Allergy and Asthma European Network (GA^{2}LEN) studies. Participants completed questionnaires in 2008-2010, including respiratory symptoms, smoking habits and education level. Data were linked with national health registers to obtain information on hospitalisations with asthma.
Results: Of 31 000 participants, 2341 had current asthma. Asthma patients exhibited a higher prevalence of airway comorbidities, such as rhinitis, allergic rhinitis and chronic rhinosinusitis, which were associated with increased hospitalisation rates. Obesity, insomnia and snoring were also significant risk factors for hospitalisation. A clear trend of increasing hospitalisations was observed with a higher number of treatable traits, especially in asthma patients aged <60 years, who had significantly increased odds of hospitalisation when presenting with three or more traits (adjusted OR 1.88, 95% CI 1.03-3.42). Chronic rhinosinusitis contributed the most to hospitalisations (10.7% population attributable fraction), followed by obesity (8.6% population attributable fraction). On average, each increase in number of treatable traits was associated with a 13% increased risk of hospitalisation (HR 1.13, 95% CI 1.02-1.25, p=0.02). Smoking and damp/mould exposure had a negligible contribution to the overall burden of hospitalisations with asthma.
Conclusion: Recognising extrapulmonary traits like obesity and chronic rhinosinusitis is vital in asthma management, as they increase the risk of future hospitalisations.

Conflict of interest statement
Conflict of interest: M. Labor has received consulting fees from Pierre Fabre and MSD; honoraria for speaking engagements from MSD, AstraZeneca, Chiesi, Menarini, GSK, Novartis, Boehringer Ingelheim and Sanofi; and reimbursement for attending the ELCC 2025 symposium from MSD; all unrelated to the topic of this manuscript. Outside this work, A. Palm has received personal fees for lectures and educational activities from ResMed, unrelated to the topic of this manuscript. Ö.I. Emilsson has received honoraria for advisory boards and participating in

educational activities for AstraZeneca, unrelated to the topic of this manuscript. C. Janson, A. Malinovschi, M. Holm, L. Ekerljung, S-E. Dahlén and L. Modig have nothing to declare.

- 32 references
- 3 figures

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5
World Allergy Organ J
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doi: 10.1016/j.waojou.2026.101341. eCollection 2026 Mar.

Efficacy and safety of olopatadine-mometasone combination nasal spray for the treatment of seasonal allergic rhinitis

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Affiliations Expand

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- PMCID: PMC12925058
- DOI: 10.1016/j.waojou.2026.101341

Abstract

Background: Patients with moderate-to-severe allergic rhinitis (AR) often experience a heavy clinical burden and require more medications to alleviate nasal symptoms. The aim of this study was to evaluate the efficacy and safety of GSP301, a fixed-dose combination nasal spray containing olopatadine hydrochloride and mometasone furoate, in patients with seasonal AR (SAR).

Methods: In this multicenter, randomized, double-blind, parallel-group study, moderate-to-severe SAR patients were assigned at a 1:1:1 ratio to receive intranasal GSP301, olopatadine hydrochloride (OLO), or mometasone furoate (MF) for 14 days. The primary endpoint was the change from baseline in the average A.M. and P.M. 12-hour reflective total nasal symptom score (rTNSS). Secondary endpoints included changes in the instantaneous TNSS (iTNSS), individual nasal symptoms, reflective total ocular symptom score (rTOSS), instantaneous total ocular symptom score (iTOSS), individual ocular symptoms, and rhinoconjunctivitis quality-of-life questionnaire (RQLQ). Exploratory endpoints and adverse events were also analyzed.

Results: Among the 534 subjects, the GSP301 group demonstrated statistically significant improvements in the average rTNSS compared with the OLO group [posterior least square mean difference (LSMD) = -0.56; $P < 0.0001$] and the MF group (posterior LSMD = -0.43; $P < 0.0001$). Consistent benefits were observed across secondary endpoints, including iTNSS, rTOSS, RQLQ, and individual nasal and ocular symptoms (all $P < 0.05$). Additionally, GSP301 reduced the levels of interleukin (IL)-5 and eosinophilic cationic protein (ECP) in nasal secretions.

Treatment-emergent adverse events (TEAEs) occurred in 11.2%, 13.5%, and 11.3% of patients in the GSP301, OLO, and MF groups, respectively.
Conclusion: Compared with OLO and MF, GSP301 demonstrated superior efficacy, safety, and potential advantages in alleviating local inflammation in patients with moderate-to-severe SAR.
Keywords: GSP301; Mometasone furoate; Olopatadine hydrochloride; Seasonal allergic rhinitis.

Conflict of interest statement
All authors declare no financial or commercial conflicts of interest.

- 31 references
- 3 figures

Full text links


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Ann Otol Rhinol Laryngol

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. 2026 Feb 23:34894261426729.
doi: 10.1177/00034894261426729. Online ahead of print.

Airways Without Borders: Establishing Global Airways Units for Integrated Care

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Affiliations Expand

- PMID: 41731691

- DOI: 10.1177/00034894261426729

Abstract
Chronic respiratory diseases continue to be managed within fragmented specialty-based structures despite robust evidence supporting the "global airways" concept, which recognizes allergic rhinitis, chronic rhinosinusitis, and asthma as interconnected manifestations of a shared inflammatory continuum. Advances in endotype-driven classification, the treatable traits framework, and the cross-efficacy of biologic therapies have reinforced the scientific and therapeutic rationale for integrated care; however, implementation remains largely theoretical. This editorial advocates for the establishment of Global Airways Units (GAUs), a pragmatic, multidisciplinary model in which otolaryngologists, pulmonologists, and allergists jointly evaluate patients within a unified diagnostic and therapeutic framework. By aligning healthcare organization with established pathophysiological knowledge and evolving guideline recommendations, GAUs represent a feasible, cost-effective strategy to operationalize precision medicine across the entire airway spectrum and translate consensus into tangible clinical benefit.
Keywords: airway diseases; global airways; global airways units; prevention; standard of care.
Full text links


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J Allergy Clin Immunol Glob
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. 2026 Jan 12;5(2):100639.
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Evaluating the concordance of pollen forecasting apps against automated pollen monitoring: A single-site experience

Freddy Gonzalez [1], Christina E Ciaccio [2], Sharmilee M Nyenhuis [2]
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- PMCID: PMC12834900
- DOI: 10.1016/j.jacig.2026.100639

Abstract

Background: Individuals with allergic rhinitis and asthma rely on accurate pollen forecasts to avoid allergen exposure and manage symptoms. However, many widely used weather and health applications (apps) use manual pollen counting methods, which may vary in accuracy.

