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

1

Am J Respir Crit Care Med

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. 2026 Sep 25:aamag521.

doi: 10.1093/ajrccm/aamag521. Online ahead of print.

[Association between Airway Mucus Plugs on Computed Tomography and Respiratory Outcomes in Participants with COPD and with Preserved Spirometry: Findings from a Chinese Population](#)

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Affiliations Expand

- PMID: 42789746
- DOI: [10.1093/ajrccm/aamag521](#)

Abstract

Rationale: Airway mucus plugs are a prognostic marker in moderate-to-very severe chronic obstructive pulmonary disease (COPD), but their association with respiratory outcomes has been insufficiently evaluated among participants with preserved spirometry and asymptomatic COPD.

Objectives: To investigate the association between mucus plugs and respiratory outcomes among participants with COPD and with preserved spirometry.

Methods: This prospective community-based cohort study was conducted in China, from July 2019 to September 2024. Eligible participants completed baseline questionnaires, spirometry, and chest CT with follow-up. Mucus plugs were categorized as affecting 0, 1-2, or ≥ 3 lung segments. Respiratory outcomes included exacerbations, lung function decline, and spirometry-defined COPD development.

Measurements and main results: Overall, 1,939 participants (COPD: 847; preserved spirometry: 1,092) were included, and 1,740 (89%) completed the 3-year follow-up. Among participants with preserved spirometry, those with 1-2 or ≥ 3 mucus plugs had a higher exacerbation risk (RR 1.22, 95%CI 1.01-1.48; RR 1.42, 95%CI 1.11-1.81, respectively) than those without mucus plugs. Participants with ≥ 3 mucus plugs had a higher risk of spirometry-defined COPD development (18.2% vs. 7.6%, RR 1.71, 95%CI 1.05-2.78) and faster annual decline in FEV1/FVC than those without mucus plugs. Among participants with COPD, with mild-to-moderate COPD, or with asymptomatic COPD, the presence of ≥ 3 mucus plugs were associated with a higher total and moderate-to-severe exacerbation risk.

Conclusions: Baseline airway mucus plugs potentially associated with future exacerbations in participants with preserved spirometry and COPD, and may suggest an increased risk of spirometry-defined COPD development in those with preserved spirometry.

Keywords: chronic obstructive pulmonary disease; exacerbation; lung function; mucus plugs; preserved spirometry.

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Cite

2

Pulm Ther

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. 2026 Sep 25.

doi: 10.1007/s41030-026-00387-6. Online ahead of print.

[Advanced Pulmonary Drug Delivery Systems: A Narrative Review](#)

[Dil Afrose](#)¹, [Melika Valizadeh](#)², [Shailesh B Kolekar](#)³, [Mano J Mathew](#)⁴, [Alexandr Ceasovschi](#)⁵, [Alexandru Corlateanu](#)⁶, [Pradeesh Sivapalan](#)^{7,8}

Affiliations Expand

- PMID: 42789236
- DOI: [10.1007/s41030-026-00387-6](https://doi.org/10.1007/s41030-026-00387-6)

Abstract

Pulmonary drug delivery systems have gained increasing attention as an effective strategy for the treatment of both respiratory and systemic diseases by enabling targeted, noninvasive, and efficient drug administration through the lungs, with advantages including rapid onset of action, lower drug doses, and reduced systemic adverse effects. Despite these advances, challenges related to formulation stability, aerosol performance, lung clearance mechanisms, and regulatory approval remain. This review explores advanced pulmonary drug delivery systems, with emphasis on the anatomical, physiological, pharmaceutical, and device-related factors that influence aerosol deposition and therapeutic performance. The review examines key mechanisms of particle deposition such as inertial impaction, gravitational sedimentation, Brownian diffusion, interception, and electrostatic interactions, and advanced pulmonary drug carrier systems, including liposomes, nanoparticles, large porous particles, dendrimers, polymeric micelles, biodegradable polymers, and lactose-based dry powder platforms, which enhance drug stability, controlled release, lung retention, and site-specific targeting. The review further summarizes advances in particle engineering technologies and common and advanced inhalation devices, including pressurized metered-dose inhalers, dry powder inhalers, nebulizers, soft mist inhalers, and smart inhaler platforms. Clinical applications of pulmonary drug delivery extend beyond asthma and chronic obstructive pulmonary disease (COPD) to include cystic fibrosis, pulmonary infections, and pulmonary arterial hypertension, while emerging applications in tuberculosis, diabetes, vaccination, gene therapy, and cancer continue to be investigated. Future directions include personalized pulmonary medicine, inhaled biologics and mRNA therapeutics, environmentally sustainable inhaler technologies, artificial intelligence-assisted formulation and device optimization, and evolving regulatory frameworks. Advancements in pulmonary drug delivery technologies may focus on improving drug targeting, optimizing therapeutic performance, and broadening their application in modern clinical practice.

Keywords: Inhalation devices; Nanoparticles; Nebulizer; Particle engineering; Particle technology; Pressurized metered-dose inhalers; Pulmonary drug delivery.

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Conflict of interest statement

Declarations. Conflict of Interest: Dil Afrose, Melika Valizadeh, Shailesh B. Kolekar, Mano J. Mathew, Alexandr Ceasovschih, Alexandru Corlateanu and Pradeesh Sivapalan have nothing to disclose. Ethical Approval: This article is based on previously conducted studies and does not contain any new studies with human participants or animals performed by any of the authors.

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Cite

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Am J Respir Crit Care Med

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. 2026 Sep 25:aamag497.

doi: 10.1093/ajrccm/aamag497. Online ahead of print.

[One-year progression of CT emphysema subtypes predict lung function decline: SPIROMICS](#)

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Affiliations Expand

- PMID: 42788667
- DOI: [10.1093/ajrccm/aamag497](#)

Abstract

Rationale: Intermediate endpoints that predict lung function decline are needed to improve the efficiency of clinical trials in chronic obstructive pulmonary disease (COPD).

Objectives: To test if one-year progression of quantitative computed tomography (QCT) measures predicts subsequent FEV₁ decline.

Methods: SPIROMICS recruited individuals with ≥ 20 pack-years smoking history with or without COPD and nonsmoking controls who underwent four annual and a later fifth visit. We analyzed chest CT scans at visits one and two for machine-learned CT emphysema subtypes (combined bronchitic-apical emphysema [CBaE], diffuse emphysema) and standard QCT measures of emphysema (percent emphysema-950HU, 15th percentile HU, volume-adjusted lung density), airways, functional small airways, hyperinflation, parenchymal texture and vasculature.

Linear mixed-effects models evaluated associations between one-year QCT measure changes and FEV₁ decline from visits two through five, adjusting for demographics, site, enrollment group, baseline QCT value, and time-varying anthropometrics and smoking.

Measurements and main results: Among 880 participants (43% mild/moderate COPD, 17% severe COPD, 29% smoking controls, 11% nonsmoking controls), FEV₁ declined -30.4mL/year (95% CI: -34.5, -26.3). A standard deviation (SD) one-year increase in CBaE and diffuse emphysema predicted an accelerated decline in FEV₁ of - 4.2 mL/year (95% CI: -8.3, -0.2) and -6.2 mL/year (95% CI: -10.7, -1.8), respectively. Changes in standard QCT emphysema measures also predicted change in FEV₁ decline, but only CBaE and diffuse emphysema remained independently predictive of accelerated FEV₁ decline when all were considered together.

Conclusions: One-year progression of CT emphysema subtypes predicted accelerated FEV₁ decline, supporting their potential use as intermediate endpoints in COPD trials.

Keywords: COPD; Emphysema; Lung function.

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Cite

4

Chronic Obstr Pulm Dis

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. 2026 Sep 25;13(5):436-438.

doi: 10.15326/jcopdf.2026.0886.

[Response To: Initial Results Do Not Support That Fully Virtual Pulmonary Rehabilitation Widens Reach to Underserved Patients With COPD](#)

[Emily A Schultz](#)¹, [Madeleine Frank](#)², [Sara L Eppler](#)¹, [Melissa Dymock](#)², [Robin N Kamal](#)¹, [Julia Maheshwari](#)³, [Eggert Lauren E](#)³

Affiliations Expand

- PMID: 42786546

- DOI: [10.15326/jcopdf.2026.0886](https://doi.org/10.15326/jcopdf.2026.0886)

No abstract available

Keywords: chronic airways obstruction; pulmonary rehabilitation; socioeconomic status.

Full text links



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5

Chronic Obstr Pulm Dis

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. 2026 Sep 25;13(5):433-435.

doi: [10.15326/jcopdf.2026.0877](https://doi.org/10.15326/jcopdf.2026.0877).

[Initial Results Do Not Support That Fully Virtual Pulmonary Rehabilitation Widens Reach to Underserved Patients With COPD](#)

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Affiliations Expand

- PMID: 42786523
- DOI: [10.15326/jcopdf.2026.0877](https://doi.org/10.15326/jcopdf.2026.0877)

No abstract available

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Chronic Obstr Pulm Dis

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. 2026 Sep 25;13(5):340-342.

doi: 10.15326/jcopdf.2026.0871.

Not All Oxygen is Delivered Equally: Pulse-Dose Versus Continuous Flow in Practice and Physiology

Heather M Giannini¹, Wassim W Labaki²

Affiliations Expand

- PMID: 42786440
- DOI: [10.15326/jcopdf.2026.0871](https://doi.org/10.15326/jcopdf.2026.0871)

No abstract available

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7

Pulm Ther

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. 2026 Sep 24.

doi: 10.1007/s41030-026-00381-y. Online ahead of print.

Real-World Effectiveness of Mepolizumab Initiation in Treating Asthma and Concurrent Chronic Obstructive Pulmonary Disease in the US

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Affiliations Expand

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- DOI: [10.1007/s41030-026-00381-y](https://doi.org/10.1007/s41030-026-00381-y)

Abstract

Introduction: Mepolizumab reduces exacerbations in patients with asthma but real-world data on its effectiveness in asthma and concurrent chronic obstructive

pulmonary disease (COPD) are limited. This study assessed the real-world impact of mepolizumab initiation in patients with asthma and concurrent COPD.

Methods: Retrospective, longitudinal analysis from the US Komodo Research claims database (January 2016-June 2023). Eligible patients (aged ≥ 12 years; ≥ 2 mepolizumab claims) had ≥ 1 asthma claim and were categorized as asthma with concurrent COPD (≥ 1 COPD claim) or asthma only. Outcomes assessed in the 12 months post- versus 12 months pre-mepolizumab initiation included annualized exacerbation rates, oral corticosteroid (OCS) dispensing and burst rates, and asthma- and COPD-related healthcare resource utilization (HCRU), and healthcare costs.

Results: A total of 2106 patients had asthma with concurrent COPD; 4674 asthma only. The annualized rate of exacerbations decreased by 50% post- versus pre-mepolizumab in patients with asthma and concurrent COPD {rate ratio [95% confidence interval (CI)]: 0.50 [0.48, 0.53]; $P < 0.001$ }, and by 49% in patients with asthma only [0.51 (0.49, 0.53); $P < 0.001$]. The relative reduction [rate ratio (95% confidence interval)] in hospitalization-defined exacerbations was 52% [0.48 (0.42, 0.54); $P < 0.001$] and 41% [0.59 (0.52, 0.67); $P < 0.001$] in the asthma with concurrent COPD and asthma-only cohorts, respectively. Relative reductions of between 36 and 44% in OCS dispensing and bursts were observed across both cohorts ($P < 0.001$); relative reductions of 42-49% were observed across both cohorts in HCRU, including in hospitalizations and emergency room visits ($P < 0.001$). Mean total healthcare costs per patient per year in the asthma with concurrent COPD cohort were \$11,770 (30,663) post- versus \$23,771 (66,737) pre-mepolizumab initiation, corresponding to a cost difference (95% CI) of \$-12,001 (-14,816, -9,186) ($P < 0.001$).

Conclusion: In this analysis of a large US claims database, mepolizumab reduced exacerbations and overall disease burden in patients with asthma and concurrent COPD.

Keywords: Anti-IL-5; Biologics; Claims database analysis; Exacerbations; Healthcare resource utilization; Retrospective cohort study.

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Conflict of interest statement

Declarations. Conflict of Interest: Surya P Bhatt has received grants/research support from Nuaira, Genentech, COPD Foundation, and Sanofi/Regeneron; royalties or licenses from Springer; consulting fees from AstraZeneca, Boehringer Ingelheim, Sanofi, Regeneron, GSK, Genentech, Chiesi, Merck, Polarean, Verona Pharma, and Apreo; speaker/honoraria from IntegrityCE, Horizon CME, Integritas Communications, Illuminate Health, and Medscape; and participation on a Data Safety Monitoring Board for NIH. Ravi Kalhan has personal fees from AstraZeneca, Boehringer Ingelheim, GSK, CSA Medical, and CVS Caremark. Guillaume Germain, Jacob Klimek, Sophie Ma, and François Laliberté are employees of Groupe d'analyse, a consulting company which received payment from GSK to conduct this study. Shibing Yang, Rosirene Paczkowski, Stefanie Kolterer, Emmeline Burrows, and Jihye Park are employees of GSK and hold financial equities in GSK. William W Busse reports consultancy fees from GSK, Sanofi, Regeneron Pharmaceuticals Inc., Novartis, and AstraZeneca; speaker support/fees from GSK, Regeneron Pharmaceuticals, Inc., and Sanofi; and book royalties from Elsevier. Ethical

Approval: Approval of this study was provided by the GSK Protocol Review Committee, which reviewed and endorsed the protocol (GSK ID: 222359). This study complied with all applicable laws regarding subject privacy. No direct subject contact or primary collection of individual human subject data occurred. Personal identifiers and personally identifiable information were removed by the database provider prior to receipt by the study team. Study results are in tabular form and aggregate analyses that omit subject identification, therefore informed consent, ethics committee, or institutional review board approval were not required. This study was designed, implemented, and reported in accordance with the 2015 Guidelines for Good Pharmacoepidemiology Practices of the International Society for Pharmacoepidemiology, the Strengthening the Reporting of Observational Studies in Epidemiology guidelines, and the ethical principles laid down in the Declaration of Helsinki of 1964, and its later amendments.

- [46 references](#)

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8

Chest

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. 2026 Sep 24:S0012-3692(26)06706-1.

doi: 10.1016/j.chest.2026.08.053. Online ahead of print.

[Pulmonary Artery Dilation on Chest CT Across the Spectrum of Chronic Lung Disease](#)

[Tyler J Couch](#)¹, [Gerald J Beck](#)², [Erika Berman Rosenzweig](#)³, [J Jeffrey Carr](#)⁴, [Joao A de Andrade](#)⁵, [Serpil C Erzurum](#)⁶, [Robert P Frantz](#)⁷, [Paul M Hassoun](#)⁸, [Nicholas S Hill](#)⁹, [Evelyn M Horn](#)¹⁰, [Jay S Leb](#)¹¹, [Jason K Lempel](#)¹², [Jane A Leopold](#)¹³, [Cheng T Lin](#)¹⁴, [Stephen C Mathai](#)⁸, [Monica Mukherjee](#)¹⁵, [Hui Nian](#)¹⁶, [Geraldyn M Palmer](#)⁵, [Farbod N Rahagi](#)¹⁷, [David N Ray](#)⁵, [Franz P Rischard](#)¹⁸, [Kevin T Schwalbach](#)⁵, [James G Terry](#)¹⁹, [George R Washko](#)²⁰, [Anna R Hemnes](#)⁵; [PVDOMICS Study Group](#)

Affiliations Expand

- PMID: 42785424
- DOI: [10.1016/j.chest.2026.08.053](#)

Abstract

Background: Pulmonary artery (PA) dilation on CT has been associated with pulmonary hypertension (PH) in subjects without lung disease using outdated PH criteria. The relationship between PA size and PH in chronic lung disease is unclear.

Research question: Is PA size associated with PH in subjects with chronic lung disease, and does association differ by disease etiology?

Methods: PA diameter and PA/aorta ratio (PA/A) were measured on CT for all group 3 PH subjects and comparators in the PVDOMICS Cohort. Subjects were categorized into obstructive, interstitial, or non-parenchymal subgroups. Mean PA pressure (mPAP) was measured on right heart catheterization. Associations and diagnostic performance were assessed using multivariable linear and logistic regression and receiver operating curve analysis.

Results: Among 252 subjects (81 obstructive, 125 interstitial, 46 non-parenchymal), PA size associated with PH (Q3 vs Q1 OR 4.30 [2.32-8.00] for diameter, 5.66 [2.86-11.18] for PA/A) and mPAP ($p = 0.516$ for diameter, 0.494 for PA/A; $p < 0.001$) and possessed moderate ability to detect PH (AUC 0.794 for diameter, 0.765 for PA/A). Association between PA/A and mPAP was strongest in non-parenchymal subjects ($p = 0.750$) and weakest in interstitial subjects ($p = 0.373$). PA/A diagnostic performance was lower in interstitial subjects (AUC 0.704) than in obstructive (AUC 0.865) and non-parenchymal (AUC 0.822) subjects. PA dilation between Q1 and Q3 mPAP was lower in interstitial (3.9 [95% CI 2.3-5.4] mm) compared to obstructive (4.9 [2.4-7.4] mm) and non-parenchymal (4.8 [1.8-7.8] mm) subjects.

Keywords: chronic obstructive pulmonary disease; computed tomography; diagnostic imaging; interstitial lung disease; pulmonary hypertension.

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Rev Med Suisse

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doi: 10.53738/REVMED.2026.22.976.49162.

[\[Asthma and COPD: what is new in their management in 2026?\]](#)

[Article in French]

[Josepha Lekonya Salah Manoh](#)¹, [Tristan Gugler](#)¹, [Ivan Guerreiro](#)², [Florian Charbonnier](#)², [Johanna Sommer](#)³, [Charlotte Pampurik](#)¹

Affiliations Expand

- PMID: 42779315
- DOI: [10.53738/REVMED.2026.22.976.49162](#)

Abstract

in [English, French](#)

Asthma and Chronic Obstructive Pulmonary Disease (COPD) are the most prevalent chronic respiratory diseases in Switzerland, but their diagnosis remains challenging. Recent updates in international management guidelines have led to revisions in diagnosis, classification, and therapeutic management. In asthma, diagnostic criteria and exams are better defined and hierarchized, biologic therapies currently play a central role in severe asthma management, and salbutamol reliever monotherapy is no longer recommended. In COPD, GOLD guidelines have simplified their patient stratification into 3 categories (A, B, and E) and a single moderate exacerbation is now sufficient for inclusion in the high exacerbation risk group (E). Exacerbation severity is now graded according to the Rome proposal framework.

Conflict of interest statement

I. Guerreiro et F. Charbonnier ont reçu des honoraires de conférencier et de participation à des comités consultatifs d'AstraZeneca, GSK, Sanofi, ainsi que des soutiens de la part de la Ligue pulmonaire genevoise, qui ont été versés à son institution. Les autres auteurs n'ont déclaré aucun conflit d'intérêts en relation avec cet article.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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10

Review

Eur Respir Rev

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. 2026 Sep 23;35(181):260160.

doi: 10.1183/16000617.0160-2026. Print 2026 Jul.

