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

1

Meta-Analysis

Ann Med

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. 2024 Dec;56(1):2392022.

doi: 10.1080/07853890.2024.2392022. Epub 2024 Aug 28.

[Effects of different exercise regimens on prognosis of patients with chronic obstructive pulmonary disease: a systematic reviews and meta-analysis](#)

[Zi-Yi Zhang](#)<sup>1</sup>, [Yu-Hong Li](#)<sup>2</sup>

Affiliations Expand

- PMID: 39193650
- DOI: [10.1080/07853890.2024.2392022](https://doi.org/10.1080/07853890.2024.2392022)

Abstract

Introduction: Skeletal muscle dysfunction is a significant factor contributing to exercise limitation in patients with chronic obstructive pulmonary disease (COPD).

Although exercise training is often recommended to enhance patient outcomes, there continues to be ongoing debate regarding its exact effects.

**Objective:** The aim of this study is to evaluate the effectiveness of endurance exercise, strength training and combined exercise on cardiorespiratory fitness (including maximal oxygen uptake, maximal minute ventilation, and the 6-minute walk test), strength of lower limbs (measured by leg press), and quality of life (using the COPD Assessment Test) in patients with COPD. By conducting a systematic review and meta-analysis of randomized controlled trials (RCTs), our objective is to provide tailored training methods and intensity recommendations for patients with COPD in order to improve their quality of life.

**Methods:** The meta-analysis included 10 randomized controlled trials (RCTs) of exercise rehabilitation programs involving 180 patients with COPD that were retrieved from electronic databases (PubMed, Cochrane Library, and Embase). Two reviewers independently assessed the topical relevance, trial quality, and extracted data for the meta-analysis.

**Results:** Meta-analysis showed that primary outcomes representing exercise endurance were elevated under different exercise interventions compared to pre-test, such as maximal oxygen uptake ( $VO_{2max}$  (ml/kg/min)) [SMD = 0.40, 95% CI (0.15, 0.64)] and the 6-min walk test (6MWT) [MD = 33.90, 95% CI (25.25, 42.55)], and primary outcomes representing strength also increased, such as leg press (1RM) [MD = 24.59, 95% CI (16.08, 33.11)], while secondary outcomes such as assessments of life such as the COPD Assessment Test (CAT) recovered [MD = 2.51, 95% CI (2.01, 3.00)], with all differences being statistically significant ( $p < 0.05$ ). However, Maximum minute ventilation ( $VE_{max}$  (L)) [MD = 0.91, 95%CI (3.61, 5.43)] was not statistically significant ( $p > 0.05$ ) when compared with the post-test data. The sensitivity test data were stable, and the results were reliable. We subgrouped the data from different types of exercise interventions and found that different types of exercise affected the experimental results.

**Conclusion:** Exercise interventions have a positive effect on the treatment of patients with COPD, significantly improving functional capacity, aerobic capacity, and exercise tolerance, but they should be individualized and developed according to the patient's condition to achieve the best therapeutic effect.

**Keywords:** chronic pulmonary obstruction; combined exercise; endurance exercise; meta-analysis; strength training.

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Multicenter Study

Clin Transplant

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. 2024 Sep;38(9):e15443.

doi: 10.1111/ctr.15443.

[Eculizumab as Salvage Treatment for Thrombotic Microangiopathy After Lung Transplantation](#)

[Hernando Trujillo<sup>1</sup>, Ana Huerta<sup>2</sup>, Rodrigo Alonso<sup>3</sup>, Maria Luisa Serrano<sup>2</sup>, Myriam Aguilar<sup>4</sup>, Enrique Morales<sup>1</sup>, Teresa Cavero<sup>1</sup>](#)

Affiliations Expand

- PMID: 39207183
- DOI: [10.1111/ctr.15443](#)

Abstract

**Background:** Thrombotic microangiopathy (TMA) is a rare complication after lung transplantation (LT) that has seldom been characterized in detail. Recent evidence has linked TMA other than primary atypical hemolytic uremic syndrome (aHUS) with hyperactivation of the complement alternative pathway. The focus of this investigation was to analyze the treatment response with eculizumab in TMA after LT.

**Methods:** Case series where we have studied 11 patients with TMA after LT from 2 Spanish tertiary healthcare centers. Clinical data and response rates to eculizumab are provided.

**Results:** The main indication for lung transplant was chronic obstructive pulmonary disease (COPD) (36%) and most cases (82%) received bilateral LT. The median time to TMA diagnosis was 11.6 months (4.7-28.9) and the TMA trigger in the majority of cases (73%) was immunosuppressive drugs. Platelet and hemoglobin nadir were  $58 \times 10^3/\mu\text{L}$  (24-108) and 7.7 g/dL (7.1-7.9), respectively. All cases presented acute kidney injury (AKI) with a median creatinine of 4 mg/dL (3.2-4.8) and 54.5% required acute dialysis. Eculizumab was started after a median time of 8 days (6-14) with a median duration of 3 weeks (2-8). Complete TMA response was observed in 7

(63.6%) cases and hematologic response in 10 (90.9%). The time to hematologic and renal response was 23 days (13-29) and 28 days (14-46), respectively.

**Conclusions:** TMA after LT is infrequent but potentially devastating. Our findings suggest that short cycles of eculizumab may be effective for severe TMA after LT.

**Keywords:** complement biology; kidney failure/injury; lung (allograft) function/dysfunction.

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Am J Nurs

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. 2024 Sep 1;124(9):62.

doi: 10.1097/01.NAJ.0001050828.15075.fc. Epub 2024 Aug 22.

[Better Outcomes with Pulmonologist-Directed Care of Asthma or COPD](#)

[Karen Rosenberg](#)

- PMID: 39185986
- DOI: [10.1097/01.NAJ.0001050828.15075.fc](https://doi.org/10.1097/01.NAJ.0001050828.15075.fc)

Abstract

According to this study.

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- [1 reference](#)

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Review

Sleep Med Clin

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. 2024 Sep;19(3):497-507.

doi: 10.1016/j.jsmc.2024.04.010. Epub 2024 Jun 5.

[Palliative Care and Noninvasive Ventilation](#)

[Tracy A Smith](#)<sup>1</sup>, [Mary M Roberts](#)<sup>2</sup>, [Lesley Howard](#)<sup>3</sup>

Affiliations Expand

- PMID: 39095146
- DOI: [10.1016/j.jsmc.2024.04.010](#)

Abstract

Palliative care is important for many patients who require noninvasive ventilation. The particular needs of patients with neuromuscular disease and chronic obstructive pulmonary disease are explored. Advance care planning is explored with tips for undertaking this important communication task. Brief comments regarding symptom burden, weaning, voluntary assisted dying, and self-care are included.

**Keywords:** Advance care planning (ACP); Chronic obstructive pulmonary disease (COPD); End-of-life care; Neuromuscular disease; Noninvasive ventilation (NIV); Palliative care.

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Sleep Med Clin

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. 2024 Sep;19(3):461-472.

doi: 10.1016/j.jsmc.2024.04.008. Epub 2024 Jun 12.

[The Role of High Flow Nasal Therapy in Chronic Respiratory Failure](#)

[Emma Gray](#)<sup>1</sup>, [Collette Menadue](#)<sup>2</sup>

Affiliations Expand

- PMID: 39095143
- DOI: [10.1016/j.jsmc.2024.04.008](https://doi.org/10.1016/j.jsmc.2024.04.008)

Abstract

High-flow nasal therapy (HFNT) has an increasing role in the management of acute hypoxic respiratory failure. Due to its tolerable interface and ease of use, its role in chronic hypercapnic respiratory failure (CHRF) is emerging. This article examines the literature to date surrounding the short and long-term mechanisms of HFNT in

sleep and wakefulness of CHRF patients. It is likely HFNT will have an increasing role in those patients intolerant of non-invasive ventilation.

**Keywords:** Chronic hypercapnic respiratory failure; Chronic obstructive pulmonary disease; High-flow nasal therapy; Hypercapnia; Non-invasive ventilation.

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**Conflict of interest statement**

**Disclosures** The authors have no conflicts of interest to declare relating to this review.

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**Review**

**Sleep Med Clin**

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. 2024 Sep;19(3):443-460.

doi: 10.1016/j.jsmc.2024.04.007. Epub 2024 May 28.

[Telemonitoring in Non-invasive Ventilation](#)

[Sonia Khirani](#)<sup>1</sup>, [Maxime Patout](#)<sup>2</sup>, [Jean-Michel Arnal](#)<sup>3</sup>

**Affiliations** Expand

- PMID: 39095142
- DOI: [10.1016/j.jsmc.2024.04.007](https://doi.org/10.1016/j.jsmc.2024.04.007)

## Abstract

Telemonitoring in non-invasive ventilation is constantly evolving to enable follow-up of adults and children. Depending on the device and manufacturer, different ventilator variables are displayed on web-based platforms. However, high-granularity measurement is not always available remotely, which precludes breath-by-breath waveforms and precise monitoring of nocturnal gas exchange. Therefore, telemonitoring is mainly useful for monitoring utilization of the device, leaks, and respiratory events. Coordinated relationships between patients, homecare providers, and hospital teams are necessary to transform available data into diagnosis and actions. Telemonitoring is time and cost-consuming. The balance between cost, workload, and clinical benefit should be further evaluated.

**Keywords:** Adult; COPD; Continuous positive airway pressure; Neuromuscular disease; Non-invasive ventilation; Pediatrics; Telemonitoring; Web-based platforms.

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Review

Sleep Med Clin

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. 2024 Sep;19(3):419-430.

doi: 10.1016/j.jsmc.2024.04.006. Epub 2024 May 28.

[Initiation of Chronic Non-invasive Ventilation](#)

[Marieke L Duiverman](#)<sup>1</sup>, [Filipa Jesus](#)<sup>2</sup>, [Gerrie Bladder](#)<sup>3</sup>, [Peter J Wijkstra](#)<sup>3</sup>

Affiliations Expand

- PMID: 39095140
- DOI: [10.1016/j.jsmc.2024.04.006](https://doi.org/10.1016/j.jsmc.2024.04.006)

## Abstract

Initiation of home non-invasive ventilation (NIV) requires careful consideration of the patient's condition, motivation, expectations, wishes, and social circumstances. The decision to start NIV depends on a combination of factors including patient symptoms and objective evidence of nocturnal hypoventilation. A solid understanding of the underlying pathophysiology is key to a systematic and well-balanced clinical approach to titrating NIV. The location where NIV is initiated is not the most relevant issue, provided that it is a comfortable, safe environment in which adequate monitoring can be assured. The majority of patients prefer their own home for treatment initiation.

**Keywords:** Chronic obstructive pulmonary disease; Home mechanical ventilation; Initiation; Monitoring; Neuromuscular disease; Non-invasive ventilation; Obesity hypoventilation syndrome; Telemonitoring.

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## Conflict of interest statement

**Disclosure** During the preparation of this work the authors did not use any AI and AI-assisted technologies in the writing process, except from endnote to order the references.

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## Review

## Sleep Med Clin

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. 2024 Sep;19(3):405-417.

doi: 10.1016/j.jsmc.2024.04.003. Epub 2024 May 28.

**[Chronic Obstructive Pulmonary Disease and Obstructive Sleep Apnea Overlap Syndrome: An Update on the Epidemiology, Pathophysiology, and Management](#)**

**[Benjamin H M Nguyen](#)<sup>1</sup>, [Patrick B Murphy](#)<sup>2</sup>, [Brendon J Yee](#)<sup>3</sup>**

**Affiliations Expand**

• PMID: 39095139

• DOI: [10.1016/j.jsmc.2024.04.003](https://doi.org/10.1016/j.jsmc.2024.04.003)

**Abstract**

This review provides an up-to-date summary of the prevalence, pathophysiology, diagnosis, and treatment of the chronic obstructive pulmonary disease (COPD) and obstructive sleep apnea (OSA) overlap syndrome (OVS). The presence of OVS is high in patients with COPD and in patients with OSA and is associated with profound nocturnal oxygen desaturation and systemic inflammation. There is a high prevalence of cardiovascular disease among patients with OVS and this likely contributes to increased mortality. Observational studies suggest that positive airway pressure therapy improves survival and reduces COPD exacerbations; however, randomized controlled trials will be required to confirm these findings.

**Keywords:** Comorbidity; Epidemiology; Exacerbations; Management; Mortality; Positive airway pressure therapy.

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**Conflict of interest statement**

Disclosure Dr P.B. Murphy reported receiving reimbursement for expenses for travel to conferences and lecture fees from Philips Respironics, ResMed, Fisher & Paykel, Chiesi, Genzyme and Breas Medical.

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## Review

Med Clin North Am

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. 2024 Sep;108(5):843-869.

doi: 10.1016/j.mcna.2024.03.011. Epub 2024 Jun 12.

[New Therapies in Outpatient Pulmonary Medicine](#)[Laura Granados](#)<sup>1</sup>, [Mira John](#)<sup>2</sup>, [Jeffrey D Edelman](#)<sup>3</sup>

Affiliations Expand

- PMID: 39084837
- DOI: [10.1016/j.mcna.2024.03.011](https://doi.org/10.1016/j.mcna.2024.03.011)

## Abstract

Newer medications and devices, as well as greater understanding of the benefits and limitations of existing treatments, have led to expanded treatment options for patients with lung disease. Treatment advances have led to improved outcomes for patients with asthma, chronic obstructive pulmonary disease, interstitial lung disease, pulmonary hypertension, and cystic fibrosis. The risks and benefits of available treatments are substantially variable within these heterogeneous disease groups. Defining the role of newer therapies mandates both an understanding of these disorders and overall treatment approaches. This section will review general treatment approaches in addition to focusing on newer therapies for these conditions..

Keywords: Aquablation; BPH; Benign prostate hyperplasia; Enucleation; HoLEP; MIST; Prostate artery embolization.

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Editorial

Am J Respir Crit Care Med

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. 2024 Sep 1;210(5):541-543.

doi: 10.1164/rccm.202407-1290ED.

[Unveiling Biological Age: A New Frontier in Predicting Outcomes in Chronic Lung Disease](#)

[Joao A de Andrade](#)<sup>1</sup>, [Paula A Agudelo Garcia](#)<sup>2</sup>, [Ana L Mora](#)<sup>2</sup>

Affiliations Expand

- PMID: 39078175
- DOI: [10.1164/rccm.202407-1290ED](#)

*No abstract available*

Comment on

- [Biological Age, Chronological Age, and Survival in Pulmonary Fibrosis: A Causal Mediation Analysis.](#)

Pugashetti JV, Kim JS, Bose S, Adegunsoye A, Linderholm AL, Chen CH, Streck ME, Flaherty KR, Murray S, Newton CA, Alqalyoobi S, Ma SF, Mychaleckyj JC, Bowler RP, Han MK, Curtis JL, Martinez FJ, Smith JA, Noth I, Oldham JM. Am J Respir Crit Care Med. 2024 Sep 1;210(5):639-647. doi: 10.1164/rccm.202310-1887OC. PMID: 38843133

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Respir Investig

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. 2024 Sep;62(5):856-866.

doi: 10.1016/j.resinv.2024.07.013. Epub 2024 Jul 27.

## [Characterization of IL-6R-expressing monocytes in the lung of patients with chronic obstructive pulmonary disease](#)

[Yoshinao Ono](#)<sup>1</sup>, [Naoya Fujino](#)<sup>2</sup>, [Takuya Saito](#)<sup>1</sup>, [Shuichiro Matsumoto](#)<sup>1</sup>, [Shuichi Konno](#)<sup>1</sup>, [Takuto Endo](#)<sup>1</sup>, [Manami Suzuki](#)<sup>1</sup>, [Mitsuhiro Yamada](#)<sup>1</sup>, [Yoshinori Okada](#)<sup>3</sup>, [Hisatoshi Sugiura](#)<sup>1</sup>

Affiliations Expand

- PMID: 39068895
- DOI: [10.1016/j.resinv.2024.07.013](#)

Abstract

**Background:** Monocytes play a crucial role in innate immune responses for host defense, however, their involvement in chronic obstructive pulmonary disease (COPD) remains poorly understood. We previously identified a subset of monocytes in COPD lung tissues characterized by high interleukin-6 receptor (IL-6R) expression. This study aimed to characterize the phenotypes of IL-6R<sup>hi</sup> monocytes in the lungs of COPD patients.

**Methods:** Using flow cytometry, we assessed the abundance of pulmonary CD14<sup>+</sup>IL-6R<sup>hi</sup> cells in never smokers (CNS), control ex-smokers (CES) and COPD patients. IL-6 expression in CD14<sup>+</sup> monocytes isolated from the peripheral blood of patients with COPD was also examined. CD45<sup>+</sup>CD206<sup>-</sup>CD14<sup>+</sup>IL-6R<sup>hi</sup> and CD45<sup>+</sup>CD206<sup>-</sup>CD14<sup>+</sup>IL-6R<sup>lo</sup> cells were isolated from COPD lung tissues for transcriptome analysis. A monocyte line THP1 cell with constitutive IL-6R expression was stimulated with recombinant IL-6, followed by RNA sequencing to evaluate the IL-6 responsiveness of IL-6R<sup>+</sup> monocytes.

**Results:** The number of pulmonary CD14<sup>+</sup>IL-6R<sup>hi</sup> monocytes was elevated in COPD patients compared to CNS, whereas CD14<sup>+</sup> monocytes in the peripheral blood of

COPD patients did not express IL-6R. Upregulated mRNA expression in CD14<sup>+</sup>IL-6R<sup>hi</sup> monocytes was associated with chemotaxis, monocyte differentiation, fatty acid metabolism and integrin-mediated signaling pathway. Stimulation of THP1 cells with recombinant IL-6 induced changes in the expression of genes linked to chemotaxis and organism development.

**Conclusion:** In patients with COPD, CD14<sup>+</sup>IL-6R<sup>hi</sup> monocytes are increased in lung tissues compared to those in CNS. They exhibit a transcriptome profile different from that of CD14<sup>+</sup>IL-6R<sup>lo</sup> monocytes.

**Keywords:** Chemotaxis; Chronic obstructive pulmonary disease; Monocytes; RNA sequencing.

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Conflict of interest statement

Declaration of competing interest The authors have no conflicts of interest.

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Respir Investig

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. 2024 Sep;62(5):850-855.

doi: 10.1016/j.resinv.2024.07.011. Epub 2024 Jul 26.

[Selexipag for patients with pulmonary hypertension associated with lung disease: A preliminary study](#)

[Kazuya Yoshikawa<sup>1</sup>](#), [Osamu Nishiyama<sup>2</sup>](#), [Ryo Yamazaki<sup>1</sup>](#), [Yuki Kunita<sup>1</sup>](#), [Yusaku Nishikawa<sup>1</sup>](#), [Akiko Sano<sup>1</sup>](#), [Hisako Matsumoto<sup>1</sup>](#)

Affiliations Expand

- PMID: 39067258
- DOI: [10.1016/j.resinv.2024.07.011](https://doi.org/10.1016/j.resinv.2024.07.011)

## Abstract

**Background:** Pulmonary arterial hypertension (PAH)-specific therapies are generally ineffective in patients with pulmonary hypertension associated with lung disease (PH-LD). The aim of this preliminary study was to evaluate the potential efficacy of selexipag, titrated according to individual tolerance, in patients with PH-LD.

**Methods:** Consecutive patients diagnosed with PH-LD between October 2016 and March 2019, who received selexipag treatment, were retrospectively evaluated. Specific parameters, including changes in hemodynamic parameters, 6-min walk distance (6MWD), and partial pressure of atrial oxygen/fraction of inspiratory oxygen ( $\text{PaO}_2/\text{FiO}_2$ ) were evaluated. Patients whose 6MWD improved  $\geq 20$  m were defined as responders.

**Results:** Eight patients with PH-LD were included, comprising four with chronic obstructive pulmonary disease (COPD), two with interstitial lung disease (ILD) related to rheumatoid arthritis, one with ILD related to systemic sclerosis, and one with pulmonary Langerhans cell histiocytosis. No statistically significant improvements in hemodynamic parameters and 6MWD were noted following selexipag treatment. However, four patients showed improvements in 6MWD  $\geq 20$  m at follow-up and were considered responders. They had a higher body mass index (BMI) and lower  $\text{PaO}_2/\text{FiO}_2$  at baseline than non-responders ( $p = 0.02$  and  $p = 0.04$ , respectively). No Grade 3 or 4 adverse events were observed.

**Conclusions:** Selexipag was effective in half of the PH-LD cases, emphasizing higher BMI and lower  $\text{PaO}_2/\text{FiO}_2$  as possible indicators for favorable response. Since selexipag starting at a low dose with subsequent titration may reduce the risk of early adverse events, it can be considered a treatment option for PH-LD. Further large-scale studies are warranted to confirm these findings.

**Keywords:** Exercise capacity; Lung disease; Pulmonary hypertension; Selexipag.

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## Conflict of interest statement

Declaration of competing interest Osamu Nishiyama received lecture fees from Nippon Shinyaku Co., Ltd. The other authors have no conflicts of interest.

## Supplementary info

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Am J Otolaryngol

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. 2024 Sep-Oct;45(5):104423.

doi: 10.1016/j.amjoto.2024.104423. Epub 2024 Jul 20.

[Burden of obstructive sleep apnea and CPAP use on patients with chronic rhinosinusitis](#)

[Connor Hunt](#)<sup>1</sup>, [Amani Kais](#)<sup>2</sup>, [Hassan H Ramadan](#)<sup>2</sup>, [Chadi A Makary](#)<sup>3</sup>

Affiliations Expand

- PMID: 39059166
- DOI: [10.1016/j.amjoto.2024.104423](#)

Abstract

**Objective:** To evaluate the impact of obstructive sleep apnea (OSA) on the quality-of-life (QoL) of patients with chronic rhinosinusitis (CRS).

**Methods:** Retrospective cohort study of all adult patients with CRS presenting to our rhinology clinic between August 2020 and February 2023 was performed. OSA was established based on positive polysomnography. Patients' characteristics, apnea-hypopnea index, comorbidities, endoscopy scores, and SNOT-22 scores were collected.

**Results:** A total of 513 patients with CRS were included, 127 patients with OSA and 386 without OSA. CRS patients with OSA were older ( $p < 0.001$ ), had higher BMI ( $p < 0.001$ ), more likely to be males ( $p = 0.07$ ), more likely to have asthma ( $p < 0.001$ ), and more likely to have COPD ( $p = 0.001$ ). Presence of nasal polyps did not differ between the two groups. Baseline SNOT-22 scores were worse in the OSA cohort (44.4 vs 40.5,  $p = 0.064$ ) secondary to worse sleep (13.4 vs 11.1;  $p = 0.002$ ) and psychological (14.2 vs 11.5;  $p = 0.002$ ) domains. Worse SNOT scores were strongly associated with presence of OSA after adjusting for confounding variables, including age, gender, asthma, allergic rhinitis, nasal septal deviation, and smoking status.

**Conclusion:** OSA is an independent negative contributor to the disease specific QoL in patients with CRS. CPAP use does not seem to affect the QoL in CRS

patients with OSA. Further research is warranted to explore the impact of OSA in the outcome of medical and surgical treatment of CRS patients.

**Keywords:** Chronic rhinosinusitis; Obstructive sleep apnea; Quality of life; SNOT-22.

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Explor Res Clin Soc Pharm

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. 2024 Jun 24:15:100470.

doi: 10.1016/j.rcsop.2024.100470. eCollection 2024 Sep.

[The association between comprehensive medication review and medication adherence among medicare beneficiaries with chronic obstructive pulmonary disease](#)

[Xiangjun Zhang<sup>1</sup>](#), [Yongbo Sim<sup>1</sup>](#), [Chi Chun Steve Tsang<sup>1</sup>](#), [Junling Wang<sup>1</sup>](#), [Christopher K Finch<sup>1</sup>](#)

Affiliations Expand

- PMID: 39050144
- PMCID: [PMC11267052](#)
- DOI: [10.1016/j.rcsop.2024.100470](#)

Abstract

**Background:** Medicare Part D plans are required to provide Medication therapy management (MTM) services to eligible beneficiaries to optimize medication utilization. Comprehensive medication review (CMR) is a core element of the MTM program. Despite the availability of advanced medical treatment for patients with chronic obstructive pulmonary disease (COPD), medication adherence to maintenance medications poses a continued challenge for patients with COPD.

**Objective:** To examine the effects of CMR on medication adherence among patients with COPD.

**Methods:** Medicare data for 2016-2017 linked to Area Health Resource Files were analyzed. The study population was Medicare beneficiaries with COPD. The intervention group consisted of beneficiaries who received CMR in 2017 but not in 2016. Patients who were eligible for MTM services but did not receive these services in 2016 or 2017 made up the control group. Propensity score matching was used to select an intervention and control group with balanced characteristics. The study outcome was adherence to COPD medications with the proportion of days covered at or above 80%. A difference-in-differences approach was adopted in the logistic regression analyses with an interaction term between the status of CMR receipt and the year 2017.

**Results:** The study sample included 25,564 patients with COPD. The proportions of adherent patients were similar in the control group in both years but increased significantly from 60.08% in 2016 to 69.38% in 2017 in the intervention group ( $P < .001$ ). The odds of medication adherence in the intervention group increased from 2016 to 2017 by 59% more than in the control group (adjusted odds ratio = 1.59, 95% confidence interval = 1.48-1.71).

**Conclusions:** Receiving CMR was associated with improved adherence to COPD medications among Medicare beneficiaries. Policymakers should ensure that Medicare beneficiaries with COPD receive CMR.

**Keywords:** Chronic obstructive pulmonary disease; Comprehensive medication review; Medication adherence; Medication therapy management program.

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Conflict of interest statement

Xiangjun Zhang: None; Yongbo Sim: None; Chi Chun Steve Tsang: None; Christopher K. Finch: None; Junling Wang: Received funding from AbbVie, Curo, Bristol Myers Squibb, Pfizer, and Pharmaceutical Research and Manufacturers of America (PhRMA) and serves as the Chair of the Value Assessment-Health Outcomes Research Advisory Committee of the PhRMA Foundation.

- [56 references](#)
- [1 figure](#)

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Editorial

Respirology

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. 2024 Sep;29(9):741-742.

doi: 10.1111/resp.14794. Epub 2024 Jul 15.

[Home oxygen guidelines: We do not know enough about LTOT](#)

[Richard D Branson](#)<sup>1</sup>

Affiliations Expand

- PMID: 39009414
- DOI: [10.1111/resp.14794](https://doi.org/10.1111/resp.14794)

Free article

*No abstract available*

Keywords: COPD; clinical respiratory medicine; pulmonary rehabilitation; quality of life.

- [10 references](#)

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Practice Guideline

Respirology

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. 2024 Sep;29(9):765-784.

doi: 10.1111/resp.14793. Epub 2024 Jul 15.

[Thoracic Society of Australia and New Zealand clinical practice guideline on adult home oxygen therapy](#)

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Affiliations Expand

- PMID: 39009413
- DOI: [10.1111/resp.14793](https://doi.org/10.1111/resp.14793)

Free article

Abstract

This Thoracic Society of Australia and New Zealand Guideline on the provision of home oxygen therapy in adults updates a previous Guideline from 2015. The Guideline is based upon a systematic review and meta-analysis of literature to September 2022 and the strength of recommendations is based on GRADE methodology. Long-term oxygen therapy (LTOT) is recommended for its mortality benefit for patients with COPD and other chronic respiratory diseases who have consistent evidence of significant hypoxaemia at rest ( $\text{PaO}_2 \leq 55$  mm Hg or  $\text{PaO}_2 \leq 59$  mm Hg in the presence of hypoxaemic sequelae) while in a stable state. Evidence does not support the use of LTOT for patients with COPD who have moderate hypoxaemia or isolated nocturnal hypoxaemia. In the absence of hypoxaemia, there is no evidence that oxygen provides greater palliation of breathlessness than air. Evidence does not support the use of supplemental oxygen therapy during pulmonary rehabilitation in those with COPD and exertional desaturation but normal resting arterial blood gases. Both positive and negative effects of LTOT have been described, including on quality of life. Education about how and when to use oxygen therapy in order to maximize its benefits, including the use of different delivery devices, expectations and limitations of therapy and

information about hazards and risks associated with its use are key when embarking upon this treatment.