Objective: This study aimed to evaluate the concordance between popular pollen forecasting apps and real-time data collected from an automated pollen monitoring device at a single site in the Chicago area.

Methods: We compared daily pollen forecasts from 2 commonly used consumer apps (The Weather Channel app and the AccuWeather app) with pollen data recorded by the PollenSense automated monitoring device over 2 months. To assess daily concordance, forecasted pollen levels and automated counts were categorized as being in the low, moderate, or high ranges. Descriptive and inferential assessment of accuracy and reliability of consumer-facing pollen forecasts were performed.

Results: Across the study period, concordance between the consumer apps and the PollenSense counts was low (the forecast levels for the AccuWeather app were 7% for grass, 33% for ragweed, and 56% for mold, whereas those for The Weather Channel app were 29% for grass and 34.% for ragweed). No statistically significant association was found between the pollen forecasts and measured pollen levels.

Conclusion: The popular pollen forecasting apps demonstrated poor concordance with real-time automated pollen data. These findings highlight the limitations of current forecasting tools and underscore the need for improved, validated technologies to support clinical decision making and public health recommendations for individuals affected by pollen allergies.

Keywords: Pollen; air quality; allergy; asthma; eHealth; environmental monitoring; mobile apps.

Conflict of interest statement

Disclosure of potential conflict of interest: S. M. Nyenhuis receives funding from the National Institutes of Health (NIH) and the Allergy and Asthma Foundation of America, has served on an advisory board for GSK, and receives royalties from Wolters-Kluwer and Springer. C. E. Ciaccio receives funding from the NIH, Genentech, and Food Allergy Research and Education and has served as an adviser

for Siolta, Clostrabio, Novartis, and Sanofi. The remaining author declares no relevant conflicts of interest.

- 5 references
- 2 figures

Full text links

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Clin Otolaryngol

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. 2026 Mar;51(2):275-284.

doi: 10.1111/coa.70058. Epub 2025 Nov 5.

Modifiable Risk Factors for Symptom Burden in Chronic Rhinosinusitis With Nasal Polyps: The Role of Obesity and Sleep Apnoea

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Affiliations Expand

- PMID: 41194552
- PMCID: PMC12869009
- DOI: 10.1111/coa.70058

Abstract

Objective: To identify sociodemographic and clinical predictors of symptom severity and quality of life (QoL) impairment in patients with chronic rhinosinusitis with nasal polyps (CRSwNP), diagnosed according to the latest EPOS 2020 criteria.

Study design: Cross-sectional analytical study.

Setting: Tertiary Care Center (University Hospital of Jaén, Spain).

Methods: A total of 188 patients diagnosed with CRSwNP were evaluated. Symptom severity and QoL were assessed using the Nasal Obstruction Symptom Evaluation (NOSE-E) and the Sino-Nasal Outcome Test (SNOT-22). Multiple linear regression analysis was used to identify predictors of symptom burden.

Results: Higher body mass index (BMI) and the presence of sleep apnoea were independently associated with increased symptom severity, as measured by both the NOSE-E (adj. $R^2 = 0.224$, $p = 0.002$) and the SNOT-22 (adj. $R^2 = 0.242$, $p = 0.005$). Smoking was associated in the bivariate analysis but was not retained in the multivariate models.

Conclusion: BMI and sleep apnoea are independent predictors of greater symptom burden and poorer QoL in CRSwNP. These findings highlight the importance of incorporating weight management and sleep apnoea screening into the multidisciplinary management of CRSwNP to improve patient outcomes.

Keywords: body mass index; nasal polyps; quality of life; rhinosinusitis; sleep apnoea; systemic inflammation.

Conflict of interest statement

The authors declare no conflicts of interest.

- 24 references

- 2 figures

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Meta-Analysis

Ear Nose Throat J
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. 2026 Mar;105(3):NP189-NP200.
doi: 10.1177/01455613231187761. Epub 2023 Aug 22.
A Systematic Review and Meta-analysis of SNOT-22 Outcomes After Sinus Surgery
Yangyang Fu [1], Delong Liu [1], Weipeng Huang [1], Zhengying Wang [1], Yue Zhang [1]
Affiliations Expand
- PMID: 37606061

- DOI: 10.1177/01455613231187761
Free article
Abstract
Background: All stakeholders in the healthcare system have prioritized and will continue to prioritize enhancing care quality. The measurement of sinus-specific quality of life (QOL) is potentially the most commonly used QOL parameter for chronic rhinosinusitis (CRS). Objective: A systematic review and meta-analysis were used in this study to determine the mean change in patients' scores on the 22-item Sino-Nasal Outcome Test (SNOT-22) before and after endoscopic sinus surgery (ESS) for CRS. Methods: PubMed, Google Scholar, and ScienceDirect were searched for articles that compared SNOT-22 scores before and after ESS in adult patients with CRS and were published between January 2000 and March 2023. The mean post-op change, 95% confidence interval (CI), forest plot, and inverse variance weighting were all generated using a random effects model. A mixed-effects meta-regression was used to analyze the effect of patient-specific characteristics across studies. Results: Fifteen prospective patient cohorts published from 2009 to 2023 were included in this meta-analysis. At an average follow-up of 25.5 months, all studies demonstrated a statistically significant difference in mean SNOT-22 scores between baseline and post-op time periods ($P < .05$), ranging from 5.1 to 55.4. Across all studies, the mean SNOT-22 changed significantly by 26.02 (95% CI: 12.83-38.60). According to a stepwise multivariate analysis, studies with higher mean age and mean pre-op SNOT-22 scores had greater changes in SNOT-22 scores following ESS, whereas trials with longer mean follow-up duration had smaller changes in SNOT-22 scores. Conclusion: Research utilizing the SNOT-22 instrument has demonstrated that endoscopic sinus surgery (ESS) leads to enhanced quality of life (QOL) outcomes. The literature reports that improvement is influenced by the initial SNOT-22 score, the mean age of the patients, and the duration of the follow-up period.
Keywords: SNOT-22; chronic rhinosinusitis; endoscopic sinus surgery; meta-analysis; quality of life.