[Iron and the lung: emerging roles of iron metabolism in pulmonary disease pathogenesis and therapy](#)

[Apostolos Galaris](#)¹, [Dimitrios Toumpanakis](#)², [Dimitrios Galaris](#)³, [Theodoros Vassilakopoulos](#)⁴, [Kostas Pantopoulos](#)⁵

Affiliations Expand

- PMID: 42778207
- PMCID: [PMC13598627](#)
- DOI: [10.1183/16000617.0160-2026](#)

Abstract

Iron is an essential micronutrient, but its redox reactivity also renders it potentially toxic. The lungs are particularly vulnerable to iron-dependent oxidative injury due to continuous exposure to high oxygen tension, environmental particles, and microbial pathogens. Pulmonary iron homeostasis is therefore tightly regulated at systemic, cellular, and local levels through coordinated actions of transferrin, ferritin, ferroportin, hepcidin, and the iron responsive element/iron regulatory protein system. Disruption of these pathways contributes to a broad spectrum of pulmonary diseases. In COPD, asthma, idiopathic pulmonary fibrosis, pulmonary arterial hypertension, infectious lung diseases, and lung cancer, iron dysregulation promotes oxidative stress, ferroptosis, inflammation, aberrant repair, vascular remodelling, or pathogen persistence. Notably, systemic iron deficiency may coexist with local pulmonary iron overload, highlighting the compartmentalised nature of lung iron metabolism. Emerging experimental and clinical evidence suggests that therapeutic manipulation of iron availability through supplementation, chelation or targeting iron-dependent pathways may be beneficial in selected contexts. A deeper mechanistic understanding and improved biomarkers will be essential for developing disease-specific iron-modulating strategies.

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Conflict of interest statement

Conflict of interest: All authors have nothing to disclose.

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

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Cite

11

J Allergy Clin Immunol Pract

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. 2026 Sep 23:S2213-2198(26)00781-6.

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[Ocular Safety of Dupilumab Compared With IL-5 Inhibitors in Asthma](#)

[Hsiao-Mei Tsao](#)¹, [Pei-Lun Wu](#)², [Ya-Hui Wang](#)³, [Chao-Hsien Chen](#)⁴, [Cheng-Yi Wang](#)⁵, [Chih-Cheng Lai](#)⁶, [Vin-Cent Wu](#)⁷, [Hao-Chien Wang](#)⁸, [Hsin-Yi Chen](#)⁹

Affiliations Expand

- PMID: 42777916
- DOI: [10.1016/j.jaip.2026.09.006](#)

Abstract

Background: Ocular adverse events (OAEs) are a clinical concern among patients with asthma receiving biologic therapy. Although dupilumab is associated with OAEs in atopic dermatitis (AD), its comparative ocular safety versus interleukin-5 (IL-5) inhibitors in asthma remains unclear.

Objective: To compare the risk of OAEs between dupilumab and IL-5 inhibitors in adults with asthma using a target trial emulation framework.

Methods: This retrospective cohort study utilized the TriNetX US Collaborative Network (2018-2025) to identify adults with asthma initiating dupilumab or IL-5 inhibitors (mepolizumab or benralizumab), excluding those with OAEs within the 12 months before treatment initiation. After 1:1 propensity score matching, the composite outcome of OAEs was assessed. Adjusted hazard ratios (aHRs) were estimated using Cox proportional hazards regression over a 6-month follow-up.

Results: After matching, 7,073 pairs were identified, with few having AD (0.9%) but substantial chronic obstructive pulmonary disease (COPD) comorbidity (~30%). Unlike prior studies in AD populations, overall OAE incidence was low in both groups, though risk was higher with dupilumab than IL-5 inhibitors (2.6% vs 2.1%; aHR, 1.25; 95% CI, 1.01-1.55). Conjunctivitis risk was also higher (1.5% vs 1.1%; aHR, 1.38; 95% CI, 1.03-1.86), whereas no significant difference was observed for dry eye syndrome (aHR, 1.15; 95% CI, 0.80-1.66). Subgroup analyses showed no evidence of effect modification by age, sex, allergic rhinitis, or COPD status (all P for interaction >.05), although risk was higher among younger adults for OAEs and among younger and male adults for conjunctivitis. Findings were generally

consistent, though significance was not retained after excluding patients with AD, hypereosinophilic syndrome or Sjögren's syndrome (aHR, 1.23; 95% CI, 0.98-1.54) or among persistent biologic use (aHR, 1.29; 95% CI, 0.87-1.93).

Conclusion: Dupilumab was associated with a modestly higher, but overall infrequent, risk of OAEs than IL-5 inhibitors in asthma over 6 months (2.6% vs 2.1%), a rate substantially lower than the 8-28% previously reported in AD populations. This risk, driven primarily by conjunctivitis, was most pronounced among younger adults, men, and patients with comorbid AD, suggesting that AD may also contribute to this adverse effect. Continued ocular monitoring is warranted, particularly in these subgroups.

Keywords: Asthma; Dupilumab; IL-5 inhibitors; Ocular adverse events; Real-world evidence; Target trial emulation.

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Cite

12

Am J Respir Crit Care Med

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. 2026 Sep 23:aamag465.

doi: 10.1093/ajrccm/aamag465. Online ahead of print.

[Targeting the IL-33/ST2 Axis for Frequent COPD Exacerbations: Insights and Limitations From Pooled ALIENTO and ARNASA Analyses](#)

[Shixiu Liang](#)^{1,2}, [Yunqi Deng](#)², [Xiaoling Xian](#)², [Sitong Lin](#)³, [Yingjun Chen](#)³

Affiliations Expand

- PMID: 42776605
- DOI: [10.1093/ajrccm/aamag465](#)

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Cite

13

Am J Respir Crit Care Med

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[Epigenetic Age Acceleration as Potential Marker of Smoking-Related Airflow Limitation and COPD Risk](#)

[Sandra Casas-Recasens¹](#), [Judith M Vonk^{2,3}](#), [Tigist D Adane²](#), [Julieta Viglino^{1,4}](#), [Alvar Agustí^{1,5,6}](#), [Maarten van Den Berge^{3,7}](#), [Rosa Faner^{1,4,5}](#), [Maaike De Vries^{2,3}](#)

Affiliations Expand

- PMID: 42776041
- DOI: [10.1093/ajrccm/aamag505](#)

No abstract available

Keywords: aging; epigenetics; lifespan; lung function; smoking.

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Cite

14

Am J Respir Crit Care Med

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[Reply to Liang et al.: Targeting the IL-33/ST2 Axis for Frequent COPD Exacerbations: Insights and Limitations From Pooled ALIENTO and ARNASA Analyses](#)

[Jadigwa A Wedzicha](#)¹, [Àlvar Agustí](#)^{2 3 4 5}, [Divya Mohan](#)⁶, [Bartolome R Celli](#)⁷

Affiliations Expand

- PMID: 42776026
- DOI: [10.1093/ajrccm/aamag468](#)

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Published Erratum

Respir Res

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. 2026 Sep 22;27(1):366.

doi: 10.1186/s12931-026-03896-9.

[Correction: Modeled reductions in COPD exacerbation rates, mortality, and related medical costs due to increased SITT adoption: PROMETHEUS Italy](#)

[Pierachille Santus](#)¹, [Bianca Oresta](#)², [Davide Finocchiaro](#)³, [Piergiuseppe De Rosa](#)², [John Bell](#)⁴, [Melissa Caplen](#)⁵, [Jennifer Carioto](#)⁶, [Prachi Bhatt](#)⁵, [Bruce Pyenson](#)⁵, [Alberto Papi](#)⁷

Affiliations Expand

- PMID: 42773460
- PMCID: [PMC13595710](#)
- DOI: [10.1186/s12931-026-03896-9](#)

No abstract available

Erratum for

- [Modeled reductions in COPD exacerbation rates, mortality, and related medical costs due to increased SITT adoption: PROMETHEUS Italy.](#)

Santus P, Oresta B, Finocchiaro D, De Rosa P, Bell J, Caplen M, Carioto J, Bhatt P, Pyenson B, Papi A. *Respir Res.* 2025 Oct 28;26(1):296. doi: 10.1186/s12931-025-03358-8. PMID: 41152872 Free PMC article.

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- [4 figures](#)

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Review

Respir Med

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. 2026 Sep 23:263:109177.

doi: 10.1016/j.rmed.2026.109177. Online ahead of print.

[Physical inactivity in COPD: a key determinant of frailty and adverse outcomes](#)

[Claudio Candia](#)¹, [Klara Komici](#)², [Salvatore Fuschillo](#)¹, [Pasquale Ambrosino](#)³, [Silvestro Ennio D'Anna](#)¹, [Giuseppe Rengo](#)⁴, [Mauro Maniscalco](#)⁵

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- PMID: 42772467
- DOI: [10.1016/j.rmed.2026.109177](#)

Abstract

Physical inactivity is a defining feature in chronic obstructive pulmonary disease (COPD) and is strongly associated with adverse clinical outcomes, including exacerbations, hospitalizations, and mortality. Increasing evidence suggests that inactivity is not merely a consequence of respiratory impairment but may actively contribute to disease progression and the development of frailty. This review

examines the mechanisms underlying physical inactivity in COPD, its clinical implications, and current strategies for its assessment and management. Physical inactivity arises from a complex interplay between ventilatory limitation, skeletal muscle dysfunction, systemic inflammation, and behavioral factors, and it often develops early in the disease course, independently of airflow limitation. Recent studies have identified distinct inactivity phenotypes and highlighted the importance of total daily movement, including light-intensity activity. Importantly, physical inactivity plays a central role in the transition toward sarcopenia and frailty, contributing to a reduced physiological reserve and an increased vulnerability to adverse outcomes. Although interventions such as pulmonary rehabilitation and activity coaching can improve exercise capacity and short-term activity levels, their long-term effectiveness remains limited. These findings highlight the need for earlier, personalized, and multimodal approaches. Targeting physical inactivity represents a promising strategy to modify disease trajectory and improve long-term outcomes in patients with COPD.

Keywords: COPD; Disability; Exercise; Frailty; Muscle dysfunction; Outcome; Physical activity; Rehabilitation; Sarcopenia.

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Conflict of interest statement

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

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Review

Prim Health Care Res Dev

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. 2026 Sep 22:27:e106.

doi: 10.1017/S1463423626101480.

Implementing quality improvement for patients with high-risk chronic disease: lessons from the CONQUEST UK COPD programme

[David M G Halpin](#)^{1,2}, [James Gatenby](#)³, [Katherine Hickman](#)^{4,5,6}, [John Hurst](#)⁷, [Amy Couper](#)^{2,3}, [Andrew P Dickens](#)², [Alexander Evans](#)², [Alejandro Adan Coronado](#)³, [Rachel Pullen](#)², [Luís Alves](#)^{8,9}, [Mona Bafadhel](#)¹⁰, [Victoria Carter](#)³, [Michael Crooks](#)¹¹, [Marc Miravittles](#)¹², [Tamsin Morris](#)¹³, [Hana Müllerová](#)¹³, [Mukesh Singh](#)¹⁴, [Jennifer K Quint](#)¹⁵, [Dave Singh](#)¹⁶, [Tom Wilkinson](#)^{17,18}, [Tonya Winders](#)¹⁹, [David Price](#)^{2,3,20}

Affiliations Expand

- PMID: 42770200
- DOI: [10.1017/S1463423626101480](https://doi.org/10.1017/S1463423626101480)

Abstract

Large-scale quality improvement programmes (QIPs) have diverse factors that may influence their success and can undergo rapid changes throughout their lifecycle. The COllaborationN on QUality improvement initiative for achieving Excellence in STandards of COPD care (CONQUEST) programme has recently been implemented in primary care practices in the UK. The CONQUEST programme aims to identify patients with already diagnosed and undiagnosed COPD at high risk of COPD-related adverse outcomes and optimize their management. CONQUEST has been successful in identifying COPD patients who may represent an outsized opportunity to improve patient outcomes and healthcare utilization, whilst focusing on relatively few patients per primary care practice. This paper reviews the steps involved in implementing CONQUEST in the UK, focussing on the challenges encountered, the solutions used to overcome these challenges barriers, and the lessons learned for the implementation of QIPs more widely. Key lessons from this process include that QIPs need to be designed with the flexibility to adapt to multiple and different local contexts, that early monitoring of data across the lifecycle of a QIP allows efficient detection of issues and troubleshooting, and that planning for allocation of limited resources to a QIP is essential for real-world implementation. The problems and solutions described here are applicable to QIPs in a wide variety of high-risk diseases and different healthcare settings.

Keywords: chronic disease; implementation; primary care; quality improvement.

Supplementary info

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ERJ Open Res

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. 2026 Sep 21;12(5):01587-2025.

doi: 10.1183/23120541.01587-2025. eCollection 2026 Sep.

[Emphysema Severity Index: a new spirometric parameter in epidemiology](#)

[Sara Maio](#)¹, [Giovanni Viegi](#)^{1,2}, [Laura Carrozzi](#)³, [Sandra Baldacci](#)¹, [Giuseppe Sarno](#)¹, [Anna Angino](#)¹, [Ilaria Stanisci](#)^{1,4}, [Sofia Tagliaferro](#)^{1,5}, [Patrizia Silvi](#)¹, [Giovanni Cenerini](#)³, [Michele Paladina](#)³, [Maria Elena Occhipinti](#)⁶, [Matteo Paoletti](#)⁷, [Massimo Pistolesi](#)⁷, [Francesco Pistelli](#)³

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- PMID: 42769809
- PMCID: [PMC13591299](#)
- DOI: [10.1183/23120541.01587-2025](#)

Abstract

Background: The Emphysema Severity Index (ESI) is a recently developed parameter describing the curvilinear shape of the expiratory flow/volume curve to evaluate the emphysema contribution to airflow obstruction (AO), as observed in COPD patients and geriatric populations. The aim of the present study was to assess ESI usefulness in respiratory epidemiology studies where spirometry is typically the only available objective tool.

Methods: An adult population sample of Pisa (Central Italy) (n=685, 47.3% male, mean age 53.3 years) participated in an epidemiological survey through standardised questionnaire and spirometry (2009-2011); information on hospital admissions was available up to 2017. The input variables for the ESI computing algorithm are peak expiratory flow, forced vital capacity (FVC) and the forced expiratory flows at 25%, 50% and 75% of FVC. ESI is a numerical value ranging from 0 (no emphysema) to 10 (very severe emphysema). Statistics included descriptive analyses, Kruskal-Wallis nonparametric test and logistic regression models.

Results: The ESI mean±sd value was: 1.16±0.78; median (IQR) 0.98 (0.39). The ESI was significantly higher in males, ex-smokers, the elderly, subjects with asthma/COPD, and in those with limited daily activities, higher number of doctor visits and hospital admission for respiratory disease. For each increment of an ESI IQR, higher odds of respiratory outcomes, daily activity limitations and use of health services emerged in the total sample, but also in subjects without AO.

Conclusions: ESI represents a potentially valuable indicator in epidemiological surveys on the general population and allows early changes in lung function to be identified also in subjects without AO, which is valuable for secondary prevention.

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Conflict of interest statement

Conflict of 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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. 2026 Sep 21;12(5):00418-2026.

doi: 10.1183/23120541.00418-2026. eCollection 2026 Sep.

[Adjuvanted RSVPreF3 vaccine impact over three respiratory syncytial virus seasons in older adults with comorbidities](#)

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- PMID: 42769451
- PMCID: [PMC13591300](#)
- DOI: [10.1183/23120541.00418-2026](#)

Abstract

Background: We explored the efficacy of AS01_E-adjuvanted respiratory syncytial virus prefusion F protein-based vaccine (adjuvanted RSVPreF3) in subpopulations of participants with underlying medical conditions in the multi-country, phase 3 AReSVi-006 trial (conducted between May 2021 and May 2024).

Methods: Medically stable ≥60-year-olds were 1:1-randomised to receive one adjuvanted RSVPreF3 or placebo dose pre-RSV season 1. In exploratory *post hoc*

analyses in subgroups of participants with underlying conditions (including COPD, asthma, diabetes and obesity (body mass index ≥ 30 kg·m⁻²)), we evaluated efficacy of one vaccine dose against RSV-related lower respiratory tract disease (RSV-LRTD), RSV-related acute respiratory illness (RSV-ARI) and RSV-ARI-related complications (e.g., pneumonia, COPD/asthma exacerbation and cardiovascular events). We also evaluated (*post hoc*) RSV-ARI-related systemic corticosteroid and antibiotics use in participants with COPD or asthma.

Results: The efficacy analyses comprised 12 468 vaccine and 12 498 placebo recipients. Efficacy against RSV-LRTD over three RSV seasons was similar among participants with COPD (75.1%, 95% CI: 40.2-91.4), asthma (65.8%, 31.0-84.7), diabetes (69.8%, 37.5-87.1) and obesity (74.1%, 56.4-85.5) as in the overall study population (62.9%, 97.5% CI: 46.7-74.8). Efficacy was also observed against RSV-ARI in these subgroups. Efficacy against RSV-ARI-related complications was 74.4% (95% CI: 11.2-95.2) in participants with COPD and 60.8% (-9.9-88.7) in those with asthma. Among participants with COPD, 15.4% (1.9-45.4) of RSV-ARI episodes in vaccine *versus* 22.4% (12.5-35.3) in placebo recipients were treated with systemic corticosteroids, and 46.2% (19.2-74.9) *versus* 56.9% (43.2-69.8) with antibiotics.

Conclusions: *Post hoc* analyses of the AReSVi-006 trial suggest that adjuvanted RSVPreF3 may help prevent RSV-ARI, RSV-LRTD and RSV-related complications in medically stable older adults with underlying medical conditions like COPD and asthma.