**Keywords:** clinical respiratory medicine; hypoxaemia; long-term oxygen therapy; oxygen guideline; oxygen therapy.

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Editorial

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. 2024 Sep;29(9):759-760.

doi: 10.1111/resp.14792. Epub 2024 Jul 14.

[Asthma-COPD overlap and asthma progressing to COPD: A complementary perspective](#)

[Christine F McDonald](#)<sup>1 2 3</sup>, [Philip G Bardin](#)<sup>4</sup>, [Martin MacDonald](#)<sup>4</sup>

Affiliations Expand

- PMID: 39004830
- DOI: [10.1111/resp.14792](#)

Free article

*No abstract available*

Keywords: COPD; COPDACO; asthma; asthma-overlap.

- [4 references](#)

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Observational Study

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. 2024 Sep;231:107733.

doi: 10.1016/j.rmed.2024.107733. Epub 2024 Jul 8.

[Association of bronchial disease on CT imaging and clinical definitions of chronic bronchitis in a single-center COPD phenotyping study](#)

[Marisa Fat](#)<sup>1</sup>, [Tyler Andersen](#)<sup>2</sup>, [Jane C Fazio](#)<sup>3</sup>, [Seon Cheol Park](#)<sup>4</sup>, [Fereidoun Abtin](#)<sup>5</sup>, [Russell G Buhr](#)<sup>3</sup>, [Jonathan E Phillips](#)<sup>6</sup>, [John Belperio](#)<sup>3</sup>, [Donald P Tashkin](#)<sup>3</sup>, [Christopher B Cooper](#)<sup>7</sup>, [Igor Barjaktarevic](#)<sup>8</sup>

Affiliations Expand

- PMID: 38986793
- DOI: [10.1016/j.rmed.2024.107733](#)

Free article

## Abstract

**Introduction:** Chronic Bronchitis (CB) represents a phenotype of chronic obstructive pulmonary disease (COPD). While several definitions have been used for diagnosis, the relationship between clinical definitions and radiologic assessment of bronchial disease (BD) has not been well studied. The aim of this study was to evaluate the relationship between three clinical definitions of CB and radiographic findings of BD in spirometry-defined COPD patients.

**Methods:** A cross-sectional analysis was performed from a COPD phenotyping study. It was a prospective observational cohort. Participants had spirometry-defined COPD and available chest CT imaging. Comparison between CB definitions, Medical Research Council (CB<sub>MRC</sub>), St. George's Respiratory Questionnaire (CB<sub>SGRQ</sub>), COPD Assessment Test (CB<sub>CAT</sub>) and CT findings were performed using Cohen's Kappa, univariate and multivariate logistic regressions.

**Results:** Of 112 participants, 83 met inclusion criteria. Demographics included age of  $70.1 \pm 7.0$  years old, predominantly male (59.0 %),  $45.8 \pm 30.8$  pack-year history, 21.7 % actively smoking, and mean FEV<sub>1</sub>  $61.5 \pm 21.1$  %. With MRC, SGRQ and CAT definitions, 22.9 %, 36.6 % and 28.0 % had CB, respectively. BD was more often present in CB compared to non-CB patients; however, it did not have a statistically significant relationship between any of the CB definitions. CB<sub>SGRQ</sub> had better agreement with radiographically assessed BD compared to the other two definitions.

**Conclusion:** Identification of BD on CT was associated with the diagnoses of CB. However, agreement between imaging and definitions were not significant, suggesting radiologic findings of BD and criteria defining CB may not identify the same COPD phenotype. Research to standardize imaging and clinical methods is needed for more objective identification of COPD phenotypes.

**Keywords:** Bronchial disease; COPD; Chronic bronchitis; Visual read.

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### Conflict of interest statement

**Declaration of competing interest** The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: DPT has consulted with AstraZeneca, Sunovion, Mylan and Theravance. RGB reports personal consulting fees from Theravance Biopharma/Mylan and GlaxoSmithKline. JEP is employed by AMGEN. CBC reports grants from NIH/NHLBI, NIH Foundation and the COPD Foundation, during the conduct of the study; he also reports personal fees from AstraZeneca, GlaxoSmithKline, Chiesi, NUVAIRA, MGC Diagnostics, Horizon Therapeutics, Respiree, Herbalife, Verona, RS BioTherapeutics, Genentec and Cambridge University Press, outside the submitted work. IZB has consulted with Astra Zeneca, Grifols, Verona Pharma, Takeda, Sanofi/Regeneron, Inhibrx and has received funding from Viatris, Theravance, AMGEN, Takeda and Aerogen. MF, TA, JCF, SCP, FA, and JB have no reportable disclosures.

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. 2024 Sep;29(9):835-837.

doi: 10.1111/resp.14786. Epub 2024 Jul 8.

[Is fractional exhaled nitric oxide ready to be a biomarker? Within-day variability in stable COPD](#)

[Inès Van Rossem](#)<sup>1</sup>, [Shane Hanon](#)<sup>2</sup>, [Johan Vansintejan](#)<sup>1</sup>, [Sylvia Verbanck](#)<sup>2</sup>, [Eef Vanderhelst](#)<sup>2</sup>

Affiliations Expand

- PMID: 38973361
- DOI: [10.1111/resp.14786](https://doi.org/10.1111/resp.14786)

*No abstract available*

Keywords: COPD; exhaled biomarkers; fractional exhaled nitric oxide; type 2 airway inflammation.

- [10 references](#)

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Multicenter Study

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. 2024 Sep;231:107724.

doi: 10.1016/j.rmed.2024.107724. Epub 2024 Jul 4.

[Patterns of physical activity of people with COPD during participation in a pulmonary rehabilitation program](#)

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Affiliations Expand

- PMID: 38971337
- DOI: [10.1016/j.rmed.2024.107724](https://doi.org/10.1016/j.rmed.2024.107724)

Free article

Abstract

**Introduction:** Very few studies have examined patterns of physical activity (PA) during a pulmonary rehabilitation (PR) program in people with COPD.

**Aims:** To compare the patterns of PA in: 1) the week before commencing PR (pre-PR) with a week during PR (PR week); 2) PR days and non-PR days during a PR week; 3) pre-PR and the week following PR completion (post-PR).

**Methods:** This was a multicenter, prospective cohort study. Participants attended twice weekly supervised PR for 8-12 weeks. Daily step count (primary outcome), time in light activities, time in moderate to vigorous PA (MVPA), total sedentary time and sit-to-stand (STS) transitions were measured using a thigh worn accelerometer for seven days, at each assessment time point: pre-PR, PR week and post-PR.

**Results:** 29 participants, mean age (SD) 69years(7), FEV<sub>1</sub> 53%pred(16). The PR week compared to pre-PR, showed higher daily: step count (mean difference (95%CI)), 941steps(388-1494); and MVPA, 11mins(6-15), with no difference in: time in light

activities, -1min(-6-5); total sedentary time, 7mins(-21-36); or STS transitions, 0(-5-6). PR days compared to non-PR days showed higher: step count, 2810steps(1706-3913); time in light activities 11mins(1-20); time in MVPA, 27mins(17-35) and STS transitions, 8(4-12), with no difference in total sedentary time: -33mins(-80-15). There were no differences in any PA measures post-PR compared to pre-PR ( $p < 0.05$ ).

**Conclusion:** Daily step count and time spent in MVPA increased significantly during the PR week, solely due to increased PA on days participants attended PR.

**Keywords:** Moderate-vigorous physical activity; Patterns of physical activity; Pulmonary rehabilitation; Step count; Triaxial accelerometer.

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Conflict of interest statement

Declaration of competing interest There is no conflict of interest.

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. 2024 Sep;231:107731.

doi: 10.1016/j.rmed.2024.107731. Epub 2024 Jul 4.

[Influence of heart failure \(HF\) comorbidity in chronic obstructive pulmonary disease \(COPD\) and isolated forms of HF and COPD on cardiovascular function during hospitalization](#)

[Nathany Souza Schaufauser<sup>1</sup>](#), [Luciana Maria Malosá Sampaio<sup>2</sup>](#), [Alessandro Domingues Heubel<sup>3</sup>](#), [Erika Zavaaglia Kabbach<sup>4</sup>](#), [Débora Mayumi de Oliveira Kawakami<sup>5</sup>](#), [Naiara Tais Leonardi<sup>6</sup>](#), [Viviane Castello-Simões<sup>7</sup>](#), [Audrey Borghi-Silva<sup>8</sup>](#), [Renata Gonçalves Mendes<sup>9</sup>](#)

## Affiliations Expand

- PMID: 38969026
- DOI: [10.1016/j.rmed.2024.107731](https://doi.org/10.1016/j.rmed.2024.107731)

## Abstract

**Introduction:** Coexistence of chronic obstructive pulmonary disease(COPD) and heart failure(HF) is associated with systemic inflammation, myocardial injury, and arterial stiffening, impacting cardiovascular risk and prognosis in patients. Arterial stiffness, reduced nitric oxide synthesis, and altered cardiac autonomic control further link COPD and HF pathophysiology, emphasizing the need for comprehensive cardiovascular assessment.

**Objective:** To investigate a cardiovascular profile in patients hospitalized with exacerbation COPD(ECOPD) in coexistence with HF compared with isolated diseases.

**Methods:** A cross-sectional study including patients diagnosed with ECOPD and decompensated HF, approached between 24 and 48 h after hospital admission. Assessments included: endothelial function by brachial artery flow-mediated vasodilation(FMD); hemodynamic through analysis of pulse wave and arterial stiffness by carotid-femoral pulse wave velocity(cfPWV) and cardiac autonomic modulation(CAM) by heart rate variability(HRV).

**Results:** The mean FMD was 4.45 %, indicating endothelial dysfunction in all patients. Data is present in mean(confidence interval) sequency COPD(n = 12), COPD-HF(n = 21) and HF(n = 21). FMD: 5.47(3.96-6.91); 2.66(0.09-3.48); 4.60(2.30-6.43) p < 0.01. However, COPD-HF had worse FMD. Arterial stiffens (AIx: 29.0(19.0-42.6); 34.6(24.3-43.2); 14.5(8.0-24.0)p < 0.01; cfPWV: (6.5(5.4-7.2); 7.7(7.0-8.5); 6.0(5.0-6.5)); COPD-HF also showed greater activation of the sympathetic nervous system compared to patients with isolated diseases (PNS: 1.32(-2.53 to -0.62); -2.33(-2.60 to -2.12); -1.32(-1.42 to -1.01) p < 0.01; SNS: 3.50(1.40-8.55); 7.11(5.70-8.29); 2.32(1.78-5.01) p < 0.01). In addition, rMSSD, NN<sub>50</sub>, pNN<sub>50</sub>, and TINN also indicate worse CAM in the COPD-HF group compared to isolated diseases.

**Conclusion:** During hospitalization, the worst impairment in vascular function and cardiac autonomic modulation were found in patients with COPD and HF comorbidity compared to the isolated diseases(HF or COPD).

**Keywords:** Acute exacerbation; Cardiovascular risk; Chronic obstructive pulmonary disease; Endothelial dysfunction.

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Conflict of interest statement

Declaration of competing interest All authors declare no conflicts of interest.

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. 2024 Sep:231:107729.

doi: 10.1016/j.rmed.2024.107729. Epub 2024 Jul 2.

## [Prevalence, incidence, and risk of chronic obstructive pulmonary disease among psoriasis patients](#)

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## Affiliations Expand

- PMID: 38964424
- DOI: [10.1016/j.rmed.2024.107729](https://doi.org/10.1016/j.rmed.2024.107729)

## Free article

## Abstract

**Background:** Understanding the relationship between psoriasis and chronic obstructive pulmonary disease (COPD) may enhance disease management.

**Objectives:** We aimed to determine the (1) prevalence and (2) incidence and risk of COPD in psoriasis patients.

**Results:** The COPD prevalence was 9.64 % in psoriasis patients and 6.94 % in psoriasis-free patients. The COPD incidence was 10.74 per 1000 person-years in psoriasis patients and 6.36 per 1000 person-years in psoriasis-free patients. Multivariable Cox regression showed no association between psoriasis and COPD development (HR 0.99, p = 0.271).

**Conclusions:** Our findings suggest that psoriasis is not an independent risk factor for COPD development.

**Keywords:** Chronic obstructive pulmonary disease; Incidence; Prevalence; Psoriasis; Risk factors.

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**Conflict of interest statement**

**Declaration of competing interest** There is no conflict of interest.

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**Curr Opin Pulm Med**

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. 2024 Sep 1;30(5):437-443.

doi: 10.1097/MCP.0000000000001091. Epub 2024 Jul 3.

[Pulmonary vascular disease in chronic lung diseases: cause or comorbidity?](#)

[Isabel Blanco](#)<sup>1,2,3</sup>, [Rodrigo Torres-Castro](#)<sup>1,2,4</sup>, [Joan Albert Barberà](#)<sup>1,2,3</sup>

**Affiliations** Expand

- PMID: 38958570
- DOI: [10.1097/MCP.0000000000001091](https://doi.org/10.1097/MCP.0000000000001091)

## Abstract

**Purpose of review:** To provide timely and relevant insights into the complex relationship between pulmonary vascular disease (PVD) and chronic lung disease (CLD), focusing on the causative and consequential dynamics between these conditions.

**Recent findings:** There are shared pathogenic mechanisms between pulmonary arterial hypertension (PAH) and group 3 pulmonary hypertension, including altered expression of mediators and growth factors implicated in both conditions. Factors such as hypoxia, hypoxemia, and hypercapnia also contribute to pulmonary vascular remodelling and endothelial dysfunction. However, the role of hypoxia as the sole driver of pulmonary hypertension in CLD is being reconsidered, particularly in chronic obstructive pulmonary disease (COPD), with evidence suggesting a potential role for cigarette smoke products in initiating pulmonary vascular impairment. On the other hand, interstitial lung disease (ILD) encompasses a group of heterogeneous lung disorders characterized by inflammation and fibrosis of the interstitium, leading to impaired gas exchange and progressive respiratory decline, which could also play a role as a cause of pulmonary hypertension.

**Summary:** Understanding the intricate interplay between the pulmonary vascular compartment and the parenchymal and airway compartments in respiratory disease is crucial for developing effective diagnostic and therapeutic strategies for patients with PVD and CLD, with implications for both clinical practice and research.

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. 2024 Sep;62(5):746-758.

doi: 10.1016/j.resinv.2024.06.004. Epub 2024 Jun 27.

## [Gastroesophageal reflux disease in chronic obstructive pulmonary disease](#)

[Kazuya Tanimura](#)<sup>1</sup>, [Shigeo Muro](#)<sup>2</sup>

Affiliations Expand

- PMID: 38941760
- DOI: [10.1016/j.resinv.2024.06.004](#)

### Abstract

Gastroesophageal reflux disease (GERD) is one of the most common comorbidities of chronic obstructive pulmonary disease (COPD). Decreased lower and upper esophageal sphincter pressures, esophageal dysmotility, high transdiaphragmatic pressure, and decreased saliva secretion have been implicated as mechanisms leading to the development of GERD in COPD. Clinically, comorbid GERD in COPD is reportedly associated with worse symptoms, quality of life, and lung function, as well as a high risk of exacerbations. Aspiration of regurgitation and the cholinergic-mediated esophagobronchial reflex play a significant role in the pathophysiology. Abnormal swallowing reflexes and discoordination of swallowing can worsen aspiration. The diagnosis of GERD is not based on a single criterion; however, various approaches, including questionnaires and endoscopic evaluations, can be widely applied in clinical settings. Due to the increased risk of esophageal and gastric cancers in patients with COPD, the threshold for endoscopic examination should be low. Acid inhibitory agents, such as proton pump inhibitors and histamine H2 receptor antagonists, and prokinetic agents, including mosapride and itopride, are clinically used to treat GERD. Endoscopic fundoplication can be performed in patients with GERD refractory to medical treatment. There is still insufficient evidence, but an increasing number of studies have suggested the clinical efficacy of treatment in patients with COPD and GERD. As GERD is an evaluative and treatable common disease, and access to evaluation and treatment is relatively easy, clinicians should provide adequate care for GERD in the management of COPD.

**Keywords:** Chronic obstructive pulmonary disease; Comorbidity; Exacerbations; Gastroesophageal reflux disease; Treatment.

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### Conflict of interest statement

Declaration of competing interest K.T. received honoraria from GlaxoSmithKline. K.K. S.M. received honoraria from Nippon Boehringer Ingelheim Co., Ltd., AstraZeneca. K.K., and GlaxoSmithKline. K.K. S.M. and K.T. have received research

grants from ROHTO Pharmaceutical Co.,Ltd. and FUKUDA Life Tech Co., Ltd. outside the submitted work.

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. 2024 Sep;41(7):498-507.

doi: 10.1016/j.rmr.2024.06.002. Epub 2024 Jun 25.

[\[High-flow nasal oxygen therapy and hypercapnic acute respiratory failure\]](#)

[Article in French]

[C Girault<sup>1</sup>](#), [E Artaud-Macari<sup>2</sup>](#), [G Jolly<sup>3</sup>](#), [D Carpentier<sup>3</sup>](#), [A Cuvelier<sup>2</sup>](#), [G Béduneau<sup>4</sup>](#)

Affiliations Expand

- PMID: 38926023
- DOI: [10.1016/j.rmr.2024.06.002](https://doi.org/10.1016/j.rmr.2024.06.002)

Abstract

Humidified high-flow nasal oxygen therapy (HFNO) has, in recent years, come to assume a key role in the management of hypoxemic acute respiratory failure (ARF). While non-invasive ventilation (NIV) currently represents the first-line ventilatory strategy in patients exhibiting hypercapnic ARF, the operating principles and physiological effects of HFNO could be interesting and useful in the initial

management of hypercapnic ARF and/or after extubation, particularly in acute exacerbations of chronic obstructive pulmonary disease. Under these conditions, HFNO could be used either alone continuously or in combination with NIV during breaks in spontaneous breathing, depending on the severity and etiology of the underlying hypercapnic ARF.

**Keywords:** Acute respiratory failure; Broncho-pneumopathie chronique obstructive; Chronic obstructive pulmonary disease; Extubation; High-flow nasal oxygen therapy; Hypercapnia; Hypercapnie; Insuffisance respiratoire aiguë; Non-invasive ventilation; Oxygénothérapie humidifiée à haut débit; Ventilation non invasive.

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Am J Physiol Lung Cell Mol Physiol

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. 2024 Sep 1;327(3):L304-L318.

doi: 10.1152/ajplung.00332.2023. Epub 2024 Jun 25.

[The lung extracellular matrix protein landscape in severe early-onset and moderate chronic obstructive pulmonary disease](#)

[Mugdha M Joglekar](#)<sup>1,2</sup>, [Nicolaas J Bekker](#)<sup>1,2</sup>, [Maunick Lefin Koloko Ngassie](#)<sup>1,2,3</sup>, [Judith M Vonk](#)<sup>2,4</sup>, [Theo Borghuis](#)<sup>1,2</sup>, [Marjan Reinders-Luinge](#)<sup>1</sup>, [Janna Bakker](#)<sup>1</sup>, [Roy R Woldhuis](#)<sup>1,2</sup>, [Simon D Pouwels](#)<sup>1,2,5</sup>, [Barbro N Melgert](#)<sup>2,6</sup>, [Wim Timens](#)<sup>1,2</sup>, [Corry-Anke Brandsma](#)<sup>1,2</sup>, [Janette K Burgess](#)<sup>1,2,7</sup>

Affiliations Expand

- PMID: 38915286

- DOI: [10.1152/ajplung.00332.2023](https://doi.org/10.1152/ajplung.00332.2023)

## Abstract

Extracellular matrix (ECM) remodeling has been implicated in the irreversible obstruction of airways and destruction of alveolar tissue in chronic obstructive pulmonary disease (COPD). Studies investigating differences in the lung ECM in COPD have mainly focused on some collagens and elastin, leaving an array of ECM components unexplored. We investigated the differences in the ECM landscape comparing severe-early onset (SEO)-COPD and moderate COPD to control lung tissue for collagen type I  $\alpha$  chain 1 (COL1A1), collagen type VI  $\alpha$  chain 1 (COL6A1); collagen type VI  $\alpha$  chain 2 (COL6A2), collagen type XIV  $\alpha$  chain 1 (COL14A1), fibulin 2 and 5 (FBLN2 and FBLN5), latent transforming growth factor  $\beta$  binding protein 4 (LTBP4), lumican (LUM), versican (VCAN), decorin (DCN), and elastin (ELN) using image analysis and statistical modeling. Percentage area and/or mean intensity of expression of LUM in the parenchyma, and COL1A1, FBLN2, LTBP4, DCN, and VCAN in the airway walls, was proportionally lower in COPD compared to controls. Lowered levels of most ECM proteins were associated with decreasing forced expiratory volume in 1 s (FEV<sub>1</sub>) measurements, indicating a relationship with disease severity. Furthermore, we identified six unique ECM signatures where LUM and COL6A1 in parenchyma and COL1A1, FBLN5, DCN, and VCAN in airway walls appear essential in reflecting the presence and severity of COPD. These signatures emphasize the need to examine groups of proteins to represent an overall difference in the ECM landscape in COPD that are more likely to be related to functional effects than individual proteins. Our study revealed differences in the lung ECM landscape between control and COPD and between SEO and moderate COPD signifying distinct pathological processes in the different subgroups. **NEW & NOTEWORTHY** Our study identified chronic obstructive pulmonary disease (COPD)-associated differences in the lung extracellular matrix (ECM) composition. We highlight the compartmental differences in the ECM landscape in different subtypes of COPD. The most prominent differences were observed for severe-early onset COPD. Moreover, we identified unique ECM signatures that describe airway walls and parenchyma providing insight into the intertwined nature and complexity of ECM changes in COPD that together drive ECM remodeling and may contribute to disease pathogenesis.

**Keywords:** COPD; ECM signatures; collagen; extracellular matrix; image analysis.

Supplementary info

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. 2024 Sep;231:107699.

doi: 10.1016/j.rmed.2024.107699. Epub 2024 Jun 18.

[Corrigendum to "Correlation of fractional exhaled nitric oxide \(FeNO\) and clinical outcomes in patients with chronic obstructive pulmonary disease: A prospective cohort study" \[Respir. Med. 229 \(2024\) 107682\]](#)

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## Affiliations Expand

- PMID: 38897056
- DOI: [10.1016/j.rmed.2024.107699](https://doi.org/10.1016/j.rmed.2024.107699)

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## Erratum for

- [Correlation of fractional exhaled nitric oxide \(FeNO\) and clinical outcomes in patients with chronic obstructive pulmonary disease: A prospective cohort study.](#)

Keeratichananont W, Kaenmuang P, Geater SL, Denyuk R, Kanchanakanok C. *Respir Med*. 2024 May 28;229:107682. doi: 10.1016/j.rmed.2024.107682. Online ahead of print. PMID: 38815659

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Am J Respir Crit Care Med

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. 2024 Sep 1;210(5):572-580.

doi: 10.1164/rccm.202402-0432PP.

[Early Life Exposures and the Development of Chronic Obstructive Pulmonary Disease across the Life Course](#)

[Nicholas S Hopkinson<sup>1</sup>](#), [Andrew Bush<sup>1</sup>](#), [James P Allinson<sup>1,2</sup>](#), [Rosa Faner<sup>3</sup>](#), [Heather J Zar<sup>4</sup>](#), [Alvar Agustí<sup>5</sup>](#)

Affiliations Expand

- PMID: 38861321
- DOI: [10.1164/rccm.202402-0432PP](#)

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. 2024 Sep:231:107692.

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## [The roles of bacteria and viruses in COPD-Bronchiectasis association: A prospective cohort study](#)

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### Abstract

**Background:** Exacerbations are implicated in bronchiectasis and COPD, which frequently co-exist [COPD-Bronchiectasis association (CBA)]. We aimed to determine the bacterial and viral spectrum at stable-state and exacerbation onset of CBA, and their association with exacerbations and clinical outcomes of CBA as compared with bronchiectasis.

**Methods:** We prospectively collected spontaneous sputum from adults with CBA, bronchiectasis with (BO) and without airflow obstruction (BNO) for bacterial culture and viral detection at stable-state and exacerbations.

**Results:** We enrolled 76 patients with CBA, 58 with BO, and 138 with BNO (711 stable and 207 exacerbation visits). Bacterial detection rate increased from BNO, CBA to BO at steady-state ( $P = 0.02$ ), but not at AE onset ( $P = 0.91$ ). No significant differences in viral detection rate were found among BNO, CBA and BO. Compared with steady-state, viral isolations occurred more frequently at exacerbation in BNO (15.8 % vs 32.1 %,  $P = 0.001$ ) and CBA (19.5 % vs 30.6 %,  $P = 0.036$ ) only. In CBA, isolation of viruses, human metapneumovirus and bacteria plus viruses was associated with exacerbation. Repeated detection of *Pseudomonas aeruginosa* (PA) correlated with higher modified Reiff score ( $P = 0.032$ ) in CBA but not in BO ( $P = 0.178$ ). Repeated detection of PA yielded a shorter time to the first exacerbation in CBA [median: 4.3 vs 11.1 months,  $P = 0.006$ ] but not in BO (median: 8.4 vs 7.6 months,  $P = 0.47$ ).

**Conclusions:** Isolation of any viruses, human metapneumovirus and bacterial plus viruses was associated with CBA exacerbations. Repeated detection of PA confers greater impact of future exacerbations on CBA than on BO.

**Keywords:** Acute exacerbation; Bacteria; COPD-Bronchiectasis association; Virus.

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## Conflict of interest statement

**Declaration of competing interest** The authors declared no conflict of interest with any financial organization regarding the material discussed in the manuscript.

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[Exacerbation-like events in the 12 months prior to identification of chronic respiratory conditions in a primary care population](#)

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Abstract

Initial chronic obstructive lung disease (COPD) pharmacotherapy is based on symptom burden and exacerbation history. Inclusion of inhaled cortico-steroids

(ICS) is recommended only for those with a history of exacerbations. This brief report highlights that among individuals with previously unrecognized COPD about 1 in 5 have one or more exacerbation-like events and about 1 in 10 have two or more events in the prior 12 months whether or not they self-report concomitant asthma. Closer attention to prior exacerbation-like event history might lead to more guideline concordant care. In addition, there are two other groups that have impaired but non-obstructive spirometry, some with significant respiratory symptom burden who have frequencies of exacerbation-like events similar to those meeting COPD spirometry criteria. To date we have little guidance for treatment of these individuals.

**Keywords:** Chronic obstructive pulmonary disease (COPD); Exacerbations; Guideline concordant care; Preserved ratio impaired spirometry (PRISm).