Plain language summary

The Sino-Nasal Outcome Test-22 (SNOT-22) has shown that the quality-of-life results of sinus surgery after endoscopic sinus surgery (ESS) improve significantly. The amount of change seems to vary a lot from one study to the next, and this difference seems to be caused by things like the pre-op SNOT-22 score, the average age of the subjects, and the length of the tracking period. The results of this study give both a single number value and a range of changes that are likely to happen after surgery. These results can be used to guide projects that aim to improve the quality of care. Also, giving the Sino-Nasal Outcome Test-22 (SNOT-22) to people with chronic rhinosinusitis (CRS) before they have surgery may help them understand what effects they can expect, although this is up to each person to decide. Recent preliminary research shows that using SNOT-22 scores and tissue histopathology together could be a new way to predict how well treatment will work for people with CRS. The accuracy and precision of future analyses are likely to get better as efforts are made to get unbiased data and patient-level metrics from a wide range of patients and doctors.

Conflict of interest statement

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

- Cited by 1 article

Supplementary info

Publication types, MeSH termsExpand

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10
Ear Nose Throat J
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. 2026 Mar;105(3):181-184.
doi: 10.1177/01455613231189057. Epub 2023 Jul 31.

Safety of Antibiotic Irrigations for Acute Exacerbations of Chronic Rhinosinusitis in Patients with Identical Drug Allergies or Adverse Reactions: A Pilot Study

Hye Rhyn Chung [1], Jessa E Miller [2], Jeffrey D Suh [2]

Affiliations Expand

- **PMID: 37522348**
- **DOI: 10.1177/01455613231189057**

Free article

Abstract

Objectives: The use of topical antibiotics in the treatment of acute exacerbation of chronic rhinosinusitis (AECRS) represents a viable option prior to initiation of parenteral antibiotics when no oral antibiotic alternatives are available due to patient allergy or adverse reactions. The main objectives of this pilot study were to determine the safety and efficacy of antibiotic irrigations in the treatment of AECRS in patients with documented adverse reactions to the oral form of the drug. Methods: A retrospective review was performed of patients diagnosed with AECRS treated with antibiotic irrigations. Inclusion criteria included a documented allergy or adverse event to the systemic form of the same antibiotic. Patient

demographics, medical history, prior sinus surgery, nasal endoscopy findings, and microbiology results were obtained. Side effects to the antibiotic irrigations were recorded. Results: Six patients met the inclusion criteria resulting in 7 treated cases of AECRS. Four patients with adverse effects to oral trimethoprim/sulfamethoxazole (TMP/SMZ) received TMP/SMZ irrigations, and 1 patient with an adverse reaction to oral ciprofloxacin was treated with ciprofloxacin irrigations. One patient with adverse effects to both oral TMP/SMZ and levofloxacin was treated with TMP/SMZ and levofloxacin irrigations, respectively during 2 separate AECRS episodes. Following treatment, 1 case (14.3%) resulted in complete resolution of infection, 1 (14.3%) had partial improvement, and 5 (71.4%) had minimal to no endoscopic improvement at the subsequent clinic visit. There were no adverse reactions to antibiotic irrigations among the entire cohort. Conclusions: Currently, no prior study has examined whether adverse reactions to a systemic antibiotic also occur when the medication is delivered topically via sinonasal irrigations. Our findings suggest that topical administration of antibiotics may be a safe alternative for patients with adverse effects to the systemic form.

Keywords: chronic rhinosinusitis; endoscopic sinus surgery; rhinology; sinusitis.

Conflict of interest statement

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

- Cited by 1 article

Supplementary info

MeSH terms, SubstancesExpand

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

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BMJ Open Respir Res

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. 2026 Feb 27;13(1):e003578.

doi: 10.1136/bmjresp-2025-003578.

Characterisation of chronic obstructive pulmonary disease (COPD) in never-smokers and ever-smokers from a population-based cohort

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Affiliations Expand

- PMID: 41760355

- DOI: 10.1136/bmjresp-2025-003578

Abstract

Background: Chronic obstructive pulmonary disease (COPD) in never-smokers may have other clinical characteristics than tobacco smoking-related COPD.

Research question: What are the risk factors, biomarkers, respiratory symptoms and health status in never-smoking individuals with COPD?

Study design and methods: We investigated never-smokers with COPD (n=154, mean age 60 years) from the population-based Swedish CArdioPulmonary bioImage Study (SCAPIS), and compared them with four control groups: never-smokers with normal lung function (n=281), current smokers with normal lung function (n=97), ex-smokers with COPD (n=103) and current smokers with COPD (n=55). COPD was defined as forced expiratory volume in 1 s (FEV_1)/forced vital capacity (FVC) less than the lower limit of normal (LNN) after bronchodilation. We examined fractional exhaled nitric oxide (FeNO), blood biomarkers, respiratory symptoms, health status, medical history and living conditions.

Results: The never-smoker COPD group reported more respiratory symptoms and worse health status than never-smokers with normal lung function, but fewer symptoms, milder airflow limitation and better health status compared with ex-smokers and smokers with COPD. Never-smokers with COPD had more self-reported asthma. Moreover, never-smokers with COPD had higher Immunoglobulin E sensitisations to a mix of aeroallergens, higher geometrical mean FeNO levels and blood eosinophil counts than never-smokers with normal lung function. When participants with self-reported asthma were excluded, never-smokers with COPD still had more wheeze, cough and higher FeNO.