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Conflict of interest statement

Conflict of interest: A Papi declares funding from GSK paid to his institution for conducting the trial; grants from GSK, Chiesi, AstraZeneca and Sanofi; and consulting fees and/or honoraria from GSK, Chiesi, AstraZeneca, Sanofi, Avillion, Moderna, Roche, Regeneron, Zambon and Zentiva. D.M.G. Halpin declares honoraria from AstraZeneca, Boehringer Ingelheim, Chiesi, GSK, Inogen, Menarini, Novartis, Pfizer and Sanofi; and payment from Chiesi and Synairgen for participating on data safety monitoring boards or advisory boards. R.G. Feldman declares payments from GSK for expert testimony and lectures. M.G. Ison declares that research support from GSK was paid to his previous institution, Northwestern University; he received consulting fees paid by Adagio Therapeutics, ADMA Biologics, Adamis Pharmaceuticals, AlloVir, Atea, Cidara Therapeutics, Genentech/Roche, Janssen, Shionogi, Takeda, Talaris and Eurofins Viracor; and payment for participation in data safety monitoring boards or advisory boards from Adamis Pharmaceuticals, AlloVir, National Institutes of Health, CSL Behring, Janssen, Merck, Seqirus, Takeda and Talaris (all of these ended in December, 2022); author royalties from UpToDate, which is ongoing; serves as Chair of the International Society for Influenza and other Respiratory Virus Diseases Antiviral Group (separate from his government service), and used to be Editor-in-Chief of Transplant Infectious Disease; was a consultant for Romark but received no consulting fees; and is currently employed by the National Institutes of Health, but his role in the trial started prior to this employment (the content of this publication is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health). T.F. Schwarz reports honoraria from AstraZeneca, Bavarian Nordic, Biogen, BioNTech, CSL-Seqirus, CSL-Vifor, Diasorin, GSK, Janssen-Cilag, Merck-Serono, Moderna, MSD, Novavax, Pfizer, Roche, Sanofi-Aventis, Synlab and

Takeda; and participation on advisory boards from Bavarian Nordic, BioNTech, CSL-Seqirus, GSK, Moderna, Novavax and Takeda. R. Antonelli Incalzi declares that his institution received a grant from GSK for conducting the trial. L. Fissette, S. Xavier, M-P. David, J-P. Michaud, S. Kotb, C. Maréchal, A. Olivier, V. Hulstrøm and M. Van der Wielen are employed by GSK; L. Fissette, M-P. David, J-P. Michaud, S. Kotb, C. Maréchal, A. Olivier, V. Hulstrøm and M. Van der Wielen hold financial equities in GSK. M. Van der Wielen has stock options from Haleon. L. Fissette, M-P. David and M. Van der Wielen are part of vaccine patents filed by GSK. D-G. Lee declares no competing interests. The authors declare no other financial or nonfinancial relationships.

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

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Cite

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Chest

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. 2026 Sep 21:S0012-3692(26)06677-8.

doi: 10.1016/j.chest.2026.09.018. Online ahead of print.

[Chronic Obstructive Pulmonary Disease versus Type 2 Diabetes Mellitus: A Comparative and Additive Risk Assessment of Bone Health in a Nationwide Propensity Score-Matched Cohort](#)

[Fu-Shun Ko](#)¹, [James Cheng-Chung Wei](#)², [Fu-Shun Yen](#)³, [Yu-Chieh Wang](#)⁴, [Der-Yang Cho](#)⁵, [Chih-Cheng Hsu](#)⁶, [Chii-Min Hwu](#)⁷

Affiliations Expand

- PMID: 42767594
- DOI: [10.1016/j.chest.2026.09.018](#)

Abstract

Background: Chronic obstructive pulmonary disease (COPD) and type 2 diabetes mellitus (T2DM) are both associated with bone fragility through distinct mechanisms. COPD is characterized by accelerated bone resorption, whereas T2DM is associated with impaired bone quality despite preserved bone mineral density.

Research question: Does COPD confer greater skeletal hazards than T2DM, and does concomitant COPD and T2DM further increase the risks of osteoporosis and fractures?

Study design and methods: We conducted a nationwide retrospective cohort study using Taiwan's National Health Insurance Research Database. Propensity score matching was applied to construct three comparison cohorts of patients with T2DM, COPD, and concomitant COPD and T2DM. Adjusted hazard ratios (aHRs) for incident osteoporosis, major osteoporotic fractures (MOF), and site-specific fractures were estimated using multivariable Cox proportional hazards models after adjustment for demographic characteristics, comorbidities, and medication use.

Results: Compared with T2DM, COPD was associated with a significantly higher hazard of osteoporosis (aHR, 1.51; 95% CI, 1.35-1.69). Patients with concomitant COPD and T2DM also had higher hazards of osteoporosis (aHR, 1.39; 95% CI, 1.23-1.57), MOF (aHR, 1.19; 95% CI, 1.08-1.32), spine fractures (aHR, 1.35; 95% CI, 1.16-1.58), and radioulnar fractures (aHR, 1.21; 95% CI, 1.02-1.43) than patients with T2DM alone. In contrast, osteoporosis and fracture risks were comparable between patients with concomitant COPD and T2DM and those with COPD alone. Subgroup analyses identified significant effect modification by sex, with the association between COPD and osteoporosis being stronger in men than in women.

Interpretation: COPD is significantly more toxic to the skeleton than T2DM, and their coexistence amplifies fracture susceptibility compared to T2DM alone. Importantly, male patients with COPD represent a distinctly vulnerable population, exhibiting a pronounced susceptibility to disease-induced bone loss. Clinicians must prioritize early and targeted osteoporosis screening for COPD patients, especially men.

Keywords: Bone Fragility; Chronic Obstructive Pulmonary Disease; Major Osteoporotic Fractures; Osteoporosis; Type 2 Diabetes Mellitus.

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J Am Coll Radiol

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. 2026 Sep 21:S1546-1440(26)00472-2.

doi: 10.1016/j.jacr.2026.09.013. Online ahead of print.

[Opportunistic Screening for Cardiovascular and Chronic Obstructive Pulmonary Disease Biomarkers and Implications for Downstream Care: A Retrospective Lung Cancer Screening Cohort Study](#)

[Lauren K Groner](#)¹, [Maria Patricia Puello](#)², [Chukwuma Onyebeke](#)³, [Charlene Thomas](#)⁴, [Valentina Marulanda Corzo](#)⁵, [Tashina Andrade](#)⁶, [Hanna Haile](#)³, [Anthony Saleh](#)⁶, [Jessica M Pena](#)⁷, [Daniel B Green](#)⁵, [Laura C Pinheiro](#)⁸

Affiliations Expand

- PMID: 42767479
- DOI: [10.1016/j.jacr.2026.09.013](https://doi.org/10.1016/j.jacr.2026.09.013)

Abstract

Objective: Examine the prevalence of low-dose CT (LDCT) biomarkers for cardiovascular disease (CVD) (coronary artery calcium [CAC]) and chronic obstructive pulmonary disease (emphysema) in asymptomatic lung cancer screening (LCS) participants and its association with downstream care and social determinants of health (SDoH).

Methods: In this retrospective NYC health-system study, LDCT reports of LCS enrollees with baseline LDCT (2015-2022) were reviewed for emphysema and CAC. Cardiopulmonary care within 12 months was compared using McNemar's chi-squared test. Newly received care was compared between participants with and without CAC and emphysema using chi-square or Fisher exact tests. Associations with demographic and area-level characteristics were assessed using logistic regression.

Results: Among 2,361 participants (median age, 64; 52% male), emphysema was identified in 76.7% and CAC in 65.1%. Post-LDCT, pulmonary care increased from 24.4% to 45.8% and cardiovascular care from 42.6% to 63.3% ($p < 0.001$). Lower ZIP-level median household income (aOR, 1.57 [95% CI, 1.22-2.02]) and greater food insecurity (1.52 [1.20-1.94]) were associated with higher odds of emphysema (both $p < 0.001$); no SDoH was associated with CAC. Among those with emphysema, high-poverty ZIP residence (1.74 [1.25-2.42], $p < 0.001$) was associated with higher odds of post-LDCT pulmonary care; among those with CAC, lower ZIP-level educational attainment (0.76 [0.60-0.98]; $p = 0.033$) was associated with lower odds of post-LDCT cardiovascular care.

Discussion: Emphysema and CAC are highly prevalent and associated with increased post-LDCT cardiopulmonary care; however, future studies are needed to determine whether increased utilization improves clinical outcomes. SDoH were associated with emphysema burden and patterns of post-LDCT care, underscoring the need for equitable care pathways.

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Review

Med Sci Monit

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. 2026 Sep 21:32:e953828.

doi: 10.12659/MSM.953828.

[Imaging Markers of Chronic Obstructive Pulmonary Disease on Computed Tomography of the Lungs: a Narrative Review](#)

[Jakub Samkowski¹](#), [Anna A Wądołowska²](#), [Jerzy Walecki¹](#)

Affiliations Expand

- PMID: 42766492
- DOI: [10.12659/MSM.953828](#)

Abstract

Chronic obstructive pulmonary disease (COPD) is a heterogeneous disorder in which spirometry reflects airflow limitation but incompletely captures the underlying structural injury. Patients with similar spirometric impairment may have markedly different patterns of emphysema, small-airway disease, and pulmonary vascular involvement. Computed tomography (CT) can visualize these abnormalities in vivo and may detect structural changes before overt airflow limitation develops. This narrative review examined whether CT-derived imaging markers provide clinically meaningful information beyond spirometry, particularly for phenotyping, early structural detection, prognostic enrichment, and selective clinical decision support. A focused narrative review of diverse publications in PubMed, published between January 2000 and April 2025, was conducted using COPD-related MeSH terms and free-text keywords. Across the reviewed literature, emphysema, quantified by low-attenuation area and emphysema index, and air-trapping measures showed consistent associations with expiratory volume measures and identified structural abnormalities in symptomatic smokers with preserved spirometry. Airway wall metrics such as wall area percentage distinguished airway-predominant phenotypes and were associated with airflow limitation and chronic bronchitis. CT vascular markers, including small-vessel cross-sectional area and the pulmonary artery-to-aorta ratio, reflected microvascular disease; a pulmonary artery enlargement to aorta ratio greater than 1 independently predicted severe exacerbations. Xenon CT and dual-energy CT added regional ventilation and perfusion information but remain investigational. CT imaging markers add complementary structural, phenotypic, and prognostic information beyond spirometry for established COPD and pre-COPD. Their most supported current role

is phenotypic characterization and prognostic enrichment in selected clinical settings, whereas advanced functional CT techniques remain research tools. Routine CT for all patients is not supported by current Global Initiative for Chronic Obstructive Lung Disease (GOLD) guidance.

Supplementary info

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Chronic Obstr Pulm Dis

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. 2026 Sep 25;13(5):406-415.

doi: 10.15326/jcopdf.2026.0770.

[Allergic Sensitization and Serum Immunoglobulin E in Eosinophilic COPD](#)

[Cailey M Denoncourt](#)¹, [Mahmoud F Elfeshawy](#)¹, [Wenli Ni](#)^{1,2}, [Andrew J Synn](#)¹, [Nicholas J Nassikas](#)¹, [Pablo E Morejón-Jaramillo](#)¹, [Sophia J Schortmann](#)¹, [Wanda Phipatanakul](#)³, [Meghan E Rebuli](#)⁴, [Mary B Rice](#)^{1,2}

Affiliations Expand

- PMID: 42734898
- DOI: [10.15326/jcopdf.2026.0770](#)

Free article

Abstract

Background: Eosinophilic chronic obstructive pulmonary disease (COPD) is marked by type 2 inflammation, affects more than one-third of people with COPD, and is linked to exacerbation risk and corticosteroid responsiveness. The prevalence and clinical significance of allergic sensitization and elevated immunoglobulin E (IgE) in this subtype are not well understood.

Methods: We analyzed baseline data from 174 former smokers with eosinophilic COPD enrolled in a randomized trial. Participants underwent skin prick testing for 14 regional aeroallergens and total serum IgE measurement. Allergic sensitization was defined as ≥ 1 positive skin test; elevated total IgE as ≥ 100 IU/mL. We evaluated

the prevalence of sensitization and elevated IgE, their overlap with asthma and seasonal allergies, and associations with self-reported allergen exposures. Logistic regression assessed links between atopic conditions, exposures, and sensitization. We also examined associations with COPD-related hospitalizations in the past year.

Results: Among participants (mean age 71.5 years; forced expiratory volume in 1 second percentage predicted 53.0%), 47.1% had allergic sensitization, 32.5% had elevated IgE, and 55.7% had allergic sensitization or elevated IgE. Seasonal allergies and asthma were reported by 59.8% and 43.7%, respectively. Among those without concomitant asthma, 38.8% had allergic sensitization. Cat ownership was associated with cat allergen sensitivity (odds ratio=3.1, 95%: confidence interval 1.1–8.6). Asthma and IgE were associated with sensitization to multiple allergens. Sensitization and IgE were not associated with prior-year COPD hospitalization.

Conclusion: Allergic sensitization and elevated IgE are common in eosinophilic COPD, even without comorbid asthma. These findings support further research into the role of environmental allergens in disease progression and management.

Keywords: COPD; allergic rhinitis; allergic sensitization; eosinophilia; immunoglobulin E; seasonal allergies.

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Thorax

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. 2026 Sep 22:thorax-2026-225507.

doi: 10.1136/thorax-2026-225507. Online ahead of print.

[Associations between accelerated lung function decline and cardiovascular outcomes: a systematic review](#)

[Jiaxin Li](#)¹, [Yaoyao Qian](#)¹, [Jennifer Perret](#)¹, [Jingwen Zhang](#)¹, [Nur Sabrina Idrose](#)¹, [Xin Dai](#)¹, [Anurika P De Silva](#)^{2,3}, [Shyamali C Dharmage](#)¹, [Caroline J Lodge](#)^{#1}, [Dinh S Bui](#)^{#4}

Affiliations Expand

- PMID: 42716782
- DOI: [10.1136/thorax-2026-225507](https://doi.org/10.1136/thorax-2026-225507)

Abstract

Background: Emerging evidence suggests that lung function decline may be linked to cardiovascular disease (CVD), but this has not been synthesised to date. This review aims to synthesise the current evidence on accelerated lung function decline and cardiovascular outcomes.

Methods: We systematically searched MEDLINE, Embase and PubMed from inception to May 2026 for studies evaluating longitudinal changes in lung function in adults in relation to CVD. Study quality was assessed using the Risk Of Bias In Non-randomised Studies of Exposure tool, and findings were synthesised narratively.

Findings: Of 6772 studies identified from the search, 15 publications met the inclusion criteria: 12 general population cohorts, 2 occupational cohorts and 1 chronic obstructive pulmonary disease (COPD) cohort. In the general/occupational population, accelerated lung function decline was consistently associated with increased cardiovascular risk, with a uniformly positive directional trend and HRs ranging from 1.07 to 1.36 for forced expiratory volume in 1 s (FEV₁) and 1.06 to 1.33 for forced vital capacity. Similar trends were observed for CVD-related biomarkers, risk factors and subclinical cardiovascular phenotypes (eg, HRs 1.04-1.66 for accelerated FEV₁ decline). Potential effect modifiers of these associations such as smoking were reported. However, the association between accelerated lung function decline and CVD mortality in the general population remains inconclusive. In two occupational cohorts, lung function decline was associated with higher CVD mortality risk (HRs 2.05-2.59).

Interpretation: In ageing populations, tracking the rate of lung function decline may help identify not only those at risk of COPD but also those at risk of CVD.

Keywords: Respiratory Function Tests; Systemic disease and lungs.

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Conflict of interest statement

Competing interests: None declared.

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. 2026 Sep 25;13(5):386-394.

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[Accuracy, Usefulness, and Impact Variability of ChatGPT4o for COPD Medication Management: A Modified Delphi Study](#)

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Affiliations Expand

- PMID: 42552543
- DOI: [10.15326/jcopdf.2026.0794](#)

Free article

Abstract

Background: Chronic obstructive pulmonary disease (COPD) management is complex and rapidly evolving. ChatGPT is a large language model (LLM) shown to generate treatment plans for chronic conditions, yet its accuracy, usefulness, and consistency for COPD remain poorly characterized. This study evaluated the accuracy, usefulness, and impact variability of simultaneous ChatGPT-4o responses to COPD medication management questions.

Methods: Five COPD treatment questions were simultaneously entered into 3 separate computers using ChatGPT-4o during a single session, generating 15 total responses. Three residency-trained, board-certified clinical pharmacists rated each response across 3 domains—accuracy, usefulness, and impact variability—using a 3-point ordinal scale (0 to 2) via a 3-round modified Delphi process. Consensus was defined a priori as unanimous agreement among all 3 panelists.

Results: Of 45 response-domain ratings, consensus was achieved in 40 (88.9%). Accuracy ranged from poor (0) to good (2), usefulness from somewhat (1) to very useful (2), and impact variability from low (0) to high (2). For one question on stable COPD pharmacotherapy, all 3 simultaneous responses cited a retired clinical practice guideline, resulting in poor accuracy ratings. For 2 questions—treating exacerbations and managing a complex case—one response per question was rated higher in usefulness than the others.

Conclusion: Simultaneous ChatGPT-4o responses to identical COPD prompts differed materially in accuracy and potential clinical impact. LLM outputs should augment rather than replace clinician judgment and must be deployed with current guideline grounding and appropriate local oversight.

Keywords: COPD; ChatGPT; artificial intelligence; clinical decision-making; large language models.

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Full text links



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Cite

26

Chronic Obstr Pulm Dis

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. 2026 Sep 25;13(5):362-372.

doi: 10.15326/jcopdf.2026.0781.

[Trends in the Use of Triple Therapy in Patients With COPD in the United States, 2019 to 2022](#)

[Surya P Bhatt¹](#), [Brendan Clark²](#), [Mary DuCharme³](#), [Phani Veeranki³](#), [Timothy L Barnes³](#)

Affiliations Expand

- PMID: 42521643
- DOI: [10.15326/jcopdf.2026.0781](#)

Free article

Abstract

Rationale: Inhaled triple therapy (TT) combining a long-acting beta2-agonist, long-acting muscarinic antagonist, and inhaled corticosteroid is recommended for chronic obstructive pulmonary disease (COPD) patients with frequent exacerbations. Despite guideline criteria, TT is often initiated in patients unlikely to benefit.

Objectives: We aimed to characterize trends in the use of TT among COPD patients and concordance with guideline recommendations.

Methods: This observational study used de-identified commercial and Medicare Advantage Part D claims from the Optum Research Database (2018–2022). Patients ≥40 years old with COPD who initiated TT between 2019 and 2022 were included. Baseline characteristics, prior respiratory medication use, and exacerbation history during the 12-month period before TT initiation (index date) were summarized

overall and stratified by calendar year and TT type (single-inhaler TT [SITT] versus multiple-inhaler TT [MITT]). A subgroup analysis evaluated maintenance-naïve initiators, defined as no maintenance inhaler use in the prior 12 months.

Results: A total of 60,169 patients initiating TT were included. The proportion using SITT increased steadily from 53.0% in 2019 to 79.3% in 2022. Most patients (61.9%) had a low exacerbation history consistent with the Global initiative for chronic Lung Disease (GOLD) group A/B, increasing from 53.0% to 66.0% over the study period. Approximately 40% had zero exacerbations in the previous 12 months. One third of initiators were maintenance naïve. SITT use was associated with significantly higher odds of guideline-discordant initiation relative to MITT (adjusted odds ratio 5.04; 95% confidence interval: 4.76–5.33).

Conclusion: TT initiation discordant with GOLD recommendations has increased in the United States, coinciding with an increase in the use of SITT over the corresponding period.

Keywords: acute exacerbation of COPD; inhaled corticosteroids; long-acting beta2-agonists; long-acting muscarinic antagonist; triple therapy.

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Supplementary info

Grants and fundingExpand

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Cite

27

Observational Study

Med Ultrason

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. 2026 Sep 23;28(3):277-285.

doi: 10.11152/mu-4586. Epub 2026 Jan 30.