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#### **Conflict of interest statement**

**Declaration of competing interest** Dr. Martinez reports grants from NHLBI Sponsor of the parent trial, grants from COPD Foundation Organizes the financial contributions of Industry Advisory Consortium, grants from AstraZeneca Member of the CAPTURE Industry Advisory Consortium, grants from Boehringer Ingelheim Member of the CAPTURE Industry Advisory Consortium, grants from GlaxoSmithKline Member of the CAPTURE Industry Advisory Consortium, grants from Sunovion Member of the CAPTURE Industry Advisory Consortium, grants from Teva Member of the CAPTURE Industry Advisory Consortium, and grants from Viartis Member of the CAPTURE Industry Advisory Consortium during the conduct of the study; grants from AstraZeneca Study Steering Committee, personal fees from AstraZeneca Advisory Boards, disease state presentations, non-financial support from AstraZeneca Travel to meetings, grants from Boehringer Ingelheim Steering Committee of ILD study, personal fees from Boehringer Ingelheim COPD and ILD Advisory Boards, personal fees from Boehringer Ingelheim ILD disease state presentation, non-financial support from Boehringer Ingelheim Travel to meetings, grants from Chiesi COPD Steering Committee, non-financial support from Chiesi including travel to meeting, grants from Csl Behring COPD Advisory Board, nonfinancial support from Csl Behring Travel to meeting, grants from GlaxoSmithKline COPD Study Steering Committee, personal fees from GlaxoSmithKline COPD Advisory Boards, personal fees from GlaxoSmithKline COPD disease state presentations, non-financial support from GlaxoSmithKline Travel to meetings, other from GlaxoSmithKline COPD Study DSMB, grants from Medtronic COPD study adjudication committee, grants from Novartis COPD Study Steering Committee, grants from Novartis COPD Advisory Boards, grants from Polarean COPD Advisory Board, other from Pulmatrix COPD tele consultation, other from Polarean COPD tele consultation, grants from Sanofi/Regeneron COPD Study Steering Committee, personal fees from Sanofi/Regeneron COPD Advisory Board, and personal fees from Theravance/Viartis COPD Advisory Board outside the submitted work; in addition, Dr. Martinez has a patent for CAPTURE licensed to Weill Cornell. Ms. Anderson has nothing to disclose. Dr. Brown reports personal fees from Teva outside the submitted work Dr Dolor reports grants from NIH 1R01 HL136682 and grants from COPD Foundation during the conduct of the study. Dr. Elder reports grants from national institutes of health during the conduct of the study. Dr. Han reports grants from NIH and grants from COPD Foundation during

the conduct of the study; personal fees from GlaxoSmithKline, personal fees from AstraZeneca sponsored research, funds paid to institution, personal fees from Verona, personal fees from Merck, personal fees from MDBriefcase, personal fees from Mylan, other from Sanofi sponsored research, funds paid to institution, personal fees from DevPro, personal fees from Aerogen, personal fees from Polarean, personal fees from Regeneron, personal fees from UpToDate, personal fees from Altesa Pharmaceuticals, personal fees from Medscape, personal fees from Integrity, non-financial support from Sunovion, grants from American Lung Association, grants from COPD Foundation, other from Biodesix sponsored research, funds paid to institution, other from Gala Therapeutics sponsored research, funds paid to institution, other from Nuaira sponsored research, funds paid to institution, personal fees from Boehringer Ingelheim, personal fees from Cipla, personal fees from Chiesi, other from Novartis DSMB with funds paid to institution and drug for trial, personal fees from Pulmonx, personal fees from Teva, other from AstraZeneca sponsored research, funds paid to institution, grants from Boehringer Ingelheim, other from Sanofi sponsored research, funds paid to institution, personal fees from NACE, other from Medtronic DSMB with funds paid to institution, other from Altesa Pharmaceuticals stock options, and other from Meissa Vaccines stock options outside the submitted work. Dr. Joo reports grants from NIH and grants from COPD Foundation during the conduct of the study. Dr. Khan reports other from Circuit Clinical Standard Clinical Trial Site and Enrollment Fees were paid for study execution to the clinical trials company of which I am CEO during the conduct of the study. Dr. Knox has nothing to disclose. Ms. Angulo has nothing to disclose. Mr. Lopez has nothing to disclose. Dr. Make reports grants from NHLBI Research grant funds provided to and controlled by National Jewish Health. Grant review study section., grants from American Lung Association Research grant funds to and controlled by National Jewish Health., grants from Department of Defense Research grant funds provided to and controlled by National Jewish Health, other from Astra Zeneca Medical Advisory Board. Disease-state presentation. Research grant funds provided to and controlled by National Jewish Health. Consultant for data analysis. Steering Committee for NOVELTY observational study. other from Spiration Reviewed clinical trial data. Data and Safety Monitoring Board., other from Glaxo Smith Kline Advisory Board member. Disease-state presentation., other from Boehringer Ingelheim Medical Advisory Board, other from Mylan Medical Advisory Board, other from Quintiles Data Safety and Monitoring Board, other from University of Wisconsin Data Safety and Monitoring Board, and other from Mt. Sinai CME activity. Data and Safety Monitoring Board. during the conduct of the study; personal fees from Web MD CME activity, personal fees from Novartis CME activity, personal fees from American College of Chest Physicians CME activity, personal fees from Projects in Knowledge CME activity, personal fees from Third Pole Consultant for proposed trial, personal fees from Optimum Patient Care Global Limited Consultant, and personal fees from Integritas Communications CME activity outside the submitted work; in addition, Dr. Make has a patent for Wolters Kluwer Health (Up-To-Date) with royalties paid Royalties. Dr. Mannino reports personal fees from GlaxoSmithKline, personal fees from AstraZeneca, personal fees from Up-to-Date, and personal fees from Schlesinger Law Firm outside the submitted work. Ms. Meldrum has nothing to disclose. Dr. Murray reports grants from NIH during the conduct of the study. Ms. Peters has nothing to disclose Dr. Spino reports grants from NIH and grants from Three Lakes Foundation during the conduct of the study. Dr. Tapp has nothing to disclose. Dr. Thomashow reports grants from NHLBI during the conduct of the

study; personal fees from GSK consultant, personal fees from Boehringer Ingelheim advisory board, and personal fees from Reckitt Health consultant outside the submitted work; and cofounder and chief medical officer (volunteer position) COPD Foundation, a non for profit. Dr. Yawn reports grants from National Heart Lung and Blood Institute and personal fees from COPD Foundation during the conduct of the study; personal fees from GSK COPD and Herpes Zoster, investigator initiated grant and COPD advisory board and consulting, personal fees from TEVA Advisory board and consulting, personal fees from AZ Advisory board and consulting, and personal fees from BI Consulting outside the submitted work. Dr. Zittleman has nothing to disclose.

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. 2024 Sep;21(9):1316-1325.

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[Nocturnal Hypoxemia Is Associated with Sarcopenia in Patients with Chronic Obstructive Pulmonary Disease](#)

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Affiliations Expand

- PMID: 38843487
- DOI: [10.1513/AnnalsATS.202312-1062OC](#)

## Abstract

**Rationale:** Chronic obstructive pulmonary disease (COPD) is the third leading cause of death worldwide. Our previous studies have identified that nocturnal hypoxemia causes skeletal muscle loss (i.e., sarcopenia) in *in vitro* models of COPD. **Objectives:** We aimed to extend our preclinical mechanistic findings by analyzing a large sleep registry to determine whether nocturnal hypoxemia is associated with sarcopenia in patients with COPD. **Methods:** Sleep studies from patients with COPD ( $n = 479$ ) and control subjects without COPD ( $n = 275$ ) were analyzed. Patients with obstructive sleep apnea, as defined by apnea-hypopnea index  $\geq 5$ , were excluded. Pectoralis muscle cross-sectional area (PMcsa) was quantified using computed tomography scans performed within 1 year of the sleep study. We defined sarcopenia as less than the lowest 20% residuals for PMcsa of control subjects, which was adjusted for age and body mass index (BMI) and stratified by sex. Youden's optimal cut-point criteria were used to predict sarcopenia based on mean oxygen saturation during sleep. Additional measures of nocturnal hypoxemia were analyzed. The pectoralis muscle index (PMI) was defined as PMcsa normalized to BMI. **Results:** On average, males with COPD had a 16.6% lower PMI than control males ( $1.41 \pm 0.44$  vs.  $1.69 \pm 0.56$  cm<sup>2</sup>/BMI;  $P < 0.001$ ), whereas females with COPD had a 9.4% lower PMI than control females ( $0.96 \pm 0.27$  vs.  $1.06 \pm 0.33$  cm<sup>2</sup>/BMI;  $P < 0.001$ ). Males with COPD with nocturnal hypoxemia had a 9.5% decrease in PMI versus COPD with normal O<sub>2</sub> ( $1.33 \pm 0.39$  vs.  $1.47 \pm 0.46$  cm<sup>2</sup>/BMI;  $P < 0.05$ ) and a 23.6% decrease compared with control subjects ( $1.33 \pm 0.39$  vs.  $1.74 \pm 0.56$  cm<sup>2</sup>/BMI;  $P < 0.001$ ). Females with COPD with nocturnal hypoxemia had an 11.2% decrease versus COPD with normal O<sub>2</sub> ( $0.87 \pm 0.26$  vs.  $0.98 \pm 0.28$  cm<sup>2</sup>/BMI;  $P < 0.05$ ) and a 17.9% decrease compared with control subjects ( $0.87 \pm 0.26$  vs.  $1.06 \pm 0.33$  cm<sup>2</sup>/BMI;  $P < 0.001$ ). These findings were largely replicated using multiple measures of nocturnal hypoxemia. **Conclusions:** We defined sarcopenia in the pectoralis muscle using residuals that take into account age, BMI, and sex. We found that patients with COPD have a lower PMI than patients without COPD and that nocturnal hypoxemia was associated with an additional decrease in the PMI of patients with COPD. Additional prospective analyses are needed to determine a protective threshold of oxygen saturation to prevent or reverse sarcopenia due to nocturnal hypoxemia in COPD.

**Keywords:** COPD; cachexia; nocturnal hypoxemia; sarcopenia; skeletal muscle wasting.

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. 2024 Sep 1;210(5):639-647.

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### [Biological Age, Chronological Age, and Survival in Pulmonary Fibrosis: A Causal Mediation Analysis](#)

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#### Affiliations Expand

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#### Abstract

**Rationale:** Accelerated biological aging has been implicated in the development of interstitial lung disease (ILD) and other diseases of aging but remains poorly understood. **Objectives:** To identify plasma proteins that mediate the relationship between chronological age and survival association in patients with ILD. **Methods:** Causal mediation analysis was performed to identify plasma proteins that mediated the chronological age-survival relationship in an idiopathic pulmonary fibrosis discovery cohort. Proteins mediating this relationship after adjustment for false discovery were advanced for testing in an independent ILD validation cohort and explored in a chronic obstructive pulmonary disease cohort. A proteomic-based measure of biological age was constructed and survival analysis performed, assessing the impact of biological age and peripheral blood telomere length on the chronological age-survival relationship. **Measurements and Main Results:** Twenty-two proteins mediated the chronological age-survival relationship after adjustment for false discovery in the idiopathic pulmonary fibrosis discovery cohort ( $n = 874$ ), with 19 remaining significant mediators of this relationship in the ILD validation cohort ( $n = 983$ ) and one mediating this relationship in the chronic obstructive pulmonary disease cohort. Latent transforming growth factor- $\beta$  binding protein 2 and ectodysplasin A2 receptor showed the strongest mediation across cohorts. A proteomic measure of biological age completely attenuated the chronological age-survival association and better discriminated survival than chronological age. Results were robust to adjustment for peripheral blood telomere length, which did not mediate the chronological age-survival

relationship. Conclusions: Molecular measures of aging completely mediate the relationship between chronological age and survival, suggesting that chronological age has no direct effect on ILD survival.

Keywords: age; causal mediation; idiopathic pulmonary fibrosis; proteomics.

Comment in

- [Unveiling Biological Age: A New Frontier in Predicting Outcomes in Chronic Lung Disease.](#)

de Andrade JA, Agudelo Garcia PA, Mora AL. Am J Respir Crit Care Med. 2024 Sep 1;210(5):541-543. doi: 10.1164/rccm.202407-1290ED. PMID: 39078175 No abstract available.

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. 2024 Sep;189:105505.

doi: 10.1016/j.ijmedinf.2024.105505. Epub 2024 May 31.

[Tracking COPD exacerbation patterns and forecasting readmission risks utilizing electronic medical records](#)

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- DOI: [10.1016/j.ijmedinf.2024.105505](#)

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## Abstract

**Introduction:** Accurate evaluation of exacerbation frequency is an essential part of COPD assessment. But relying on just the prior-year exacerbation history may not capture the full picture of risk given the inherent year-to-year fluctuations in exacerbation rates. This study aimed to evaluate the predictive performance of models incorporating the 3-year exacerbation history based on electronic medical record.

**Materials and methods:** This retrospective cohort study included 86,501 COPD hospitalized patients in Beijing from 2008 to 2014. The annual frequency of COPD exacerbation hospitalizations over a 3-year period after the index hospitalization was calculated, with patients segmented into seven distinct exacerbation trajectory groups. Logistic regression was used to evaluate the predictive capability of the 3-year exacerbation history for exacerbation readmission in the fourth year. Predictors included age, sex, comorbidities, and exacerbation hospitalization in previous 1-3 years. Model performance was evaluated using area under the receiver operating characteristic curve (AUC).

**Results:** Of the studied patients, 56.5% were men, and the mean age (SD) was 73.8 (10.3) years. The overall readmission rate for COPD exacerbation was 0.31 per person-year, with only 3.8% of patients persistently readmitted over three consecutive years. The 3-year trajectory of exacerbation frequency was associated with exacerbation risk in the fourth year. Compared to just the prior year, the inclusion of a 3-year exacerbation hospitalization history notably improved prediction accuracy, with AUC elevating from 0.731 (0.724-0.739) to 0.786 (0.779-0.792).

**Conclusion:** These results unveil the fluctuating nature of COPD exacerbation hospitalization frequency across years and demonstrate that integrating a more comprehensive 3-year exacerbation history significantly refines the prediction model for future risk, thus providing a more nuanced and actionable insight for clinical care.

**Keywords:** COPD; Exacerbation rate; Prediction model; Trajectory.

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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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doi: 10.1513/AnnalsATS.202312-1078OC.

[Impact of COVID-19 Pandemic on Chronic Obstructive Pulmonary Disease Healthcare Use, Exacerbations, and Mortality: A Population Study](#)

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- DOI: [10.1513/AnnalsATS.202312-1078OC](#)

Abstract

**Rationale:** Existing work suggests that patients with chronic obstructive pulmonary disease (pwCOPD) presented less frequently to the emergency department and were less likely to be hospitalized during the coronavirus disease (COVID-19) pandemic, but it is unclear if this was due to improved health and disease management or to increased barriers and/or avoidance of health care. **Objectives:** The objective of this study was to determine the impact of the pandemic on inpatient and outpatient healthcare use, disease incidence, and mortality rates in pwCOPD. **Methods:** A retrospective population-based analysis using linked administrative datasets from Alberta, Canada 18 months before and after March 12, 2020 was conducted to measure hospitalization, emergency department and outpatient visits, and COPD outpatient exacerbations during these time periods. Mortality data were also analyzed before versus after the pandemic, taking confirmed COVID-19 infection within 30 days into account. Subgroup analysis based on COPD exacerbation risk stratification was undertaken to determine if healthcare use differed based on exacerbation risk. Finally, sex-based analysis of healthcare use during the pandemic was also completed. **Results:** Hospitalization or emergency department visits and outpatient

treatment for acute exacerbations of COPD dropped, whereas total outpatient COPD visits, including both virtual and in person, increased during the pandemic for pwCOPD. The mortality rate increased even after adjusting for COVID-19-associated deaths. Sex-based subgroup analysis showed a greater drop in acute care use for females, but the rise in mortality was seen for both sexes, with men experiencing a greater rate of mortality than women. Conclusions: Overall, pwCOPD accessed acute care resources less during the pandemic, which may have contributed to a rise in non-COVID-19 all-cause mortality.

Keywords: COPD; healthcare use; hospitalization; mortality; pulmonary exacerbations.

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. 2024 Sep-Oct:67:114-120.

doi: 10.1016/j.hrtlng.2024.05.001. Epub 2024 May 14.

[Routine in-hospital interventions during acute exacerbation of COPD are associated with improved 30-day care](#)

[Ophir Freund](#)<sup>1</sup>, [Levi Elhadad](#)<sup>2</sup>, [Boaz Tiran](#)<sup>2</sup>, [Ariel Melloul](#)<sup>2</sup>, [Eyal Kleinhendler](#)<sup>2</sup>, [Tal Moshe Perluk](#)<sup>2</sup>, [Evgeni Gershman](#)<sup>2</sup>, [Avraham Unterman](#)<sup>2</sup>, [Avishay Elis](#)<sup>3</sup>, [Amir Bar-Shai](#)<sup>2</sup>

Affiliations Expand

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- DOI: [10.1016/j.hrtlng.2024.05.001](https://doi.org/10.1016/j.hrtlng.2024.05.001)

## Abstract

**Background:** Implementing standard of care therapy for chronic obstructive pulmonary disease (COPD) has barriers. Hospitalization with an acute exacerbation of COPD (AECOPD) is a major adverse event that could also be an opportunity to improve patients' long-term care.

**Objectives:** To evaluate which in-hospital interventions during AECOPD are associated with improved 30-day care.

**Methods:** This was a prospective study that included patients from 10 medical centers across Israel, hospitalized with AECOPD between 2017 and 2019. Patients were approached during hospitalization in internal medicine departments. A semi-structured follow-up call was performed 30 days after discharge, and six COPD areas of care were assessed. Multivariate analyses were used to analyze predictors for each area of care.

**Results:** 234 patients were included (mean age 69 years and 34% females). A lower 30-day readmission rate was independently associated with smoking cessation and prescription of renin-angiotensin blockers. Initiating or continuing long acting bronchodilators (LABD) during admission was an independent predictor for their 30-day use. Among patients with prior LABD treatment, only 38% continued at 30-days if it was not prescribed during admission (OR 4, 95% CI 1.98-8.08,  $p < 0.01$ ). In-hospital daily respiratory physiotherapy was an independent predictor for smoking cessation (AOR 5.1, 95% CI 1.1-23,  $p = 0.04$ ), while smoking cessation recommendation was not ( $p = 0.28$ ). Initiating a smoking cessation program (5%) or pulmonary rehabilitation (1%) after discharge was performed only by patients with a written referral.

**Conclusion:** Routine procedures during hospitalization for AECOPD could impact patients' long-term care in areas with proven effects on disease outcomes.

**Keywords:** COPD; Hospitalization; In-hospital interventions; Patient care; Therapy.

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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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. 2024 Sep;29(9):756-758.

doi: 10.1111/resp.14731. Epub 2024 May 7.

[Asthma-COPD overlap and asthma progressing to COPD: Are we using the right diagnostic approaches and pathways?](#)

[Elvis Malcolm Irusen](#)<sup>1</sup>, [Danica Meiring](#)<sup>2</sup>, [Coenraad Frederik Nicolaas Koegelenberg](#)<sup>1</sup>

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- PMID: 38712599
- DOI: [10.1111/resp.14731](https://doi.org/10.1111/resp.14731)

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*No abstract available*

Keywords: asthma-COPD overlap; persistent airflow limitation.

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. 2024 Sep-Oct:67:12-18.

doi: 10.1016/j.hrtlng.2024.04.007. Epub 2024 Apr 16.

[Causal relationship between chronic obstructive pulmonary disease and heart failure: A Mendelian randomization study](#)

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Abstract

**Background:** Causal association between chronic obstructive pulmonary disease (COPD) and heart failure (HF) has been controversial. This study used Mendelian Randomization (MR) analysis to clarify the potential causal connection between these two conditions.

**Objectives:** The purpose of the study was to investigate the causal relationship between COPD and HF based on the hypothesis that the genetic predisposition to COPD could lead to an increased risk of developing HF **METHODS:** A two-sample MR analysis of genetic data was performed for COPD and HF. This study was based on genome-wide association study (GWAS) data, including 6,915 patients with confirmed COPD and 186,723 controls. The odds ratios (ORs) and their 95 % confidence intervals (95 %CIs) were estimated using a fixed effects inverse variance weighting (IVW) method. Several supplementary statistical methods, including MR-Egger, weighted median, maximum likelihood, penalized weighted median, and random effects IVW, were applied to enhance the robustness of findings. Moreover, MR-PRESSO was employed as an alternative method for statistical detection.

**Results:** Pooled data for HF were obtained from different GWASs, including 4,7309 confirmed HF patients and 930,014 controls. The MR analysis, based on the IVW model, revealed that COPD was significantly associated with an increased risk of HF. Specifically, the obtained findings showed that COPD patients had a higher risk of developing HF (Model 1: OR = 1.068, 95 %CI: 1.006-1.134, p = 0.031; Model 2: OR = 1.038, 95 %CI: 1.006-1.071, p = 0.020), indicating a causal relationship between

COPD and HF. No evidence was found to suggest a reverse causal effect of HF on COPD incidence.

**Conclusion:** The MR analysis substantiates a causal link between COPD and HF, with no evidence supporting a reverse causation from HF to COPD. These findings underscore the importance of proactive COPD management as a potential strategy to prevent the development of HF, highlighting the need for targeted interventions in patients with COPD to mitigate their risk of HF.

**Keywords:** Causal relationship; Chronic obstructive pulmonary disease; Genome-wide association studies; Heart failure; Mendelian randomization; Preventive strategy.

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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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Editorial

Am J Respir Crit Care Med

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. 2024 Sep 1;210(5):545-547.

doi: 10.1164/rccm.202402-0338VP.

[Optimizing Pharmacotherapy Management of Chronic Obstructive Pulmonary Disease: Don't Miss the Forest for the Trees](#)

[Jean Bourbeau](#)<sup>1</sup>, [Mohit Bhutani](#)<sup>2</sup>, [Paul Hernandez](#)<sup>3</sup>, [Erika Penz](#)<sup>4</sup>, [Darcy D Marciniuk](#)<sup>4</sup>

Affiliations Expand

- PMID: 38626371
- DOI: [10.1164/rccm.202402-0338VP](https://doi.org/10.1164/rccm.202402-0338VP)

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Scand J Caring Sci

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. 2024 Sep;38(3):756-766.

doi: 10.1111/scs.13262. Epub 2024 Apr 15.

[Preparing safe discharge in a complex practice: A qualitative study of nurses' approach to patients with COPD's hospital discharge from two pulmonary medicinal wards](#)

[Nanna Vendelboe Gregersen](#)<sup>1</sup>, [Birgit Refsgaard](#)<sup>1,2</sup>, [Dorthe Sørensen](#)<sup>3</sup>

Affiliations Expand

- PMID: 38622922
- DOI: [10.1111/scs.13262](https://doi.org/10.1111/scs.13262)

Abstract

**Introduction:** It remains unclear why 17% of patients with acute exacerbations of chronic obstructive pulmonary disease (COPD) treated in Danish hospitals are readmitted within 30 days. Hospital discharge is multifaceted. However, the preparation process and nurses' efforts may be essential in ensuring a successful discharge.

**Aim:** To explore the process of preparing discharge for patients with COPD in a hospital setting.

**Method:** Using constructivist grounded theory, we observed 11 nurses' work at two pulmonary medical wards using participant observation. Data collection and analysis were conducted using a constant comparative process encompassing three phases: initial, focused and theoretical.

**Results:** We identified important perspectives influencing nurses when patients with COPD are discharged from two pulmonary medical wards. We generated a substantial theory of how nurses integrate various perspectives into their handling of hospital discharge. The theory contains three discharge approaches: co-creating, hesitating and socialising. The co-creating approach focuses on patient and relative involvement and systematic task solution, embedded in a biopsychosocial process, aiming to achieve a safe and sustainable discharge. In contrast, the hesitating approach focuses on discharging patients in line with system requirements and colleagues' expectations. Finally, the socialising approach focuses on creating a pleasant discharge experience for patients and colleagues alike.

**Conclusion:** This study illuminates three distinct approaches adopted by nurses when discharging a patient with COPD. The co-creating process encompasses patient involvement and systematic task resolution, incorporating a biopsychosocial process. In contrast, the other approaches are more limited in scope: the hesitating approach aims for harmony and collegial consensus, while the socialising approach focuses on ensuring a pleasant discharge experience for everyone. Nurses should therefore be mindful of the approach they adopt and the values associated with it in order to optimise their management of hospital discharge processes.

**Keywords:** COPD; biopsychosocial; grounded theory; hospital discharge; nurse; respiratory care; social interaction.

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Multicenter Study

Ann Am Thorac Soc

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. 2024 Sep;21(9):1251-1260.

doi: 10.1513/AnnalsATS.202308-741OC.

[Air Pollution Exposure and Interstitial Lung Features in SPIROMICS Participants with Chronic Obstructive Pulmonary Disease](#)

[Nicolas A Baddour](#)<sup>1</sup>, [Laura M Paulin](#)<sup>2</sup>, [Amanda J Gassett](#)<sup>3</sup>, [Han Woo](#)<sup>4</sup>, [Eric A Hoffman](#)<sup>5</sup>, [John D Newell Jr](#)<sup>6,5</sup>, [Prescott G Woodruff](#)<sup>7</sup>, [Cheryl S Pirozzi](#)<sup>8</sup>, [Igor Barjaktarevic](#)<sup>9</sup>, [R Graham Barr](#)<sup>10</sup>, [Wanda O'Neal](#)<sup>11</sup>, [Meilan K Han](#)<sup>12</sup>, [Fernando J Martinez](#)<sup>13</sup>, [Stephen P Peters](#)<sup>14</sup>, [Annette T Hastie](#)<sup>14</sup>, [Nadia N Hansel](#)<sup>4</sup>, [Victor E Ortega](#)<sup>15</sup>, [Joel D Kaufman](#)<sup>1,3</sup>, [Coralynn S Sack](#)<sup>1,3</sup>

Affiliations Expand

- PMID: 38568439
- DOI: [10.1513/AnnalsATS.202308-741OC](#)

Abstract

**Rationale:** It is unknown whether air pollution is associated with radiographic features of interstitial lung disease in individuals with chronic obstructive pulmonary disease (COPD). **Objectives:** To determine whether air pollution increases the prevalence of interstitial lung abnormalities (ILA) or percent high-attenuation areas (HAA) on computed tomography (CT) in individuals with a heavy smoking history and COPD. **Methods:** We performed a cross-sectional study of SPIROMICS (Subpopulations and Intermediate Outcome Measures in COPD Study), focused on current or former smokers with COPD. Ten-year exposure to particulate matter  $\leq 2.5$   $\mu\text{m}$  in aerodynamic diameter (PM<sub>2.5</sub>), nitrogen oxides (NO<sub>x</sub>), nitrogen dioxide (NO<sub>2</sub>), and ozone before enrollment CT (completed between 2010 and 2015) were estimated with validated spatiotemporal models at residential addresses. We applied adjusted multivariable modified Poisson regression and linear regression to investigate associations between pollution exposure and relative risk (RR) of ILA or increased percent HAA (between -600 and -250 Hounsfield units), respectively. We assessed for effect modification by *MUC5B*-promoter polymorphism (variant allele

carriers GT or TT vs. GG at rs3705950), smoking status, sex, and percent emphysema. Results: Among 1,272 participants with COPD assessed for HAA, 424 were current smokers, and 249 were carriers of the variant *MUC5B* allele. A total of 519 participants were assessed for ILA. We found no association between pollution exposure and ILA or HAA. Associations between pollutant exposures and risk of ILA were modified by the presence of *MUC5B* polymorphism (*P* value interaction term for NO<sub>x</sub> = 0.04 and PM<sub>2.5</sub> = 0.05) and smoking status (*P* value interaction term for NO<sub>x</sub> = 0.05; NO<sub>2</sub> = 0.01; and ozone = 0.05). With higher exposure to NO<sub>x</sub> and PM<sub>2.5</sub>, *MUC5B* variant carriers had an increased risk of ILA (RR per 26 ppb NO<sub>x</sub>, 2.41; 95% confidence interval [CI], 0.97-6.0; and RR per 4 μg · m<sup>-3</sup> PM<sub>2.5</sub>, 1.43; 95% CI, 0.93-2.2, respectively). With higher exposure to NO<sub>2</sub>, former smokers had an increased risk of ILA (RR per 10 ppb, 1.64; 95% CI, 1.0-2.7). Conclusions: Exposure to ambient air pollution was not associated with interstitial features on CT in this population of heavy smokers with COPD. *MUC5B* modified the association between pollution and ILA, suggesting that gene-environment interactions may influence prevalence of interstitial lung features in COPD.

**Keywords:** COPD; *MUC5B*; air pollution exposure; interstitial lung abnormalities; subclinical interstitial lung disease.

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Am J Respir Crit Care Med

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. 2024 Sep 1;210(5):535-537.

doi: 10.1164/rccm.202403-0565ED.

[The Evolving Contours of Chronic Obstructive Pulmonary Disease](#)

[Nicolas Roche](#)<sup>1 2 3</sup>, [MeiLan K Han](#)<sup>4</sup>

Affiliations Expand

- PMID: 38564415
- DOI: [10.1164/rccm.202403-0565ED](https://doi.org/10.1164/rccm.202403-0565ED)

*No abstract available*

Comment on

- [Susceptible Young Adults and Development of Chronic Obstructive Pulmonary Disease Later in Life.](#)

Çolak Y, Lange P, Vestbo J, Nordestgaard BG, Afzal S. Am J Respir Crit Care Med. 2024 Sep 1;210(5):607-617. doi: 10.1164/rccm.202308-1452OC. PMID: 38364200

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Comparative Study

Eur Radiol

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. 2024 Sep;34(9):5595-5596.

doi: 10.1007/s00330-024-10710-x. Epub 2024 Mar 28.