Conclusion: Never-smokers with COPD had more respiratory symptoms and elevated markers of type-2 inflammation, suggesting they might represent a distinct clinical phenotype which may differ from smoking-related COPD. They may therefore need to be treated and followed differently.

Trial registration number: NCT03049202.

Keywords: COPD epidemiology; Emphysema; Physical Examination; Pulmonary Disease, Chronic Obstructive; Respiratory Function Test; Respiratory Measurement.

Conflict of interest statement

Competing interests: None declared.

Supplementary info

Associated dataExpand

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Clin Exp Allergy

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Body Mass Index Is Not Associated With Cough, Laryngeal Hypersensitivity or Dyspnoea in Patients With Refractory Chronic Cough: A Cross-Sectional Study

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Affiliations Expand

- **PMID: 41741131**

- **DOI: 10.1111/cea.70248**

No abstract available

Supplementary info

Grants and fundingExpand

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Review

Respir Med

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. 2026 Feb 23:254:108729.

doi: 10.1016/j.rmed.2026.108729. Online ahead of print.

From symptom to disease: Reclassifying chronic cough through the treatable traits framework?

Ana Oliveira [1], Young-Jae Lee [2], Chirawat Chiewchalermsri [3], Hayoung Choi [4], Woo-Jung Song [5]

Affiliations Expand

- PMID: 41740803

- DOI: 10.1016/j.rmed.2026.108729

Abstract

Chronic cough has traditionally been defined by its duration and regarded mainly as a symptom of underlying diseases. However, growing evidence suggests that in a substantial proportion of individuals, chronic cough persists despite adequate treatment of comorbid conditions and may reflect an underlying neuro-pathophysiological process, particularly cough reflex hypersensitivity. The treatable traits framework offers a structured and personalized approach by identifying clinically relevant, measurable, and modifiable traits to guide therapy. Recognition of cough hypersensitivity as a key treatable trait has been pivotal in shifting the perspective toward chronic cough as a distinct disease entity. This review summarizes the clinical relevance, diagnostic tools, therapeutic strategies, and supporting evidence for treatable traits in chronic cough and proposes a stratified application of the treatable traits model, prioritizing actionable traits based on evidence and resources. Beyond guiding treatment, this framework serves as a lens through which to interpret the multifactorial nature of chronic cough. We advocate for moving away from potentially misleading terminology such as "idiopathic", "unexplained", or "refractory". Instead, we propose reclassifying chronic cough based on identifiable traits. This shift supports the recognition of chronic cough as a distinct disease entity defined by specific mechanisms (e.g., neural dysregulation), as well as a symptom secondary to other conditions. Such an evolution is essential to align clinical practice and nosology with current scientific understanding.

Keywords: Chronic cough; Classification; Treatable traits.

Conflict of interest statement

Declaration of competing interest AO is supported by FCT - Fundaçãao para a Ciência e Tecnologia, I.P. by project reference UID 4501- Instituto de Biomedicina - Universidade de Aveiro. HC reports grant from the Basic Science Research Program of the Korean Ministry of Education (grant no. 2021R1I1A3052416); consulting fees from Gilead, Boehringer Ingelheim, and Abbott; and lecture fees from Kolong, Boryung, Abbott, Otsuka, and Handok. WJS declares grants from Merck Sharp & Dohme Corp., Daewoong Pharmaceutical, and AstraZeneca, consulting fees from Merck, Bellus, AstraZeneca, Shionogi, and GSK, and lecture fees from Thermo Fischer/Immunotek, Celltrion, Merck, AstraZeneca, GSK, Sanofi, and Novartis. Other authors have none to declare.

Supplementary info

Publication typesExpand

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Semin Respir Crit Care Med

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doi: 10.1055/a-2818-1471. Online ahead of print.

Non-pharmacological treatment of AECOPD

Giulia Panzuti [1 2], Tommaso Zanaboni [3 4], Lara Pisani [5 4]

Affiliations Expand

- PMID: 41734791

- DOI: 10.1055/a-2818-1471

Abstract

Acute exacerbations of chronic obstructive pulmonary disease (AECOPDs) are acute events characterized by rapid worsening of dyspnea, cough, and sputum production, often leading to gas exchange impairment, ventilatory failure, and hospitalization. While pharmacological therapy remains central for managing the acute phase, non-pharmacological interventions play a crucial role in stabilizing patients, reducing complications, and promoting functional recovery. Respiratory strategies-including conventional oxygen therapy (COT), high-flow nasal cannula (HFNC), non-invasive ventilation (NIV), and invasive mechanical ventilation (IMV)-is tailored to disease severity and underlying pathophysiology, aiming to unload respiratory muscles, improve ventilation, and optimize gas exchange. Pulmonary rehabilitation (PR) is essential to counteract skeletal and respiratory muscle dysfunction, sarcopenia, and exercise intolerance, thereby enhancing quality of life (QoL) and physical performance. Nutritional management addresses malnutrition, negative energy balance, and micronutrient deficiencies, supporting muscle preservation, immune function, and overall recovery. Home-based care models, including hospital-at-home programs and tele-rehabilitation, reduce hospital stays,

facilitate early discharge, and improve access to structured PR programs. Structured self-management strategies and individualized exacerbation action plans empower patients, enhance symptom control, and reduce hospital readmissions, though their effectiveness may vary according to patient health literacy. Integrating these interventions into a comprehensive, multidisciplinary care pathway addresses both acute physiological derangements and long-term functional decline. Emerging digital health solutions-including telemonitoring, wearable sensors, and artificial intelligence-based predictive models-offer opportunities for early detection, personalized interventions, and enhanced patient engagement. This review synthesizes current evidence on non-pharmacological management of AECOPD, highlighting practical strategies to optimize respiratory support, rehabilitation, nutritional interventions, and self-management, ultimately aiming to accelerate recovery, prevent relapse, and improve QoL in this high-risk patient population.