[Bedside internal jugular vein ultrasonography as a prognostic tool in COPD exacerbations](#)

[Ahmet Faruk Yildiz](#)¹, [Mustafa Sabak](#)², [Mehmet Selman Cavdar](#)², [Muhammed Mustafa Demir](#)², [Mahsuk Taylan](#)³, [Mehmet Sait Menzilcioglu](#)⁴

Affiliations Expand

- PMID: 41734305
- DOI: [10.11152/mu-4586](https://doi.org/10.11152/mu-4586)

Free article

Abstract

Aims: To evaluate if internal jugular vein (IJV) diameter changes, assessed by bedside ultrasonography, are associated with the severity and prognosis of Chronic Obstructive Pulmonary Disease (COPD) exacerbations, and to determine their utility in guiding clinical management in the emergency department.

Material and methods: This prospective, observational pilot study included 45 patients presenting to the emergency department with a COPD exacerbation. Patients underwent right IJV ultrasonography at presentation and 2 hours post-treatment. IJV diameters (IJVMAX, IJVMIN, IJVCOMP) and derived collapsibility indices (INDEX1, INDEX2) were measured by a single, blinded physician. Outcomes analyzed were hospital/ICU admission and 1-month mortality.

Results: 45 patients (mean age 64.96 years) were included. Following treatment, IJVMIN decreased ($p=0.026$) and collapsibility (INDEX1) increased significantly ($p=0.002$). 1-month mortality ($n=4$) was associated with higher post-treatment IJVCOMP2 ($p=0.041$). Patients admitted to the ICU ($n=9$) had significantly higher IJV diameters and lower collapsibility indices ($p<0.05$). For predicting ICU admission, IJVMIN (cut-off $\geq 1.05\text{cm}$) had an AUC of 0.861 with 86.1% specificity.

Conclusions: Bedside IJV ultrasonography helps predict severity and monitor treatment response in COPD exacerbations. IJV parameters are associated with ICU admission and mortality, suggesting they are valuable, non-invasive decision support tools for emergency physicians.

Supplementary info

Publication types, MeSH termsExpand

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

1

J Glob Health

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. 2026 Sep 25:16:04279.

doi: 10.7189/jogh.16.04279.

Multimorbidity and the risk of depression: a systematic review of cohort studies

Jingjing Wu ^{#1 2}, **Keying Xu** ^{#1 2}, **Ping Jiang** ³, **Hua Mei** ^{1 2}

Affiliations Expand

- PMID: 42788325
- DOI: [10.7189/jogh.16.04279](https://doi.org/10.7189/jogh.16.04279)

Abstract

Background: Multimorbidity has been associated with an increased risk of depression. In this systematic review, we aimed to evaluate longitudinal evidence on the association between multimorbidity, including specific multimorbidity patterns, and the risk of developing depression.

Methods: We searched Web of Science, PubMed, Embase, PsycINFO, China National Knowledge Infrastructure, and Wanfang from database inception to 31 December 2025. Cohort studies examining the association between multimorbidity or multimorbidity patterns and incident depression or depressive symptoms were included. Two reviewers independently screened studies, extracted data, and assessed study quality using the Newcastle-Ottawa Scale. We employed a narrative synthesis approach and presented the results using descriptive forest plots and harvest plots.

Results: A total of 17 longitudinal cohort studies were included, conducted in accordance with PRISMA guidelines, with generally high overall quality. Multimorbidity was consistently associated with an increased risk of depression, and the risk generally increased with the number of chronic conditions. This association was relatively stable across genders and populations in different countries. Associations varied across multimorbidity patterns. Cardiovascular-metabolic and respiratory-related patterns showed the most consistent associations with depression, whereas evidence for other patterns was limited and less consistent. Cardiovascular-metabolic multimorbidity showed a cumulative effect. Increasing multimorbidity trajectories may also be associated with subsequent depression risk.

Conclusions: Multimorbidity was longitudinally associated with an increased risk of incident depression or depressive symptoms, and this association appeared to vary according to disease burden, multimorbidity patterns, and changes in multimorbidity over time. Cardiovascular-metabolic patterns, respiratory-related patterns, and rapid trajectories of multimorbidity may represent potential high-risk features requiring further validation. Future research should standardise definitions and pattern identification methods, and further investigate dynamic processes and underlying mechanisms to inform early identification, risk stratification, and future intervention development for depression.

Registration: PROSPERO: CRD420261302076.

Keywords: cohort study; depression; multimorbidity; multimorbidity patterns; systematic review.

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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.

Supplementary info

Publication types, MeSH termsExpand

Full text links



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Cite

2

Curr Rev Clin Exp Pharmacol

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. 2026 Sep 24.

doi: 10.2174/0127724328519947260917114932. Online ahead of print.

[Metformin as an Emerging Candidate for Diabetic Retinopathy, Agerelated Macular Degeneration and Glaucoma Pharmacotherapy: Evidence and Perspectives](#)

[Marianne Levon Shahsuvaryan](#)¹

Affiliations Expand

- PMID: 42786857
- DOI: [10.2174/0127724328519947260917114932](#)

Abstract

Varying degrees of visual impairment up to complete blindness are widespread and represent a public health problem with a highly demarcated escalation. Currently, the leading causes of blindness are Diabetic Retinopathy (DR), Age-Related Macular Degeneration (AMD), and glaucoma, with an obvious exponential enlargement of vulnerable population groups as a result of urbanization followed by lifestyle changes and growth of the aging population. Management of these diseases is still challenging. The development of intraocular therapy with antiangiogenics or Vascular Endothelial Growth Factor inhibitors (anti-VEGF) opens a new avenue in eye disease treatment; however, despite these advances, new concerns are raised. DR, AMD, and glaucoma represent diseases with bilateral involvement, which

underscores a need for oral systemic preventive therapy targeting both eyes simultaneously, as a cost-effectively optimized approach. At the same time, there is a need for a multi-target drug with preventive and therapeutic potential not only for eye diseases, but also for systemic diseases in patients with multimorbidity. Continued research has the potential to enhance druggability of the leading causes of blindness. A growing body of evidence suggests that metformin, as a drug with multimodal activity, has good preventive and therapeutic potential, opening a new avenue in ocular pharmacotherapy.

Keywords: Blindness; diabetic retinopathy; glaucoma; macular degeneration; metformin; multimorbidity.

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Cite

3

J Am Med Inform Assoc

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. 2026 Sep 24:ocag161.

doi: 10.1093/jamia/ocag161. Online ahead of print.

[Computable phenotypes for multimorbidity measurement: development and implementation of a new electronic health record-based multimorbidity-weighted index for harmonized Observational Medical Outcomes Partnership data](#)

[Melissa Y Wei](#)^{1,2}, [Ashley J Kang](#)¹, [Alexandra M Klomhaus](#)¹, [Lucia Y Chen](#)¹, [Douglas S Bell](#)¹, [David Elashoff](#)¹, [Chi-Hong Tseng](#)¹

Affiliations Expand

- PMID: 42786422
- DOI: [10.1093/jamia/ocag161](https://doi.org/10.1093/jamia/ocag161)

Abstract

Objective: To develop an electronic health record (EHR)-based multimorbidity-weighted index (eMWI) using computable phenotypes mapped to the Observational Medical Outcomes Partnership (OMOP) common data model and previously validated physical functioning-based condition weights.

Materials and methods: We constructed eMWI from the previously validated MWI, which includes 76 chronic conditions weighted by their impact on physical functioning. For each condition, we identified validated EHR case algorithms through targeted literature search. For conditions without published algorithms, we performed chart review validation of ICD-based definitions in UCLA EHR. We translated all condition algorithms into OMOP computable phenotypes to enable use across harmonized EHR datasets. We applied eMWI to adults ≥ 18 years with ≥ 2 outpatient encounters between 2012 and 2024 in the University of California Health Data Warehouse (UCHDW), a harmonized dataset spanning 6 health systems.

Results: Validated algorithms were available for 53/76 conditions. Chart review validation supported ≥ 1 International Classification of Diseases, Ninth and Tenth Revisions (ICD-9 and ICD-10) code definitions for 22/23 remaining conditions. We translated 76 condition definitions into OMOP phenotypes and applied eMWI in UCHDW. Final sample included 4 672 662 adults with mean $\pm$ SD age 46.3 ± 16.8 years, eMWI 5.66 ± 7.85 (range 0-91), 55.7% female, and 45.5% non-Hispanic White. eMWI increased with age and social vulnerability and captured wide distributions across population subgroups.

Discussion and conclusion: eMWI enables scalable implementation of multimorbidity measurement in large harmonized EHR datasets. Its weighting to physical functioning preserves a person-centered approach while adapting disease ascertainment to rich, clinical information in EHRs. eMWI establishes a foundation for rigorous comorbidity adjustment, risk stratification, and population health research across health systems and harmonized EHR datasets.

Keywords: OMOP data model; comorbidity; electronic health records; multimorbidity measurement.

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Supplementary info

Grants and fundingExpand

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Cite

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MedComm (2020)

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. 2026 Sep 23;7(10):e71008.

doi: 10.1002/mco2.71008. eCollection 2026 Oct.

Cardiovascular-Kidney-Metabolic Overlaps, Clinical Outcomes, and Medications Among Patients With Heart Failure: Results From the Chinese Cardiovascular Association Database-Heart Failure Center Registry

Xiang Wang¹, Jingkuo Li², Yi Li¹, Lubi Lei², Wei Wang³, Xuyang Meng¹, Chenxi Xia¹, Chenguang Yang¹, Lihua Zhang², Yuhua Liao⁴, Weimin Li⁵, Yugang Dong⁶, Xinli Li⁷, Jingmin Zhou⁸, Jiefu Yang¹, Fang Wang¹

Affiliations Expand

- PMID: 42780637
- PMCID: [PMC13598551](#)
- DOI: [10.1002/mco2.71008](#)

Abstract

Cardiovascular-kidney-metabolic (CKM) multimorbidity is common among patients with heart failure (HF), but its prognostic impact in Chinese patients remains largely unclear. We examined the relationship of CKM multimorbidity with adverse outcomes and its interaction with guideline-directed medical therapy (GDMT) in patients with HF. We classified hospitalized patients with HF by CKM-condition count (atherosclerotic cardiovascular disease [ASCVD], chronic kidney disease [CKD], and type 2 diabetes [T2D]). Cox models assessed 1-year all-cause death, cardiovascular (CV) death, and rehospitalizations. Among patients with HF with reduced ejection fraction (HFrEF), subgroup analyses were conducted by GDMT use. Among 126,524 patients, 66.4% had at least one CKM condition and 5.1% had all three. All-cause death increased with CKM burden; three conditions conferred the highest risk (adjusted hazard ratio 2.43, 95% confidence interval [CI] 2.20-2.69) versus no CKM conditions. Associations were stronger in HFrEF. Although GDMT recipients had lower absolute death rates, associations of CKM multimorbidity with all outcomes were generally consistent regardless of GDMT use. CKM multimorbidity is common in Chinese patients hospitalized with HF and is associated with a worse prognosis. Although GDMT lowered absolute death rates, it did not substantially modify the relative associations between CKM multimorbidity and subsequent clinical outcomes.

Keywords: cardiovascular–kidney–metabolic health; death; heart failure; medication; rehospitalization.

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Conflict of interest statement

The authors declare no conflicts of interest.

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

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Cite

5

Anatol J Cardiol

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. 2026 Sep 24.

doi: 10.14744/AnatolJCardiol.2026.6756. Online ahead of print.

[Weight-Adjusted Waist Index Outperforms Conventional Adiposity Indices in Predicting All-Cause Mortality: A Population-Based Cohort Study](#)

[Ercan Kahraman](#)¹, [Sirin Çetin](#)², [Özkan Özler](#)³

Affiliations Expand

- PMID: 42779497
- DOI: [10.14744/AnatolJCardiol.2026.6756](#)

Free article

Abstract

Background: Body mass index (BMI), the most widely used adiposity metric, cannot differentiate fat distribution from lean mass, limiting its prognostic utility. This study compared the weight-adjusted waist index (WWI) with BMI, waist-to-height ratio, and relative fat mass (RFM) as predictors of all-cause and cardiovascular mortality using a z-standardized framework.

Methods: Data from 18 496 adults aged ≥ 20 years from the National Health and Nutrition Examination Survey 2011-2018 were linked to the National Death Index through December 31, 2019. Four adiposity indices were z-standardized and analyzed using survey-weighted Cox models with sequential adjustment. Dose-response relationships were assessed using restricted cubic splines, and subgroup analyses examined the effect modification by sex, multimorbidity, and estimated glomerular filtration rate (eGFR).

Results: Over a median follow-up of 4.83 years, 976 all-cause and 291 cardiovascular deaths occurred. Weight-adjusted waist index demonstrated the

strongest association with all-cause mortality (hazard ratio [HR] 1.34; 95% CI 1.23-1.46; $P < .001$); BMI and RFM did not reach significance. After mutual adjustment, WWI retained its association (HR 1.40; $P < .001$) while BMI did not reach statistical significance in the adjusted model. Weight-adjusted waist index showed a linear dose-response relationship, contrasting the J-shaped curve of BMI. The association was consistent across subgroups but attenuated in participants with eGFR < 60 (interaction $P = .034$).

Conclusion: Weight-adjusted waist index was the strongest independent predictor of all-cause and cardiovascular mortality among 4 adiposity indices. Its linear dose-response relationship, consistency across subgroups, and calculability from waist circumference and body weight alone support its use as a practical alternative to BMI for mortality risk stratification.

Full text links



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Cite

6

Review

Trop Med Int Health

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. 2026 Sep 22.

doi: 10.1111/tmi.70233. Online ahead of print.

[Integrated Screening for Communicable and Non-Communicable Diseases
Multimorbidity in Low- and Middle-Income Countries: A Scoping Review](#)

[Evans Duah](#)^{1 2 3 4}, [Nyeleti Chauke](#)¹, [Smangaliso Morerwa](#)⁵, [Kuhlula Maluleke](#)¹, [Gabrielle Thompson](#)⁶, [George Obeng Adjei](#)^{3 4}, [Paramjit Gill](#)^{3 7}, [Tivani Mashamba-Thompson](#)^{1 3}

Affiliations Expand

- PMID: 42772329
- DOI: [10.1111/tmi.70233](#)

Abstract

Multimorbidity is a growing public health challenge in low- and middle-income countries (LMICs), where resource-limited and fragmented health systems impede coordinated disease detection and management. Integrated screening offers a

promising strategy to improve early detection of communicable and non-communicable diseases. We mapped the current evidence on integrated screening in LMICs, examining models, strategies, diseases, diagnostic tools and contextual factors that affect implementation and sustainability. A comprehensive search was conducted using the following electronic databases: PubMed, Scopus, Web of Science, ProQuest and EBSCOhost following the PRISMA-ScR guidelines. Two independent reviewers screened and extracted data, with a third reviewer resolving any discrepancies. The methodological quality of the study was appraised using the Mixed Methods Appraisal Tool (MMAT, Version 2018). Results were synthesized thematically and presented narratively. Out of 5380 studies screened, 17 were included, spanning 2012-2025 across 12 countries (13 conducted in Africa, 3 in South Asia and 1 in Latin America). They assessed communicable and non-communicable conditions, including HIV, TB, diabetes, hypertension and cardiovascular disease. Integrated screening was delivered via facility-based, mobile, community and community health worker-led models across primary healthcare and community settings. Five themes emerged: implementation in community and healthcare facilities; role of point-of-care diagnostics; health system preparedness and workflow alignment; staffing and workforce support; and factors influencing sustainability. Integrated multimorbidity screening in LMICs is feasible and improves detection, diagnosis and care when supported by trained staff, task shifting, community health workers and point-of-care diagnostics. Sustainable scale-up needs national alignment, funding and resource mobilization for equitable access.

Keywords: diagnostics; health systems integration; integrated screening; multimorbidity; primary healthcare.

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- [89 references](#)

Supplementary info

Publication typesexpand

Full text links

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

1

Respir Res

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. 2026 Sep 22;27(1):370.

doi: 10.1186/s12931-026-03927-5.

Neighborhood deprivation and lung cancer incidence and mortality in patients with asthma: a nationwide cohort study in Sweden, 1997-2018

Juan Cao^{1 2 3 4}, **Tsuyoshi Hamano**^{5 6}, **Huifang Yang**^{1 2}, **Filip Jansåker**^{3 4}, **Kristina Sundquist**^{3 4 5 7}, **Jan Sundquist**^{3 4 5 7}, **Yuhong Zhang**^{1 2}, **Xinjun Li**^{8 9}

Affiliations Expand

- PMID: 42791548
- DOI: [10.1186/s12931-026-03927-5](https://doi.org/10.1186/s12931-026-03927-5)

Abstract

Objective: This population-based study aimed to investigate the association between neighborhood deprivation and the incidence and mortality of lung cancer in patients with asthma.

Methods: This nationwide cohort study included 596,215 individuals aged ≥ 25 years with asthma who were followed from 1997 to 2018 in Sweden. Cox proportional hazards regression was used to estimate hazard ratios (HRs) and 95% confidence intervals (CIs) for lung cancer incidence and mortality associated with neighborhood deprivation. All models were stratified by sex and adjusted for individual-level characteristics, including age, education level, sociodemographic factors, and comorbidities.

Results: Neighborhood deprivation was independently associated with both lung cancer incidence and mortality in patients with asthma, even after adjustment for individual-level characteristics. In fully adjusted models, compared with individuals living in low-deprivation neighborhoods, those in high-deprivation neighborhoods had a significantly elevated risk of lung cancer incidence (HR = 1.37) and mortality (HR = 1.40), with more pronounced associations observed in women. Histological subtype analyses revealed differential patterns: high deprivation was associated with increased risks of adenocarcinoma (HR = 1.19) and large cell carcinoma (HR = 1.58), whereas squamous cell carcinoma (HR = 1.75) and small cell carcinoma (HR = 1.65) showed increased risks in both moderate- and high-deprivation neighborhoods.

Conclusion: Neighborhood deprivation may be a critical social determinant of lung cancer incidence and mortality among patients with asthma, with effects varying by age, sex, and histological subtype. Targeted interventions in deprived communities could consider prioritizing high-risk groups, individuals with low educational attainment, and those with comorbid chronic obstructive pulmonary disease.

Keywords: Asthma; Lung cancer; Mortality; Neighborhood deprivation.

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Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study was approved by the regional ethical review board in Lund, Sweden, on Feb. 6th, 2013 (registration No 2012/795) and later amendments. The guidelines of the Helsinki Declaration were followed. Data were obtained from the national registers collected by various Swedish health and social agencies. The agency Statistics Sweden linked the

(pseudonymized) unique personal identification number assigned to all Swedish residents at birth or migration. Informed consent was not applicable, as the study was based on secondary pseudonymized data from registers. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

- [45 references](#)

Supplementary info

MeSH termsExpand

Full text links



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Cite

2

J Occup Environ Hyg

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. 2026 Sep 25:1-9.

doi: 10.1080/15459624.2026.2718100. Online ahead of print.