[Evaluating COPD: a comparative analysis of MRI and CT phenotyping](#)

[Lukas Ebner](#)<sup>1 2 3</sup>

## Affiliations Expand

- PMID: 38546793
- DOI: [10.1007/s00330-024-10710-x](https://doi.org/10.1007/s00330-024-10710-x)

*No abstract available*

## Comment on

- [Phenotyping of COPD with MRI in comparison to same-day CT in a multi-centre trial.](#)

Nauck S, Pohl M, Jobst BJ, Melzig C, Meredig H, Weinheimer O, Triphan S, von Stackelberg O, Konietzke P, Kauczor HU, Heußel CP, Wielpütz MO, Biederer J; COSYCONET Study Group. Eur Radiol. 2024 Sep;34(9):5597-5609. doi: 10.1007/s00330-024-10610-0. Epub 2024 Feb 12. PMID: 38345607

- [9 references](#)

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## Am J Respir Crit Care Med

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. 2024 Sep 1;210(5):607-617.

doi: 10.1164/rccm.202308-1452OC.

## [Susceptible Young Adults and Development of Chronic Obstructive Pulmonary Disease Later in Life](#)

[Yunus Çolak](#)<sup>1,2,3</sup>, [Peter Lange](#)<sup>1,2,3,4</sup>, [Jørgen Vestbo](#)<sup>5</sup>, [Børge G Nordestgaard](#)<sup>2,6,3</sup>, [Shoaib Afzal](#)<sup>2,6,3</sup>

## Affiliations Expand

- PMID: 38364200
- DOI: [10.1164/rccm.202308-1452OC](https://doi.org/10.1164/rccm.202308-1452OC)

## Abstract

**Rationale:** Chronic obstructive pulmonary disease (COPD) has its origin in early life, and the Global Initiative for Chronic Obstructive Lung Disease (GOLD) proposes a predisease state termed "pre-COPD." **Objectives:** We tested the hypothesis that susceptible young adults identified with chronic bronchitis and subtle lung function impairment will develop COPD later in life. **Methods:** We followed random individuals without COPD ages 20-50 years from two population-based cohorts from different smoking eras-the Copenhagen General Population Study from 2003 ( $N = 5,497$ ) and the Copenhagen City Heart Study from 1976-1978 ( $N = 2,609$ )-for 10 and 25 years, for the development of COPD ( $FEV_1/FVC < 0.70$ ) and COPD GOLD Stages 2-4 (additionally,  $FEV_1 < 80\%$  predicted). **Measurements and Main Results:** After 10 years, 28% developed COPD and 13% developed COPD GOLD Stages 2-4 in individuals susceptible to COPD, compared with 8% and 1% in those without any susceptibility to COPD. Correspondingly, after 25 years, 22% versus 13% developed COPD and 20% versus 8% developed COPD GOLD Stages 2-4. More than half of incident COPD cases developed from a susceptible state. Compared with those without susceptibility to COPD, multivariable-adjusted odds ratios in those susceptible to COPD were 3.42 (95% confidence interval: 2.78-4.21) for COPD and 10.1 (6.77-15.2) for COPD GOLD Stages 2-4 after 10 years and were 1.54 (1.23-1.93) and 2.12 (1.64-2.73) after 25 years. The ability of a COPD risk score-consisting of the state of susceptibility to COPD with smoking and asthma as risk factors-to predict COPD later in life was high. **Conclusions:** Our study suggests the existence of a predisease state of COPD, which can be used for early identification of susceptible individuals at risk for COPD later in life.

## Comment in

- [The Evolving Contours of Chronic Obstructive Pulmonary Disease.](#)

Roche N, Han MK. Am J Respir Crit Care Med. 2024 Sep 1;210(5):535-537. doi: 10.1164/rccm.202403-0565ED. PMID: 38564415 No abstract available.

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Comparative Study

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. 2024 Sep;34(9):5597-5609.

doi: 10.1007/s00330-024-10610-0. Epub 2024 Feb 12.

[Phenotyping of COPD with MRI in comparison to same-day CT in a multi-centre trial](#)

[Sebastian Nauck](#)<sup>1,2</sup>, [Moritz Pohl](#)<sup>3</sup>, [Bertram J Jobst](#)<sup>4,5</sup>, [Claudius Melzig](#)<sup>4,5</sup>, [Hagen Meredig](#)<sup>6</sup>, [Oliver Weinheimer](#)<sup>4,5</sup>, [Simon Triphan](#)<sup>4,5</sup>, [Oyunbileg von Stackelberg](#)<sup>4,5</sup>, [Philip Konietzke](#)<sup>4,5</sup>, [Hans-Ulrich Kauczor](#)<sup>4,5</sup>, [Claus P Heußel](#)<sup>5,7</sup>, [Mark O Wielpütz](#)<sup>4,5</sup>, [Jürgen Biederer](#)<sup>4,5,8,9</sup>; [COSYCONET Study Group](#)

Affiliations Expand

- PMID: 38345607
- DOI: [10.1007/s00330-024-10610-0](https://doi.org/10.1007/s00330-024-10610-0)

Abstract

**Objectives:** A prospective, multi-centre study to evaluate concordance of morphologic lung MRI and CT in chronic obstructive pulmonary disease (COPD) phenotyping for airway disease and emphysema.

**Methods:** A total of 601 participants with COPD from 15 sites underwent same-day morpho-functional chest MRI and paired inspiratory-expiratory CT. Two readers systematically scored bronchial wall thickening, bronchiectasis, centrilobular nodules, air trapping and lung parenchyma defects in each lung lobe and determined COPD phenotype. A third reader acted as adjudicator to establish consensus. Inter-modality and inter-reader agreement were assessed using Cohen's kappa (im-κ and ir-κ).

**Results:** The mean combined MRI score for bronchiectasis/bronchial wall thickening was 4.5/12 (CT scores, 2.2/12 for bronchiectasis and 6/12 for bronchial wall thickening; im-κ, 0.04-0.3). Expiratory right/left bronchial collapse was observed in 51 and 47/583 on MRI (62 and 57/599 on CT; im-κ, 0.49-0.52). Markers of small airways disease on MRI were 0.15/12 for centrilobular nodules (CT, 0.34/12), 0.94/12 for air trapping (CT, 0.9/12) and 7.6/12 for perfusion deficits (CT, 0.37/12 for mosaic attenuation; im-κ, 0.1-0.41). The mean lung defect score on MRI was 1.3/12 (CT

emphysema score, 5.8/24; im-κ, 0.18-0.26). Airway-/emphysema/mixed COPD phenotypes were assigned in 370, 218 and 10 of 583 cases on MRI (347, 218 and 34 of 599 cases on CT; im-κ, 0.63). For all examined features, inter-reader agreement on MRI was lower than on CT.

**Conclusion:** Concordance of MRI and CT for phenotyping of COPD in a multi-centre setting was substantial with variable inter-modality and inter-reader concordance for single diagnostic key features.

**Clinical relevance statement:** MRI of lung morphology may well serve as a radiation-free imaging modality for COPD in scientific and clinical settings, given that its potential and limitations as shown here are carefully considered.

**Key points:** • In a multi-centre setting, MRI and CT showed substantial concordance for phenotyping of COPD (airway-/emphysema-/mixed-type). • Individual features of COPD demonstrated variable inter-modality concordance with features of pulmonary hypertension showing the highest and bronchiectasis showing the lowest concordance. • For all single features of COPD, inter-reader agreement was lower on MRI than on CT.

**Keywords:** Chronic obstructive pulmonary disease; Computed tomography; Magnetic resonance imaging; Pulmonary emphysema.

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Comment in

- [Evaluating COPD: a comparative analysis of MRI and CT phenotyping.](#)

Ebner L. Eur Radiol. 2024 Sep;34(9):5595-5596. doi: 10.1007/s00330-024-10710-x. Epub 2024 Mar 28. PMID: 38546793 No abstract available.

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Comparative Study

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. 2024 Sep;24(7):829-843.

doi: 10.1080/14737167.2023.2296561. Epub 2024 Jan 4.

### Improved medication adherence in COPD patients using tiotropium or tiotropium olodaterol with the HealthPrize digital behavior change program

Katrina S Firlik<sup>1</sup>, Vamshi Ruthwik Anupindi<sup>2</sup>, Vincent Hayes<sup>1</sup>, Mitchell DeKoven<sup>2</sup>, Asif Shaikh<sup>3</sup>, Jessica Franchino-Elder<sup>3</sup>

#### Affiliations Expand

- PMID: 38116664
- DOI: [10.1080/14737167.2023.2296561](https://doi.org/10.1080/14737167.2023.2296561)

#### Abstract

**Objective:** To assess the impact of the HealthPrize RespiPoints™ program on treatment adherence and persistence in adults with chronic obstructive pulmonary disease (COPD).

**Methods:** In this retrospective cohort study, program participants and nonparticipants receiving tiotropium bromide (TIO) or TIO and olodaterol between 1 January 2015-31 March 2020 were propensity score matched (PSM), from the linked database of the HealthPrize patient list and IQVIA PharMetrics® Plus. Treatment adherence, persistence, healthcare resource utilization, and costs were compared. Multivariable logistic regression models assessed the odds of adherence (≥80% proportion of days covered [PDC]), adjusted risk of discontinuation, and adjusted total healthcare costs.

**Results:** Program participants ( $n = 262$ ) demonstrated a 44% greater adherence during followup than nonparticipants ( $n = 262$ ) (mean [standard deviation] PDC: 0.72 [0.27] vs 0.50 [0.36],  $p < 0.0001$ ). Participants had higher odds of adherence vs nonparticipants (adjusted odds ratio: 2.51; 95% confidence interval: 1.72-3.66,  $p < 0.0001$ ) and a lower percentage of participants discontinued their index medication (19.85% vs 33.59%,  $p = 0.0004$ ). Fewer participants were hospitalized during follow-up (13.74% vs 17.56%,  $p = 0.23$ ); adjusted total medical costs were 24% lower ( $p = 0.08$ ). Higher pharmacy costs partially offset lower healthcare costs.

**Conclusions:** Program participants showed improved COPD medication adherence and persistence compared to nonparticipants.

**Keywords:** Chronic obstructive pulmonary disease; behavior change; digital health; healthcare resource utilization; medication adherence; real-world data.

Supplementary info

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J Am Geriatr Soc

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. 2024 Aug 31.

doi: 10.1111/jgs.19158. Online ahead of print.

[Identifying priority challenges of older adults with COPD: A multiphase intervention refinement study](#)

[Anand S Iyer](#)<sup>1 2 3 4 5</sup>, [Rachel D Wells](#)<sup>3 4</sup>, [Avery C Bechthold](#)<sup>4</sup>, [Margaret Armstrong](#)<sup>3 4</sup>, [Ronan O'Beirne](#)<sup>6</sup>, [Jun Y Byun](#)<sup>4</sup>, [Jazmine Coffee-Dunning](#)<sup>3 4</sup>, [J Nicholas Odom](#)<sup>3 4</sup>, [Russell G Buhr](#)<sup>7 8 9</sup>, [Angela O Suen](#)<sup>10</sup>, [Ashwin A Kotwal](#)<sup>11 12</sup>, [Leah J Witt](#)<sup>10 11</sup>, [Cynthia J Brown](#)<sup>13</sup>, [Mark T Dransfield](#)<sup>1 5</sup>, [Marie A Bakitas](#)<sup>2 3 4</sup>

Affiliations Expand

- PMID: 39215557
- DOI: [10.1111/jgs.19158](https://doi.org/10.1111/jgs.19158)

Abstract

**Background:** Identifying priority challenges of older adults with chronic obstructive pulmonary disease (COPD) is critical to designing interventions aimed at improving their well-being and independence.

**Objective:** To prioritize challenges of older adults with COPD and those who care for them to guide refinement of a telephonic nurse coach intervention for patients with

**COPD and their family caregivers (EPIC: Empowering People to Independence in COPD).**

**Design: Multiphase study guided by Baltes Theory of Successful Aging and the 5Ms Framework: Phase 1: Nominal group technique (NGT), a structured process of prioritizing responses to a question through group consensus. Phase 2: Rapid qualitative analysis. Phase 3: Intervention mapping and refinement.**

**Setting: Ambulatory, virtual.**

**Participants: Older adults with COPD, family caregivers, clinic staff (nurses, respiratory therapists), clinicians (physicians, nurse practitioners), and health system leaders.**

**Results: NGT sessions were conducted by constituency group with 37 participants (n = 7 patients, n = 6 family caregivers, n = 8 clinic staff, n = 9 clinicians, n = 7 health system leaders) (Phase 1). Participants generated 92 statements across five themes (Phase 2): (1) "Barriers to care", (2) "Family caregiver needs", (3) "Functional status and mobility issues", (4) "Illness understanding", and (5) "COPD care complexities". Supplemental oxygen challenges emerged as a critical problem, and prioritized challenges differed by group. Patients and clinic staff prioritized "Functional status and mobility issues", family caregivers prioritized "Family caregiver needs", and clinicians and health system leaders prioritized "COPD care complexities". Intervention mapping (Phase 3) guided EPIC refinement focused on meeting patient priorities of independence and mobility but accounting for all priorities.**

**Conclusions: Diverse constituency groups identified priority challenges for older adults with COPD. Functional status and mobility issues, particularly related to supplemental oxygen, emerged as patient prioritized challenges.**

**Implications: Patient-centered interventions for older adults with COPD must account for their prioritized functional and supplemental oxygen needs and explore diverse constituent perspectives to facilitate intervention enrichment.**

**Keywords: COPD; caregiver; geriatrics; intervention development; intervention mapping; nominal group technique; palliative care; rapid qualitative analysis.**

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Am J Respir Crit Care Med

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. 2024 Aug 30.

doi: 10.1164/rccm.202312-2311OC. Online ahead of print.

**[Effect of Triple Therapy on Cardiovascular and Severe Cardiopulmonary Events in COPD: A Post-hoc Analysis of a Randomized, Double-Blind, Phase 3 Clinical Trial \(ETHOS\)](#)**

**[Dave Singh](#)<sup>1</sup>, [Fernando J Martinez](#)<sup>2</sup>, [John R Hurst](#)<sup>3</sup>, [MeiLan K Han](#)<sup>4</sup>, [Chris P Gale](#)<sup>5,6,7</sup>, [Martin Fredriksson](#)<sup>8</sup>, [Dobrawa Kisielewicz](#)<sup>9</sup>, [Alec Mushunje](#)<sup>10</sup>, [Charlotta Movitz](#)<sup>8</sup>, [Nikki Ojili](#)<sup>11</sup>, [Himanshu Parikh](#)<sup>12</sup>, [Niki Arya](#)<sup>13</sup>, [Karin Bowen](#)<sup>11</sup>, [Mehul Patel](#)<sup>14</sup>**

Affiliations Expand

- PMID: 39213002
- DOI: [10.1164/rccm.202312-2311OC](https://doi.org/10.1164/rccm.202312-2311OC)

Abstract

**Rationale:** Chronic obstructive pulmonary disease (COPD) is associated with increased risk of cardiovascular and cardiopulmonary events. In the Phase III, 52-week ETHOS trial ([NCT02465567](#)), triple therapy with budesonide/glycopyrrolate/formoterol fumarate (BGF) reduced rates of moderate/severe exacerbations and all-cause mortality versus dual therapy with glycopyrrolate/formoterol fumarate (GFF) or budesonide/formoterol fumarate (BFF). However, the effect of BGF on cardiovascular events versus GFF remains unevaluated. Further, the effect of BGF on time to first severe exacerbation has not been reported. **Objective:** Assess the effects of BGF 320/18/9.6 µg (BGF 320) and other ICS-containing arms on cardiovascular and severe cardiopulmonary endpoints versus GFF in patients with COPD from ETHOS. **Methods:** Patients with moderate-to-very severe COPD and a history of exacerbations were randomized to twice-daily BGF 320, BGF 160/18/9.6 µg, BFF 320/9.6 µg, or GFF 18/9.6 µg (GFF). Time to first severe COPD exacerbation was a pre-specified endpoint; post-hoc cardiovascular and severe cardiopulmonary endpoints included time to first major adverse cardiac event (MACE), time to first cardiovascular adverse event (AE) of special interest (CVAESI), time to first cardiac AE, and time to the composite endpoint of first severe cardiopulmonary event. **Measurements and Main Results:** BGF 320 reduced the rate of first occurrence (hazard ratio [95% confidence interval]) of cardiovascular and severe cardiopulmonary events versus GFF, including for CVAESI (0.63 [0.48, 0.82]), cardiac AE (0.60 [0.48, 0.76]), and severe

cardiopulmonary event (0.80 [0.67, 0.95]). Conclusions: BGF had a benefit on cardiovascular endpoints and severe cardiopulmonary events versus GFF in patients with moderate-to-very severe COPD.

**Keywords:** Budesonide, Glycopyrrolate, Formoterol fumarate; Cardiovascular; Hospitalization; Mortality.

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. 2024 Aug 30;15(1):387.

doi: 10.1007/s12672-024-01274-9.

[Association between common chronic pulmonary diseases and lung cancer: Mendelian randomization analysis](#)

[Wenbin Zhang](#)<sup>1</sup>, [Xinnan Song](#)<sup>2</sup>, [Tianjun Song](#)<sup>3</sup>, [Dongyun Zeng](#)<sup>4 5</sup>

Affiliations Expand

- PMID: 39212755
- DOI: [10.1007/s12672-024-01274-9](#)

Abstract

**Background:** Lung cancer is a leading public health concern worldwide. Previous evidence suggests that chronic obstructive pulmonary disease (COPD) and asthma may contribute to its development. However, whether these common chronic pulmonary diseases are causal factors of lung cancer remained unclear.

**Methods:** Summary statistics from genome-wide association studies (GWAS) were used for Mendelian randomization (MR) analysis. Genetic data for COPD were obtained from the Global Biobank Meta-Analysis Initiative, and asthma data were retrieved from the UK Biobank cohort. Suitable instrumental variables were selected

based on quality control measures. GWAS summary data for lung cancer were obtained from a large study involved 85,716 participants. MR analysis was performed using various methods, and sensitivity analyses were conducted. Multivariable MR (MVMR) analysis was employed to account for potential confounding factors.

**Results:** Our MR analysis revealed a significant causal association between COPD and lung cancer, including its subtypes such as lung squamous cell carcinoma, lung adenocarcinoma, and small cell lung carcinoma. Genetically predicted COPD was associated with a 64% increased risk of lung cancer and a 2.3 to 2.8-fold increased risk of the different subtypes. However, in the MVMR analysis adjusting for smoking, alcohol drinking, and body mass index, the association between COPD and lung cancer became non-significant. No significant association was observed between asthma (childhood-onset and adult-onset) and lung cancer and its histological subtypes.

**Conclusions:** Our study suggests a potential causal association between COPD and lung cancer. However, this association became non-significant after adjusting for smoking in the multivariable analysis.

**Keywords:** Asthma; COPD; Lung cancer; Mendelian randomization.

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. 2024 Aug 29;62(6):995-1005.

doi: 10.1016/j.resinv.2024.08.014. Online ahead of print.

## [Lung imaging in COPD and asthma](#)

[Naoya Tanabe](#)<sup>1</sup>, [Hiroaki Nakagawa](#)<sup>2</sup>, [Seiichiro Sakao](#)<sup>3</sup>, [Yoshiharu Ohno](#)<sup>4</sup>, [Kaoruko Shimizu](#)<sup>5</sup>, [Hidetoshi Nakamura](#)<sup>6</sup>, [Masayuki Hanaoka](#)<sup>7</sup>, [Yasutaka Nakano](#)<sup>2</sup>, [Toyohiro Hirai](#)<sup>8</sup>

### Affiliations Expand

- PMID: 39213987
- DOI: [10.1016/j.resinv.2024.08.014](#)

### Abstract

Chronic obstructive pulmonary disease (COPD) and asthma are common lung diseases with heterogeneous clinical presentations. Lung imaging allows evaluations of underlying pathophysiological changes and provides additional personalized approaches for disease management. This narrative review provides an overview of recent advances in chest imaging analysis using various modalities, such as computed tomography (CT), dynamic chest radiography, and magnetic resonance imaging (MRI). Visual CT assessment localizes emphysema subtypes and mucus plugging in the airways. Dedicated software quantifies the severity and spatial distribution of emphysema and the airway tree structure, including the central airway wall thickness, branch count and fractal dimension of the tree, and airway-to-lung size ratio. Nonrigid registration of inspiratory and expiratory CT scans quantifies small airway dysfunction, local volume changes and shape deformations in specific regions. Lung ventilation and diaphragm movement are also evaluated on dynamic chest radiography. Functional MRI detects regional oxygen transfer across the alveolus using inhaled oxygen and ventilation defects and gas diffusion into the alveolar-capillary barrier tissue and red blood cells using inhaled hyperpolarized <sup>129</sup>Xe gas. These methods have the potential to determine local functional properties in the lungs that cannot be detected by lung function tests in patients with COPD and asthma. Further studies are needed to apply these technologies in clinical practice, particularly for early disease detection and tailor-made interventions, such as the efficient selection of patients likely to respond to biologics. Moreover, research should focus on the extension of healthy life expectancy in patients at higher risk and with established diseases.

**Keywords:** Asthma; Chronic obstructive pulmonary disease; Computed tomography; Contents; Lung function; Quantitative imaging.

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### Conflict of interest statement

Declaration of competing interest N.T. received honoraria for lectures from AstraZeneca and research funding from Fujifilm and Daiichi Sankyo. H. Nakagawa and S.S. have no conflicts of interest. Y.O. received research funding from Canon Medical Systems Corporation and the Smoking Research Foundation. K.S. and H

Nakamura has no conflicts of interest. M.H. received honoraria for lectures from AstraZeneca and Nippon Boehringer Ingelheim. Y.N. received honoraria for lectures from AstraZeneca, GSK, and Nippon Boehringer Ingelheim; research funding from GSK and Clairvo Technologies; and subsidies from Nippon Boehringer Ingelheim and Fukuda Life Tech. T.H. received research funding from Fujifilm and Daiichi Sankyo.

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Chronic Obstr Pulm Dis

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. 2024 Aug 29.

doi: 10.15326/jcopdf.2024.0507. Online ahead of print.

[Impact of Body Mass Index on Risk of Exacerbation in Patients With COPD: A Systematic Review and Meta-Analysis](#)

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Affiliations Expand

- PMID: 39213382
- DOI: [10.15326/jcopdf.2024.0507](#)

Abstract

**Objective:** To synthesize current evidence of the association between body mass index (BMI) categories and the risk of exacerbation in patients with chronic obstructive pulmonary disease (COPD).

**Methods:** A systematic search was conducted across three electronic databases: PubMed, Embase, and Scopus. Eligible studies should have reported on the association between BMI (either as continuous or categorical) and a risk of COPD exacerbation, as defined according to recognized clinical criteria. Observational studies (cohort, case-control, cross-sectional) were eligible for inclusion. The Newcastle Ottawa Scale (NOS) was used to evaluate the methodological quality. Combined effect sizes were reported as relative risk (RR) and corresponding 95% confidence intervals (CI).

**Results:** A total of 11 studies were included. Of them, four studies were prospective, and four were retrospective cohorts in design, two were cross-sectional studies and one study was a secondary data analysis from a randomized trial. Compared to patients with normal BMI, underweight patients had increased risk of COPD exacerbation (RR 1.90, 95% CI: 1.03, 3.48; N=7, I<sup>2</sup>=94.2%). Overweight and obese BMI status was associated with a similar risk of exacerbation.

**Conclusion:** Our findings report that underweight, but not overweight or obese patients, have increased risk of COPD exacerbation, compared to individuals with normal BMI. This differential association emphasizes the need for nuanced investigations into the underlying mechanisms of the impact of BMI on the course of COPD. Further research is needed to inform personalized interventions and improved COPD management strategies.

**Keywords:** BMI; COPD; exacerbation; high BMI; meta-analysis; obese; overweight; systematic review; underweight.

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. 2024 Aug 29.

doi: 10.15326/jcopdf.2024.0526. Online ahead of print.

## [Bronchiectasis Occurs Independently of Chronic Obstructive Pulmonary Disease in Alpha-1 Antitrypsin Deficiency](#)

[Joshua De Soyza](#)<sup>1</sup>, [Paul Ellis](#)<sup>1</sup>, [Michael Newnham](#)<sup>1</sup>, [Lloyd Rickard](#)<sup>2</sup>, [Alice M Turner](#)<sup>1</sup>

Affiliations Expand

- PMID: 39213377
- DOI: [10.15326/jcopdf.2024.0526](https://doi.org/10.15326/jcopdf.2024.0526)

### Abstract

**Introduction:** Bronchiectasis occurs in patients with alpha-1 antitrypsin deficiency (AATD), but it is unknown whether an association exists independently of chronic obstructive pulmonary disease (COPD). We assessed whether bronchiectasis was associated with COPD in our cohort, and whether it has clinical significance for lung function decline, exacerbation rate, or symptoms.

**Study design and methods:** PiZZ, PiSZ and PiMZ patients from the Birmingham AATD Research Database were studied. Demographics were recorded, along with the outcomes of symptoms, FEV1, TLCO, KCO, and annualised exacerbation rate. Lung function decline was calculated for those with  $\geq 3$  measurements. Multivariate regression analyses were conducted to assess for associations of bronchiectasis with each outcome. A further binomial logistic regression model assessed for predictors of bronchiectasis diagnosis, including COPD. Those with alternative bronchiectasis causes were excluded from statistical models.

**Results:** 1290 patients were eligible. PiZZ patients with bronchiectasis were older at presentation (54 vs 49 years,  $p < 0.001$ ), less likely to have smoked (65 vs 76.1%,  $p = 0.001$ ), and had higher mMRC scores (mMRC 2 vs 0 OR 1.97, 95% CI 1.20 - 3.25,  $p = 0.008$ ; mMRC 3 vs 0 OR 2.58 95% CI 1.59 - 4.19,  $p < 0.001$ ; mMRC 4 vs 0 OR 2.2 95% CI 1.23 - 3.92;  $p = 0.008$ ) than those without. The odds ratio of bronchiectasis diagnosis was not associated with COPD diagnosis in any phenotype. Bronchiectasis was associated with lower serum alpha-1 antitrypsin levels in PiZZ patients ( $p = 0.012$ ). Bronchiectasis was not associated with a difference in FEV1 pp/year decline, KCO pp/year, TLCO pp/year decline, or exacerbation rate in multivariate analysis.

**Conclusion:** Bronchiectasis exists in a significant minority of AATD patients independently of COPD, and is associated with more severe shortness of breath. Appropriate treatment of bronchiectasis in AATD is essential.

**Keywords:** COPD; alpha-1 antitrypsin deficiency; bronchiectasis.

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Eur Respir J

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. 2024 Aug 29:2401200.

doi: 10.1183/13993003.01200-2024. Online ahead of print.

[Pulmonary hypertension associated with lung diseases](#)

[Oksana A Shlobin<sup>1</sup>](#), [Yochai Adir<sup>2</sup>](#), [Joan A Barbera<sup>3</sup>](#), [Vincent Cottin<sup>4</sup>](#), [Sergio Harari<sup>5</sup>](#), [Etienne-Marie Jutant<sup>6</sup>](#), [Joanna Pepke-Zaba<sup>7</sup>](#), [Hossein-Ardeschir Ghofrani<sup>8,9</sup>](#), [Richard Channick<sup>10</sup>](#)

Affiliations Expand

- PMID: 39209469
- DOI: [10.1183/13993003.01200-2024](https://doi.org/10.1183/13993003.01200-2024)

Abstract

Pulmonary hypertension (PH) associated with chronic lung disease (CLD) is both common and underrecognised. The presence of PH in the setting of lung disease has been consistently shown to be associated with worse outcomes. Recent epidemiological studies have advanced understanding of the heterogeneity of this patient population and shown that defining both the specific type of CLD as well as the severity of PH (*i.e.* deeper phenotyping) is necessary to inform natural history and prognosis. A systematic diagnostic approach to screening and confirmation of suspected PH in CLD is recommended. Numerous uncontrolled studies and one phase 3 randomised, controlled trial have suggested a benefit in treating PH in some patients with CLD, specifically those with fibrotic interstitial lung disease (ILD). However, other studies in diseases such as COPD-PH showed adverse outcomes with some therapies. Given the expanding list of approved pharmacological treatments for pulmonary arterial hypertension, developing a treatment algorithm for specific phenotypes of PH-CLD is required. This article will summarise existing data in COPD, ILD and other chronic lung diseases, and provide

recommendations for classification of PH-CLD and approach to the diagnosis and management of these challenging patients.