Conflict of interest statement

Lara Pisani has received lectures fees and travel expense coverage to attend scientific meetings from Fisher and Paykel, Resmed and MediCair. Lara Pisani has also received consultant fees from VitalAir SpA. The authors have no other relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript apart from those disclosed.

Full text links

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Cite

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Curr Opin Support Palliat Care

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. 2026 Feb 23.

doi: 10.1097/SPC.0000000000000797. Online ahead of print.

Respiratory complications of systemic autoimmune diseases: the emerging and important role of palliative care

Laura Ross [1 2], Julie McDonald [1 3 4], Elizabeth R Volkmann [5]

Affiliations Expand

- PMID: 41733381

- DOI: 10.1097/SPC.0000000000000797

Abstract

Purpose of the review: Respiratory disease is a major cause of morbidity and mortality for patients with systemic autoimmune diseases. Chronic exertional fatigue, breathlessness, and cough all cause significant impairment of quality of life. In this review, we summarize the major respiratory complications of systemic autoimmune diseases and consider the evidence supporting the role that palliative care can play in the management of systemic autoimmune disease.

Recent findings: The symptom burden suffered by patients with systemic autoimmune diseases is equivalent to that of patients with active malignancy. Recent studies have explored how palliative care could be integrated with rheumatology care to improve symptom control and address the high psychosocial burden associated with living with a systemic autoimmune disease. Both rheumatologists and palliative care providers are uncertain as to the role of palliative care in the management of systemic autoimmune diseases, with the optimal model of integrated palliative care yet to be defined.

Summary: Emerging evidence supports the acceptability and value of palliative care to patients living with a systemic autoimmune disease and their caregivers. However, there are both patient and physician associated barriers to the integration of palliative care with rheumatology care. Studies are required to demonstrate the efficacy of palliative care in the management of systemic autoimmune diseases.

Keywords: autoimmune disease; interstitial lung disease; palliative care; pulmonary arterial hypertension; rheumatology.

- 73 references

Full text links

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NPJ Prim Care Respir Med

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. 2026 Feb 24.

doi: 10.1038/s41533-026-00487-5. Online ahead of print.

The rise of artificial intelligence in respiratory primary care and pulmonology: a scoping review

Joan B Soriano [1 2 3], Sara Lumbreras [4]

Affiliations Expand

- PMID: 41730897

- DOI: 10.1038/s41533-026-00487-5

Free article

Abstract

Artificial intelligence (AI) is rapidly advancing respiratory disease management, from diagnosis to population lung health. This scoping review synthesizes the most promising uses of AI in respiratory medicine, with a particular focus on pulmonologists and family physicians interested in lung health. In diagnostics, deep-learning systems streamline chest-imaging workflows by triaging radiographs, detecting COVID-19 pneumonia, and classifying lung nodules on CT. In pulmonary function testing, algorithms detect technical errors and classify spirometric patterns, some claiming to outperforming pulmonologists. Acoustic analysis of cough, breathing, and speech captured on smartphones or wearables offers non-invasive decision support. For monitoring and prediction, AI helps shorten weaning from mechanical ventilation and guides closed-loop strategies for acute respiratory distress. In chronic care, connected devices integrated with environmental data help to forecast asthma and COPD exacerbations, while telehealth and predictive models enable earlier, more personalized interventions. Additional gains are emerging in paediatrics, sleep medicine, lung ultrasounds, and public health. Realizing these benefits will require rigorous multicentre validation and real-world evidence. It will also require proactive bias detection and mitigation with inclusive sampling and equity audits. High-quality, interoperable data and explainable models are needed to enable human oversight. Practical issues such as digital literacy, device access, and usability for children, older adults, and other vulnerable populations also matter for applications requiring patient interaction. With sustained collaboration among clinicians, engineers, AI experts, industry, regulators, and scientific societies, AI can increase the time invested in a satisfactory clinician-patient relationship. With all likelihood, AI can also measurably improve efficiency and accuracy across multiple domains of respiratory care.

Conflict of interest statement

Competing interests: The authors declare no competing interests.

- 53 references

Full text links

nature portfolio

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Semin Respir Crit Care Med

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. 2026 Feb 24.

doi: 10.1055/a-2811-3019. Online ahead of print.

Physiopathology of Exacerbation of Chronic Obstructive Pulmonary Disease

Roberto Tonelli [1 2], Sofia Michelacci [1 1], Alessia Verduri [1], Enrico Clini [1 2]

Affiliations Expand

- PMID: 41679730

- DOI: 10.1055/a-2811-3019

Abstract

Acute exacerbations of chronic obstructive pulmonary disease (ECOPD) represent crucial events in the natural history of the disease. These are mainly characterized by abrupt worsening of respiratory symptoms, that is, dyspnea, cough, and sputum production. Defined by the Global Initiative for Chronic Obstructive Lung Disease (GOLD) as acute symptom deterioration requiring additional therapy, ECOPD markedly worsens lung function and has strong clinical outcomes for any patient involved. Pathobiology is multidimensional, arising from inflammatory, mechanical, and cardiovascular perturbations that are linked to each other and are likely to generate a self-reinforcing cycle of respiratory derangement and/or failure. Indeed, lung inflammation and injuries intensify airflow limitation, which in turn promotes air trapping and dynamic hyperinflation, increases elastic loads, and predisposes to respiratory muscle dysfunction. The resulting alterations of the blood gases may lead to even severe respiratory system failure and to an increased risk of death.

Conflict of interest statement

R.T. and E.C. are co-founders of IREC Ltd. (VAT 02959080355; Reggio Emilia, Italy). R.T. received travel support and fees from GSK, SEDA, Guidotti, and United HealthCare Services. E.C. received support and fees from AstraZeneca, Menarini, GSK, Boehringer Ingelheim, Chiesi Italia, and Lusofarmaco. Other authors have no competing interests with any organization or entity with a financial interest in competition with the subject matter or materials discussed in the manuscript.