[The importance of exposure determination during Specific Inhalation Challenge \(SIC\) tests for the exclusion of nonspecific irritation](#)

[Mark A Pemberton](#)¹, [Knut Kreuzer](#)², [Bardo Schmitt](#)², [Stuart Hindle](#)³, [Andreas Flueckiger](#)⁴

Affiliations Expand

- PMID: 42789970
- DOI: [10.1080/15459624.2026.2718100](#)

Abstract

Work-related asthma (WRA) comprises asthma caused by chemicals in the workplace (occupational asthma, or OA) and preexisting asthma made worse by chemicals and conditions (work-exacerbated asthma, or WEA). Distinguishing these two mechanisms is extremely challenging but imperative for effective health management and regulation under global chemical regulations. The Specific Inhalation Challenge (SIC) test is considered by clinicians as the gold standard for identifying OA. However, an exposure reconstruction exercise based on the case study of methyl methacrylate, currently undergoing harmonized classification and

labeling within Europe suggests that greater rigor may be needed when conducting these tests if false positive results, i.e., from nonspecific irritation are to be avoided. Accurate simulation of actual workplace conditions combined with direct measurement of peak exposure levels will likely improve test specificity.

Keywords: Asthma; occupational asthma; occupationally induced asthma; peak exposure; respiratory sensitization; work exacerbated asthma.

Full text links



[Proceed to details](#)

Cite

3

Pulm Ther

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. 2026 Sep 25.

doi: 10.1007/s41030-026-00387-6. Online ahead of print.

[Advanced Pulmonary Drug Delivery Systems: A Narrative Review](#)

[Dil Afrose](#)¹, [Melika Valizadeh](#)², [Shailesh B Kolekar](#)³, [Mano J Mathew](#)⁴, [Alexandr Ceasovschi](#)⁵, [Alexandru Corlateanu](#)⁶, [Pradeesh Sivapalan](#)^{7,8}

Affiliations Expand

- PMID: 42789236
- DOI: [10.1007/s41030-026-00387-6](#)

Abstract

Pulmonary drug delivery systems have gained increasing attention as an effective strategy for the treatment of both respiratory and systemic diseases by enabling targeted, noninvasive, and efficient drug administration through the lungs, with advantages including rapid onset of action, lower drug doses, and reduced systemic adverse effects. Despite these advances, challenges related to formulation stability, aerosol performance, lung clearance mechanisms, and regulatory approval remain. This review explores advanced pulmonary drug delivery systems, with emphasis on the anatomical, physiological, pharmaceutical, and device-related factors that influence aerosol deposition and therapeutic performance. The review examines key mechanisms of particle deposition such as inertial impaction, gravitational sedimentation, Brownian diffusion, interception, and electrostatic interactions, and advanced pulmonary drug carrier systems, including liposomes, nanoparticles, large porous particles, dendrimers, polymeric micelles,

biodegradable polymers, and lactose-based dry powder platforms, which enhance drug stability, controlled release, lung retention, and site-specific targeting. The review further summarizes advances in particle engineering technologies and common and advanced inhalation devices, including pressurized metered-dose inhalers, dry powder inhalers, nebulizers, soft mist inhalers, and smart inhaler platforms. Clinical applications of pulmonary drug delivery extend beyond asthma and chronic obstructive pulmonary disease (COPD) to include cystic fibrosis, pulmonary infections, and pulmonary arterial hypertension, while emerging applications in tuberculosis, diabetes, vaccination, gene therapy, and cancer continue to be investigated. Future directions include personalized pulmonary medicine, inhaled biologics and mRNA therapeutics, environmentally sustainable inhaler technologies, artificial intelligence-assisted formulation and device optimization, and evolving regulatory frameworks. Advancements in pulmonary drug delivery technologies may focus on improving drug targeting, optimizing therapeutic performance, and broadening their application in modern clinical practice.

Keywords: Inhalation devices; Nanoparticles; Nebulizer; Particle engineering; Particle technology; Pressurized metered-dose inhalers; Pulmonary drug delivery.

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Conflict of interest statement

Declarations. Conflict of Interest: Dil Afrose, Melika Valizadeh, Shailesh B. Kolekar, Mano J. Mathew, Alexandr Ceasovschih, Alexandru Corlateanu and Pradeesh Sivapalan have nothing to disclose. Ethical Approval: This article is based on previously conducted studies and does not contain any new studies with human participants or animals performed by any of the authors.

- [81 references](#)

Supplementary info

Publication typesExpand

Full text links



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Cite

4

Pulm Ther

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. 2026 Sep 24.

doi: 10.1007/s41030-026-00381-y. Online ahead of print.

Real-World Effectiveness of Mepolizumab Initiation in Treating Asthma and Concurrent Chronic Obstructive Pulmonary Disease in the US

Surya P Bhatt¹, Ravi Kalhan², Shibing Yang³, Guillaume Germain⁴, Rosirene Paczkowski³, Stefanie Kolterer⁵, Emmeline Burrows⁶, Jihye Park⁷, Jacob Klimek⁴, Sophie Ma⁴, François Laliberté⁴, William W Busse⁸

Affiliations Expand

- PMID: 42786303
- DOI: [10.1007/s41030-026-00381-y](https://doi.org/10.1007/s41030-026-00381-y)

Abstract

Introduction: Mepolizumab reduces exacerbations in patients with asthma but real-world data on its effectiveness in asthma and concurrent chronic obstructive pulmonary disease (COPD) are limited. This study assessed the real-world impact of mepolizumab initiation in patients with asthma and concurrent COPD.

Methods: Retrospective, longitudinal analysis from the US Komodo Research claims database (January 2016-June 2023). Eligible patients (aged ≥ 12 years; ≥ 2 mepolizumab claims) had ≥ 1 asthma claim and were categorized as asthma with concurrent COPD (≥ 1 COPD claim) or asthma only. Outcomes assessed in the 12 months post- versus 12 months pre-mepolizumab initiation included annualized exacerbation rates, oral corticosteroid (OCS) dispensing and burst rates, and asthma- and COPD-related healthcare resource utilization (HCRU), and healthcare costs.

Results: A total of 2106 patients had asthma with concurrent COPD; 4674 asthma only. The annualized rate of exacerbations decreased by 50% post- versus pre-mepolizumab in patients with asthma and concurrent COPD {rate ratio [95% confidence interval (CI)]: 0.50 [0.48, 0.53]; $P < 0.001$ }, and by 49% in patients with asthma only [0.51 (0.49, 0.53); $P < 0.001$]. The relative reduction [rate ratio (95% confidence interval)] in hospitalization-defined exacerbations was 52% [0.48 (0.42, 0.54); $P < 0.001$] and 41% [0.59 (0.52, 0.67); $P < 0.001$] in the asthma with concurrent COPD and asthma-only cohorts, respectively. Relative reductions of between 36 and 44% in OCS dispensing and bursts were observed across both cohorts ($P < 0.001$); relative reductions of 42-49% were observed across both cohorts in HCRU, including in hospitalizations and emergency room visits ($P < 0.001$). Mean total healthcare costs per patient per year in the asthma with concurrent COPD cohort were \$11,770 (30,663) post- versus \$23,771 (66,737) pre-mepolizumab initiation, corresponding to a cost difference (95% CI) of \$-12,001 (-14,816, -9,186) ($P < 0.001$).

Conclusion: In this analysis of a large US claims database, mepolizumab reduced exacerbations and overall disease burden in patients with asthma and concurrent COPD.

Keywords: Anti-IL-5; Biologics; Claims database analysis; Exacerbations; Healthcare resource utilization; Retrospective cohort study.

Conflict of interest statement

Declarations. Conflict of Interest: Surya P Bhatt has received grants/research support from Nuaira, Genentech, COPD Foundation, and Sanofi/Regeneron; royalties or licenses from Springer; consulting fees from AstraZeneca, Boehringer Ingelheim, Sanofi, Regeneron, GSK, Genentech, Chiesi, Merck, Polarean, Verona Pharma, and Apreo; speaker/honoraria from IntegrityCE, Horizon CME, Integritas Communications, Illuminate Health, and Medscape; and participation on a Data Safety Monitoring Board for NIH. Ravi Kalhan has personal fees from AstraZeneca, Boehringer Ingelheim, GSK, CSA Medical, and CVS Caremark. Guillaume Germain, Jacob Klimek, Sophie Ma, and François Laliberté are employees of Groupe d'analyse, a consulting company which received payment from GSK to conduct this study. Shibing Yang, Rosirene Paczkowski, Stefanie Kolterer, Emmeline Burrows, and Jihye Park are employees of GSK and hold financial equities in GSK. William W Busse reports consultancy fees from GSK, Sanofi, Regeneron Pharmaceuticals Inc., Novartis, and AstraZeneca; speaker support/fees from GSK, Regeneron Pharmaceuticals, Inc., and Sanofi; and book royalties from Elsevier. **Ethical Approval:** Approval of this study was provided by the GSK Protocol Review Committee, which reviewed and endorsed the protocol (GSK ID: 222359). This study complied with all applicable laws regarding subject privacy. No direct subject contact or primary collection of individual human subject data occurred. Personal identifiers and personally identifiable information were removed by the database provider prior to receipt by the study team. Study results are in tabular form and aggregate analyses that omit subject identification, therefore informed consent, ethics committee, or institutional review board approval were not required. This study was designed, implemented, and reported in accordance with the 2015 Guidelines for Good Pharmacoepidemiology Practices of the International Society for Pharmacoepidemiology, the Strengthening the Reporting of Observational Studies in Epidemiology guidelines, and the ethical principles laid down in the Declaration of Helsinki of 1964, and its later amendments.

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. 2026 Sep 24:2601278.

doi: 10.1183/13993003.01278-2026. Online ahead of print.

[Rapid, 24-hour, lung function improvement with rademikibart for asthma: post hoc analyses from a phase 2b randomised trial](#)

[Michael E Wechsler¹](#), [Barry Quart²](#), [Raúl Collazo³](#)

Affiliations Expand

- PMID: 42785802
- DOI: [10.1183/13993003.01278-2026](#)

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J Allergy Clin Immunol Pract

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. 2026 Sep 24:S2213-2198(26)00784-1.

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[Supporting asthma guideline-based management by integrating patient navigators](#)

[Andrea J Apter¹](#), [Knashawn H Morales²](#), [Heather Klusaritz³](#), [Hami Park⁴](#), [Kadel La Rose⁴](#), [Lenisha Fergus⁴](#), [Xiaoyan Han²](#), [Freya Nezir⁵](#), [Anna U Morgan⁶](#), [Patrick K Gleeson⁴](#), [Tyra Bryant-Stephens⁷](#)

Affiliations Expand

- PMID: 42785634
- DOI: [10.1016/j.jaip.2026.09.009](#)

Abstract

Background: Asthma-related deaths, hospitalizations, and ED visits are more numerous among low-income communities, yet management guidelines overlook this group. Navigators, typically community members trained as health educators and advocates, may improve access to care and asthma outcomes.

Objective: In a randomized controlled trial, we study whether Navigators who identify barriers to health-related social needs (at home or with clinical management) lead to improved health in adults with asthma living in low-income areas.

Methods: Over 18 months patients were followed for patient-reported outcomes/symptoms and service use (hospitalizations, ED visits, prednisone requirement); the first 3 months were observational. Half of patients were randomized for a Navigator Home Visit (HV) to identify social needs important for the clinician to know the context of patients' lives (e.g., pests, water leaks, smokers). Half were randomized to Clinician Feedback (CF): clinicians receive brief information on guideline-based symptoms and recommendations, prepared by patient/Navigator. All random patients received a Clinical Intervention: Navigator-guided preparation for, attendance at, and review of recommendations for asthma appointments.

Results: 350 of 369 enrolled were randomized: mean age 45, 88% female, 83% self-reported Black. As compared to participants with only clinic intervention over 12 months: participants receiving both HV and clinic intervention improved asthma control (-0.47 [95% CI: -0.84 to -0.10]); and participants who had both CF and clinic intervention had larger decrease in hospitalizations or ER visits unrelated to asthma (-1.05 [95%CI: -1.90 to -0.19] **CONCLUSION:** By bridging the gaps between healthcare and social needs, navigators improve asthma control.

Keywords: asthma; health care access; health disparities; navigator; social determinants of health.

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J Allergy Clin Immunol Pract

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[Risk of Respiratory Tract Infections with Asthma Biologics](#)

[Shane Stone](#)¹, [Sarah Al-Obaydi](#)², [Taha Al-Shaikhly](#)³

Affiliations Expand

- PMID: 42785633
- DOI: [10.1016/j.jaip.2026.09.010](https://doi.org/10.1016/j.jaip.2026.09.010)

Abstract

Background: Asthma biologics may increase infection risk due to the role of type-2 (T2) pathways in immune homeostasis. While clinical trials have demonstrated favorable safety profiles, limited real-world data exists to support these findings.

Objective: To characterize the risk of respiratory tract infections associated with using asthma biologics.

Methods: This retrospective matched cohort study utilizing the TriNetX US Collaborative Network, a multicenter database of electronic health records, examined patients (age ≥ 6 years) with moderate-to-severe asthma who had exposure to an asthma biologic against controls without such exposure. Study cohorts were followed for up to 2 years and survival analysis contrasted the probability of developing various respiratory tract infections. The hazards ratio (HR) quantified the magnitude and direction of this interaction.

Results: As compared to matched controls, exposure to any asthma biologic was not associated with increased hazards of developing respiratory tract infections and lower probabilities of developing influenza (HR 0.80, 95% CI=0.69-0.94) and acute upper respiratory tract infections (URIs) (HR=0.93, 95% CI: 0.87-0.99). Dupilumab exposure was associated with lower probability of developing acute URI (HR=0.79, 95% CI: 0.69-0.91), pneumonia (HR=0.72, 95% CI: 0.58-0.90), and influenza (HR=0.53, 95% CI: 0.36-0.80). Anti-IL5 users had relatively fewer acute URIs (HR=0.88, 95% CI: 0.79-0.97). There was no significant difference in respiratory tract infection risk associated with omalizumab or tezepelumab exposure.

Conclusions: Although further studies focusing on specific pathogens and pathways are needed, asthma biologics are not associated with a higher risk of respiratory infections. Dupilumab might reduce the risk of certain respiratory tract infections.

Keywords: Asthma; biologics; dupilumab; infection; mepolizumab; omalizumab; pneumonia; respiratory tract infections; sinusitis; tezepelumab.

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Review

Ann Allergy Asthma Immunol

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Identifying and Treating Neutrophilic Inflammation in Corticosteroid-Refractory United Airway Disease: A Treatable-Trait Approach

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Abstract

Neutrophilic inflammation is increasingly recognized in difficult-to-control asthma, chronic rhinosinusitis with nasal polyps (CRSwNP), and allergic rhinitis, but its clinical interpretation remains challenging. Neutrophilia may coexist with type 2 (T2) inflammation and can also arise from infection, smoking, environmental exposure, obesity, treatment effects, or transient exacerbation biology; therefore, it should not be equated automatically with a stable non-T2 endotype or corticosteroid resistance. This review focuses on how clinicians can identify and act on a clinically meaningful neutrophilic treatable trait across the united airway. Direct airway assessment, particularly induced sputum in asthma and nasal cytology or tissue assessment in upper-airway disease, provides the closest measure of local inflammatory phenotype, whereas peripheral blood and soluble biomarkers remain supportive rather than interchangeable surrogates. Reproducibility, clinical context, and exclusion of secondary causes are essential before assigning therapeutic significance to neutrophilia. No neutrophil-specific biologic is currently approved for asthma, CRSwNP, or allergic rhinitis. Macrolides provide the clearest clinically available bridge in selected patients, but treatment response is not defined by a validated neutrophil cutoff. Trials targeting CXCR1/2 or IL-17 pathways demonstrate that reducing neutrophilic inflammation does not necessarily translate into meaningful clinical benefit, whereas NET- and cGAS-STING-directed strategies remain investigational. A practical treatable-trait approach should integrate validated coexisting T2 traits, direct airway phenotyping where feasible, evidence-based or trial-based treatment selection, and longitudinal reassessment of both inflammatory phenotype and clinical outcomes.

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Conflict of interest statement

Declaration of competing interest The authors declare no conflict of interest.

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Multicenter Study

BMJ Open Respir Res

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[Asthma exacerbation requiring ventilatory support in adults: a 10-year retrospective multicentre cohort study - the ESAVA study](#)

[Nina De Montmollin](#)¹, [Arnaud W Thille](#)², [Guillaume Carteaux](#)³, [Alexis Ferre](#)⁴, [Grégoire Jolly](#)⁵, [Benoit Painvin](#)⁶, [Sébastien Jochmans](#)⁷, [Marie Labruyère](#)⁸, [Cédric Daubin](#)⁹, [Marie Goset](#)¹⁰, [Johann Auchabie](#)¹¹, [Damien Contou](#)¹², [Gael Piton](#)¹³, [Jerôme Devaquet](#)¹⁴, [Stanislas Ledochowski](#)¹⁵, [Thomas Rambaud](#)¹⁶, [Sarah Benhamida](#)¹⁷, [Agathe Delbove](#)¹⁸, [Benjamin Sztrymf](#)¹⁹, [Mickael Landais](#)²⁰, [Nathanael Lapidus](#)²¹, [Nicolas Terzi](#)²², [Guillaume Voiriot](#)^{23 24}; [REVA Network \(Réseau Européen de Recherche en Ventilation\)](#)

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Free article

Abstract

Background: Little is known about the clinical outcomes of patients admitted to the intensive care unit (ICU) for severe asthma exacerbation requiring ventilatory support.

Research question: Our objectives were (i) to describe the initial presentation, therapeutic management and clinical outcomes of adults admitted to the ICU for asthma exacerbation requiring ventilatory support and (ii) to identify risk factors for a prolonged course and/or fatal outcome.

Study design and methods: We conducted a 10-year multicentre (n=21) retrospective study in France. All adult patients with asthma admitted to the ICU for an exacerbation requiring invasive (IMV) and/or non-invasive (NIV) mechanical ventilation were included. The primary endpoint was 'complicated course', a composite criterion of death during the ICU stay and/or the need for IMV for ≥ 7 days.

Results: From 2010 to 2019, 349 patients were included (women 57%, age 54 (40-65) years). Acute respiratory failure was the primary reason for ICU admission. However, 12% of patients were admitted following a cardiorespiratory arrest. Respiratory tract infections were documented in 36% of patients, with *Haemophilus influenzae*, *Streptococcus pneumoniae* and *Rhinovirus* as the predominant pathogens. Three-quarters of the patients required IMV, with a median duration of 5 (3-12) days. One-third underwent NIV as initial ventilatory support, but NIV failed in 23% of them. In-hospital mortality was 8%. The composite primary endpoint was observed in 34% of patients. Multivariable analysis identified Sepsis-related Organ Failure Assessment score, $\text{pH} \leq 7.3$ and a documented respiratory tract infection on ICU admission as independent risk factors for a complicated course.

Conclusions: Exacerbation requiring ventilatory support was associated with a substantial burden in adult patients with asthma. Respiratory infection was the predominant suspected triggering factor. Respiratory tract infections were documented in 36% of patients and were independently associated with a prolonged course and/or fatal outcome in the ICU.

Keywords: Assisted Ventilation; Asthma; Critical Care.

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Conflict of interest statement

Competing interests: None declared.