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#### Conflict of interest statement

**Conflict of interest:** O.A. Shlobin reports consultancy fees from United Therapeutics, Merck, Janssen and Aerami, payment or honoraria for lectures, presentations, manuscript writing or educational events from Ferrera and United Therapeutics, participation on a data safety monitoring board or advisory board with Janssen, and leadership roles with ACCP/Chest and World Symposium on Pulmonary Hypertension task force. Y. Adir reports consultancy fees and payment or honoraria for lectures, presentations, manuscript writing or educational events from MSD Israel and Bayer Israel, support for attending meetings from BI Israel and RAFA Israel, and participation on a data safety monitoring board or advisory board with MSD, GB and Acceleron. J.A. Barbera reports grants from Merck Sharp & Dome and Ferrer International, consultancy fees from Merck Sharp & Dome, Janssen-Cilag and Ferrer International, payment or honoraria for lectures, presentations, manuscript writing or educational events from Merck Sharp & Dome, Janssen-Cilag, Ferrer International and AOP Orphan, support for attending meetings from Merck Sharp & Dome and Janssen-Cilag, and a leadership role with the World Symposium on Pulmonary Hypertension task force. V. Cottin reports consultancy fees and payment or honoraria for lectures, presentations, manuscript writing or educational events from Ferrer/United Therapeutics. S. Harari reports consultancy fees from Roche-Boehringer Ingelheim, payment or honoraria for lectures, presentations, manuscript writing or educational events from Boehringer Ingelheim, participation on a data safety monitoring board or advisory board “Prise en charge pragmatique de la fibrose pulmonaire idiopathique en progression: essai randomisé PROGRESSION-IPF”, and leadership roles with the World Symposium on Pulmonary Hypertension task force, FERS of the ERS and officer of the society, and FATS of the ATS. E-M. Jutant reports consultancy fees from Chiesi, payment or honoraria for lectures, presentations, manuscript writing or educational events from Chiesi, GSK, MSD and AstraZeneca, support for attending meetings from Janssen and MSD, and a leadership role with the World Symposium on Pulmonary Hypertension task force. J. Pepke-Zaba reports grants from MSD, consultancy fees from MSD, Janssen, Gossamer and Ferrer, support for attending meetings from Janssen, and a leadership role with the World Symposium on Pulmonary Hypertension task force. H-A. Ghofrani reports consultancy fees from Gossamer Bio, Inc., Aerovate, Altavant, Bayer AG, Attgeno, Janssen/Actelion, MSD/Acceleron, Pfizer, Liquidia, Morphic and Keros, payment or honoraria for lectures, presentations, manuscript writing or educational events from Bayer AG, Janssen/Actelion, Gossamer Bio, Keros and MSD/Acceleron, participation on a data safety monitoring board or advisory board with Aerovate, Altavant, Attgeno, Janssen/Actelion, Insmmed, MSD/Acceleron, Pfizer and Bayer AG, and the following financial (or non-financial) interests: the author's spouse is and employee of Liquidia. R. Channick reports consultancy fees from Bayer, Merck, Gossamer, Respira and Janssen, payment or honoraria for lectures, presentations, manuscript writing or educational events from Bayer and Janssen, and participation on a data safety monitoring board or advisory board with Altavant.

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Clinical Trial

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. 2024 Aug 29.

doi: 10.1055/a-2383-4470. Online ahead of print.

[\[TELEMedical moNiTORing for COPD patients \(Telementor COPD\): Study protocol of a multicentre, randomised, controlled study\]](#)

[Article in German]

[Franziska Püschner](#) <sup>#1</sup>, [Juliane Schiller](#) <sup>#1</sup>, [Dominika Urbanski-Rini](#) <sup>1</sup>, [Katharina Scholl](#) <sup>2</sup>, [Anni Bock](#) <sup>2</sup>, [Margret Jandl](#) <sup>3</sup>, [Andreas Thanhäuser](#) <sup>4</sup>, [Lale Zils](#) <sup>5</sup>, [Erwin Junker](#) <sup>5</sup>, [Klaus Rabe](#) <sup>2 6 7</sup>, [Henrik Watz](#) <sup>2 6</sup>

Affiliations Expand

- PMID: 39208875
- DOI: [10.1055/a-2383-4470](https://doi.org/10.1055/a-2383-4470)

Abstract

in [English, German](#)

**Background:** COPD is one of the most common causes of death in Europe, and is associated with a high exacerbation and hospitalization rate as well as high medical costs. The aim of the study was early detection of exacerbations, preventative intervention through optimized outpatient care, and thereby to decrease rates of rehospitalizations.

**Methods and intervention:** Telementor COPD is a prospective, multicentre, unblinded, randomized, controlled study with a study duration of 12 months,

implemented at seven clinics and 16 pneumology practices in Hamburg and Schleswig-Holstein. It is funded by the Innovation Fund (01NVF20008) and is registered in the German Register of Clinical Studies (study ID: DRKS00027961). COPD patients with at least one documented exacerbation in the last year were included in the study. The primary endpoint was the number of exacerbations. Secondary endpoints were the number of COPD-associated hospitalizations, intensive care unit stays and health status. In the intervention group, symptoms were recorded daily using the SaniQ app (patients' smartphones), and the FEV<sub>1</sub> was measured daily using a mobile spirometer. Patients were also provided with a smartwatch to continuously measure their respiratory rate, heart rate, oxygen saturation and steps. The app displays the measured values and offers motivational components for smoking cessation and physical activity as well as video chats with the COPD nurses and doctors. If the symptoms or lung function deteriorated, the trained COPD nurse contacted the patient, reviewed the patient's measurements, and assessed the need for preventive intervention.

**Discussion:** Telementor COPD offers the opportunity to evaluate the efficacy of digital monitoring and telemedicine components and to pave the way for the implementation of telemedicine in the routine care of COPD patients with a high risk of exacerbation.

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#### Conflict of interest statement

Das Projekt Telementor COPD wird durch den Innovationsfonds (01NVF20008) des Gemeinsamen Bundesausschusses (G-BA) gefördert. Andreas Thanhäuser ist Angestellter von AstraZeneca, AstraZeneca ist Kooperationspartner des Projekts. Lale Zils ist Angestellte und Erwin Junker ist Geschäftsführer der Qurasoft GmbH, die Qurasoft GmbH ist Dienstleister im Projekt. Es wurden keine anderen potenziellen Interessenkonflikte gemeldet.

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## Review

### Expert Rev Respir Med

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. 2024 Aug 29:1-15.

doi: 10.1080/17476348.2024.2396413. Online ahead of print.

### [New methods to detect bacterial or viral infections in patients with chronic obstructive pulmonary disease](#)

[John C Hu](#)<sup>1</sup>, [Sanjay Sethi](#)<sup>2</sup>

#### Affiliations Expand

- PMID: 39175157
- DOI: [10.1080/17476348.2024.2396413](#)

#### Abstract

**Introduction:** Patients with chronic obstructive pulmonary disease (COPD) are frequently colonized and infected by respiratory pathogens. Identifying these infectious etiologies is critical for understanding the microbial dynamics of COPD and for the appropriate use of antimicrobials during exacerbations.

**Areas covered:** Traditional methods, such as bacterial and viral cultures, have been standard in diagnosing respiratory infections. However, these methods have significant limitations, including lack of sensitivity and prolonged turnaround time. Modern molecular approaches offer rapid, sensitive, and specific detection, though they also come with their own challenges. This review explores and evaluates the clinical utility of the latest advancements in detecting bacterial and viral respiratory infections in COPD, encompassing molecular techniques, biomarkers, and emerging technologies.

**Expert opinion:** In the evolving landscape of COPD management, integrating molecular diagnostics and emerging technologies holds great promise. The enhanced sensitivity of molecular techniques has significantly advanced our understanding of the role of microbes in COPD. However, many of these technologies have primarily been developed for pneumonia diagnosis or research applications, and their clinical utility in managing COPD requires further evaluation.

**Keywords:** COPD exacerbation; Chronic obstructive pulmonary disease; biomarkers; microbiome; molecular diagnostics; multiplex PCR.

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Observational Study

BMJ Open

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. 2024 Aug 28;14(8):e085466.

doi: 10.1136/bmjopen-2024-085466.

[Impact of time from discharge to readmission on outcomes: an observational study from the US National Readmission Database](#)

[Jean-Sebastien Rachoin](#)<sup>1</sup>, [Krystal Hunter](#)<sup>2,3</sup>, [Jennifer Varallo](#)<sup>3</sup>, [Elizabeth Cerceo](#)<sup>4</sup>

Affiliations Expand

- PMID: 39209489
- DOI: [10.1136/bmjopen-2024-085466](https://doi.org/10.1136/bmjopen-2024-085466)

Abstract

**Background:** The Hospital Readmission Reduction Programme (HRRP) was created to decrease the number of hospital readmissions for acute myocardial infarction (AMI), chronic obstructive pulmonary disease (COPD), heart failure (HF), pneumonia (PNA), coronary artery bypass graft (CABG), elective total hip arthroplasty (THA) and total knee arthroplasty.

**Objectives:** To analyse the impact of the HRRP on readmission rates from 2010 to 2019 and how time to readmission impacted outcomes.

**Design:** Population-based retrospective study.

**Setting:** All patients included in the US National Readmission database from 2010 to 2019.

**Patients:** We recorded demographic and clinical variables.

**Measurements:** Using linear regression models, we analysed the association between readmission status and timing with death and length of stay (LOS) outcomes. We transformed LOS and charges into log-LOS and log-charges to normalise the data.

**Results:** There were 31 553 363 records included in the study. Of those, 4 593 228 (14.55%) were readmitted within 30 days. From 2010 to 2019, readmission rates for COPD (20.8%-19.8%), HF (24.9%-21.9%), PNA (16.4%-15.1%), AMI (15.6%-12.9%) and TKR (4.1%-3.4%) decreased whereas CABG (10.2%-10.6%) and THA (4.2%-5.8%) increased. Readmitted patients were at higher risk of mortality (6% vs 2.8%) and had higher LOS (3 (2-5) vs 4 (3-7)). Patients readmitted within 10 days had a mortality 6.4% higher than those readmitted in 11-20 days (5.4%) and 21-30 days (4.6%). Increased time from discharge to readmission was associated with a lower likelihood of mortality, like LOS.

**Conclusion:** Over the last 10 years, readmission rates decreased for most conditions included in the HRRP except CABG and THA. Patients readmitted shortly after discharge were at higher risk of death.

**Keywords:** Hospitals; Medicine; Mortality.

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**Conflict of interest statement**

**Competing interests:** None declared.

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**Observational Study**

**BMC Pulm Med**

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. 2024 Aug 28;24(1):418.

doi: 10.1186/s12890-024-03240-1.

## [Effect of Tiotropium on eye findings in the treatment of chronic obstructive pulmonary disease](#)

[Hayriye Bektas Aksoy](#)<sup>1</sup>, [Hakan Koç](#)<sup>2</sup>

Affiliations Expand

- PMID: 39198799
- DOI: [10.1186/s12890-024-03240-1](#)

### Abstract

**Background:** Chronic obstructive pulmonary disease (COPD) is a persistent, chronic inflammatory disease of the lungs. Tiotropium, used in the treatment of COPD, is a muscarinic receptor antagonist that provides long-acting bronchodilation. Our study aimed to investigate the effects of Tiotropium on anterior chamber parameters.

**Methods:** The study was conducted as an observational cross-sectional and prospectively between October 2023 and April 2024. Patients were examined in three groups: Group 1 consisted of untreated COPD patients; Group 2 consisted of healthy volunteers similar age and gender, and Group 3 included COPD patients receiving Tiotropium 18 mcg via HandiHaler. Anterior chamber parameters, intraocular pressure values, and photopic-mesopic pupil diameters were measured at the initial visit for Group 1 and Group 2 patients, and at the third month of treatment for Group 3 patients.

**Results:** Thirty-six patients were included in each group in the study. No significant differences were observed in ocular findings between the patient and control groups. In COPD patients receiving Tiotropium, narrowing of angle parameters, an increase in photopic-mesopic pupil diameters, and intraocular pressure were observed at the third month of treatment.

**Conclusion:** This study is the first research that investigate the effects of Tiotropium on anterior chamber parameters, pupil diameters, and intraocular pressure in COPD treatment. In conclusion, patients with COPD receiving Tiotropium therapy for three months showed narrowing in angle parameters, an increase in intraocular pressure, and photopic-mesopic pupil diameter; however, no patients developed drug-induced acute angle closure glaucoma.

**Trial registration:** An independent ethics committee approved the study (Giresun EAH KEAK 2023/180 and 9.10.2023/02) which was performed in accordance with the Declaration of Helsinki, Guidelines for Good Clinical Practice. The study was

conducted as prospectively, observational case-control. The Clinical Trial Number obtained for the study is [NCT06525051](#) and was taken on 2024-07-29.

**Keywords:** Anterior chamber angle; Anterior chamber depth; COPD; Intraocular pressure; Tiotropium.

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- [14 references](#)

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Review

Drugs

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. 2024 Aug 28.

doi: [10.1007/s40265-024-02081-w](https://doi.org/10.1007/s40265-024-02081-w). Online ahead of print.

[Ensifentrine: First Approval](#)

[Susan J Keam](#)<sup>1</sup>

Affiliations Expand

- PMID: 39196510
- DOI: [10.1007/s40265-024-02081-w](https://doi.org/10.1007/s40265-024-02081-w)

Abstract

Ensifentrine, an inhaled, selective phosphodiesterase (PDE) 3 and PDE4 inhibitor, is being developed by Verona Pharma plc for the treatment of respiratory diseases, including chronic obstructive pulmonary disease (COPD). In June 2024, ensifentrine (OHTUVAYRE™) inhalation suspension was approved for the maintenance treatment of COPD in adult patients in the USA. This article summarizes the milestones in the development of ensifentrine leading to this first approval for the maintenance treatment of COPD.

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Respir Med

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. 2024 Aug 27:233:107783.

doi: [10.1016/j.rmed.2024.107783](https://doi.org/10.1016/j.rmed.2024.107783). Online ahead of print.

[Association of computed tomography-derived pectoralis muscle area and density with disease severity and respiratory symptoms in patients with chronic obstructive pulmonary disease: A case-control study](#)

[Can Li<sup>1</sup>](#), [Xinying Lian<sup>1</sup>](#), [Jingchun He<sup>2</sup>](#), [Xiao Gao<sup>3</sup>](#), [Xuehuan Liu<sup>4</sup>](#), [Cuiping Bao<sup>4</sup>](#), [Zuoxi Li<sup>1</sup>](#), [Weiwei Cui<sup>1</sup>](#), [Li Yu<sup>5</sup>](#), [Jun Liu<sup>6</sup>](#)

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- PMID: 39209127
- DOI: [10.1016/j.rmed.2024.107783](https://doi.org/10.1016/j.rmed.2024.107783)

## Abstract

**Rationale and objectives:** Computed tomography (CT) is commonly used and offers an additional viewpoint for evaluating extrapulmonary symptoms, disease severity, and muscle atrophy. This study assessed whether the pectoralis muscle area (PMA) and pectoralis muscle density (PMD) are lower in patients with chronic obstructive pulmonary disease (COPD) than in healthy controls and elucidated their relationships with these variables.

**Materials and methods:** The participants were enrolled in the hospital outpatient clinic between October 2023 and May 2024. Information was obtained from questionnaires, lung function, and CT imaging findings. On full-inspiratory CT, the PMA and PMD were measured at the aortic arch level using predetermined attenuation ranges of -29 and 150 Hounsfield units. We observed lower PMA and PMD and evaluated their associations with lung function, respiratory symptoms, and CT imaging findings in patients with COPD.

**Results:** Overall, 120 participants were enrolled at baseline (60 healthy controls and 60 patients with COPD). PMA and PMD were lower with progressive airflow limitation severity in those with COPD. The degree of emphysema and air trapping, as well as lung function, were correlated with PMA and PMD ( $P < 0.05$ ), although not with the COPD Assessment Test or modified Medical Research Council scores ( $P > 0.05$ ).

**Conclusion:** Participants with COPD had smaller PMA and PMD. These measurements were correlated with the severity of airflow limitation, lung function, emphysema, and air trapping, suggesting that these features of the pectoralis muscle obtained from CT are helpful in assessments of patients with COPD.

**Keywords:** Chronic obstructive pulmonary disease; Computed tomography; Pectoralis muscle area; Pectoralis muscle density.

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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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Chest

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. 2024 Aug 27:S0012-3692(24)05064-5.

doi: 10.1016/j.chest.2024.07.180. Online ahead of print.

### [Breathlessness, frailty, and sarcopenia in older adults](#)

[Tai Joon An](#)<sup>1</sup>, [Jihye Lim](#)<sup>2</sup>, [Heayon Lee](#)<sup>3</sup>, [Sunghwan Ji](#)<sup>4</sup>, [Hee-Won Jung](#)<sup>4</sup>, [Ji Yeon Baek](#)<sup>4</sup>, [Eunju Lee](#)<sup>4</sup>, [Il-Young Jang](#)<sup>5</sup>

Affiliations Expand

- PMID: 39209061
- DOI: [10.1016/j.chest.2024.07.180](https://doi.org/10.1016/j.chest.2024.07.180)

### Abstract

**Background:** Breathlessness shares aging mechanisms of frailty and sarcopenia.

**Research question:** Are frailty and sarcopenia associated with breathlessness itself?

**Study design and methods:** We analyzed data from a population-based, prospective cohort study of 780 community-dwelling older adults. Breathlessness was defined using the modified Medical Research Council Dyspnea Scale ( $\geq 2$  points) and the Chronic Obstructive Pulmonary Disease Assessment Test ( $\geq 10$  points). Frailty was defined by frailty index (FI), frailty phenotype, and FRAIL questionnaire. Sarcopenia was defined by the Asian Working Group for Sarcopenia 2019. Sarcopenia phenotype score quantifies the number of criteria met. The associations of frailty and sarcopenia with breathlessness was evaluated by logistic regression analyses. Adjusted odds ratio (aOR) were calculated, accounting for age, sex, chronic airway disease, smoking status, body mass index, lung functions, socioeconomic status (living alone, income, education), comorbid conditions (hypertension, diabetes, malignancy, myocardial infarction, heart failure), and other geriatric contributors (cognitive dysfunction, depression, malnutrition, polypharmacy, fall history in the past year). Institutionalization-free survival was compared by log-rank test.

**Results:** The prevalence of frailty is higher in the breathlessness group compared to non-breathlessness group (42.6% vs. 10.5% by FI, 26.1% vs. 8.9% by frailty phenotype, and 23.0% vs. 4.2% by FRAIL) and sarcopenia (38.3% vs. 26.9%), with  $P < 0.01$  for all comparisons. The multivariable logistic regression analyses showed that frailty (FI [aOR: 9.29], FRAIL questionnaire [aOR: 5.21], and frailty phenotype [aOR: 3.09]) and sarcopenia phenotype score (score 2 [aOR: 2.00] and score 3 [aOR: 2.04] compared to score 0) were associated with breathlessness. The cumulative incidence of institutionalization-free survival was higher in the breathlessness group than counterparts ( $P = 0.02$ ).

**Interpretation:** The findings suggest that frailty and sarcopenia strongly contribute to breathlessness in community-dwelling older adults. Measuring sarcopenia and frailty in older adults may offer opportunities to prevent age-related breathlessness.

**Keywords:** Breathlessness; COPD assessment test; Frailty; Sarcopenia; mMRC.

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Asian J Surg

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. 2024 Aug 27:S1015-9584(24)01793-7.

doi: 10.1016/j.asjsur.2024.08.066. Online ahead of print.

[Causal association between sarcopenia and chronic obstructive pulmonary disease: A two-sample Mendelian randomization](#)

[Jun Ma](#)<sup>1</sup>, [Juanjuan Yao](#)<sup>2</sup>, [Leyuan Zhang](#)<sup>2</sup>, [Limin Tian](#)<sup>3</sup>

Affiliations Expand

- PMID: 39198057
- DOI: [10.1016/j.asjsur.2024.08.066](https://doi.org/10.1016/j.asjsur.2024.08.066)

*No abstract available*

**Keywords:** Chronic obstructive pulmonary disease; Mendelian randomization; Sarcopenia.

Conflict of interest statement

**Declaration of competing interests** The authors declare that they have no competing interests.

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Lung

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. 2024 Aug 27.

doi: 10.1007/s00408-024-00741-y. Online ahead of print.

[Increased Pneumonia Risk Associated with Concomitant Use of Inhaled Corticosteroids and Benzodiazepines: A Pharmacovigilance Analysis](#)

[Junlong Ma](#)<sup>1</sup>, [Yaxin Liu](#)<sup>1</sup>, [Yuanyuan Sun](#)<sup>1</sup>, [Chengxian Guo](#)<sup>1</sup>, [Guoping Yang](#)<sup>2,3</sup>

Affiliations Expand

- PMID: 39191908
- DOI: [10.1007/s00408-024-00741-y](#)

Abstract

**Background:** Inhaled corticosteroids (ICS) are effective in managing asthma and chronic obstructive pulmonary disease (COPD) but increase the risk of pneumonia. Benzodiazepines (BZD), commonly prescribed for comorbid psychiatric disorders in asthma or COPD patients, are also associated with pneumonia. This study investigates the risk of pneumonia associated with the concomitant use of ICS and BZD.

**Methods:** Data from the FDA Adverse Event Reporting System from Q4 2013 to Q3 2023 were extracted. Reports involving asthma or COPD patients were included. Disproportionality analysis and logistic regression analysis were performed to assess the risk of pneumonia associated with the combined use of ICS and BZD. Additive and multiplicative models were used to further confirm the results. Additionally, subgroup analyses were conducted based on gender, age, and disease type.

**Results:** A total of 238,411 reports were included. The combined use of ICS and BZD was associated with a higher reporting of pneumonia (ROR: 2.41, 95% CI 2.25-2.58). Using additive and multiplicative methods, the results remained significant. The strongest risk signals were observed in specific drug combinations, such as mometasone with clonazepam, budesonide with temazepam, and mometasone with zopiclone. Subgroup analyses showed higher pneumonia risks in females, patients over 60 years old, and those with asthma.

**Conclusion:** Our findings identified a significantly elevated pneumonia risk with the combined use of ICS and BZD. These results highlighted the necessity for cautious co-prescription of ICS and BZD and suggested the need for more comprehensive clinical studies to assess this interaction.

**Keywords:** Benzodiazepines; Drug interaction; FEARS; Inhaled corticosteroids; Pneumonia.

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Review

Expert Rev Respir Med

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. 2024 Aug 27:1-11.

doi: 10.1080/17476348.2024.2397480. Online ahead of print.

[It is high time to discard a cut-off of 0.70 in the diagnosis of COPD](#)

[Joon Young Choi](#)<sup>1</sup>, [Chin Kook Rhee](#)<sup>2</sup>

Affiliations Expand

- PMID: 39189795
- DOI: [10.1080/17476348.2024.2397480](https://doi.org/10.1080/17476348.2024.2397480)

Abstract

**Introduction:** Chronic obstructive pulmonary disease (COPD) has traditionally been diagnosed based on the criterion of an FEV<sub>1</sub>/FVC <0.70. However, this definition has limitations as it may only detect patients with later-stage disease, when pathologic changes have become irreversible. Consequently, it potentially omits individuals with early-stage disease, in whom the pathologic changes could be delayed or reversed.

**Areas covered:** This narrative review summarizes recent evidence regarding early-stage COPD, which may not fulfill the spirometric criteria but nonetheless exhibits features of COPD or is at risk of future COPD progression.

**Expert opinion:** A comprehensive approach, including symptoms assessment, various physiologic tests, and radiologic features, is required to diagnose COPD. This approach is necessary to identify currently underdiagnosed patients and to halt disease progression in at-risk patients.

**Keywords:** Chronic obstructive pulmonary disease; chronic bronchitis; diffusing capacity of the lungs for carbon monoxide; early COPD; emphysema; pre-COPD; preserved ratio impaired spirometry; symptom.

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Chest

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. 2024 Aug 26:S0012-3692(24)04937-7.

doi: 10.1016/j.chest.2024.07.168. Online ahead of print.

## [Dual Phosphodiesterase 3 and 4 Inhibitor Ensifentrine Reduces Exacerbation Rate and Risk in Patients With Moderate-to-Severe Chronic Obstructive Pulmonary Disease](#)

[Frank C Sciruba](#)<sup>1</sup>, [Stephanie A Christenson](#)<sup>2</sup>, [Tara Rheault](#)<sup>3</sup>, [Thomas Bengtsson](#)<sup>4</sup>, [Kathleen Rickard](#)<sup>3</sup>, [Igor Z Barjaktarevic](#)<sup>5</sup>

Affiliations Expand

- PMID: 39197510
- DOI: [10.1016/j.chest.2024.07.168](#)

### Abstract

**Introduction:** Exacerbations in chronic obstructive pulmonary disease (COPD) can be life-threatening and lead to irreversible declines in lung function and quality of life. Medications that reduce exacerbation burden are an unmet need, as exacerbations put patients at risk for more exacerbations and decrease quality of life. Ensifentrine is a novel, first-in-class, selective, dual inhibitor of phosphodiesterase 3/4 with demonstrated nonsteroidal anti-inflammatory activity and bronchodilatory effects.

**Research question:** Does ensifentrine reduce the rate and/or risk of COPD exacerbations?

**Study design and methods:** A prespecified, pooled analysis of the phase 3 clinical trials ENHANCE-1 ([NCT04535986](#)) and ENHANCE-2 ([NCT04542057](#)) was conducted to assess the effect of ensifentrine on exacerbation rate and risk (time to first exacerbation). The trials included symptomatic patients aged 40-80 years with moderate-to-severe COPD who received 3 mg twice-daily ensifentrine over 24 weeks or placebo. Subgroup analyses and frequent exacerbator transition risk were conducted post-hoc.

**Results:** In total, 975 ensifentrine-treated and 574 placebo-treated patients were included in the pooled analysis, including 62% on concomitant LAMA or LABA therapy and 18% on concomitant inhaled corticosteroid therapy. Ensifentrine was associated with significant reductions in the rate (rate ratio, 0.59; 95% CI, 0.43-0.80;  $P < 0.001$ ) and risk (hazard ratio, 0.59; 95% CI, 0.44-0.81;  $P < 0.001$ ) of moderate/severe exacerbations compared with placebo. Reductions in the rate and risk of exacerbations were generally consistent across patient subgroups, including age, sex, race, background maintenance medication use, chronic bronchitis, eosinophil count, COPD severity, and exacerbation history. Ensifentrine was associated with a numerical delay in transitioning from an infrequent exacerbator (GOLD B) to a frequent exacerbator (GOLD E) compared with placebo.

**Conclusion:** Ensifentrine reduced the rate of exacerbations and increased the time to first exacerbation among patients with COPD across a broad range of clinically relevant subgroups.

Keywords: chronic obstructive pulmonary disorder; ensifentrine; exacerbation; patient-reported outcomes.

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Case Reports

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. 2024 Aug 26;12(8):e70010.

doi: 10.1002/rcr2.70010. eCollection 2024 Aug.

[Effectiveness of upfront triple oral combination therapy with additional pirfenidone in a patient with severe pulmonary hypertension associated with lung diseases](#)

[Fumihiro Kashizaki<sup>1</sup>, Sachiko Matsumoto<sup>1</sup>, Atsushi Miyasaka<sup>1</sup>, Nanami Tsuchiya<sup>1</sup>, Reeko Osada<sup>1</sup>, Mai Kaneko<sup>1</sup>, Kentaro Yumoto<sup>1</sup>, Hao Chen<sup>1</sup>, Kenji Konishi<sup>2</sup>, Harumi Koizumi<sup>1</sup>, Kenichi Takahashi<sup>1</sup>, Takeshi Kaneko<sup>3</sup>](#)

Affiliations Expand

- PMID: 39188574
- PMCID: [PMC11347015](#)
- DOI: [10.1002/rcr2.70010](#)

Abstract

Diagnosis and treatment of pulmonary hypertension (PH) in patients with lung diseases (PH-LD) remain unestablished and pose significant challenges. In this

report, we present a case of a 77-year-old patient with an indeterminate for usual interstitial pneumonia pattern along with chronic obstructive pulmonary disease, who developed groups 1 and 3 PH. Following diagnosis, upfront triple oral combination therapy (UTOCT) with macitentan, sildenafil, and selexipag was initiated. Stability in disease progression was achieved over 4 years with the addition of pirfenidone to address interstitial lung disease progression. To the best of our knowledge, this represents the first reported case of PH-LD, where disease control was maintained with the addition of pirfenidone to UTOCT. This case suggests that some patients with PH-LD, presenting with groups 1 and 3 PH, may benefit from combined UTOCT and antifibrotic agents, potentially improving symptoms and extending their prognosis.