8

Review

Curr Opin Pulm Med

. 2026 Mar 1;32(2):136-141.

doi: 10.1097/MCP.0000000000001228. Epub 2025 Nov 7.

Artificial intelligence in chronic obstructive pulmonary disease: recent advances in imaging and physiological monitoring

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- PMID: 41208246

- DOI: 10.1097/MCP.0000000000001228

Abstract

Purpose of review: Chronic obstructive pulmonary disease (COPD) is a leading cause of worldwide morbidity and mortality, yet significant barriers in its diagnosis and management persist. Artificial intelligence is rapidly emerging as a powerful tool to address these challenges. This review summarizes recent trends in its application to advance the care of patients with COPD, focusing on imaging and physiologic parameters.

Recent findings: Recent literature demonstrates significant progress in artificial intelligence enhanced imaging, with deep learning models applied to chest radiographs and computed tomography showing high accuracy in detecting COPD, quantifying disease features, and predicting clinical outcomes including exacerbations and mortality. Machine learning algorithms are improving the interpretation of pulmonary function tests and leveraging novel data streams from cough sounds and wearable smart devices for noninvasive diagnosis, severity assessment, and the prediction of acute exacerbations.

Summary: While artificial intelligence holds immense potential to shift COPD care toward a more proactive and personalized model, most applications remain in early developmental stages, with critical challenges including the need for rigorous clinical validation, addressing algorithmic bias, and establishing standardized evaluation metrics.

Keywords: artificial intelligence; chronic obstructive pulmonary disease; computed tomography; machine learning; physiologic monitoring.

- **56 references**

Supplementary info

Publication types, MeSH termsExpand

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

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J Manag Care Spec Pharm

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. 2026 Mar;32(3):392-397.

doi: 10.18553/jmcp.2026.32.3.392.

The effectiveness and value of brensocatib for the treatment of non-cystic fibrosis bronchiectasis

Avery McKenna [1], Jason H Wasfy [2], Kibum Kim [3], Daniel R Touchette [3], Sodam Kim [3], Marina Richardson [1], Daniel A Ollendorf [1]

Affiliations Expand

- **PMID: 41760562**

- **DOI: 10.18553/jmcp.2026.32.3.392**

No abstract available

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2

Thorac Res Pract

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. 2026 Feb 27.

doi: 10.4274/ThoracResPract.2026.2025-9-3. Online ahead of print.

The Relationship Between Peripheral Eosinophilia, Lower Respiratory Tract Pathogens, Age at First Pneumonia, and Malnutrition in Children with Non-cystic Fibrosis Bronchiectasis

Esin Gizem Olgun [1], Gizem Özcan [1], Fazılcan Zirek [1], Merve Nur Tekin [1], Secahattin Bayav [1], Mahmut Turğut [1], Mukaddes Ağırtıcı [1], Semra Küçük Öztürk [1], Seyhan Çelik Merteşe [1], Nazan Çobanoğlu [1]

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- PMID: 41755496

- DOI: 10.4274/ThoracResPract.2026.2025-9-3

Abstract

Objective: Non-cystic fibrosis (non-CF) bronchiectasis is a chronic lung disease, primarily characterised by neutrophilic inflammation, with *Haemophilus influenzae* (HI) frequently isolated from respiratory cultures. Recent adult studies have suggested a potential role for eosinophils in the frequency of pulmonary exacerbations and in lung function decline. This study aimed to evaluate the relationships among peripheral eosinophilia, lower respiratory tract pathogens, age at first pneumonia, and malnutrition in children with non-CF bronchiectasis.

Material and methods: In this retrospective study, children who were diagnosed with non-CF bronchiectasis were grouped based on nutritional status, eosinophilia, age at first pneumonia, and the most frequently isolated microorganisms. Clinical outcomes were compared across groups.

Results: Among 106 patients (61.3% male), malnutrition was present in 48.1% and eosinophilia in 39.6%. Primary immunodeficiency was the most common etiology (39.6%). HI and *Pseudomonas aeruginosa* (PA) were isolated in 61.3% and 24.5% of respiratory cultures, respectively. Patients with malnutrition had significantly lower forced expiratory volume in one second and forced vital capacity (FVC) values (P = 0.023 and P = 0.005, respectively). Eosinophilia was more prevalent in patients with PA isolation; was associated with younger ages at first pneumonia and bronchiectasis diagnoses (P = 0.009 and P = 0.017). PA isolation was associated with a higher frequency of aspiration syndromes (P < 0.001) and lower FVC values (P = 0.040). Patients who experienced their first episode of pneumonia before the age of two had more frequent exacerbations and were diagnosed with bronchiectasis at an earlier age.

Conclusion: Non-CF bronchiectasis in childhood may be preventable and/or non-progressive when diagnosed early. Clinical features such as malnutrition, eosinophilia, PA isolation, and early-onset pneumonia may help identify children who could benefit from closer clinical monitoring. Further pediatric studies are needed to validate these associations.

Keywords: Bronchiectasis; Pseudomonas aeruginosa; eosinophilia; malnutrition.

Conflict of interest statement

No conflict of interest was declared by the authors.

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Cite

3

Review

Eur Respir J

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. 2026 Feb 26:2501619.

doi: 10.1183/13993003.01619-2025. Online ahead of print.