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Tezepelumab effectiveness in Aspirin-Exacerbated Respiratory Disease: a real-world multicenter study

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Abstract

Background: Aspirin-exacerbated respiratory disease (AERD) is a severe asthma phenotype characterized by chronic rhinosinusitis with nasal polyps and hypersensitivity to non-steroidal anti-inflammatory drugs, and is associated with a high disease burden. Real-world evidence on the effectiveness of tezepelumab in AERD remains limited.

Objective: To evaluate the effectiveness of tezepelumab in patients with severe asthma and AERD in routine clinical practice and to compare outcomes with those of patients without AERD.

Methods: This multicenter retrospective real-world study included patients with severe uncontrolled asthma treated with tezepelumab 210 mg every 4 weeks for 12 months. Clinical, functional, and inflammatory parameters were assessed at baseline, 6 months, and 12 months. Outcomes included severe exacerbations, emergency department visits, oral corticosteroid (OCS) exposure, asthma control, lung function, and clinical remission. Sensitivity analyses using Firth penalized logistic regression were performed to account for sparse-data bias.

Results: Among 157 patients, 23 (14.6%) had AERD. After 12 months, tezepelumab was associated with a 70% reduction in severe exacerbations, a 76% reduction in emergency department visits, and a 55% reduction in cumulative OCS exposure in patients with AERD. Compared with patients without AERD, those with AERD had lower severe exacerbation rates (incidence rate ratio [IRR] 0.74, 95% confidence interval [CI] 0.57-0.97; $p=0.028$) and greater reductions in OCS exposure (IRR 0.74, 95% CI 0.71-0.77; $p<0.001$). Asthma control improved significantly, whereas lung function changes were modest and did not reach statistical significance. Sensitivity analyses yielded consistent but imprecise estimates with wide confidence intervals.

Conclusions: Tezepelumab was associated with clinically meaningful improvements in patients with severe asthma and AERD. Although patients with AERD showed a trend toward greater clinical benefit than those without AERD, the sensitivity analyses precluded definitive conclusions regarding a differential treatment effect. These findings support further prospective studies to clarify whether AERD identifies a phenotype with enhanced responsiveness to upstream TSLP blockade.

Keywords: Aspirin-exacerbated respiratory disease; severe asthma; tezepelumab.

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Conflict of interest statement

Declaration of Competing Interest Diana Betancor Perez was supported by a Rio Hortega Research Contract from Instituto Carlos III, Ministry of Science and has received personal fees for lectures from AstraZeneca, GSK, Chiesi,. Marcela Valverde-Monge has received personal fees for lectures from Organon S.A., AstraZeneca, GSK; an investigation grant from Roxall and has been on advisory boards for Organon S.A. Remedios Cárdenas reports grants and personal fees from AstraZeneca, GSK, SANOFI, LETI, ROXALL, DIATER, TEVA and ALLERGY THERAPEUTICS. Ismael Garcia-Moguel reports to work at University Hospital 12 de Octubre, have received grants and personal fees from AstraZeneca, GSK, TEVA, SANOFI, NOVARTIS, CHIESI, ORION PHARMA, LETI, ALLERGY THERAPEUTICS, and STALLERGENES during the conduct of the study and has been on advisory boards and/or been a speaker or investigator for: Novartis, AstraZeneca, Teva, GSK, Sanofi Genzyme, Chiesi, Allergy therapeutics, Leti, Stallergenes, ALK-Abelló, Mundipharma, Pfizer and Orion Pharma. Ana Rosado reports personal fees from GSK, Astra-Zeneca, and Novartis, outside the submitted work, has received payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing and/or educational events from AstraZeneca, GSK, Novartis, and support for attending meetings and/or travel from GSK and Chiesi. Mar Gandolfo-Cano has received payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing and/or educational events from AstraZeneca, Sanofi, GlaxoSmithKline, Novartis, Leti, Allergy Therapeutics, and Chiesi and support for attending meetings and/or travel from Leti, Immunotek, Allergy Therapeutics, and Chiesi. Teresa Robledo Echarren has received payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing and/or educational events from AstraZeneca, GSK, Sanofi, Bial, and Stallergenes, support for attending meetings and/or travel from Diater, Immunotek, and Stallergenes, and participated on a Data Safety Monitoring Board or Advisory Board for Allergy therapeutics and stallergenes. Maria del Mar Moro Moro reports personal fees from SANOFI, ASTRA ZENECA, and GSK, outside the submitted work, has received payment or honoraria for lectures, presentations, speakers' bureaus, manuscript writing and/or educational events from GSK, Astra-Zeneca, Sanofi, Novartis, ALK, and Chiesi, and support for attending meetings and/or travel from Allergy therapeutics, LETI, and ALK. M(a)del Mar ReañoMartos has received payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing and/or educational events from AstraZeneca, GSK, and ALK, support for attending meetings and travel from Allergy therapeutics and payment for expert testimony from Leti and Stallergenes. Rafael Pineda-Pineda reports personal fees from Astra Zeneca, Sanofi, GLAXOSMITHKLINE, and IMMUNOTEK, non-financial support from NOVARTIS, LETI, ALLERGY THERAPEUTICS, and DIATER outside the submitted work and has received payment or honoraria for lectures, presentations, speakers' bureaus, manuscript writing and/or educational events, support for attending meetings and/or travel from AstraZeneca, Sanofi, GlaxoSmithKline, Novartis, Leti, Immunotek, Diater, Allergy Therapeutics, and Roxall. Darío Antolín-Amérigo reports Grants: SEAIC, consulting fees: ALK-Abelló, AstraZeneca, Chiesi and Gebro, as speaker: AstraZeneca, Chiesi, Gebro, GSK, Leti Pharma, Menarini, Mundipharma, Novartis, Roxall, Sanofi. Javier Domínguez-Ortega reports personal fees from

ASTRAZENECA, GSK, SANOFI, NOVARTIS, and TEVA, outside the submitted work, has received funding for research and honoraria for consultancy and conferences from AstraZeneca, Chiesi, and GSK, Bial, Novartis, Sanofi, and Teva, and speaker fees from ALK, LETI Pharma, and Mundipharma. All other authors declare that there are no conflicts of interest that may be considered to influence the content of this manuscript directly or indirectly.

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[Ocular Safety of Dupilumab Compared With IL-5 Inhibitors in Asthma](#)

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Affiliations Expand

- PMID: 42777916
- DOI: [10.1016/j.jaip.2026.09.006](#)

Abstract

Background: Ocular adverse events (OAEs) are a clinical concern among patients with asthma receiving biologic therapy. Although dupilumab is associated with OAEs in atopic dermatitis (AD), its comparative ocular safety versus interleukin-5 (IL-5) inhibitors in asthma remains unclear.

Objective: To compare the risk of OAEs between dupilumab and IL-5 inhibitors in adults with asthma using a target trial emulation framework.

Methods: This retrospective cohort study utilized the TriNetX US Collaborative Network (2018-2025) to identify adults with asthma initiating dupilumab or IL-5 inhibitors (mepolizumab or benralizumab), excluding those with OAEs within the 12 months before treatment initiation. After 1:1 propensity score matching, the composite outcome of OAEs was assessed. Adjusted hazard ratios (aHRs) were estimated using Cox proportional hazards regression over a 6-month follow-up.

Results: After matching, 7,073 pairs were identified, with few having AD (0.9%) but substantial chronic obstructive pulmonary disease (COPD) comorbidity (~30%). Unlike prior studies in AD populations, overall OAE incidence was low in both groups, though risk was higher with dupilumab than IL-5 inhibitors (2.6% vs 2.1%; aHR, 1.25; 95% CI, 1.01-1.55). Conjunctivitis risk was also higher (1.5% vs 1.1%; aHR, 1.38; 95% CI, 1.03-1.86), whereas no significant difference was observed for dry eye syndrome (aHR, 1.15; 95% CI, 0.80-1.66). Subgroup analyses showed no evidence of effect modification by age, sex, allergic rhinitis, or COPD status (all P for interaction >.05), although risk was higher among younger adults for OAEs and among younger and male adults for conjunctivitis. Findings were generally consistent, though significance was not retained after excluding patients with AD, hypereosinophilic syndrome or Sjögren's syndrome (aHR, 1.23; 95% CI, 0.98-1.54) or among persistent biologic use (aHR, 1.29; 95% CI, 0.87-1.93).

Conclusion: Dupilumab was associated with a modestly higher, but overall infrequent, risk of OAEs than IL-5 inhibitors in asthma over 6 months (2.6% vs 2.1%), a rate substantially lower than the 8-28% previously reported in AD populations. This risk, driven primarily by conjunctivitis, was most pronounced among younger adults, men, and patients with comorbid AD, suggesting that AD may also contribute to this adverse effect. Continued ocular monitoring is warranted, particularly in these subgroups.

Keywords: Asthma; Dupilumab; IL-5 inhibitors; Ocular adverse events; Real-world evidence; Target trial emulation.

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[Influence of newly initiated biologic therapy on the dose of ICS therapy - Data from the German Asthma Net](#)

[Slagjana Stoshikj](#)¹, [Andreas Renner](#)¹, [Christina Bal](#)¹, [Christoph Krall](#)², [Dirk Skowasch](#)³, [Katrin Milger](#)⁴, [Christian Schulz](#)⁵, [Margret Jandl](#)⁶, [Rainer](#)

[Ehmann⁷](#), [Olaf Schmidt⁸](#), [Roland Buhl⁹](#), [Eckard Hamelmann¹⁰](#), [Christian Taube¹¹](#), [Stephanie Korn¹²](#), [Marco Idzko¹³](#); [German Asthma Net \(GAN\) study group](#)

Affiliations Expand

- PMID: 42777915
- DOI: [10.1016/j.jaip.2026.09.005](#)

Abstract

Background: Real-world data on inhaled corticosteroid (ICS) reduction after biologic initiation in severe asthma are limited.

Objectives: We assessed high dose (HD)-ICS reduction and its association with asthma control, exacerbations, lung function, and fractional exhaled nitric oxide (FeNO).

Methods: Adults in the German Asthma Net registry initiating benralizumab, dupilumab, mepolizumab, omalizumab, reslizumab, or tezepelumab with documented ICS use and 4-month, 1-, or 2-year follow-up were analyzed. ICS doses were converted to beclomethasone dipropionate equivalents (BDE) per GINA and reducers were defined by HD-ICS step-down to medium/low-dose ICS during follow-up and compared to non-reducers. Remission was defined as an Asthma Control Test (ACT) ≥ 20 , no exacerbations, and no oral corticosteroids after 1 year of biologics. Analyses used adjusted linear, log-linear, and Poisson regression models (standard or mixed-effects, as appropriate), along with Kendall's τ and Spearman's rank correlation coefficients.

Results: Among 1,181 patients (1,372 visits; 55 ± 13 years; 57% female), HD-ICS use declined from 90.7% to 79.9% over 2 years. Median BDEs dose decreased from 1600 to 1000 μg ($n=287$; $P=.004$). ICS-Reduction was observed in patients with greater improvements in ACT, ACQ-5 and mAQLQ than in patients not reducing (all $P<.05$) without worsening exacerbations over 2 years. Reduction after 4 months was associated with better FEV1 improvement (all $P=.03$) but not thereafter; other lung function measures improved comparably, except for greater FRC reduction among reducers at year 2 ($P=.02$). FeNO decreased overall, with a smaller 1-year reduction among reducers ($P = .050$). Remission was associated with higher ICS reduction rates (year 1: 23.0% vs. 8.7 %, $P=.0001$; year 2: 26.3% vs. 10.8%, $P=.004$). Correlation analyses largely confirmed the main findings.

Conclusion: ICS reduction was associated with improved patient-reported outcomes without worsening exacerbations, lung function or FeNO.

Keywords: Asthma control; Biologics; Exacerbations; FeNO; Lung function; Registry; Severe Asthma; high dose inhaled Corticosteroids.

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Biologic outcomes in severe asthma patients by smoking status: evidence from SHARP

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Affiliations Expand

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Abstract

Rationale: The efficacy of biologics remains debatable in current or ex- smokers with severe asthma.

Objectives: This study aimed to evaluate responses to biologics by smoking exposure and to assess variations in management practice across Europe.

Methods: This was a retrospective real-world study of adults with severe asthma from 16 European countries assessed at baseline and after 1-year of biologic treatment. Data were collected within the ERS SHARP (Severe Heterogeneous Asthma Research-Patient Centred) registry, applying the OMOP Common Data Model.

Measurements and main results: Of the 3,876 adult patients, 2,383 were never-smokers, 540 ex-smokers (<10 pack-years), 812 (≥10 pack-years), and 141 current-smokers. In all 4 groups, symptom control (ACT≥20/ACQ≤1.5) improved, frequent

exacerbations (≥ 2 /year) decreased, asthma quality of life (AQLQ) improved, and oral corticosteroid use decreased. While the starting point sometimes differed, the order of magnitude of change was not statistically different between groups. A country-averaged analysis of the SHARP survey revealed that 29% of participating nations reported opposition to prescribing biologics to current smokers, while 59% expressed dissatisfaction with current treatment guidelines.

Conclusion: Our study reveals a lower prevalence of biologic therapy among adults with severe asthma who smoke and provides evidence suggesting this practice is unwarranted. Former/current smokers who underwent biologic therapy for one year responded as effectively as never-smokers. Recognising the complexity of nicotine dependence, smoking cessation should remain a central goal in asthma management. This study underscores the need for randomized controlled trials in smokers to enable more robust and inclusive scientific conclusions and guidelines.

Keywords: Biologics; Quality of Life; Severe Asthma; Smoking; Treatment Outcome.

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Cite

14

Arch Pediatr

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[Changes in physical activity, sedentary behavior and quality of life after an adapted physical activity program in children with asthma: A pilot pre-post observational study](#)

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Affiliations Expand

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Abstract

Background: Asthma is the most common chronic disease in children and is associated with reduced physical activity (PA) and impaired quality of life. Despite well-established benefits of PA, many children with asthma remain sedentary due to fear of symptom exacerbation.

Objective: The primary objective of this pilot pre-post observational study was to describe changes in physical activity and sedentary behavior after participation in an Adapted Physical Activity (APA) program integrated into a Therapeutic Patient Education (TPE) ("École du Souffle") for children with asthma.

Methods and settings: This single-center retrospective observational pilot study used a pre-post design and included children with asthma who participated in the "École du Souffle" TPE program integrating adapted physical activity sessions in the Department of General Pediatrics and Pneumo-Allergology at Bicêtre Hospital (France) between October 2024 and June 2025. Twenty-five children participated in the program: Outcomes included PA level and sedentary time (CAPAS-Q), and Pediatric Quality of Life Inventory version 4.0 (PedsQL 4.0). The questionnaires were self-assessed by the children, with caregiver assistance when needed. Physical capacities were assessed using standardized tests (walking test, flexibility, muscle strength).

Results: Following the APA intervention, the overall physical activity score was higher than at baseline ($p = 0.026$), and out-of-school physical activity increased by 2.1 points on the CAPAS-Q scale. Sedentary time was significantly lower after the intervention. Quality of life improved following the intervention, particularly in emotional and social aspects. Physical capacities remained globally stable.

Conclusion: Participation in an APA program integrated within TPE was associated with higher physical activity, lower sedentary behavior, and improved quality of life in children with asthma. These findings support the integration of APA within pediatric asthma management and highlight the importance of promoting PA prescription among healthcare professionals.

Keywords: Asthma; Asthma, exercise induced; Physical education; Sedentary behavior; Training programs.

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Conflict of interest statement

Conflict of interest The authors declare no conflict of interest for this article.

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. 2026 Sep 21;12(5):01587-2025.

doi: 10.1183/23120541.01587-2025. eCollection 2026 Sep.

[Emphysema Severity Index: a new spirometric parameter in epidemiology](#)

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Affiliations Expand

- PMID: 42769809
- PMCID: [PMC13591299](#)
- DOI: [10.1183/23120541.01587-2025](#)

Abstract

Background: The Emphysema Severity Index (ESI) is a recently developed parameter describing the curvilinear shape of the expiratory flow/volume curve to evaluate the emphysema contribution to airflow obstruction (AO), as observed in COPD patients and geriatric populations. The aim of the present study was to assess ESI usefulness in respiratory epidemiology studies where spirometry is typically the only available objective tool.

Methods: An adult population sample of Pisa (Central Italy) (n=685, 47.3% male, mean age 53.3 years) participated in an epidemiological survey through standardised questionnaire and spirometry (2009-2011); information on hospital admissions was available up to 2017. The input variables for the ESI computing algorithm are peak expiratory flow, forced vital capacity (FVC) and the forced expiratory flows at 25%, 50% and 75% of FVC. ESI is a numerical value ranging from 0 (no emphysema) to 10 (very severe emphysema). Statistics included descriptive analyses, Kruskal-Wallis nonparametric test and logistic regression models.

Results: The ESI mean±sd value was: 1.16±0.78; median (IQR) 0.98 (0.39). The ESI was significantly higher in males, ex-smokers, the elderly, subjects with asthma/COPD, and in those with limited daily activities, higher number of doctor visits and hospital admission for respiratory disease. For each increment of an ESI IQR, higher odds of respiratory outcomes, daily activity limitations and use of health services emerged in the total sample, but also in subjects without AO.

Conclusions: ESI represents a potentially valuable indicator in epidemiological surveys on the general population and allows early changes in lung function to be identified also in subjects without AO, which is valuable for secondary prevention.

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Conflict of interest statement

Conflict of 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.

- [28 references](#)
- [3 figures](#)

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16

Expert Rev Respir Med

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. 2026 Sep 23:1-9.

doi: 10.1080/17476348.2026.2730537. Online ahead of print.

[Association of GLP-1-based therapy with asthma-related outcomes in patients with obesity: a propensity-matched retrospective cohort study](#)

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Affiliations Expand

- PMID: 42733229
- DOI: [10.1080/17476348.2026.2730537](#)

Abstract

Background: Obesity worsens asthma morbidity, but observational associations between glucagon-like peptide-1 (GLP-1)-based therapy and respiratory outcomes may be confounded by treatment selection.

Research design and methods: We conducted an active-comparator retrospective cohort study in the TriNetX US Collaborative Network across 72 healthcare organizations. Adults with body mass index (BMI) ≥ 30 kg/m², repeated asthma documentation, and subsequent GLP-1-based therapy were compared with patients

receiving active non-GLP pharmacologic weight-management therapy. After 1:1 propensity-score matching, 2,423 patients remained per cohort. Outcomes were assessed from day 1 through day 365 after the treatment-aligned index event.

Results: Recorded asthma exacerbation occurred in 1.7% versus 4.0% (risk difference [RD], -2.2%; 95% confidence interval (CI), -3.2% to -1.3%; risk ratio [RR], 0.438; 95% CI, 0.306-0.626). GLP-1-based therapy was also associated with lower systemic glucocorticoid exposure (16.4% vs 23.1%; RR, 0.712), emergency department/critical-care utilization (7.1% vs 13.0%; RR, 0.541), and acute respiratory failure (0.7% vs 1.8%; RR, 0.364). BMI- and glycated hemoglobin (HbA1c)-restricted sensitivity analyses were generally directionally concordant. GLP-1-specific adverse events were not systematically assessed.