**Keywords:** chronic obstructive pulmonary disease; interstitial lung disease; pirfenidone; pulmonary hypertension; upfront triple combination therapy.

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#### Conflict of interest statement

None declared.

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#### BMC Pulm Med

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. 2024 Aug 26;24(1):409.

doi: 10.1186/s12890-024-03228-x.

## [Causal associations of obstructive sleep apnea with Chronic Respiratory Diseases: a Mendelian Randomization study](#)

[Ping-Yang Hong](#) <sup>#1,2,3</sup>, [Dong Liu](#) <sup>#4</sup>, [Ang Liu](#) <sup>5</sup>, [Xin Su](#) <sup>3</sup>, [Xiao-Bin Zhang](#) <sup>6,7</sup>, [Yi-Ming Zeng](#) <sup>8</sup>

### Affiliations Expand

- PMID: 39187806
- PMCID: [PMC11345951](#)
- DOI: [10.1186/s12890-024-03228-x](#)

### Abstract

**Purpose:** This study aimed to elucidate the causal relationship between Obstructive Sleep Apnea (OSA) and Chronic Respiratory Diseases (CRDs), employing Mendelian Randomization (MR) to overcome limitations inherent in observational studies.

**Methods:** Utilizing a two-sample MR approach, this study analyzed genetic variants as instrumental variables to investigate the causal link between OSA and various CRDs, including chronic obstructive pulmonary disease (COPD), asthma, bronchiectasis, and idiopathic pulmonary fibrosis (IPF). Data were sourced from the FinnGen Consortium (OSA, n = 375,657) and UK Biobank, focusing on genome-wide associations between single-nucleotide polymorphisms (SNPs) and the diseases. Instrumental variables were selected based on strict criteria, and analyses included a random-effects inverse-variance weighted method supplemented by several sensitivity analyses.

**Results:** The study suggests a protective effect of OSA against COPD (OR = 0.819, 95% CI 0.722-0.929, P-value = 0.002), which becomes non-significant after adjusting for BMI, indicating a potential mediating role of BMI in the OSA-COPD nexus. No significant causal links were found between OSA and other CRDs (asthma, IPF, bronchiectasis) or between COPD, asthma, and OSA.

**Conclusions:** Our findings reveal a BMI-mediated protective effect of OSA on COPD, with no causal connections identified between OSA and other CRDs. These results emphasize the complex relationship between OSA, BMI, and COPD, guiding future clinical strategies and research directions, particularly in light of the study's genetic analysis limitations.

**Keywords:** Chronic obstructive pulmonary disease; Chronic respiratory diseases; Mendelian randomization analysis; Obstructive sleep apnea.

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### Conflict of interest statement

The authors declare no competing interests.

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- [2 figures](#)

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J Public Health (Oxf)

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. 2024 Aug 25;46(3):e419-e429.

doi: 10.1093/pubmed/fdae096.

[Factors affecting 12-month unplanned readmissions for chronic obstructive pulmonary disease patients: the effect of mental disorders in an Australian cohort](#)

[Shalini Wijekulasuriya](#)<sup>1</sup>, [Zhisheng Sa](#)<sup>1,2</sup>, [Tim Badgery-Parker](#)<sup>1</sup>, [Janet C Long](#)<sup>1</sup>, [Jeffrey Braithwaite](#)<sup>1</sup>, [David G Chapman](#)<sup>3,4,5</sup>, [Jean-Frédéric Levesque](#)<sup>6,7</sup>, [Diane E Watson](#)<sup>8</sup>, [Johanna I Westbrook](#)<sup>1</sup>, [Rebecca Mitchell](#)<sup>1</sup>

Affiliations Expand

- PMID: 38860584
- DOI: [10.1093/pubmed/fdae096](#)

Abstract

**Background:** Many individuals with chronic obstructive pulmonary disease (COPD) experience frequent hospitalization and readmissions, which is burdensome on the health system. This study aims to investigate factors associated with unplanned readmissions and mortality following a COPD-related hospitalization over a 12-month period in Australia, focusing on mental disorders and accounting for the acute phase of the COVID-19 pandemic.

**Methods:** A retrospective cohort study using linked hospitalization and mortality records identified individuals aged  $\geq 40$  years who had at least one hospital admission with a principal diagnosis of COPD between 2014 and 2020 in New South Wales, Australia. A semi-competing risk analysis was conducted to examine factors associated with unplanned readmission and mortality.

**Results:** Adults with a mental disorder diagnosis, specifically anxiety, had a higher risk of 12-month unplanned readmission. Individuals with anxiety and dementia also had a higher risk of mortality pre- and post-unplanned readmission. Individuals who were admitted during the acute phase of the COVID-19 pandemic period had lower risk of unplanned readmission, but higher risk of mortality without unplanned readmission.

**Conclusion:** Interventions aimed at reducing admissions should consider adults living with mental disorders such as anxiety or dementia to improve healthcare delivery and health outcomes for individuals living with COPD.

**Keywords:** chronic obstructive pulmonary disease; hospitalization; mortality; readmissions.

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Randomized Controlled Trial

BMC Pulm Med

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. 2024 Aug 24;24(1):408.

doi: 10.1186/s12890-024-03215-2.

## [Pulmonary rehabilitation with balance training for fall reduction in chronic obstructive pulmonary disease: a randomized controlled trial](#)

[Qiukui Hao](#)<sup>1</sup>, [Dina Brooks](#)<sup>1 2 3 4 5</sup>, [Cindy Ellerton](#)<sup>2 3</sup>, [Roger Goldstein](#)<sup>2 3 4 5</sup>, [Annemarie L Lee](#)<sup>6 7</sup>, [Jennifer A Alison](#)<sup>8 9</sup>, [Gail Dechman](#)<sup>10</sup>, [Kimberley J Haines](#)<sup>11</sup>, [Samantha L Harrison](#)<sup>12</sup>, [Anne E Holland](#)<sup>6 13 14</sup>, [Alda Marques](#)<sup>15</sup>, [Lissa Spencer](#)<sup>8 16</sup>, [Michael K Stickland](#)<sup>17 18</sup>, [Elizabeth H Skinner](#)<sup>7 11</sup>, [Pat G Camp](#)<sup>19 20</sup>, [Jinhui Ma](#)<sup>21</sup>, [Marla K Beauchamp](#)<sup>22 23</sup>

### Affiliations Expand

- PMID: 39182033
- PMCID: [PMC11344953](#)
- DOI: [10.1186/s12890-024-03215-2](#)

### Abstract

**Background and objectives:** Available evidence suggests that adults with chronic obstructive pulmonary disease (COPD) performed substantially worse than healthy controls on many balance measures and balance training can improve the balance measures in this population. We conducted this study to determine the effects of incorporating balance training into pulmonary rehabilitation (PR) on the incidence of falls at 12 months follow-up in high fall risk adults with COPD.

**Methods:** We conducted a prospective international multi-center randomized controlled trial. Eligible participants were adults with COPD at a high risk of future falls and were randomly assigned (1:1) to the intervention or control group. The intervention included personalized balance training for a targeted total of 90 min per week. Both the intervention and control groups received usual PR (2-3 times per week for 8-12 weeks). The primary outcome was the incidence of falls at 12-month follow-up using monthly fall diary calendars. Negative binomial regression or recurrent events models were used to examine the effects of the intervention on fall events. Multiple imputations were performed to deal with missing values.

**Results:** Of 258 participants who were enrolled in the trial, 178 provided falls information (intervention group = 91, control group = 87) and were included in the main analysis. Forty-one participants (45%) experienced at least one fall event in the intervention group and 33 (38%) in the control group ( $p = 0.34$ ). The mean incidence of falls at 12 months was similar between the two groups (128 versus 128 per 100 person-years; mean difference: 0.30, 95% CI: -0.76 to 1.36 per 100 person-years). The results are robust after multiple imputations for missing data ( $n = 67$ ).

**Conclusions:** PR incorporating balance training compared to PR alone did not reduce the incidence of falls over the 12-month period in high fall risk adults with COPD.

Trial registration: The study was registered with ClinicalTrials.gov ([NCT02995681](#)) on 14/12/2016.

Keywords: Accidental falls; COPD; Exercise therapy; Physical therapy.

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Conflict of interest statement

The authors declare no competing interests.

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

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Review

Respir Care

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. 2024 Aug 24;69(9):1182-1188.

doi: 10.4187/respcare.12070.

[2023 Year in Review: Home Oxygen Therapy](#)

[Kimberly S Wiles<sup>1</sup>](#)

Affiliations Expand

- PMID: 39181721

- PMID: PMC11349592 (available on 2025-09-01)

- DOI: [10.4187/respcare.12070](https://doi.org/10.4187/respcare.12070)

## Abstract

Long-term oxygen therapy (LTOT) is a treatment that involves the provision of supplemental oxygen to individuals with respiratory disease to correct hypoxemia in the post-acute care environment. Over 1.5 million adults in the United States use supplemental oxygen for various respiratory disorders. This paper explores literature published on LTOT from September 2022-September 2023. Upon the conclusion of this literature review, 4 distinct categories emerged. This paper highlights the significant findings associated with the 4 categories: supplemental oxygen and COVID-19, telemonitoring, LTOT equipment, and in-home high-flow nasal cannula.

**Keywords:** COPD and supplemental oxygen; ambulatory oxygen; high flow; long-term oxygen; supplemental oxygen and COVID-19; telehealth; telemonitoring.

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## Conflict of interest statement

Ms Wiles discloses a relationship with Drive Medical, and was a sponsored speaker for medtrade October 2022.

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## Review

## Respir Care

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. 2024 Aug 24;69(9):1189-1200.

doi: 10.4187/respcare.11476.

## [A Network Meta-Analysis on the Effects of Different Exercise Types in Patients With COPD](#)

[Chengping Jian](#)<sup>1</sup>, [Xiangdong Peng](#)<sup>2</sup>, [Yuting Yang](#)<sup>1</sup>, [Yanli Xu](#)<sup>1</sup>, [Liyang Wang](#)<sup>3</sup>, [Defang Cai](#)<sup>4</sup>

### Affiliations Expand

- PMID: 38503464
- PMCID: PMC11349583 (available on 2025-09-01)
- DOI: [10.4187/respcare.11476](https://doi.org/10.4187/respcare.11476)

### Abstract

**Background:** This study aimed to compare and rank the effects of aerobic exercise, resistance training, endurance training, and high-intensity interval training in COPD by network meta-analysis.

**Methods:** PubMed, Cochrane, Embase, and the Web of Science were searched to identify randomized controlled trials that investigated the effects of exercise training on COPD. The search period began on the date of database establishment and ended on April 8, 2023. Two reviewers independently screened the retrieved articles, extracted relevant data, and assessed the risk of bias in the included studies. Network meta-analysis was performed by using statistical software.

**Results:** This study included a total of 27 studies that involved 1,415 subjects. The network meta-analysis findings indicated that high-intensity interval training was the most-effective intervention for improving 6-min walk distance with a surface under the cumulative ranking curve score of 87.68%. In addition, high-intensity interval training showed the highest efficacy in improving FEV<sub>1</sub> with a surface under the cumulative ranking curve score of 73.17%, FEV<sub>1</sub>/FVC with a surface under the cumulative ranking curve score of 79.52%, and St. George Respiratory Questionnaire score with a surface under the cumulative ranking curve score of 73.88%. Conversely, endurance training was found to be the most effective for ameliorating FVC with a surface under the cumulative ranking curve score of 73.39%.

**Conclusions:** The findings of this study suggest that high-intensity interval training may be more effective than endurance exercise, resistance exercise, and aerobic exercise in improving the 6-min walk distance, FEV<sub>1</sub>, FEV<sub>1</sub>/FVC, and St. George Respiratory Questionnaire scores in patients with COPD. In addition, endurance training may be better than resistance exercise, aerobic exercise, and high-intensity interval training in improving FVC in patients with COPD. However, due to the limited number of studies conducted on high-intensity interval training, more high-quality randomized controlled trials are required to verify these conclusions.

**Keywords:** COPD; Care; Quality of Life; Treatment; effects; exercise; network meta-analysis; randomized controlled trials; training.

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**Conflict of interest statement**

The authors have disclosed no conflicts of interest.

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

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**Pharmacoepidemiol Drug Saf**

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. 2024 Sep;33(9):e70000.

doi: 10.1002/pds.70000.

[Potentially Inappropriate Medication Use in Older Adults With Multimorbidity in Taiwan](#)

[Betty Chia-Chen Chang](#)<sup>1,2</sup>, [I-Hua Lai](#)<sup>2</sup>, [Yee-Yung Ng](#)<sup>3</sup>, [Shiao-Chi Wu](#)<sup>2,4</sup>

**Affiliations** Expand

- PMID: 39212181
- DOI: [10.1002/pds.70000](https://doi.org/10.1002/pds.70000)

**Abstract**

**Background:** Medication-related problem is a concerning issue in older adults with multimorbidity due to complexity of disease conditions and polypharmacy, and may lead to increase in risk for adverse health outcomes. This study aims to investigate the prevalence and associated factors of potentially inappropriate medication use among the growing population of older adults with multimorbidity in Taiwan.

**Method:** The study population was composed of patients who were aged 65 years or older with multimorbidity (two or more chronic diseases) and had at least one outpatient clinic visit with drug prescription in 2018 identified from the Taiwan National Health Insurance Research Database. Potentially inappropriate medication use was defined using the 2019 Beers criteria for drugs to be avoided for older adults. Multiple logistic regression model was conducted to examine patient-related and prescriber-related factors associated with PIM use.

**Results:** A total of 2 432 416 patients (69.7% of the entire older adult population) had multimorbidity and received at least one drug prescription at the outpatient clinic in Taiwan in 2018. The prevalence of having at least one PIM in this population was found to be 85.6%. Patient-related factors (age, sex, specific chronic diseases, frequency of outpatient visits) and prescriber-related factors (physician characteristics, healthcare setting, total number of medications, prior PIM use) were found to be associated with use of PIM.

**Conclusion:** High prevalence of PIM use was found in older patients with multimorbidity in Taiwan. Both patient-related and prescriber-related factors had been found to be predictors of PIM use, and should be addressed when trying to improve the medication quality in this population.

**Keywords:** Taiwan; aged; multimorbidity; potentially inappropriate medications.

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Multicenter Study

Anaesthesia

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. 2024 Sep;79(9):945-956.

doi: 10.1111/anae.16324. Epub 2024 May 27.

[Association between multimorbidity and postoperative mortality in patients undergoing major surgery: a prospective study in 29 countries across Europe](#)

[STARSurg Collaborative](#)<sup>1</sup>; [EuroSurg Collaborative](#)<sup>1</sup>

Collaborators, Affiliations Expand

• PMID: 39101671

• DOI: [10.1111/anae.16324](https://doi.org/10.1111/anae.16324)

## Abstract

**Background:** Multimorbidity poses a global challenge to healthcare delivery. This study aimed to describe the prevalence of multimorbidity, common disease combinations and outcomes in a contemporary cohort of patients undergoing major abdominal surgery.

**Methods:** This was a pre-planned analysis of a prospective, multicentre, international study investigating cardiovascular complications after major abdominal surgery conducted in 446 hospitals in 29 countries across Europe. The primary outcome was 30-day postoperative mortality. The secondary outcome measure was the incidence of complications within 30 days of surgery.

**Results:** Of 24,227 patients, 7006 (28.9%) had one long-term condition and 10,486 (43.9%) had multimorbidity (two or more long-term health conditions). The most common conditions were primary cancer (39.6%); hypertension (37.9%); chronic kidney disease (17.4%); and diabetes (15.4%). Patients with multimorbidity had a higher incidence of frailty compared with patients  $\leq 1$  long-term health condition. Mortality was higher in patients with one long-term health condition (adjusted odds ratio 1.93 (95%CI 1.16-3.23)) and multimorbidity (adjusted odds ratio 2.22 (95%CI 1.35-3.64)). Frailty and ASA physical status 3-5 mediated an estimated 31.7% of the 30-day mortality in patients with one long-term health condition (adjusted odds ratio 1.30 (95%CI 1.12-1.51)) and an estimated 36.9% of the 30-day mortality in patients with multimorbidity (adjusted odds ratio 1.61 (95%CI 1.36-1.91)). There was no improvement in 30-day mortality in patients with multimorbidity who received pre-operative medical assessment.

**Conclusions:** Multimorbidity is common and outcomes are poor among surgical patients across Europe. Addressing multimorbidity in elective and emergency patients requires innovative strategies to account for frailty and disease control. The development of such strategies, that integrate care targeting whole surgical pathways to strengthen current systems, is urgently needed for multimorbid patients. Interventional trials are warranted to determine the effectiveness of targeted management for surgical patients with multimorbidity.

**Keywords:** 30-day mortality; mortality; multimorbidity; surgery.

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. 2024 Sep;67(3):407-416.

doi: 10.1016/j.amepre.2024.05.014. Epub 2024 Jun 19.

[When the Going Gets Tough: Multimorbidity and Heavy and Binge Drinking Among Adults](#)

[Won K Cook](#)<sup>1</sup>, [Libo Li](#)<sup>2</sup>, [Priscilla Martinez](#)<sup>2</sup>, [William C Kerr](#)<sup>2</sup>

Affiliations Expand

- PMID: 38904593
- PMCID: PMC11338724 (available on 2025-09-01)
- DOI: [10.1016/j.amepre.2024.05.014](https://doi.org/10.1016/j.amepre.2024.05.014)

Abstract

**Introduction:** Multimorbidity, the presence of two or more long-term health conditions in the same individual, is an emerging epidemic associated with increased morbidity and mortality. Continued drinking concurrent with alcohol-related chronic conditions, particularly with multimorbidity, is likely to further

elevate health risk. This study aimed to examine the associations of multimorbidity among diabetes, hypertension, heart disease, and cancer with drinking, and moderation of these associations by age.

**Methods:** Logistic regression modeling was performed in 2023 using a nationally representative sample of U.S. adults from the 2015-19 National Survey on Drug Use and Health. Multimorbidity was assessed using (1) a count of these conditions and (2) disease-specific categories. The outcomes were past month heavy drinking (7+/14+ drinks weekly) and binge drinking (4+/5+ drinks per occasion) for women and men.

**Results:** A pattern of reduced odds for drinking outcomes associated with a greater degree of multimorbidity was found. This pattern was more apparent in models using the continuous measure of multimorbidity than in those using the categorical measure, and more consistent for binge drinking than for heavy drinking and for women than for men. Significant age interactions were found: the log odds of heavy drinking and binge drinking for both men and women decreased as the number of conditions increased, and more steeply for those ages 50+ than the younger. The log odds of heavy drinking varied little among men under age 50 regardless of multimorbidity.

**Conclusions:** Alcohol interventions to reduce drinking with multimorbidity, particularly among heavy-drinking men under age 50, are warranted.

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Conflict of interest statement

No financial disclosures have been reported by the authors of this paper.

- [Cited by 1 article](#)
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Supplementary info

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Crit Care Med

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. 2024 Sep 1;52(9):e463-e472.

doi: 10.1097/CCM.0000000000006315. Epub 2024 Apr 25.

## [Exploring the Impact of Age, Frailty, and Multimorbidity on the Effect of ICU Interventions: A Systematic Review of Randomized Controlled Trials](#)

[Andrew Perrella](#)<sup>1</sup>, [Olivia Geen](#)<sup>2</sup>, [Manan Ahuja](#)<sup>3</sup>, [Stephanie Scott](#)<sup>4</sup>, [Ramya Kaushik](#)<sup>5</sup>, [Lauren E Ferrante](#)<sup>6</sup>, [Nathan E Brummel](#)<sup>7</sup>, [John Muscedere](#)<sup>8</sup>, [Bram Rochwerf](#)<sup>3,9</sup>

### Affiliations Expand

- PMID: 38661459
- DOI: [10.1097/CCM.0000000000006315](#)

### Abstract

**Objectives:** To date, age, frailty, and multimorbidity have been used primarily to inform prognosis in older adults. It remains uncertain, however, whether these patient factors may also predict response to critical care interventions or treatment outcomes.

**Data sources:** We conducted a systematic search of top general medicine and critical care journals for randomized controlled trials (RCTs) examining critical care interventions published between January 1, 2011, and December 31, 2021.

**Study selection:** We included RCTs of critical care interventions that examined any one of three subgroups-age, frailty, or multimorbidity. We excluded cluster RCTs, studies that did not report interventions in an ICU, and studies that did not report data examining subgroups of age, frailty, or multimorbidity.

**Data extraction:** We collected study characteristics (single vs. multicountry enrollment, single vs. multicenter enrollment, funding, sample size, intervention, comparator, primary outcome and secondary outcomes, length of follow-up), study population (inclusion and exclusion criteria, average age in intervention and comparator groups), and subgroup data. We used the Instrument for assessing the Credibility of Effect Modification Analyses instrument to evaluate the credibility of subgroup findings.

**Data synthesis:** Of 2037 unique citations, we included 48 RCTs comprising 50,779 total participants. Seven (14.6%) RCTs found evidence of statistically significant effect modification based on age, whereas none of the multimorbidity or frailty subgroups found evidence of statistically significant subgroup effect. Subgroup credibility ranged from very low to moderate.

**Conclusions:** Most critical care RCTs do not examine for subgroup effects by frailty or multimorbidity. Although age is more commonly considered, the cut-point is variable, and relative effect modification is rare. Although interventional effects are

likely similar across age groups, shared decision-making based on individual patient preferences must remain a priority. RCTs focused specifically on critically ill older adults or those living with frailty and/or multimorbidity are crucial to further address this research question.

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#### Conflict of interest statement

Dr. Geen received funding from Outro Health. Dr. Ferrante's institution received funding from the National Institutes of Health (NIH). Dr. Ferrante is supported by a Paul B. Beeson Emerging Leaders in Aging Career Development Award from the National Institute on Aging (K76 AG057203) and the Yale Claude D. Pepper Older Americans Independence Center (P30 AG021342). Drs. Ferrante and Brummel received support for article research from the NIH. Dr. Brummel's institution received funding from the National Institute on Aging. Dr. Muscedere is the Scientific Director of the Canadian Frailty Network, which is funded by the Government of Canada. Dr. Brummel is supported by the National Institutes of Health under awards R01HD107103 and R01AG077644. The remaining authors have disclosed that they do not have any potential conflicts of interest.

- [34 references](#)

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#### Health Serv Res

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. 2024 Aug 30.

doi: 10.1111/1475-6773.14378. Online ahead of print.

[Capturing the care of complex community-based health center patients: A comparison of multimorbidity indices and clinical classification software](#)

[Suparna M Navale](#)<sup>1</sup>, [Siran Koroukian](#)<sup>2</sup>, [Nicole Cook](#)<sup>1</sup>, [Anna Templeton](#)<sup>1</sup>, [Brenda M McGrath](#)<sup>1</sup>, [Laura Crocker](#)<sup>1</sup>, [Wyatt P Bensken](#)<sup>1</sup>, [Ana R Quiñones](#)<sup>3</sup>, [Nicholas K Schiltz](#)<sup>4</sup>, [Melissa Y Wei](#)<sup>5</sup>, [Kurt C Stange](#)<sup>6</sup>

#### Affiliations Expand

- PMID: 39212052
- DOI: [10.1111/1475-6773.14378](https://doi.org/10.1111/1475-6773.14378)

#### Abstract

**Objective:** To compare morbidity burden captured from multimorbidity indices and aggregated measures of clinically meaningful categories captured in primary care community-based health center (CBHC) patients.

**Data sources and study setting:** Electronic health records of patients seen in 2019 in OCHIN's national network of CBHCs serving patients in rural and underserved communities.

**Study design:** Age-stratified analyses comparing the most common conditions captured by the Charlson, Elixhauser, and Multimorbidity Weighted (MWI) indices, and Classification Software Refined (CCSR) and Chronic Condition Indicator (CCI) algorithms.

**Data collection/extraction methods:** Active ICD-10 conditions on patients' problem list in 2019.

**Principal findings:** Approximately 35%-56% of patients with at least one condition are not captured by the Charlson, Elixhauser, and MWI indices. When stratified by age, this range broadens to 9%-90% with higher percentages in younger patients. The CCSR and CCI reflect a broader range of acute and chronic conditions prevalent among CBHC patients.

**Conclusion:** Three commonly used indices to capture morbidity burden reflect conditions most prevalent among older adults, but do not capture those on problem lists for younger CBHC patients. An index with an expanded range of care conditions is needed to understand the complex care provided to primary care populations across the lifespan.

**Keywords:** chronic disease; community-based health center; comorbidity; measurement; multimorbidity.

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- [30 references](#)

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. 2024 Aug 29;8:e56332.

doi: 10.2196/56332.

[Leveraging an Electronic Health Record Patient Portal to Help Patients Formulate Their Health Care Goals: Mixed Methods Evaluation of Pilot Interventions](#)

[Jody Naimark](#)<sup>1</sup>, [Mary E Tinetti](#)<sup>2</sup>, [Tom Delbanco](#)<sup>3</sup>, [Zhiyong Dong](#)<sup>3</sup>, [Kendall Harcourt](#)<sup>3</sup>, [Jessica Esterson](#)<sup>2</sup>, [Peter Charpentier](#)<sup>2,4</sup>, [Jan Walker](#)<sup>3</sup>

Affiliations Expand

- PMID: 39207829
- DOI: [10.2196/56332](#)

Abstract

**Background:** Persons with multiple chronic conditions face complex medical regimens and clinicians may not focus on what matters most to these patients who vary widely in their health priorities. Patient Priorities Care is a facilitator-led process designed to identify patients' priorities and align decision-making and care, but the need for a facilitator has limited its widespread adoption.

**Objective:** The aims of this study are to design and test mechanisms for patients to complete a self-directed process for identifying priorities and providing their priorities to clinicians.

**Methods:** The study involved patients of at least 65 years of age at 2 family medicine practices with 5 physicians each. We first tested 2 versions of an interactive website and asked patients to bring their results to their visit. We then tested an Epic previsit questionnaire derived from the website's questions and included standard previsit materials. We completed postintervention phone interviews and an online survey with participating patients and collected informal feedback and conducted a focus group with participating physicians.

**Results:** In the test of the first website version, 17.3% (35/202) of invited patients went to the website, 11.4% (23/202) completed all of the questions, 2.5% (5/202) brought results to their visits, and the median session time was 43.0 (IQR 28.0) minutes. Patients expressed confusion about bringing results to the visit. After clarifying that issue in the second version, 15.1% (32/212) of patients went to the website, 14.6% (31/212) completed the questions, 1.9% (4/212) brought results to the visit, and the median session time was 35.0 (IQR 35.0) minutes. In the test of the Epic questionnaire, 26.4% (198/750) of patients completed the questionnaire before at least 1 visit, and the median completion time was 14.0 (IQR 23.0) minutes. The 8 main questions were answered 62.9% (129/205) to 95.6% (196/205) of the time. Patients who completed questionnaires were younger than those who did not (72.3 vs 76.1 years) and were more likely to complete at least 1 of their other assigned questionnaires (99.5%, 197/198) than those who did not (10.3%, 57/552). A total of 140 of 198 (70.7%) patients responded to a survey, and 86 remembered completing the questionnaire; 78 (90.7%) did not remember having difficulty answering the questions and 57 (68.7%) agreed or somewhat agreed that it helped them and their clinicians to understand their priorities. Doctors noted that the sickest patients did not complete the questionnaire and that the discussion provided a good segue into end-of-life care.

**Conclusions:** Embedding questionnaires assaying patient priorities into patient portals holds promise for expanding access to priorities-concordant care.

**Keywords:** EHR; attitude; attitudes; care plan; care plans; care priorities; electronic health record; electronic pre-visit questionnaire; engagement; experience; experiences; goal; goals; multimorbidity; opinion; patient portal; perception; perceptions; perspective; perspectives; portal; portals; pre-visit; previsit; priorities; priority; questionnaire; questionnaires; record; records.