Novel translational pulmonary MRI in pediatrics: A Review of the last 10 years

Alexander M Matheson [1], Matthew M Willmering [1 2], Gael Dournes [3], Marc Humbert [4 5], Mark O Wielpütz [6], Mark L Schiebler [7], Jason C Woods [8 2 9]

Affiliations Expand

- **PMID: 41748285**

- **DOI: 10.1183/13993003.01619-2025**

Abstract

Pediatric respirology presents distinctive challenges relative to adult care: patients have difficulties performing pulmonary function tests, more frequently have trouble complying, have distinct pathophysiology relative to adults, and have diseases that occur alongside normal or abnormal lung development. Understanding and disentangling the effects of disease and growth are important to identifying the pathophysiology that drives pediatric disease and affects the quality-of-life of this vulnerable group. Magnetic resonance imaging (MRI) can provide detailed images of lung structure and function using either standard 1H MRI or hyperpolarised 129Xe

(xenon) gas MRI. Radiation exposure in this vulnerable group is problematic, but MRI is ionising radiation free and safe to perform in children and neonates. Exam acquisition speed has improved with some scans taking as little as four seconds. Structural imaging using proton MRI can assess the airways and locate consolidation, mucus plugging, and bronchiectasis. Dynamic structural imaging can extract information about lung motion, airway collapse, and even be used to extract ventilation and perfusion information. In the last decade, pulmonary MRI has been examined a wide variety of diseases including asthma, bronchopulmonary dysplasia, bronchiolitis obliterans, childhood interstitial lung diseases, cystic fibrosis, and multiple rare lung diseases. This multi-technique approach using MRI provides a holistic view that elucidates underlying disease mechanisms and connects them to patient outcomes and treatment response. This review will examine developments in pulmonary MRI over the past decade, with the aim of illustrating recent advances in research and how these discoveries are beginning to be applied to clinical settings.

Supplementary info

Publication typesExpand

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4

Respir Res

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. 2026 Feb 25.

doi: 10.1186/s12931-025-03481-6. Online ahead of print.

Distinct pulmonary pathophysiological mechanisms in COPD, bronchiectasis, and primary immunodeficiency: a multi-omics investigation of disease heterogeneity via sputum and blood profiling

Stefanie Graeter [#1,2], Nathalia Gonzalez-Jaramillo [#1,2], Mattheus H E Wildschut [1,2], Luigi Capriotti [1,2], Moritz Saxenhofer [1,2], Jose Ramon Robador [1,2], Katherine Monaghan [3], Naomi Woodman [3], Judith Field [3], Nick Wilson [3], Megan Rees [4,5], Maria Hauswald [6], Carlos P Roca [1,2], Annette Feussner [6], Ilka Schulze [7], Alastair Stewart [8], Alexander Schaub [1,2], Samantha Chan [9], Jo A Douglass [5,9], Anna Schnell [10,11]

Affiliations Expand

- **PMID: 41742208**

- **DOI: 10.1186/s12931-025-03481-6**

Free article

No abstract available

Keywords: Biomarkers; Blood; Bronchiectasis; COPD; Immunodeficiency; Inflammation; Neutrophils; Proteomics; Sputum; Transcriptomics.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: All subjects provided written informed consent to participate in this study. The study was reviewed and approved by the Melbourne Health Human Research Ethics Committee (HREC ethical approval 2019.085) and conducted in accordance with the ethical standards of the Declaration of Helsinki and local regulatory requirements. Consent for publication: Not applicable. Competing interests: The following contributors were employees and/or shareholders of CSL during the study: SG, NG, MW, LC, MS, JR, KM, NW, JF, NW, CPR, IS, AScha, ASchn, MH and AF. JD declares that she received honoraria for educational presentations and/or served on advisory boards for Sanofi-Aventis, Novartis, GSK, Astra-Zeneca, Shire, Sequiris, Immunosis, Stallergenes and CSL. She has undertaken contracted research on behalf of GSK, Novartis, Immunosis, AstraZeneca, Sanofi-Aventis, Grifols, BioCryst and Equilium. She had had royalties paid for Fast Facts: Asthma and has a personal superannuation shareholding with CSL. SC, ASt and MR declare no competing interests related to this study.

- **43 references**

Full text links

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Review

Eur Respir Rev

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. 2026 Feb 25;35(179):250071.

doi: 10.1183/16000617.0071-2025. Print 2026 Jan.

Bronchiectasis in children: a systematic review of cytokine profile, immune cell phenotypes and microbiota in bronchoalveolar lavage fluid

Christian Magnus Kragh Thomsen [1 2], Simon Kromann-Thomsen [3 2], Signe Thim [3 4], Sune Rubak [3 2 4]

Affiliations Expand

- PMID: 41741004

- PMCID: PMC12933260

- DOI: 10.1183/16000617.0071-2025

Abstract

Background: Paediatric noncystic fibrosis bronchiectasis (NCFB) is a chronic respiratory condition characterised by airway infection, chronic inflammation, mucociliary dysfunction and structural lung damage. Emerging evidence highlights the importance of the local immune response and microbial environment in driving disease progression.

Objectives: This systematic review aimed to summarise contemporary evidence on bronchoalveolar lavage (BAL)-derived cytokine levels, immune cell phenotypes and microbiota in paediatric NCFB, with a focus on their role in disease pathogenesis, phenotype classification and potential to inform targeted interventions.

Methods: The review followed PRISMA guidelines and was registered with PROSPERO (CRD42024520391). Six electronic databases were searched for studies investigating BAL cytokines, immune cells or microbiota in paediatric NCFB. Data extraction followed a pre-defined template and methodological quality was assessed using the RoB 2.0 and AXIS tools.

Results: 20 studies were included. Methodological and clinical heterogeneity precluded meta-analysis. Across studies, neutrophils consistently dominated the cellular profile, closely associated with pathogen detection, particularly *Haemophilus influenzae* and BAL-derived immunological biomarkers. Cytokine profiling demonstrated consistent elevations of pro-inflammatory mediators, notably interleukin-8, with variable associations to disease severity and pathogen-specific immune responses. Microbiota analyses, though limited, suggest that paediatric NCFB is not defined by a distinct microbial signature of the lower airways.

Conclusion: Current evidence supports a model in which neutrophilic inflammation, driven by dysregulated cytokine responses and potentially sustained by microbial dysbiosis, is central to the pathophysiology of paediatric NCFB. Key gaps remain regarding dysbiosis, adaptive immunity and the longitudinal trajectories of immune

mediators. Addressing these may support biomarker development and targeted therapies.