Conclusions: GLP-1-based therapy was associated with fewer recorded one-year respiratory and utilization events than active non-GLP pharmacotherapy. Residual confounding, treatment-persistence uncertainty, and exposure/outcome misclassification preclude causal inference.

Keywords: Asthma; GLP-1 receptor agonists; electronic health records; obesity; propensity-score matching; tirzepatide.

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Cite

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Chronic Obstr Pulm Dis

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doi: 10.15326/jcopdf.2026.0806.

[Low Incidence of High-Frequency Chest Wall Oscillation in Bronchiectasis Registry Data Despite Indications and Reimbursement](#)

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Affiliations Expand

- PMID: 42460997
- DOI: [10.15326/jcopdf.2026.0806](#)

Free article

Abstract

Background: Airway clearance techniques (ACTs) are required in international bronchiectasis (BE) management guidelines, and high-frequency chest wall oscillation (HFCWO) is the only ACT with a Centers for Medicare and Medicaid Services (CMS) reimbursement guideline.

Objective: We aimed to compare patient demographics and clinical characteristics between BE patients using HFCWO to BE patients not using HFCWO.

Methods: Bronchiectasis and Nontuberculous Mycobacteria Research Registry (2008–2025) data were retrospectively analyzed. Patients were grouped by baseline HFCWO use and nonusers were further stratified by selected CMS eligibility criteria (productive cough or more than 2 exacerbations per year) and subsequent HFCWO utilization.

Results: Of 5673 patients (median age 69 years), 518 used HFCWO and 5155 did not. HFCWO users had higher rates of asthma (31.7% versus 25.3%, $P=0.002$), gastroesophageal reflux disease (48.5% versus 41.9%, $P=0.004$), primary ciliary dyskinesia (5.8% versus 2.1%, $P<0.001$), allergic bronchopulmonary aspergillosis (3.3% versus 1.7%, $P=0.013$), and nontuberculous mycobacteria (20.1% versus 15.7%, $P=0.011$). Symptoms more common in HFCWO users included dyspnea (72.1% versus 38.5%), fatigue (61.5% versus 46.8%), cough (90.9% versus 76.6%), and hemoptysis (27.1% versus 19.8%) (all $P<0.001$). The median modified Bronchiectasis Severity Index score was higher in HFCWO users (8 versus 7, $P<0.001$), and HFCWO users more frequently received antibiotics, bronchodilators, hypertonic saline, and inhaled and oral corticosteroids, indicating greater disease burden. Notably, 58% (2703/4679) of non-HFCWO users appeared to meet selected CMS symptom/exacerbation criteria and their characteristics resembled HFCWO users.

Conclusion: These findings suggest areas to explore to standardize BE management and motivate clearer treatment guidelines to optimize patient health outcomes.

Keywords: Bronchiectasis and Nontuberculous Mycobacteria Research Registry; CMS criteria; bronchiectasis; high frequency chest wall oscillation; nontuberculous mycobacteria.

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Supplementary info

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Observational Study

Eur Respir J

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. 2026 Sep 25;68(3):2600150.

doi: 10.1183/13993003.00150-2026. Print 2026 Sep.

Small airway dysfunction may mediate the association between body mass index and severe asthma exacerbations

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Affiliations Expand

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Abstract

Background: Obesity is associated with poorer asthma outcomes and an increased risk of exacerbations, but the underlying mechanisms remain incompletely understood. Small airway dysfunction (SAD) may represent a key mechanistic link between excess body weight and adverse asthma outcomes.

Methods: In this multicentre observational study, adult patients with asthma underwent clinical characterisation, spirometry and impulse oscillometry (IOS). SAD was defined using a composite criterion based on small airway resistance (frequency dependence of resistance between 5 and 20 Hz (R_{5-20})), reactance area (AX) and ratio of peripheral airway to total airway resistance ($(R_{5-20})/R_5$). Associations between body mass index (BMI), SAD and severe asthma exacerbations were assessed using multivariable regression models. Non-linear relationships were explored using generalised additive models, and mediation analyses quantified the contribution of SAD to the obesity-exacerbation association.

Results: Among 1169 patients, IOS-defined SAD was significantly more prevalent in individuals with BMI ≥ 30 kg·m⁻². Increasing BMI was associated with worse IOS parameters ($p < 0.0001$), following a non-linear pattern with steeper deterioration beyond BMI values of ~ 28 -30 kg·m⁻². SAD was independently associated with obesity (adjusted OR 2.11, 95% CI 1.56-2.86) and with severe asthma exacerbations in the previous year (adjusted OR 2.01, 95% CI 1.53-2.65) (both $p < 0.0001$). Mediation analyses showed that SAD accounted for 26-41% of the association between obesity and exacerbation risk ($p = 0.004$ and $p = 0.03$). Spirometry indices provided limited additional information.

Conclusion: Oscillometry-defined SAD represents a non-linear functional trait underlying the association between obesity and severe asthma exacerbations, supporting its clinical relevance in obese patients with asthma and identifying SAD as a potential treatable trait.

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Conflict of interest: A. Portacci reports payment or honoraria for lectures, presentations, manuscript writing or educational events from AstraZeneca, GlaxoSmithKline, Chiesi, Sanofi, Zambon and Boehringer Ingelheim, and support for attending meetings from Lusofarmaco and Chiesi. F. Menzella reports research funding from AstraZeneca, GlaxoSmithKline, Chiesi Farmaceutici and Sanofi, and payment or honoraria for lectures, presentations, manuscript writing or educational events from AstraZeneca, Chiesi Farmaceutici, GlaxoSmithKline, Sanofi, Merck and Insmed. R. Poto reports payment or honoraria for lectures, presentations, manuscript writing or educational events from AstraZeneca and GlaxoSmithKline. A. Berti reports honoraria for lectures and/or advisory boards from AstraZeneca, GlaxoSmithKline, UCB, AbbVie and Vifor. G.E. Carpagnano reports grants or contracts from AstraZeneca, Chiesi, GlaxoSmithKline, Sanofi and Grifols, payment or honoraria for lectures, presentations, manuscript writing or educational events from AstraZeneca, GlaxoSmithKline and Sanofi, and support for attending meetings from AstraZeneca, Menarini and Chiesi. Z. Diamant reports grants from Sanofi and Foresee Pharmaceutical, payment or honoraria for lectures, presentations, manuscript writing or educational events from Aclaris Therapeutics (previously Biosion), Arrowhead Pharma, Cascador Health (previously Galenus Health), Curovir, EUFOREA, Foresee Pharmaceuticals, GlaxoSmithKline, Hippo-Dx, Pleuran SRO, QPS-Netherlands, Sanofi-Genzyme-Regeneron and TPG, support for attending meetings from Airsonett AB and ALK, participation on a data safety monitoring board or advisory board with Aclaris Therapeutics (previously Biosion), Arrowhead Pharma, Cascador Health (previously Galenus Health), Curovir, EUFOREA, Foresee Pharmaceuticals, GlaxoSmithKline, Hippo-Dx, Pleuran SRO, QPS-Netherlands, Sanofi-Genzyme-Regeneron and TPG, institutional grants from Sanofi received by KUL, Leuven, Belgium and from IMI (ERA4TB) and Foresee Pharmaceuticals by QPS-NL, and serves/served as Associate Editor for Respiratory Medicine (since 2004, ongoing) and Allergy (2018–2024). I.M. Adcock reports institutional grants from GlaxoSmithKline, MRC, EPSRC, Sanofi and Sysmex, consultancy fees from GlaxoSmithKline, lecture fees from AstraZeneca, GlaxoSmithKline and Sunvou, serving on advisory boards for Kinaset, Sanofi and GlaxoSmithKline, and is the head of the Asthma Section for EAACI and a member of the European Respiratory Journal editorial board. B. Lipworth reports grants, personal fees (consulting, talks and advisory board) and other support (attending ATS and ERS) from AstraZeneca, grants, personal fees (talks and consulting) from Sanofi-Regeneron, personal fees (consulting, talks and advisory board) from NIOX in relation to the submitted work, grants, personal fees (consulting, talks, advisory board), other support (attending ERS) from Teva, personal fees (talks and consulting), grants and other support (attending ERS and BTS) from Chiesi, personal fees (consulting and talks) from Lupin, personal fees (consulting) from Glenmark, personal fees (consulting, talks and advisory board) and other support (attending BTS) from Boehringer Ingelheim, and the author's son is presently an employee of AstraZeneca. O. Usmani reports

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Comment in

- [Impulse oscillometry-defined small airway dysfunction in obese asthma: from silent zone to emerging treatable trait.](#)

Lu W, Sohal SS. Eur Respir J. 2026 Sep 25;68(3):2601089. doi: 10.1183/13993003.01089-2026. Print 2026 Sep. PMID: 42790896 No abstract available.

- [Cited by 1 article](#)

Supplementary info

Publication types, MeSH termsExpand

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

1

Review

Ann Allergy Asthma Immunol

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. 2026 Sep 24:S1081-1206(26)01180-4.

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[Identifying and Treating Neutrophilic Inflammation in Corticosteroid-Refractory United Airway Disease: A Treatable-Trait Approach](#)

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Affiliations Expand

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Abstract

Neutrophilic inflammation is increasingly recognized in difficult-to-control asthma, chronic rhinosinusitis with nasal polyps (CRSwNP), and allergic rhinitis, but its clinical interpretation remains challenging. Neutrophilia may coexist with type 2 (T2) inflammation and can also arise from infection, smoking, environmental exposure, obesity, treatment effects, or transient exacerbation biology; therefore, it should not be equated automatically with a stable non-T2 endotype or corticosteroid resistance. This review focuses on how clinicians can identify and act on a clinically meaningful neutrophilic treatable trait across the united airway. Direct airway assessment, particularly induced sputum in asthma and nasal cytology or tissue assessment in upper-airway disease, provides the closest measure of local inflammatory phenotype, whereas peripheral blood and soluble biomarkers remain supportive rather than interchangeable surrogates. Reproducibility, clinical context, and exclusion of secondary causes are essential before assigning therapeutic significance to neutrophilia. No neutrophil-specific biologic is currently approved for asthma, CRSwNP, or allergic rhinitis. Macrolides provide the clearest clinically available bridge in selected patients, but treatment response is not defined by a validated neutrophil cutoff. Trials targeting CXCR1/2 or IL-17 pathways demonstrate that reducing neutrophilic inflammation does not necessarily translate into meaningful clinical benefit, whereas NET- and cGAS-STING-directed strategies remain investigational. A practical treatable-trait approach should integrate validated coexisting T2 traits, direct airway phenotyping where feasible, evidence-based or trial-based treatment selection, and longitudinal reassessment of both inflammatory phenotype and clinical outcomes.

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Conflict of interest statement

Declaration of competing interest The authors declare no conflict of interest.

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Review

Otolaryngol Head Neck Surg

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. 2026 Sep 24.

doi: 10.1002/ohn.70458. Online ahead of print.

Clinical Management and Outcomes of Neonatal Rhinitis Nasal Obstruction: A Scoping Review

Anthony Victor¹, **Mathieu Bergeron**^{2 3 4}

Affiliations Expand

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- DOI: [10.1002/ohn.70458](https://doi.org/10.1002/ohn.70458)

Abstract

Objective: Neonatal rhinitis represents an underdiagnosed yet potentially serious condition in newborns. Standardized diagnostic and treatment protocols remain lacking. The objective is to review the current literature on the etiology, diagnosis, and management of neonatal rhinitis in infants ≤ 8 months of age.

Data sources: PubMed, Medline, Embase, Google Scholar and Sofia (January 1980-September 2025).

Review methods: A scoping review was conducted in accordance with PRISMA-ScR guidelines. The inclusion criteria targeted studies involving neonates with nasal obstruction caused by mucosal edema or inflammatory conditions. Data were extracted regarding clinical presentation, diagnostic approaches, therapeutic strategies, and outcomes.

Results: Five key studies were found, including retrospective chart reviews, case series, and narrative reports. Across the studies, neonatal rhinitis was consistently characterized by mucoid rhinorrhea, nasal congestion, stertor, poor feeding, and respiratory distress, often in afebrile newborns. Standard diagnostic tools included fibre-optic endoscopy and CT imaging to exclude choanal atresia, pyriform aperture stenosis, and other etiologies. Conservative treatment approaches, such as saline irrigation, corticosteroid nasal drops (eg, dexamethasone), and nasopharyngeal airway placement, were favoured and proved efficient in most cases. Surgical intervention and more invasive interventions were reserved for severe or nonresponsive cases.

Conclusion: Neonatal rhinitis is a clinically significant yet undercharacterized condition. Although the available evidence is limited, it suggests that conservative management, including topical corticosteroids and mechanical airway support, is commonly used and associated with favourable outcomes. This scoping review identifies gaps and underscores the need for research to better define and guide the management of this condition.

Keywords: choanal; congestion; distress; infants; neonatal; neonate; obstruction; rhinitis; rhinorrhea.

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Cite

3

J Asthma

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. 2026 Sep 25:1-11.

doi: 10.1080/02770903.2026.2738097. Online ahead of print.

[Allergic rhinitis duration and small-airway dysfunction in adolescents without asthma: a cross-sectional impulse oscillometry study](#)

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Affiliations Expand

- PMID: 42779210
- DOI: [10.1080/02770903.2026.2738097](#)

Abstract

Objective: Allergic rhinitis (AR) is a mucosal inflammatory disease increasingly viewed within a united-airway framework, yet whether lower-airway function deteriorates as AR persists in adolescents without asthma remains unclear. We used impulse oscillometry (IOS) to examine the relationship between AR duration and small-airway function, and examined serum endocan (endothelial cell-specific molecule-1, ESM-1), whose relationship to airway function in AR is unknown, as a candidate systemic biomarker.

Methods: Forty treatment-naïve, aeroallergen-sensitized adolescents (12-17 years) with AR and 37 non-atopic controls of comparable age and sex underwent IOS,

serum endocan measurement (ELISA, enzyme-linked immunosorbent assay), specific immunoglobulin E (IgE) testing, and skin prick testing. Symptoms were scored on a visual analog scale, and core IOS indices were expressed as age- and sex-adjusted z-scores.

Results: No IOS parameter differed between patients and controls. However, longer AR duration was associated with higher total-airway resistance (zR5 $r = 0.323$, $p = 0.042$) and lower reactance (zX5 $r = -0.502$, $p < 0.001$); specific IgE also increased with age, duration, and severity. Serum endocan levels were similar in patients and controls (median 200.8 vs. 218.8 ng/mL; $p = 0.517$) and, within the AR group, did not correlate with severity, persistence, or IOS parameters.

Conclusions: Greater oscillometric small-airway dysfunction was associated with longer AR duration, supporting the use of IOS to assess lower-airway function in adolescents with long-standing AR. Serum endocan did not distinguish patients from controls; because paired airway sampling was not performed, whether any endocan signal in AR is confined to the airway mucosa remains speculative.

Keywords: Allergic rhinitis; adolescents; disease duration; endocan; impulse oscillometry; small-airway dysfunction.

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Cite

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J Allergy Clin Immunol Pract

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. 2026 Sep 23:S2213-2198(26)00781-6.

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[Ocular Safety of Dupilumab Compared With IL-5 Inhibitors in Asthma](#)

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Affiliations Expand

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- DOI: [10.1016/j.jaip.2026.09.006](#)

Abstract

Background: Ocular adverse events (OAEs) are a clinical concern among patients with asthma receiving biologic therapy. Although dupilumab is associated with OAEs in atopic dermatitis (AD), its comparative ocular safety versus interleukin-5 (IL-5) inhibitors in asthma remains unclear.

Objective: To compare the risk of OAEs between dupilumab and IL-5 inhibitors in adults with asthma using a target trial emulation framework.

Methods: This retrospective cohort study utilized the TriNetX US Collaborative Network (2018-2025) to identify adults with asthma initiating dupilumab or IL-5 inhibitors (mepolizumab or benralizumab), excluding those with OAEs within the 12 months before treatment initiation. After 1:1 propensity score matching, the composite outcome of OAEs was assessed. Adjusted hazard ratios (aHRs) were estimated using Cox proportional hazards regression over a 6-month follow-up.

Results: After matching, 7,073 pairs were identified, with few having AD (0.9%) but substantial chronic obstructive pulmonary disease (COPD) comorbidity (~30%). Unlike prior studies in AD populations, overall OAE incidence was low in both groups, though risk was higher with dupilumab than IL-5 inhibitors (2.6% vs 2.1%; aHR, 1.25; 95% CI, 1.01-1.55). Conjunctivitis risk was also higher (1.5% vs 1.1%; aHR, 1.38; 95% CI, 1.03-1.86), whereas no significant difference was observed for dry eye syndrome (aHR, 1.15; 95% CI, 0.80-1.66). Subgroup analyses showed no evidence of effect modification by age, sex, allergic rhinitis, or COPD status (all P for interaction >.05), although risk was higher among younger adults for OAEs and among younger and male adults for conjunctivitis. Findings were generally consistent, though significance was not retained after excluding patients with AD, hypereosinophilic syndrome or Sjögren's syndrome (aHR, 1.23; 95% CI, 0.98-1.54) or among persistent biologic use (aHR, 1.29; 95% CI, 0.87-1.93).

Conclusion: Dupilumab was associated with a modestly higher, but overall infrequent, risk of OAEs than IL-5 inhibitors in asthma over 6 months (2.6% vs 2.1%), a rate substantially lower than the 8-28% previously reported in AD populations. This risk, driven primarily by conjunctivitis, was most pronounced among younger adults, men, and patients with comorbid AD, suggesting that AD may also contribute to this adverse effect. Continued ocular monitoring is warranted, particularly in these subgroups.

Keywords: Asthma; Dupilumab; IL-5 inhibitors; Ocular adverse events; Real-world evidence; Target trial emulation.

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Chronic Obstr Pulm Dis

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[Allergic Sensitization and Serum Immunoglobulin E in Eosinophilic COPD](#)

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Affiliations Expand

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Free article

Abstract

Background: Eosinophilic chronic obstructive pulmonary disease (COPD) is marked by type 2 inflammation, affects more than one-third of people with COPD, and is linked to exacerbation risk and corticosteroid responsiveness. The prevalence and clinical significance of allergic sensitization and elevated immunoglobulin E (IgE) in this subtype are not well understood.

Methods: We analyzed baseline data from 174 former smokers with eosinophilic COPD enrolled in a randomized trial. Participants underwent skin prick testing for 14 regional aeroallergens and total serum IgE measurement. Allergic sensitization was defined as ≥ 1 positive skin test; elevated total IgE as ≥ 100 IU/mL. We evaluated the prevalence of sensitization and elevated IgE, their overlap with asthma and seasonal allergies, and associations with self-reported allergen exposures. Logistic regression assessed links between atopic conditions, exposures, and sensitization. We also examined associations with COPD-related hospitalizations in the past year.

Results: Among participants (mean age 71.5 years; forced expiratory volume in 1 second percentage predicted 53.0%), 47.1% had allergic sensitization, 32.5% had elevated IgE, and 55.7% had allergic sensitization or elevated IgE. Seasonal allergies and asthma were reported by 59.8% and 43.7%, respectively. Among those without concomitant asthma, 38.8% had allergic sensitization. Cat ownership was associated with cat allergen sensitivity (odds ratio=3.1, 95%: confidence interval 1.1–8.6). Asthma and IgE were associated with sensitization to multiple allergens. Sensitization and IgE were not associated with prior-year COPD hospitalization.