©Jody Naimark, Mary E Tinetti, Tom Delbanco, Zhiyong Dong, Kendall Harcourt, Jessica Esterson, Peter Charpentier, Jan Walker. Originally published in JMIR Formative Research (<https://formative.jmir.org>), 29.08.2024.

Supplementary info

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. 2024 Aug 27;14(1):19858.

doi: 10.1038/s41598-024-71019-9.

**[The effect of different levels of systolic blood pressure control on new-onset chronic kidney disease in hypertension multimorbidity](#)**

**[Yue Yu](#)<sup>#1</sup>, [Dan Wang](#)<sup>#2</sup>, [Zhizhen Guo](#)<sup>3</sup>, [Bixia Gao](#)<sup>4</sup>, [Jing Zhou](#)<sup>3</sup>, [Yan Xu](#)<sup>5</sup>, [Yujie Chen](#)<sup>3</sup>, [Nan Geng](#)<sup>3</sup>, [Xiujuan Qi](#)<sup>3</sup>, [Shouling Wu](#)<sup>6</sup>, [Junjuan Li](#)<sup>7</sup>**

**Affiliations Expand**

- PMID: 39191891
- PMCID: [PMC11349764](#)
- DOI: [10.1038/s41598-024-71019-9](#)

**Abstract**

To explore the effect of different levels of systolic blood pressure (SBP) control on new-onset chronic kidney disease in hypertension multimorbidity. The hypertensive patients with multimorbidity information were enrolled from the Kailuan Study. The isolated hypertension patients undergoing physical examination during the same period were selected in a 1:1 ratio as control. Finally, 12,897 participants were divided into six groups: Group SBP < 110 mmHg, Group 110 ≤ SBP < 120 mmHg, Group 120 ≤ SBP < 130 mmHg, Group 130 ≤ SBP < 140 mmHg, Group 140 ≤ SBP < 160 mmHg and Group SBP ≥ 160 mmHg. The outcomes were new-onset CKD, new onset proteinuria, decline in eGFR and high or very high risk of CKD. Cox proportional hazards regression was used to examine the hazard ratios (HRs) of the outcomes among SBP levels. When 110 ≤ SBP < 120 mmHg, the incidence density of new-onset CKD, new onset proteinuria and decline in eGFR were 59.54, 20.23 and 29.96 per 1000 person-years, respectively. Compared to this group, the HR (95% CI) values for the risk of new-onset CKD from Group SBP < 110 mmHg to Group SBP ≥ 160 mmHg were 1.03 (0.81-1.32), 1.04 (0.91-1.19), 1.09 (0.95-1.16), 1.16 (1.02-1.21) and 1.18 (1.04-1.24), respectively. For patients over 65 years old, the risks of outcomes were increased when SBP < 120 mmHg. The lowest HR of high or very high risk of CKD for participants with or without multimorbidity occurred when 120 ≤ SBP < 130 mmHg. The HR of new-onset CKD in hypertension multimorbidity was lowest at 110-120 mmHg. The optimal SBP level was between 120 and 130 mmHg for individuals with high or very high risk of CKD. For patients over 65 years old, the low limit of target BP is advised to be not lower than 120 mmHg.

**Keywords:** Chronic kidney disease; Hypertension multimorbidity; Systolic blood pressure control.

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- [36 references](#)

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J Asthma

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. 2024 Aug 27:1-12.

doi: 10.1080/02770903.2024.2393677. Online ahead of print.

[Physical comorbidity is associated with overnight hospitalization in U.S. adults with asthma: an assessment of the 2005-2018 National Health and Nutrition Examination Surveys](#)

[Hanna A Frank](#)<sup>1</sup>, [Mohammad Ehsanul Karim](#)<sup>1,2</sup>

Affiliations Expand

- PMID: 39155766
- DOI: [10.1080/02770903.2024.2393677](#)

Abstract

**Objective:** Identifying the effects of comorbidity on healthcare utilization is critical for understanding the benefits of improved comorbidity management. Asthma is a common respiratory condition, associated with gastrointestinal, metabolic, psychiatric, and other respiratory conditions. Adults with asthma represent a key population in understanding comorbidity and its consequences. The objective was to explore the relationship between comorbidity and overnight hospitalizations in U.S. adults with asthma.

**Study design and methods:** A cross-sectional sample of 3,887 subjects aged 20-79 was aggregated from seven cycles (2005-2018) of the National Health and Nutrition Examination Survey (NHANES). The survey design was created using the full seven cycles, then a subpopulation was used for the analysis. Design-based modified Poisson regression with robust standard errors compared the prevalence of overnight hospitalizations in subjects with and without comorbidities. Comorbidity was defined as the presence of one or more additional chronic conditions.

**Results:** Over half (61.6%) of patients with asthma reported having comorbidities. The overnight hospitalization prevalence was higher in those with comorbidities (21.6%) than those without (7.4%). The adjusted prevalence ratio of overnight hospitalizations in those with comorbidities vs. those without was 2.02 (95% CI: 1.54-2.66). Conclusions from sensitivity analyses remained the same.

**Conclusions:** Comorbidity in U.S. adult asthma patients is associated with increased overnight hospitalizations. Study results concur with examinations of other healthcare utilization outcomes, revealing how comorbidity influences healthcare utilization patterns in patients with asthma. The reduction of overnight hospitalizations should be a targeted goal when developing and evaluating interventions to manage comorbidities in patients with asthma.

**Keywords:** Coexisting disease; NHANES; asthma; comorbidity; healthcare utilization; multimorbidity; overnight hospitalization; survey data.

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J Med Internet Res

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. 2024 Aug 26:26:e56042.

doi: 10.2196/56042.

[Creating a Modified Version of the Cambridge Multimorbidity Score to Predict Mortality in People Older Than 16 Years: Model Development and Validation](#)

[Debasish Kar](#) <sup>#1,2</sup>, [Kathryn S Taylor](#) <sup>#1</sup>, [Mark Joy](#) <sup>1</sup>, [Sudhir Venkatesan](#) <sup>3</sup>, [Wilhelmine Meeraus](#) <sup>4</sup>, [Sylvia Taylor](#) <sup>4</sup>, [Sneha N Anand](#) <sup>1</sup>, [Filipa Ferreira](#) <sup>1</sup>, [Gavin Jamie](#) <sup>1</sup>, [Xuejuan Fan](#) <sup>1</sup>, [Simon de Lusignan](#) <sup>1,5</sup>

## Affiliations Expand

- PMID: 39186368
- DOI: [10.2196/56042](https://doi.org/10.2196/56042)

## Free article

## Abstract

**Background:** No single multimorbidity measure is validated for use in NHS (National Health Service) England's General Practice Extraction Service Data for Pandemic Planning and Research (GDPPR), the nationwide primary care data set created for COVID-19 pandemic research. The Cambridge Multimorbidity Score (CMMS) is a validated tool for predicting mortality risk, with 37 conditions defined by Read Codes. The GDPPR uses the more internationally used Systematized Nomenclature of Medicine clinical terms (SNOMED CT). We previously developed a modified version of the CMMS using SNOMED CT, but the number of terms for the GDPPR data set is limited making it impossible to use this version.

**Objective:** We aimed to develop and validate a modified version of CMMS using the clinical terms available for the GDPPR.

**Methods:** We used pseudonymized data from the Oxford-Royal College of General Practitioners Research and Surveillance Centre (RSC), which has an extensive SNOMED CT list. From the 37 conditions in the original CMMS model, we selected conditions either with (1) high prevalence ratio ( $\geq 85\%$ ), calculated as the prevalence in the RSC data set but using the GDPPR set of SNOMED CT codes, divided by the prevalence included in the RSC SNOMED CT codes or (2) conditions with lower prevalence ratios but with high predictive value. The resulting set of conditions was included in Cox proportional hazard models to determine the 1-year mortality risk in a development data set ( $n=500,000$ ) and construct a new CMMS model, following the methods for the original CMMS study, with variable reduction and parsimony, achieved by backward elimination and the Akaike information stopping criterion. Model validation involved obtaining 1-year mortality estimates for a synchronous data set ( $n=250,000$ ) and 1-year and 5-year mortality estimates for an asynchronous data set ( $n=250,000$ ). We compared the performance with that of the original CMMS and the modified CMMS that we previously developed using RSC data.

**Results:** The initial model contained 22 conditions and our final model included 17 conditions. The conditions overlapped with those of the modified CMMS using the more extensive SNOMED CT list. For 1-year mortality, discrimination was high in both the derivation and validation data sets (Harrell C=0.92) and 5-year mortality was slightly lower (Harrell C=0.90). Calibration was reasonable following an adjustment for overfitting. The performance was similar to that of both the original and previous modified CMMS models.

**Conclusions:** The new modified version of the CMMS can be used on the GDPPR, a nationwide primary care data set of 54 million people, to enable adjustment for multimorbidity in predicting mortality in people in real-world vaccine effectiveness, pandemic planning, and other research studies. It requires 17 variables to produce a

comparable performance with our previous modification of CMMS to enable it to be used in routine data using SNOMED CT.

**Keywords:** COVID-19; calibration; computerized medical records; discrimination; multimorbidity; pandemics; predictive model; prevalence; systematized nomenclature of medicine; systems.

©Debasish Kar, Kathryn S Taylor, Mark Joy, Sudhir Venkatesan, Wilhelmine Meeraus, Sylvia Taylor, Sneha N Anand, Filipa Ferreira, Gavin Jamie, Xuejuan Fan, Simon de Lusignan. Originally published in the Journal of Medical Internet Research (<https://www.jmir.org>), 26.08.2024.

Supplementary info

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

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Clin Transl Med

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. 2024 Sep;14(9):e70007.

doi: 10.1002/ctm2.70007.

[A severe asthma phenotype of excessive airway Haemophilus influenzae relative abundance associated with sputum neutrophilia](#)

[Ali Versi<sup>1</sup>, Adnan Azim<sup>2</sup>, Fransiskus Xaverius Ivan<sup>3</sup>, Mahmoud I Abdel-Aziz<sup>4</sup>, Stewart Bates<sup>5</sup>, John Riley<sup>5</sup>, Mohib Uddin<sup>6</sup>, Nazanin Zounemat Kermani<sup>1</sup>, Anke-H Maitland-Van Der Zee<sup>4</sup>, Sven-Eric Dahlen<sup>7</sup>, Ratko Djukanovic<sup>2</sup>, Sanjay H Chotirmall<sup>3,8</sup>, Peter Howarth<sup>2</sup>, Ian M Adcock<sup>1</sup>, Kian Fan Chung<sup>1</sup>; U-BIOPRED study group](#)

Affiliations Expand

- PMID: 39187935
- PMCID: [PMC11347389](#)

- DOI: [10.1002/ctm2.70007](https://doi.org/10.1002/ctm2.70007)

## Abstract

**Background:** Severe asthma (SA) encompasses several clinical phenotypes with a heterogeneous airway microbiome. We determined the phenotypes associated with a low  $\alpha$ -diversity microbiome.

**Methods:** Metagenomic sequencing was performed on sputum samples from SA participants. A threshold of 2 standard deviations below the mean of  $\alpha$ -diversity of mild-moderate asthma and healthy control subjects was used to define those with an abnormal abundance threshold as relative dominant species (RDS).

**Findings:** Fifty-one out of 97 SA samples were classified as RDSs with *Haemophilus influenzae* RDS being most common (n = 16), followed by *Actinobacillus* unclassified (n = 10), *Veillonella* unclassified (n = 9), *Haemophilus aegyptius* (n = 9), *Streptococcus pseudopneumoniae* (n = 7), *Propionibacterium acnes* (n = 5), *Moraxella catarrhalis* (n = 5) and *Tropheryma whippelii* (n = 5). *Haemophilus influenzae* RDS had the highest duration of disease, more exacerbations in previous year and greatest number on daily oral corticosteroids. Hierarchical clustering of RDSs revealed a C2 cluster (n = 9) of highest relative abundance of exclusively *Haemophilus influenzae* RDSs with longer duration of disease and higher sputum neutrophil counts associated with enrichment pathways of MAPK, NF- $\kappa$ B, TNF, mTOR and necroptosis, compared to the only other cluster, C1, which consisted of 7 *Haemophilus influenzae* RDSs out of 42. Sputum transcriptomics of C2 cluster compared to C1 RDSs revealed higher expression of neutrophil extracellular trap pathway (NETosis), IL6-transsignalling signature and neutrophil activation.

**Conclusion:** We describe a *Haemophilus influenzae* cluster of the highest relative abundance associated with neutrophilic inflammation and NETosis indicating a host response to the bacteria. This phenotype of severe asthma may respond to specific antibiotics.

**Keywords:** *Haemophilus influenzae*; *Moraxella catarrhalis*; *Tropheryma whippelii*; metagenome; neutrophils; severe asthma;  $\alpha$ -diversity.

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## Conflict of interest statement

Mr Versi has nothing to declare. Dr Azim reports employment through AstraZeneca. Dr Chotirmall has received lecture fees from Chiesi Farmaceutici and AstraZeneca, serves on advisory boards for Boehringer-Ingelheim, CSL Behring and Pneumagen Ltd. and is on Data and Safety Monitoring Boards (DSMB) for Inovio Pharmaceuticals all outside of the submitted work. Dr Maitland-van der Zee has received grants from Health Holland and she is the PI of a P4O2 (Precision Medicine for more Oxygen) public private partnership sponsored by Health Holland involving many private partners that contribute in cash and/or in kind (Boehringer Ingelheim, Breathomix, Fluida, Ortec Logiqcare, Philips, Quantib-U, Smartfish, SODAQ, Thirona, TopMD and Novartis), received unrestricted research grants from GSK, Boehringer Ingelheim and Vertex, received consulting fees paid to her institution

from Boehringer Ingelheim and AstraZeneca, and received honoraria for lectures paid to her institution from GlaxoSmithKline; outside the submitted work. Dr. Dahlén reports personal fees from AZ, Cayman Chemicals, GSK, Novartis, Regeneron, Sanofi, TEVA, outside the submitted work. Dr Chung has received honoraria for participating in Advisory Board meetings of Roche, Merck, Shionogi and Rickett-Beckinson and has also been remunerated for speaking engagements for Novartis and AZ. Dr Riley worked for and had shares in GSK. Dr. Bates reports to be currently an employee of Johnson & Johnson and to have previously worked and holds stock in GSK. Dr Uddin is an employee and holds shares in AstraZeneca. Dr Djukanovic declares consulting fees from Synairgen, Sanofi and Galapagos, lecture fees from GSK, AZ and Airways Vista and he holds shares from Synairgen. Dr Howarth is an employee of GSK. Dr Montuschi, Dr Kermani, Dr Adcock, Dr Ivan and Dr Abdel-Aziz have nothing to declare.

- [49 references](#)
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. 2024 Sep 1;124(9):62.

doi: 10.1097/01.NAJ.0001050828.15075.fc. Epub 2024 Aug 22.

[Better Outcomes with Pulmonologist-Directed Care of Asthma or COPD](#)

[Karen Rosenberg](#)

- PMID: 39185986
- DOI: [10.1097/01.NAJ.0001050828.15075.fc](https://doi.org/10.1097/01.NAJ.0001050828.15075.fc)

## Abstract

According to this study.

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Editorial

Ann Allergy Asthma Immunol

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. 2024 Sep;133(3):236-237.

doi: 10.1016/j.anai.2024.06.012.

[To stop or not to stop an asthma biologic, that is the question](#)

[Brienne S Philipenko<sup>1</sup>](#), [Beth Davis<sup>1</sup>](#), [Donald W Cockcroft<sup>2</sup>](#)

Affiliations Expand

- PMID: 39179302
- DOI: [10.1016/j.anai.2024.06.012](#)

*No abstract available*

Conflict of interest statement

Disclosures Dr Philipenko has received speaking honoraria from Covis pharma, GlaxoSmithKline, AstraZeneca, and Regeneron Pharmaceuticals and fees from AstraZeneca and Sanofi for serving on advisory boards. Dr Cockcroft and Dr Davis have no conflicts of interest to report.

Supplementary info

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. 2024 Sep;12(9):665-666.

doi: 10.1016/S2213-2600(24)00242-X. Epub 2024 Aug 8.

[Patient-reported outcomes: missing in asthma remission](#)

[Amy Hai Yan Chan](#)<sup>1</sup>, [Paul Leong](#)<sup>2</sup>, [John Politis](#)<sup>2</sup>, [Vanessa M McDonald](#)<sup>3</sup>, [Philip Bardin](#)<sup>2</sup>

Affiliations Expand

- PMID: 39128472
- DOI: [10.1016/S2213-2600\(24\)00242-X](https://doi.org/10.1016/S2213-2600(24)00242-X)

*No abstract available*

Conflict of interest statement

AHYC receives research grants from the Health Research Council of New Zealand, Asthma UK, the University of Auckland, WHO, Life AI, the MedTech CMDT fund, and Trudell Medical International, all paid to her institution. She previously held the Robert Irwin Postdoctoral Fellowship and is the current recipient of the Auckland Medical Research Foundation Senior Research Fellowship. AHYC receives

consultancy fees from AcademyeX, Spoonful of Sugar, and Active Healthcare; receives travel support from AstraZeneca and the Asthma and Respiratory Foundation of New Zealand; and was previously on the Board of Asthma New Zealand. She has received speaker honoraria from the American Academy of Allergy, Asthma, and Immunology; the Asian Pacific Society of Respiriology; and the European Respiratory Society. She is a member of Pharmacy Council New Zealand Respiratory Effectiveness Group, the scientific advisory board for Asthma Respiratory Foundation New Zealand, the Auckland Medical Research Foundation medical committee; she is the global lead for the International Pharmaceutical Federation; is research lead for the Commonwealth Pharmacists Association; is an international member of the Pharmacy Respiratory Task Force; and is working group lead for the European Respiratory Society Clinical Research Collaboration CONNECT. PL has received honoraria from GSK, AstraZeneca, and Chiesi. VMM has received honoraria for advisory boards and educational lectures from GSK, AstraZeneca, Menarini, and Boehringer Ingelheim; has received research funds from the Australian National Health and Medical Research Council, the Medical Research Futures Fund, and GSK; and is board director of the Thoracic Society of Australia and New Zealand. PB has been on advisory boards and provided educational lectures for GSK, AstraZeneca, Sanofi, and Chiesi. JP declares no competing interests.

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Review

Clin Chest Med

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. 2024 Sep;45(3):611-623.

doi: 10.1016/j.ccm.2024.02.028.

[Current Practices in Pediatric Asthma Care](#)

[Parisa Kaviany](#)<sup>1</sup>, [Avani Shah](#)<sup>2</sup>

Affiliations Expand

- PMID: 39069325
- DOI: [10.1016/j.ccm.2024.02.028](https://doi.org/10.1016/j.ccm.2024.02.028)

Abstract

This article is a comprehensive review of the latest knowledge and developments on pediatric asthma. It serves as a guide for general practitioners and subspecialists who treat asthma. The pathophysiology and critical features of asthma that should be addressed and the latest therapies available are discussed. The areas where further investigation is needed are also highlighted.

Keywords: Difficult to control asthma; Pediatric asthma; Severe asthma; Wheeze.

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Conflict of interest statement

Disclosure The authors have no commercial or financial disclosures.

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Comparative Study

Am J Otolaryngol

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. 2024 Sep-Oct;45(5):104393.

doi: 10.1016/j.amjoto.2024.104393. Epub 2024 Jul 18.

**[Pre-pubertal sublingual immunotherapy is more effective than immunotherapy during puberty in allergic rhinitis and asthma](#)**

**[Yongjun Zhu](#)<sup>1</sup>, [Lin Yan](#)<sup>1</sup>, [Nan Cheng](#)<sup>1</sup>, [Yun Xiao](#)<sup>1</sup>, [Dachuan Fan](#)<sup>1</sup>, [Wei Cao](#)<sup>2</sup>, [Jianming Yang](#)<sup>3</sup>**

**Affiliations Expand**

- PMID: 39059165
- DOI: [10.1016/j.amjoto.2024.104393](https://doi.org/10.1016/j.amjoto.2024.104393)

**Free article**

**Abstract**

**Background:** To evaluate the clinical efficacy of sublingual-specific immunotherapy (SLIT) and pulmonary function in children with allergic rhinitis and asthma before and after puberty.

**Methods:** This retrospective analysis included 136 patients aged 4-18 years with allergic asthma and rhinitis who received two years of SLIT treatment. Patients were divided into two groups based on age: the prepubertal group (4-10 years old) and the pubertal group (11-18 years old). After half a year, one year, and two years of SLIT, the total nasal symptom score (TNSS), total rhinitis medication score (TRMS), daytime asthma symptom score (DASS), nighttime asthma symptom score (NASS), total asthma medication score (TAMS), asthma control test (ACT), and peak expiratory flow rate (PEF%) were evaluated and compared with the baseline before treatment.

**Results:** In both groups, TNSS, TRMS, DASS, NASS, TAMS, ACT, and PEF% improved significantly after half a year, one year, and two years of SLIT treatment. After half a year of treatment, prepubertal patients showed better therapy for TNSS, DASS, NASS, and TAMS compared to the pubertal group. The TAMS of the pubertal group was higher than that of the prepubertal group after one year of treatment. Finally, the PEF% showed better therapy compared to the pubertal group.

**Conclusion:** SLIT treatment with *Dermatophagoides farinae* drops can effectively control the symptoms of rhinitis and asthma in children with allergic rhinitis and asthma before and after puberty, reduce the use of symptomatic drugs, significantly improve the pulmonary function of patients, and have better effects on asthma in prepubertal children than in adolescents.

**Keywords:** Asthma; Efficacy; Puberty; Pulmonary function; Rhinitis; Sublingual immunotherapy.

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**Conflict of interest statement**

**Declaration of competing interest** The authors have no conflicts of interest to disclose that could be perceived as prejudicing the impartiality of the research reported.

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**Respir Investig**

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. 2024 Sep;62(5):811-816.

doi: 10.1016/j.resinv.2024.07.006. Epub 2024 Jul 16.

[\*\*Prevalence and clinical relevance of comorbid pertussis infection in adult patients with asthma: A prospective, cross-sectional study\*\*](#)

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**Affiliations** Expand

- PMID: 39018657
- DOI: [10.1016/j.resinv.2024.07.006](https://doi.org/10.1016/j.resinv.2024.07.006)

**Abstract**

**Background:** Viral or atypical bacterial respiratory infections are involved in the new development and the pathogenesis of asthma. Though an association between pertussis and asthma has been expected, few studies have reported it consistently. We assessed the prevalence and clinical relevance of pertussis infection in adult patients with asthma.

**Methods:** In this prospective, cross-sectional study, newly referred, adult patients with asthma (n = 107) and with non-asthmatic subacute/chronic cough (n = 31) were enrolled. The prevalence of pertussis in patients with asthma and in those with non-asthmatic subacute/chronic cough was assessed. Next, the prevalence of newly diagnosed asthma was compared between asthmatic patients with and without pertussis. Finally, demographic characteristics of patients, blood test results, pulmonary function test results, and questionnaire scores were compared between the two patient groups.

**Results:** The prevalence of pertussis infection was significantly higher in patients with asthma than in those with non-asthmatic subacute/chronic cough (36% vs 10%; P = 0.004). The prevalence of newly diagnosed asthma was significantly higher in asthmatic patients with pertussis than in those without (74.4% vs 50.0%; P = 0.014). The physical, psychological, and total scores of the Leicester Cough Questionnaire were significantly lower in asthmatic patients with pertussis than in those without (all P < 0.05). The acid-reflux, dyspeptic, and total scores of the Frequency Scale for Symptoms of Gastroesophageal Reflux Disease (GERD) (FSSG) were significantly higher in asthmatic patients with pertussis than in those without (all P ≤ 0.05). The FSSG acid-reflux score was negatively correlated with the cough-specific quality of life (QOL) score only in asthmatic patients with pertussis (rho = -0.68, P = 0.01).

**Conclusions:** The prevalence of pertussis infection was significantly higher in adult patients with asthma than in those with non-asthmatic subacute/chronic cough. In patients with asthma, comorbid pertussis infection may play a role in newly diagnosed asthma and may contribute to impaired cough-specific QOL partly due to worsening acid-reflux symptoms of GERD.

**Keywords:** Asthma; Cough-specific quality of life; Gastroesophageal reflux disease; Pertussis; Prevalence.

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Conflict of interest statement

Declaration of competing interest The authors have no conflicts of interest.

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Editorial

Respirology

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. 2024 Sep;29(9):759-760.

doi: 10.1111/resp.14792. Epub 2024 Jul 14.

[Asthma-COPD overlap and asthma progressing to COPD: A complementary perspective](#)

[Christine F McDonald](#)<sup>1 2 3</sup>, [Philip G Bardin](#)<sup>4</sup>, [Martin MacDonald](#)<sup>4</sup>

Affiliations Expand

- PMID: 39004830
- DOI: [10.1111/resp.14792](https://doi.org/10.1111/resp.14792)

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*No abstract available*

Keywords: COPD; COPDACO; asthma; asthma-overlap.

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. 2024 Sep:231:107720.

doi: 10.1016/j.rmed.2024.107720. Epub 2024 Jul 9.

[Dupilumab responder types and predicting factors in patients with type 2 severe asthma: A real-world cohort study](#)

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Affiliations Expand

- PMID: 38992817
- DOI: [10.1016/j.rmed.2024.107720](#)

Free article

Abstract

**Background:** Severe asthma (SA) presents a considerable healthcare challenge despite optimal standard treatment. Dupilumab, which is effective in type 2 (T2) SA patients, demonstrates variable responses, categorizing patients as non-responders, partial responders, or those achieving clinical remission. However, real-world response rates remain underexplored. Additionally, understanding the characteristics of patients achieving clinical remission is crucial for predicting favourable responses to dupilumab.

**Objective:** To investigate responder types and identify predictors of clinical remission and non-response induced by dupilumab in a real-world cohort of SA patients.

**Methods:** We analyzed retrospective data from SA patients undergoing dupilumab treatment in a study conducted at Franciscus Gasthuis & Vlietland hospital. Data were collected at baseline and at a 12 to 24-months follow-up (T = 12). Response rates were evaluated at T = 12. Predictors of non-response and clinical remission were investigated using multivariate logistic regression analysis with a stepwise forward variable selection approach.

**Results:** Among the 175 patients screened, 136 met the inclusion criteria. At T = 12, 31.6 % achieved clinical remission, 47.1 % were partial responders and 21.3 % were non-responders. Predictors associated with clinical remission included high baseline blood eosinophil counts (BEC) and male sex. Conversely, younger age at baseline, low baseline total immunoglobulin E (IgE) and low baseline fractional exhaled nitric oxide (FeNO) levels were identified as predictors of non-response.

**Conclusions:** Dupilumab results in clinical disease remission in one-third of the treated patients. Clinical remission is predicted by high BEC and male sex, whereas low total IgE, low FeNO and younger age indicate a lower likelihood of response.

**Keywords:** Biologic; Dupilumab; Predictor; Remission; Responder; Severe asthma.

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### Conflict of interest statement

Declaration of competing interest LB: Teva, unrestricted grant to faculty: Sanofi; JT: none; SR: none; GB: AstraZeneca, Teva, Sanofi, GSK, ALK, Novartis, Glaxo Smith Kline, Sanofi, Chiesi. HV: Unrestricted grants to faculty: Chiesi, Teva, Astra Zeneca. Speaker bureau: Sanofi, Chiesi, GSK, Astra Zeneca, Health Investment, Stichting RoLeX

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. 2024 Sep:231:107730.

doi: 10.1016/j.rmed.2024.107730. Epub 2024 Jul 2.

[The complex link between sleep-disordered breathing and asthma control in pediatric patients: A cross-sectional study](#)

[Cristian Locci](#)<sup>1</sup>, [Mariangela V Puci](#)<sup>2</sup>, [Laura Saderi](#)<sup>2</sup>, [Giovanni Sotgiu](#)<sup>2</sup>, [Caterina Zanza](#)<sup>3</sup>, [Roberto Antonucci](#)<sup>3</sup>

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- PMID: 38964423
- DOI: [10.1016/j.rmed.2024.107730](https://doi.org/10.1016/j.rmed.2024.107730)

### Free article

### Abstract

**Background:** In children, asthma and sleep-disordered breathing (SDB) may affect quality of life (QoL), and SDB may complicate asthma management.