Conflict of interest statement

Conflict of interest: All authors have nothing to disclose.

- **83 references**

Supplementary info

Publication typesExpand

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Med Princ Pract

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. 2026 Feb 23:1-18.

doi: 10.1159/000551195. Online ahead of print.

Physiology-Guided Selection of Hardware-Assisted Airway Clearance Techniques During Acute Exacerbations of Non-Cystic Fibrosis Bronchiectasis

Aizhan Aminova, Natalia Latypova, Alexey Pak, Konstantin Garkalov, Gulnara Kamalbekova

- **PMID: 41729736**
- **DOI: 10.1159/000551195**

Free article

Abstract

Objective: To assess the short-term clinical effects of individualized, hardware-assisted airway clearance techniques (ACTs) during acute non cystic fibrosis bronchiectasis (NCFB exacerbations).

Methods: In this prospective, controlled cohort study, 46 adults hospitalized with Computed tomography-confirmed bilateral (CT-confirmed bilateral) NCFB were assigned to an intervention group (ACT plus pharmacological therapy; n = 23) or a control group (pharmacological therapy alone; n = 23). ACT modality (intrapulmonary percussive ventilation (IPV), high-frequency chest wall oscillation (HFCWO), or mechanical insufflation-exsufflation (MIE)) was selected based on IPV tolerability and respiratory muscle strength maximum inspiratory pressure Z-score (MIP Z-score). Outcomes included 24-hour sputum volume, dyspnea (modified medical research council dyspnea scale (mMRC), Borg), spirometry, inflammatory markers, and length of hospital stay.

Results: Compared with controls, the intervention group showed greater reductions in sputum volume (-15 vs. -10 mL; $p = 0.005$) and dyspnea (mMRC -1.0 vs. 0.0; Borg -2.0 vs. -1.0; all $p < 0.05$), as well as a shorter hospital stay (median 7 vs. 9 days; $p < 0.05$). There were no differences between groups in spirometric or inflammatory outcomes, and no serious adverse events occurred.

Conclusions: Individualized, physiology-guided device-based ACTs improved mucus clearance and dyspnoea during acute NCFB exacerbations and were well tolerated, without short-term spirometric change. Larger studies with longer follow-up are needed to confirm efficacy before routine clinical implementation.

7

Observational Study

J Asthma

. 2026 Mar;63(3):350-355.

doi: 10.1080/02770903.2025.2596655. Epub 2025 Dec 9.

The effect of continuous positive airway pressure therapy in patients with expiratory large airway collapse with and without asthma

Andras Bikov [1 2], M Zahid Hassan [1], Saba Bokhari [1], Stephen J Fowler [1 2]

Affiliations Expand

- PMID: 41321048

- DOI: 10.1080/02770903.2025.2596655

Abstract

Objective: Expiratory large airway collapse (ELAC) is characterized by abnormal (>50%) narrowing of the large airways. It is a potential reason for poor asthma control and increased rate of asthma exacerbations. Continuous positive airway pressure (CPAP) is a potential treatment for ELAC. However, data on adherence to CPAP and its clinical impact in ELAC are limited.

Methods: Sixty-five patients with ELAC [age 61 (55-70) years, 56 females] who were set up on CPAP between December 2014 and May 2022 were included in this retrospective observational cohort study. Etiologies for ELAC included asthma (*n* = 47), COPD (*n* = 4), bronchiectasis (*n* = 3), relapsing polychondritis (*n* = 3), and large hiatus hernia compromising the bronchi (*n* = 1); in 7 cases it was considered idiopathic.

Results: Thirty-nine patients were adherent to CPAP. Adherence was not related to demographics, clinical characteristics or CPAP settings (all $p > 0.05$). Seventy-seven percent perceived benefits in their respiratory symptoms and 95% reported better sleep. In those with asthma, whilst there was no difference in the daily inhaled corticosteroid dose before and after CPAP ($p = 0.90$), the annual number of systemic corticosteroid courses decreased following CPAP ($p = 0.02$).

Conclusions: CPAP is well tolerated in patients with ELAC, and many report improvement in their respiratory and sleep-related symptoms. There is an additional benefit in patients with concomitant asthma in terms of steroid reduction that needs to be investigated in future studies.

Keywords: Asthma; continuous positive airway pressure; exacerbation; excessive dynamic airway collapse; expiratory large airway collapse; tracheobronchomalacia.

. 2026 Mar:57:65-68.

doi: 10.1016/j.prrv.2025.04.002. Epub 2025 Apr 5.

Pediatric pulmonary and sleep medicine - Best recent articles to read in 2025

Bruce K Rubin [1]

Affiliations Expand

- PMID: 40268602

- DOI: 10.1016/j.prrv.2025.04.002

Abstract

It is a challenge to select the "best" recent publications in a field. This is especially so when faced with a feast of outstanding manuscripts across a broad range of topics. I therefore reached out to a Who's Who of friends and colleagues in pediatric pulmonary and sleep medicine for suggestions, and I was delighted and overwhelmed by the response - please see the Acknowledgements for those who contributed ideas. Overwhelmed, by having to read 77 publications suggested by one or more colleagues and having to winnow the list down to a somewhat reasonable number. I chose to include all papers mentioned by two or more of my colleagues and I then selected the remainder to cover the broad range of our field, based upon my belief that a manuscript represented an important contribution to our understanding and clinical care. What follows are the chosen papers organized by topic area. Given the number of papers that made the final cut, I have briefly summarized each of these manuscripts. I hope that you will find something new and exciting in these publications and that you will have as much fun in reading them as I did.

Keywords: Asthma; Bronchiectasis; Covid-19; Cystic fibrosis; Respiratory syncytial virus; Sleep apnoea; Social determinants of health.

Conflict of interest statement

Declaration of competing interest The author declares that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supplementary info

Publication types, MeSH termsExpand