Conclusion: Allergic sensitization and elevated IgE are common in eosinophilic COPD, even without comorbid asthma. These findings support further research into the role of environmental allergens in disease progression and management.

Keywords: COPD; allergic rhinitis; allergic sensitization; eosinophilia; immunoglobulin E; seasonal allergies.

chronic cough

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Medicine (Baltimore)

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[Critical Kennedy's disease with Guillain-Barré syndrome and respiratory failure: A case report](#)

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Affiliations Expand

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- DOI: [10.1097/MD.00000000000050722](#)

Abstract

Rationale: Spinal and bulbar muscular atrophy (SBMA, Kennedy disease) is a rare X-linked progressive neurodegenerative disorder. Evidence on the intensive care management of severe SBMA with acute decompensation remains scarce, and superimposed treatable immune-mediated neuropathies are often overlooked in such clinical scenarios.

Patient concerns: A 61-year-old man with a 35-year history of progressive limb weakness and 3 months of worsening dysphagia was transferred to our hospital for acute respiratory failure. He had developed progressive dyspnea, ineffective cough, and secretion retention over 15 days, and had been intubated for hypoxemic respiratory failure at the referring facility.

Diagnoses: Genetic testing confirmed SBMA as the underlying diagnosis, accounting for the patient's chronic progressive weakness, bulbar dysfunction, and chronic neurogenic electrophysiologic changes. Superimposed probable Guillain-Barré syndrome was suspected based on acute monophasic deterioration, generalized areflexia, sensorimotor axonal neuropathy, and positive anti-ganglioside antibodies, though diagnostic certainty was limited by normal cerebrospinal fluid protein and confounding chronic SBMA pathology. Concurrent

conditions included pneumonia, acute segmental pulmonary embolism, and acute respiratory failure.

Interventions: Multidisciplinary management was delivered, including invasive respiratory support, targeted antimicrobial therapy, therapeutic anticoagulation, aggressive bronchoscopic airway clearance, and structured pulmonary and neuromuscular rehabilitation. Four cycles of therapeutic plasma exchange were administered given ongoing suspicion of immune-mediated polyradiculoneuropathy.

Outcomes: Oxygenation and muscle strength improved gradually with combined interventions, and no single treatment could be identified as the sole contributor. The patient experienced extubation failure on hospital day 18 due to persistent airway protection deficits, and underwent tracheostomy on day 26. He was successfully weaned from invasive ventilation and discharged to a rehabilitation facility on hospital day 44.

Lessons: Acute neurological deterioration in patients with SBMA should prompt evaluation for superimposed, potentially treatable neuromuscular disorders, rather than being attributed exclusively to baseline disease progression. Integrated multidisciplinary care is essential to optimize outcomes in severe SBMA complicated by acute respiratory decompensation.

Keywords: Guillain-Barré syndrome; Kennedy's disease; SBMA; respiratory failure; spinal and bulbar muscular atroph.

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Conflict of interest statement

The authors have no conflicts of interest to disclose.

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Review

J Asthma

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Chronic Cough in Adults: A Contemporary Review of Cough Hypersensitivity Syndrome and Clinical Management

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Abstract

Objective: To synthesize evidence on the causes, assessment, and management of adult chronic cough, emphasizing cough hypersensitivity, treatable traits, and a mechanism-based clinical approach.

Data sources: PubMed/MEDLINE and the Cochrane Library were searched for English-language literature published from January 2015 through September 2026, supplemented by reference-list review and selected earlier seminal studies.

Study selections: Priority was given to international guidelines, consensus statements, systematic reviews, meta-analyses, randomized trials, and major clinical reviews addressing chronic cough, refractory or unexplained cough, cough hypersensitivity, laryngeal and reflux-associated disorders, treatable traits, and emerging antitussive therapies.

Results: Chronic cough commonly reflects overlapping respiratory, upper-airway or laryngeal, reflux-associated, medication-related, and neural mechanisms. Cough hypersensitivity is increasingly recognized as an important feature, particularly in refractory or unexplained chronic cough, but should not be assumed to explain every presentation. Inducible laryngeal obstruction is appropriately considered within upper-airway and laryngeal disorders. Gastroesophageal reflux disease and laryngopharyngeal reflux may overlap in patients with cough, although causal attribution is often difficult and the two conditions should not be regarded as interchangeable diagnoses. Initial evaluation should include structured history taking, physical examination, identification of red flags, chest radiography, spirometry, and targeted assessment of treatable traits. Persistent symptoms despite appropriate management may indicate refractory or unexplained chronic cough associated with ongoing neural sensitization.

Conclusion: Current evidence supports an individualized, mechanism-based approach that prioritizes identification and treatment of relevant diseases and treatable traits while recognizing cough hypersensitivity as a potential therapeutic target. Emerging peripheral neural therapies may broaden future treatment options for refractory chronic cough.

Keywords: chronic cough; cough hypersensitivity syndrome; refractory chronic cough; unexplained chronic cough.

Supplementary info

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Cite

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Am J Respir Crit Care Med

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[Metered-Dose Liquid Nitrogen Cryospray for Chronic Bronchitis: Results From the Prospective, Sham-Controlled Trial \(SPRAY-CB\)](#)

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Affiliations Expand

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Abstract

Rationale: COPD with chronic bronchitis is characterized by productive cough with sputum and mucociliary dysfunction, contributing to morbidity and impaired quality of life. The RejuvenAir® System, a cryosurgical device delivering metered doses of medical-grade liquid nitrogen (i.e., Metered Cryospray [MCS]) to bronchial airways, may stimulate healthy epithelial cell regeneration.

Objectives: To assess the safety and effectiveness of MCS treatment in patients with COPD and CB.

Methods: Eligible patients were randomized 2:1 to receive two bronchoscopies with therapeutic mucus clearance, with or without MCS treatment (i.e., MCS or control group, respectively), 30-60 days apart. Safety and clinical effectiveness outcomes were assessed 12 months post-MCS treatment.

Measurements and main results: Overall, 203 patients (MCS: N = 136; sham: N = 67) were evaluated. MCS-treated patients had significantly greater improvement in Total St. George's Respiratory Questionnaire (SGRQ) scores versus controls (treatment difference [95% confidence interval; CI]: -5.9 [-11.6, -0.2]; p = 0.0422), and Total COPD Assessment Test (CAT) scores (treatment difference [95% CI]: -3.4 [-5.8, -1.0]; p = 0.005). Acute exacerbation of COPD (AECOPD; all severities) rates were 70.6% (MCS group) versus 67.2% (control group). Severe AECOPD rates were 21.3% (MCS group) versus 26.9% (control group). Periprocedural pneumothoraces rate per number of MCS treatments delivered was 3.6% (n/N=10/276). Eight deaths, 6 (4.3%; MCS) and 2 (2.9%; control), occurred during the study, none were device- or procedure-related. No unanticipated adverse device effects occurred.

Conclusions: MCS treatment demonstrated significant improvement in Total SGRQ and CAT scores, greater reductions in severe AECOPD rates compared to sham, and an acceptable risk-benefit safety profile in patients with COPD and CB.

Keywords: Metered Cryospray; bronchoscopy; chronic bronchitis; chronic obstructive pulmonary disease.

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Review

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[\[Bronchiectasis in children: An underdiagnosed disease with accessible screening and etiological assessment\]](#)

[Article in French]

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Affiliations Expand

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Abstract

Long considered as a rare and neglected disease, non-cystic fibrosis bronchiectasis in children is now recognized as an emerging cause of chronic respiratory morbidity worldwide. Its incidence is strikingly variable, ranging from 0.2-2.3 per 100,000 children annually in high-income countries to more than 700 per 100,000 in some groups of children living in highly deprived socio-economic settings. Recent data from the Child-BEAR-Net international registry confirm the predominance of post-infectious forms (~30%) and immunodeficiencies (~20%), while also highlighting the role of primary ciliary dyskinesia (~10-15%) and rarer etiologies such as congenital malformations or allergic bronchopulmonary aspergillosis. In low-resource settings, pediatric bronchiectasis remains underdiagnosed and frequently misinterpreted as asthma or tuberculosis, leading to delayed management and worsened bronchial damage. However, unlike in adults, the pediatric bronchial tree retains capacity for remodeling, and if promptly treated, early lesions may regress. Recognizing chronic productive cough as a cardinal symptom, combined with early screening and a multidisciplinary approach (respiratory physiotherapy, targeted antibiotic therapy, immunoglobulin replacement, and nutritional support), can significantly improve outcomes. Future priorities include dissemination of international guidelines (ERS 2021), establishment of national registries, and development of screening programs tailored to low-resource contexts. Some forms of pediatric bronchiectasis, particularly post-infectious forms, may be preventable, and early lesions in selected children may improve following timely diagnosis and management.

Keywords: Bronchectasie pédiatrique; Diagnostic précoce; Dyskinésie ciliaire primitive; Déficits immunitaires; Early diagnosis; High-Resolution Computed Tomography; Imagerie thoracique; Immune deficiencies; Pediatric bronchiectasis; Primary ciliary dyskinesia; Thoracic imaging; Tomodensitométrie à haute résolution.

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Conflict of interest statement

Déclaration de liens d'intérêts Les auteurs déclarent ne pas avoir de liens d'intérêts.

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Chronic Obstr Pulm Dis

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Low Incidence of High-Frequency Chest Wall Oscillation in Bronchiectasis Registry Data Despite Indications and Reimbursement

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Affiliations Expand

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Free article

Abstract

Background: Airway clearance techniques (ACTs) are required in international bronchiectasis (BE) management guidelines, and high-frequency chest wall oscillation (HFCWO) is the only ACT with a Centers for Medicare and Medicaid Services (CMS) reimbursement guideline.

Objective: We aimed to compare patient demographics and clinical characteristics between BE patients using HFCWO to BE patients not using HFCWO.

Methods: Bronchiectasis and Nontuberculous Mycobacteria Research Registry (2008–2025) data were retrospectively analyzed. Patients were grouped by baseline HFCWO use and nonusers were further stratified by selected CMS eligibility criteria (productive cough or more than 2 exacerbations per year) and subsequent HFCWO utilization.

Results: Of 5673 patients (median age 69 years), 518 used HFCWO and 5155 did not. HFCWO users had higher rates of asthma (31.7% versus 25.3%, $P=0.002$), gastroesophageal reflux disease (48.5% versus 41.9%, $P=0.004$), primary ciliary dyskinesia (5.8% versus 2.1%, $P<0.001$), allergic bronchopulmonary aspergillosis (3.3% versus 1.7%, $P=0.013$), and nontuberculous mycobacteria (20.1% versus 15.7%, $P=0.011$). Symptoms more common in HFCWO users included dyspnea (72.1% versus 38.5%), fatigue (61.5% versus 46.8%), cough (90.9% versus 76.6%), and hemoptysis (27.1% versus 19.8%) (all $P<0.001$). The median modified Bronchiectasis Severity Index score was higher in HFCWO users (8 versus 7, $P<0.001$), and HFCWO users more frequently received antibiotics, bronchodilators, hypertonic saline, and inhaled and oral corticosteroids, indicating greater disease burden. Notably, 58% (2703/4679) of non-HFCWO users appeared to meet selected CMS symptom/exacerbation criteria and their characteristics resembled HFCWO users.

Conclusion: These findings suggest areas to explore to standardize BE management and motivate clearer treatment guidelines to optimize patient health outcomes.

Keywords: Bronchiectasis and Nontuberculous Mycobacteria Research Registry; CMS criteria; bronchiectasis; high frequency chest wall oscillation; nontuberculous mycobacteria.

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Supplementary info

Grants and fundingExpand

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

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Biomedicines

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. 2026 Sep 21;14(9):2132.

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[Inhaler Devices as Potential Bacterial Reservoirs: A 30-Day Microbiota Analysis in Non-Cystic Fibrosis Bronchiectasis](#)

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Affiliations Expand

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Abstract

Background/Objectives: Handheld inhalers are essential for the management of bronchiectasis, yet their role as potential microbial reservoirs remains poorly understood. We aimed to characterize and compare the bacterial communities in pressurized metered-dose inhalers (pMDIs) and Respimat® devices after 30 days of clinical use. **Methods:** In this 30-day prospective study of eight adults with non-cystic fibrosis bronchiectasis, inhaler devices (six pMDIs and four Respimat®

devices) were analyzed using 16S rRNA gene sequencing of the V4 region. Total bacterial loads (quantitative PCR), α - and β -diversity, differential taxon abundance (ANCOM-BC), and microbial source tracking (SourceTracker2) were compared between device types. Results: After 30 days, pMDIs showed significantly higher bacterial loads than negative controls (adjusted $p < 0.05$), whereas Respimat® loads were indistinguishable from those of controls. Compared to Respimat® devices, pMDIs showed a trend toward microbial simplification (α -diversity: Shannon index, $p = 0.08$). However, overall community structures did not differ significantly (β -diversity: PERMANOVA, adjusted $p = 0.18$). ANCOM-BC identified 12 amplicon sequence variants (ASVs) significantly enriched in pMDIs, including one belonging to the genus *Pseudomonas*, compared to only one ASV in Respimat® devices. Paired device analyses between two participants who used both devices also revealed differences in the relative abundance of specific potentially pathogenic genera. For instance, in one participant, the pMDI was dominated by *Staphylococcus* (70.9% vs. 2.5% in the paired Respimat®). Conclusions: After 30 days of use by patients with bronchiectasis, bacterial DNA was detected in the liquid contents of both inhaler types. Only pMDIs showed a significant increase in total bacterial load relative to negative controls, and pMDIs harboured more differentially abundant ASVs than Respimat® devices, suggesting that pMDIs may be more susceptible to microbial contamination in patients with non-cystic fibrosis bronchiectasis.

Keywords: *Pseudomonas aeruginosa*; Respimat®; bronchiectasis; inhaler devices; microbial dysbiosis; microbiome; pressurized metered-dose inhaler.

Supplementary info

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. 2026 Sep 25;68(3):26E6803.

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[ERJ Podcast September 2026: The airway microbiome and targeted therapy in bronchiectasis](#)

No authors listed

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No abstract available

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Review

Expert Rev Clin Pharmacol

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[Brensocatib in non-cystic fibrosis bronchiectasis: neutrophil serine protease modulation, clinical evidence, and therapeutic positioning](#)

[Muhammad Saeed Akhtar¹](#)

Affiliations Expand

- PMID: 42788768
- DOI: [10.1080/17512433.2026.2739561](https://doi.org/10.1080/17512433.2026.2739561)

Abstract

Introduction: Non-cystic fibrosis bronchiectasis (NCFB) is a chronic airway disease characterized by recurrent infection, mucus retention, neutrophilic inflammation, and pulmonary exacerbations. Brensocatib is an oral, selective, reversible dipeptidyl peptidase 1 (DPP1) inhibitor that reduces neutrophil serine protease activation and has received regulatory approval for non-cystic fibrosis bronchiectasis in patients aged 12 years and older.

Areas covered: This review evaluates the mechanism, clinical pharmacology, efficacy, safety, regulatory status, and therapeutic positioning of brensocatib. Literature published through 30 June 2026 was identified through PubMed, Scopus, and SciFinder-n, supplemented by prescribing information, regulatory documents, bronchiectasis guidelines, and evidence from the phase 2 WILLOW and phase 3 ASPEN trials.

Expert opinion: Brensocatib is a mechanism-directed preventive therapy for NCFB; the evidence base is strongest in patients with recent pulmonary exacerbations, while exact sequencing relative to macrolides and inhaled antibiotics remains uncertain. It should be integrated with airway-clearance and infection-directed management rather than viewed as a stand-alone intervention. Its long-term value will depend on appropriate patient selection, dermatologic and periodontal monitoring, affordability, comparative effectiveness, and real-world evidence on exacerbations, antibiotic use, lung-function trajectories, and patient-centered outcomes.

Keywords: Brensocatib; DPP1 inhibition; bronchiectasis; dipeptidyl peptidase 1; neutrophil elastase; neutrophil serine proteases; pulmonary exacerbation.

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[Effects of hypertonic saline and/or carbocisteine on sputum rheology in bronchiectasis: CLEAR-EME](#)

[Michael C McKelvey](#)¹, [Gisli G Einarsson](#)², [Jack Carson](#)², [Aram Kadoom](#)², [Ryan R Brown](#)¹, [Christina Campbell](#)³, [Andrew Jackson](#)³, [Cliona McDowell](#)³, [Mike Clarke](#)³, [Fiona Copeland](#)⁴, [Kathryn Ferguson](#)⁵, [Rebecca H McLeese](#)⁶, [Rory Convery](#)⁷, [Adam T Hill](#)^{8 9}, [Anthony De Soyza](#)¹⁰, [Mitra Shahidi](#)¹¹, [Martin Kelly](#)⁵, [Mary Carroll](#)¹², [Timothy Gatheral](#)¹³, [Muhammed Anwar](#)¹⁴, [Jamie Duckers](#)¹⁵, [William Flight](#)¹⁶, [John R Hurst](#)¹⁷, [A Alina Ionescu](#)¹⁸, [Michael R Loebinger](#)^{19 20}, [Anita L Sullivan](#)²¹, [James D Chalmers](#)²², [Damian G Downey](#)¹, [Michael M Tunney](#)², [Brenda O'Neill](#)²³, [Daniel F McAuley](#)¹, [J Stuart Elborn](#)¹, [Judy M Bradley](#)¹, [Clifford C Taggart](#)¹

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Abstract

Background: Mucoactives such as hypertonic saline (HTS) and carbocisteine are widely used in the treatment of bronchiectasis, though there is insufficient evidence to support their use. The aim of this mechanistic sub-study, embedded within the CLEAR trial, was to characterise the properties of sputum from patients with bronchiectasis and to assess whether treatment with HTS and/or carbocisteine altered these properties.

Methods: In CLEAR, patients were randomised to receive HTS, carbocisteine, HTS plus carbocisteine or standard care, and sputum samples were collected at randomisation (baseline) and at 2 and 8 weeks post-randomisation. Sputum viscoelasticity was determined by rotational plate rheometry. Biomarkers were quantified by ELISA and microbiome composition was assessed by next-generation sequencing. The primary outcome was differences in sputum viscoelasticity between groups at 2 weeks following the commencement of treatment.

Results: Sputum viscoelastic properties were not reduced by 2 or 8 weeks of treatment with HTS and/or carbocisteine (n=6-15 per group). Sputum biomarker levels and bacterial community composition were similar across groups at 2 or 8 weeks. At baseline, viscoelasticity (crossover point σ_c) was positively correlated with interleukin-8 (r=0.49, p=0.012) and greater relative bacterial dominance (r=0.35, p=0.041).

Conclusions: These data do not support the use of HTS or carbocisteine to alter sputum viscoelasticity, inflammatory marker levels or bacterial community composition in patients with bronchiectasis.

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Conflict of interest statement

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Supplementary info

Grants and funding**Expand**