**Objective:** To evaluate the prevalence of SDB, its association with asthma control, and risk factors associated with SDB in a cohort of asthmatic children. The effects of asthma control and SDB on QoL were also investigated.

**Methods:** We consecutively recruited asthmatic children referred to our Pulmonology Service from December 1, 2022 to May 31, 2023. Data on anthropometrics, respiratory function, and allergies were collected. The prevalence of SDB was assessed by the Pediatric Sleep Questionnaire (PSQ). Asthma control status was assessed by the Childhood Asthma Control Test (C-ACT), while QoL was evaluated by the Pediatric Quality of Life Inventory (PedsQL) questionnaire. Factors associated with SDB were analyzed.

**Results:** A total of 78 asthmatic children aged 5-12 years were included. SDB was found in 37.2% of them, with a higher prevalence in children with uncontrolled versus well-controlled asthma (60.1% vs. 27.3%; p-value = 0.005). The C-ACT score was significantly lower in SDB-positive versus SDB-negative group, and uncontrolled asthma (C-ACT  $\leq$ 19) was associated with a 4.15-fold increased risk of SDB. The PedsQL score was significantly lower in asthmatic children with than without SDB and was associated with lower SDB risk. SDB increased the risk of uncontrolled asthma in children, and asthmatic children with SDB had lower QoL.

**Conclusion:** In asthmatic children, SDB affects both asthma control and QoL. Children with uncontrolled asthma should be referred for polysomnography to identify a possible underlying SDB.

**Keywords:** Asthma; Children; Obstructive sleep apnea; Quality of life; Sleep-disordered breathing.

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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

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. 2024 Sep;20(9):860-869.

doi: 10.1016/j.sapharm.2024.06.005. Epub 2024 Jun 17.

[Role of pharmacists in the care of adult asthma patients: A scoping review](#)

[Aseel Mahmoud](#)<sup>1</sup>, [Ahmad Y Abuhelwa](#)<sup>2</sup>, [Tom Owen](#)<sup>3</sup>, [Amad Alazzawi](#)<sup>3</sup>, [Mohd Shara](#)<sup>2</sup>, [Mohammad A Y Alqudah](#)<sup>4</sup>, [Maquy Saffouh ElHaji](#)<sup>5</sup>, [Jane R Smith](#)<sup>3</sup>

## Affiliations Expand

- PMID: 38918145
- DOI: [10.1016/j.sapharm.2024.06.005](https://doi.org/10.1016/j.sapharm.2024.06.005)

## Free article

## Abstract

**Background:** Asthma is a common long-term condition that affects people of all ages. Evidence suggests that a significant proportion of asthma patients in the Gulf Cooperation Council (GCC) do not receive appropriate diagnosis, monitoring and/or treatment. When inadequately treated, asthma can negatively affect quality of life and may lead to hospitalisation and death. Although pharmacists play a role in asthma care globally, there appears to be no defined role for pharmacists in providing care to patients with asthma in the GCC countries.

**Aim:** This scoping review aims to review and summarise studies conducted in the GCC countries involving pharmacists in the management of adults with asthma or evaluating pharmacists' asthma care knowledge and/or skills.

**Method:** A systematic scoping review was undertaken. Seven databases were searched using relevant search terms for articles published up to May 2023. Studies that evaluated pharmacists roles, knowledge and skills in providing asthma care to adults in the United Arab Emirates (UAE), Qatar, Kuwait, Oman, Saudi Arabia, and Bahrain were considered eligible for inclusion. Extracted data were collated using tables and used to produce narrative descriptive summaries.

**Results:** Out of the 1588 search results, only seven studies met the inclusion criteria. Of those, only one developed and tested a pharmacist-led inhaler technique educational intervention in the UAE within community pharmacy setting for asthma

patients. The remaining six studies assessed community pharmacists knowledge in providing asthma management and patient education in UAE, Saudi Arabia and Qatar. The quality of the included studies varied with four relying on simulated patients to assess pharmacists knowledge. The study that tested the intervention suggested improvement in inhaler technique and asthma symptoms control after receiving the intervention. The findings suggest a need to improve pharmacists knowledge of inhaler technique demonstration (mainly Metered Dose Inhalers), asthma management advice and assessment of asthma control and medication use.

**Conclusion:** This review highlights a lack of research on pharmacist-led asthma interventions and identifies training needs to enable pharmacists to be involved in asthma care in the GCC countries. Future research could develop approaches involving pharmacists to improve asthma care and outcomes in the region.

**Keywords:** Asthma; Gulf countries; Pharmacists skillset; Pharmacy practice.

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**Conflict of interest statement**

**Declaration of competing interest** The authors declare that they have no competing interests.

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**Ann Allergy Asthma Immunol**

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. 2024 Sep;133(3):286-294.

doi: 10.1016/j.anai.2024.05.014. Epub 2024 Jun 5.

[A systematic review and expert Delphi Consensus recommendation on the use of vaccines in patients receiving dupilumab: A position paper of the American College of Allergy, Asthma and Immunology](#)

[Jay A Lieberman](#)<sup>1</sup>, [Derek K Chu](#)<sup>2</sup>, [Tasnuva Ahmed](#)<sup>3</sup>, [Timothy E Dribin](#)<sup>4</sup>, [Elissa M Abrams](#)<sup>5</sup>, [Aikaterini Anagnostou](#)<sup>6</sup>, [Kimberly G Blumenthal](#)<sup>7</sup>, [Mark Boguniewicz](#)<sup>8</sup>, [Nicole M Chase](#)<sup>9</sup>, [David B K Golden](#)<sup>10</sup>, [Nicholas L Hartog](#)<sup>11</sup>, [Jennifer R Heimall](#)<sup>12</sup>, [Tina Ho](#)<sup>13</sup>, [Monica G Lawrence](#)<sup>14</sup>, [David A Khan](#)<sup>15</sup>, [Timothy Dean Minniear](#)<sup>16</sup>, [S Shahzad Mustafa](#)<sup>17</sup>, [John J Oppenheimer](#)<sup>18</sup>, [Elizabeth J Phillips](#)<sup>19</sup>, [Allison Ramsey](#)<sup>17</sup>, [Nicholas L Rider](#)<sup>20</sup>, [Lynda Schneider](#)<sup>21</sup>, [Marcus S Shaker](#)<sup>22</sup>, [Jonathan M Spergel](#)<sup>12</sup>, [Cosby A Stone Jr](#)<sup>23</sup>, [David R Stukus](#)<sup>24</sup>, [Julie Wang](#)<sup>25</sup>, [Matthew J Greenhawt](#)<sup>26</sup>

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- PMID: 38848870
- DOI: [10.1016/j.anai.2024.05.014](https://doi.org/10.1016/j.anai.2024.05.014)

## Abstract

**Background:** Dupilumab is a monoclonal antibody that targets the interleukin (IL)-4 receptor alpha subunit, thus blocking the effects of IL-4 and IL-13, and has shown efficacy in treating various conditions including asthma, atopic dermatitis, eosinophilic esophagitis, and others. Because of its immune modulatory effects, clinical trials that studied dupilumab did not allow patients to receive live vaccines during the clinical trials because of an abundance of caution, and thus package inserts recommend that patients who are being treated with dupilumab should avoid live vaccines. Because dupilumab is now approved for use in patients from 6 months of age for the treatment of atopic dermatitis, this reported contraindication is now posing a clinical dilemma for patients and clinicians.

**Objective:** To perform a systematic review of literature on the safety and efficacy of vaccinations in patients who are receiving dupilumab and to provide expert guidance on the use of vaccines in patients who are receiving dupilumab.

**Methods:** A systematic review of the literature was performed, and an expert Delphi Panel was assembled.

**Results:** The available literature on patients who received vaccinations while using dupilumab overall suggests that live vaccines are safe and that the vaccine efficacy, in general, is not affected by dupilumab. The expert Delphi panel agreed that the use of vaccines in patients receiving dupilumab was likely safe and effective.

**Conclusion:** Vaccines (including live vaccines) can be administered to patients receiving dupilumab in a shared decision-making capacity.

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## Conflict of interest statement

**Disclosures** J.A.L. served as consultant for ARS, Aquestive, Bryn, ALK, and Novartis and Co-Chair Joint Task Force for Practice Parameters; received research money to institution from DBV and adjudication for Abvie and Siolta. T.E.D. the project described was supported by the National Center for Advancing Translational Sciences of the National Institutes of Health (NIH), under Award Number

**2UL1TR001425 - 05A1; the content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH. E.M.A. is and employee of Public Health Agency of Canada, but the views in any paper are her own and not those of Public Health Agency of Canada. Board member of the Canadian Society of Allergy and Clinical Immunology and Head of Allergy Section, Canadian Pediatric Society. A.A. received institutional funding (Novartis) and consultation/speaker fees (ALK, EPG Health, MJH, Adelphi, Genentech, FARE, and Medscape) and served as advisory board member (Ready, Set, Food; Novartis; and Genentech). K.G.B. received grants from NIH (R01AI150295), AHRQ (R01HS029319), and Thermo Fisher Scientific and royalties from UpToDate and is consulting for Denali Therapeutics. M.B. serves as investigator and advisory board member for Regeneron and Sanofi. N.M.C. serves as clinical investigator; received research support from AstraZeneca, Genentech, and Kenota Health; serves as advisor, consultant, and/or speaker for Amgen, ARS Pharma, AstraZeneca, Blueprint Medicines, Bryn Pharma LLC, Freed AI, Genentech, GSK, Hikma, Incyte, Novartis, Regeneron, and Sanofi. D.B.K.G. is a consultant for Novartis, Aquestive, CellDex, and Kokua; received clinical trials support from Genentech, Novartis, Pfizer, GSK, Merck, Regeneron, Allergy Therapeutics, Eli Lilly, and AstraZeneca and royalties from UpToDate. N.L.H. is a speaker for Adma Bio and Takeda; speaker and advisor for Pharming, Horizon/Amgen, Horizon; advisory board member and speaker for Pharmaceuticals/Amgen. M.G.L. received research money to institution from Regeneron. S.S.M. is speaker for Genentech, Regeneron/Sanofi, GSK, and AstraZeneca and received grant from Takeda. J.J.O. consultant/advisor: GSK, Aquestive, Amgen, and ARS; adjudication/DSMB: AZ, Novartis, GSK, Sanofi, and AbbVie; reviewer/editor and executive editor: Annals of Allergy, Asthma & Immunology; reviewer: UpToDate; executive editor: Medscape; research/grants: NIH. A.R. speakers bureau member for Sanofi/Regeneron, GSK, and AstraZeneca. N.L.R. received funding from the Jeffrey Modell Foundation (58293-I), the NIH (R21AI164100), and Takeda Pharmaceuticals; is consultant for Takeda, Pharming Healthcare, and CSL Behring; received royalties from Wolters Kluwer and UpToDate. L.S. is clinical investigator for Regeneron and DBV Technologies and advisor for Sanofi and Leo pharmaceuticals. M.S.S. is member and co-chair of the Joint Task Force on Practice Parameters; serves on the editorial board of The Journal of Allergy and Clinical Immunology In Practice; is an associate editor of Annals of Allergy, Asthma, and Immunology; serves on the board of directors of the American Academy of Allergy, Asthma, and Immunology (views expressed are his own); has participated in research that has received funding from DBV. J.M.S. received grant support from and is consultant for Regeneron/Sanofi. C.A.S. recipient of a AAAAI Foundation Faculty Development Award. The views expressed in this work are the responsibility of the authors and do not necessarily represent the official views of the AAAAI. D.R.S. is consultant to ARS. J.W. received research support from NIAID, Aimmune, DBV Technologies, and Siolta and consultancy fees from ALK Abello, DBV Technologies, and Novartis. M.J.G. is consultant for Aquestive; is a member of physician/medical advisory boards for DBV Technologies, Sanofi/Regeneron, Nutricia, Novartis, Aquestive, Allergy Therapeutics, AstraZeneca, ALK-Abello, Bryn, Genentech, and Protas; is an unpaid member of the scientific advisory council for the National Peanut Board and medical advisory board of the International Food Protein Induced Enterocolitis Syndrome Association; is a member of the Brighton Collaboration Criteria Vaccine Anaphylaxis 2.0 working group; is the senior associate editor for the Annals of Allergy, Asthma, and Immunology; is member of the Joint Taskforce on Allergy**

Practice Parameters; received honorarium for lectures from ImSci, Red Nucleus, Medscape, Paradigm Medical Communications, Kaplan, Food Allergy Research and Education, and multiple state/local allergy societies. The remaining authors have no conflicts of interest to report.

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Respir Med

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. 2024 Sep;231:107695.

doi: 10.1016/j.rmed.2024.107695. Epub 2024 Jun 5.

[Exacerbation-like events in the 12 months prior to identification of chronic respiratory conditions in a primary care population](#)

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Affiliations Expand

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- PMID: PMC11298289 (available on 2025-09-01)
- DOI: [10.1016/j.rmed.2024.107695](https://doi.org/10.1016/j.rmed.2024.107695)

Abstract

Initial chronic obstructive lung disease (COPD) pharmacotherapy is based on symptom burden and exacerbation history. Inclusion of inhaled cortico-steroids

(ICS) is recommended only for those with a history of exacerbations. This brief report highlights that among individuals with previously unrecognized COPD about 1 in 5 have one or more exacerbation-like events and about 1 in 10 have two or more events in the prior 12 months whether or not they self-report concomitant asthma. Closer attention to prior exacerbation-like event history might lead to more guideline concordant care. In addition, there are two other groups that have impaired but non-obstructive spirometry, some with significant respiratory symptom burden who have frequencies of exacerbation-like events similar to those meeting COPD spirometry criteria. To date we have little guidance for treatment of these individuals.

**Keywords:** Chronic obstructive pulmonary disease (COPD); Exacerbations; Guideline concordant care; Preserved ratio impaired spirometry (PRISm).

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#### **Conflict of interest statement**

**Declaration of competing interest** Dr. Martinez reports grants from NHLBI Sponsor of the parent trial, grants from COPD Foundation Organizes the financial contributions of Industry Advisory Consortium, grants from AstraZeneca Member of the CAPTURE Industry Advisory Consortium, grants from Boehringer Ingelheim Member of the CAPTURE Industry Advisory Consortium, grants from GlaxoSmithKline Member of the CAPTURE Industry Advisory Consortium, grants from Sunovion Member of the CAPTURE Industry Advisory Consortium, grants from Teva Member of the CAPTURE Industry Advisory Consortium, and grants from Viatris Member of the CAPTURE Industry Advisory Consortium during the conduct of the study; grants from AstraZeneca Study Steering Committee, personal fees from AstraZeneca Advisory Boards, disease state presentations, non-financial support from AstraZeneca Travel to meetings, grants from Boehringer Ingelheim Steering Committee of ILD study, personal fees from Boehringer Ingelheim COPD and ILD Advisory Boards, personal fees from Boehringer Ingelheim ILD disease state presentation, non-financial support from Boehringer Ingelheim Travel to meetings, grants from Chiesi COPD Steering Committee, non-financial support from Chiesi including travel to meeting, grants from Csl Behring COPD Advisory Board, nonfinancial support from Csl Behring Travel to meeting, grants from GlaxoSmithKline COPD Study Steering Committee, personal fees from GlaxoSmithKline COPD Advisory Boards, personal fees from GlaxoSmithKline COPD disease state presentations, non-financial support from GlaxoSmithKline Travel to meetings, other from GlaxoSmithKline COPD Study DSMB, grants from Medtronic COPD study adjudication committee, grants from Novartis COPD Study Steering Committee, grants from Novartis COPD Advisory Boards, grants from Polarean COPD Advisory Board, other from Pulmatrix COPD tele consultation, other from Polarean COPD tele consultation, grants from Sanofi/Regeneron COPD Study Steering Committee, personal fees from Sanofi/Regeneron COPD Advisory Board, and personal fees from Theravance/Viatris COPD Advisory Board outside the submitted work; in addition, Dr. Martinez has a patent for CAPTURE licensed to Weill Cornell. Ms. Anderson has nothing to disclose. Dr. Brown reports personal fees from Teva outside the submitted work Dr Dolor reports grants from NIH 1R01 HL136682 and grants from COPD Foundation during the conduct of the study. Dr. Elder reports grants from national institutes of health during the conduct of the study. Dr. Han reports grants from NIH and grants from COPD Foundation during

the conduct of the study; personal fees from GlaxoSmithKline, personal fees from AstraZeneca sponsored research, funds paid to institution, personal fees from Verona, personal fees from Merck, personal fees from MDBriefcase, personal fees from Mylan, other from Sanofi sponsored research, funds paid to institution, personal fees from DevPro, personal fees from Aerogen, personal fees from Polarean, personal fees from Regeneron, personal fees from UpToDate, personal fees from Altesa Pharmaceuticals, personal fees from Medscape, personal fees from Integrity, non-financial support from Sunovion, grants from American Lung Association, grants from COPD Foundation, other from Biodesix sponsored research, funds paid to institution, other from Gala Therapeutics sponsored research, funds paid to institution, other from Nuaira sponsored research, funds paid to institution, personal fees from Boehringer Ingelheim, personal fees from Cipla, personal fees from Chiesi, other from Novartis DSMB with funds paid to institution and drug for trial, personal fees from Pulmonx, personal fees from Teva, other from AstraZeneca sponsored research, funds paid to institution, grants from Boehringer Ingelheim, other from Sanofi sponsored research, funds paid to institution, personal fees from NACE, other from Medtronic DSMB with funds paid to institution, other from Altesa Pharmaceuticals stock options, and other from Meissa Vaccines stock options outside the submitted work. Dr. Joo reports grants from NIH and grants from COPD Foundation during the conduct of the study. Dr. Khan reports other from Circuit Clinical Standard Clinical Trial Site and Enrollment Fees were paid for study execution to the clinical trials company of which I am CEO during the conduct of the study. Dr. Knox has nothing to disclose. Ms. Angulo has nothing to disclose. Mr. Lopez has nothing to disclose. Dr. Make reports grants from NHLBI Research grant funds provided to and controlled by National Jewish Health. Grant review study section., grants from American Lung Association Research grant funds to and controlled by National Jewish Health., grants from Department of Defense Research grant funds provided to and controlled by National Jewish Health, other from Astra Zeneca Medical Advisory Board. Disease-state presentation. Research grant funds provided to and controlled by National Jewish Health. Consultant for data analysis. Steering Committee for NOVELTY observational study. other from Spiration Reviewed clinical trial data. Data and Safety Monitoring Board., other from Glaxo Smith Kline Advisory Board member. Disease-state presentation., other from Boehringer Ingelheim Medical Advisory Board, other from Mylan Medical Advisory Board, other from Quintiles Data Safety and Monitoring Board, other from University of Wisconsin Data Safety and Monitoring Board, and other from Mt. Sinai CME activity. Data and Safety Monitoring Board. during the conduct of the study; personal fees from Web MD CME activity, personal fees from Novartis CME activity, personal fees from American College of Chest Physicians CME activity, personal fees from Projects in Knowledge CME activity, personal fees from Third Pole Consultant for proposed trial, personal fees from Optimum Patient Care Global Limited Consultant, and personal fees from Integritas Communications CME activity outside the submitted work; in addition, Dr. Make has a patent for Wolters Kluwer Health (Up-To-Date) with royalties paid Royalties. Dr. Mannino reports personal fees from GlaxoSmithKline, personal fees from AstraZeneca, personal fees from Up-to-Date, and personal fees from Schlesinger Law Firm outside the submitted work. Ms. Meldrum has nothing to disclose. Dr. Murray reports grants from NIH during the conduct of the study. Ms. Peters has nothing to disclose Dr. Spino reports grants from NIH and grants from Three Lakes Foundation during the conduct of the study. Dr. Tapp has nothing to disclose. Dr. Thomashow reports grants from NHLBI during the conduct of the

study; personal fees from GSK consultant, personal fees from Boehringer Ingelheim advisory board, and personal fees from Reckitt Health consultant outside the submitted work; and cofounder and chief medical officer (volunteer position) COPD Foundation, a non for profit. Dr. Yawn reports grants from National Heart Lung and Blood Institute and personal fees from COPD Foundation during the conduct of the study; personal fees from GSK COPD and Herpes Zoster, investigator initiated grant and COPD advisory board and consulting, personal fees from TEVA Advisory board and consulting, personal fees from AZ Advisory board and consulting, and personal fees from BI Consulting outside the submitted work. Dr. Zittleman has nothing to disclose.

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Ann Allergy Asthma Immunol

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. 2024 Sep;133(3):302-309.

doi: 10.1016/j.anai.2024.05.003. Epub 2024 May 11.

[Asthma control in the United States: Relationships between short-acting  \$\beta\_2\$ -agonist and systemic corticosteroid use](#)

[Geoffrey Chupp](#)<sup>1</sup>, [Kevin R Murphy](#)<sup>2</sup>, [Hitesh N Gandhi](#)<sup>3</sup>, [Ileen Gilbert](#)<sup>3</sup>, [Eugene R Bleecker](#)<sup>4</sup>

Affiliations Expand

- PMID: 38740134
- DOI: [10.1016/j.anai.2024.05.003](#)

Free article

Abstract

**Background:** Asthma control assessment is based on impairment (current symptoms) and risk (exacerbation history).

**Objective:** To understand the extent of uncontrolled asthma, we assessed relationships between prescription fills for systemic corticosteroids (SCS) and short-acting  $\beta_2$ -agonists (SABA) as risk and impairment markers, respectively.

**Methods:** Annual SCS and SABA fills among US patients with asthma were evaluated by a retrospective analysis of the IQVIA Longitudinal Access and Adjudication Data. Patients' disease severity was assigned based on the Global Initiative for Asthma step-therapy level. Exacerbations were evaluated by SCS fills within 12 months of a first asthma prescription fill. Uncontrolled asthma was defined as 2 or more SCS and/or 3 or more SABA fills annually. Individual patient relationships between SCS and SABA fills were assessed using Pearson's correlation coefficients.

**Results:** A total of 4,506,527 patients were included; 15.1% had 2 or more SCS fills, 29.1% had 3 or more SABA fills, and 37.4% fulfilled either or both criteria. If only SCS use was assessed, 21.4% of cases that were treated as mild to moderate and 27.6% that were treated as severe asthma would have been misclassified as controlled. If only SABA use was evaluated, 7.8% of cases treated as mild to moderate and 11.2% treated as severe asthma would have been misclassified. Overall, 80.9% of uncontrolled asthma occurred in patients treated for mild to moderate disease. Among patients with 2 or more SCS fills, the mean SABA fills were 2.9; the correlation between SCS and SABA fills per patient was significant but weak ( $r = 0.18$ ;  $P < .001$ ).

**Conclusion:** High symptom burden and SCS exposures are not limited to severe asthma but are also characteristic of patients treated for mild to moderate disease. Both impairment and risk assessments are required to understand the full extent of uncontrolled asthma across disease severities.

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Editorial

Respirology

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. 2024 Sep;29(9):756-758.

doi: 10.1111/resp.14731. Epub 2024 May 7.

[Asthma-COPD overlap and asthma progressing to COPD: Are we using the right diagnostic approaches and pathways?](#)

[Elvis Malcolm Irusen<sup>1</sup>, Danica Meiring<sup>2</sup>, Coenraad Frederik Nicolaas Koegelenberg<sup>1</sup>](#)

Affiliations Expand

- PMID: 38712599
- DOI: [10.1111/resp.14731](#)

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*No abstract available*

Keywords: asthma-COPD overlap; persistent airflow limitation.

- [21 references](#)

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Clinical Trial

Ann Allergy Asthma Immunol

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. 2024 Sep;133(3):310-317.e4.

doi: 10.1016/j.anai.2024.04.031. Epub 2024 Apr 30.

[Biomarkers and clinical outcomes after tezepelumab cessation: Extended follow-up from the 2-year DESTINATION study](#)

[Christopher E Brightling](#)<sup>1</sup>, [Marco Caminati](#)<sup>2</sup>, [Jean-Pierre Llanos](#)<sup>3</sup>, [Scott Caveney](#)<sup>4</sup>, [Ales Kotalik](#)<sup>5</sup>, [Janet M Griffiths](#)<sup>6</sup>, [Anna Lundahl](#)<sup>7</sup>, [Elliot Israel](#)<sup>8</sup>, [Ian D Pavord](#)<sup>9</sup>, [Michael E Wechsler](#)<sup>10</sup>, [Celeste Porsbjerg](#)<sup>11</sup>, [Jonathan Corren](#)<sup>12</sup>, [Monika Gołabek](#)<sup>13</sup>, [Neil Martin](#)<sup>14</sup>, [Sandhia Ponnarambil](#)<sup>15</sup>

Affiliations Expand

- PMID: 38697286
- DOI: [10.1016/j.anai.2024.04.031](https://doi.org/10.1016/j.anai.2024.04.031)

Free article

Abstract

**Background:** Long-term tezepelumab treatment in the DESTINATION study ([NCT03706079](#)) resulted in reduced asthma exacerbations, reduced biomarker levels, and improved lung function and symptom control in patients with severe, uncontrolled asthma.

**Objective:** To explore the time course of changes in biomarkers and clinical manifestations after treatment cessation after 2 years of tezepelumab treatment.

**Methods:** DESTINATION was a 2-year, phase 3, multicenter, randomized, placebo-controlled, double-blind study of tezepelumab treatment in patients (12-80 years old) with severe asthma. Patients received their last treatment doses at week 100 and could enroll in an extended follow-up period from weeks 104 to 140. Change over time in key biomarkers and clinical outcomes were assessed in tezepelumab vs placebo recipients for 40 weeks after stopping treatment.

**Results:** Of 569 patients enrolled in the extended follow-up period, 426 were included in the analysis (289 received tezepelumab and 137 placebo). In the 40-week period after the last tezepelumab dose, blood eosinophil counts, fractional exhaled nitric oxide levels, and Asthma Control Questionnaire-6 scores gradually increased from weeks 4 to 10, with a gradual reduction in pre-bronchodilator forced expiratory volume in 1 second such that blood eosinophil counts, fractional exhaled nitric oxide levels, and clinical outcomes returned to placebo levels; however, none of these outcomes returned to baseline levels. Total IgE levels increased later from

week 28 and remained well below placebo and baseline levels during the 40-week period after the last tezepelumab dose.

**Conclusion:** This analysis reveals the benefits of continued tezepelumab treatment in the management of patients with severe, uncontrolled asthma, compared with stopping treatment after 2 years.

**Trial registration:** ClinicalTrials.gov Identifier: [NCT03706079](https://clinicaltrials.gov/ct2/show/study/NCT03706079).

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#### Conflict of interest statement

**Disclosures** Prof Brightling has received grants and consultancy fees from 4D Pharma, Areteia Therapeutics, AstraZeneca, Chiesi, Genentech, GSK, Global Access Diagnostics (formerly Mologic), Novartis, Regeneron Pharmaceuticals, Roche, and Sanofi. Dr Caminati has received fees from AstraZeneca for serving on advisory boards and has received speaker fees from GSK and Sanofi. Dr Llanos and Dr Caveney are employees of Amgen and own stock in Amgen. Dr Kotalik, Dr Lundahl, Ms Gořabek, Dr Martin, and Dr Ponnarambil are employees of AstraZeneca and may own stock or stock options in AstraZeneca. Dr Griffiths was an employee of AstraZeneca at the time of the study. Prof Israel has served as a consultant to and received personal fees from 4D Pharma, AB Science, Amgen, AstraZeneca, Avillion, Biometry, Cowen, Equillium, Genentech, GSK, Merck, Novartis, Pneuma Respiratory, PPS Health, Regeneron Pharmaceuticals, Sanofi, Sienna Biopharmaceuticals, and Teva Pharmaceuticals; has received nonfinancial support from Circassia Pharmaceuticals, Teva Pharmaceuticals, and Vorso Corp; and has received clinical research grants from AstraZeneca, Avillion, Genentech, Gossamer Bio, Novartis, and Sanofi. Prof Pavord has received speaker fees from Aerocrine AB, Almirall, AstraZeneca, Boehringer Ingelheim, Chiesi, GSK, Novartis, Regeneron Pharmaceuticals, Sanofi, and Teva Pharmaceuticals; has received payments for organization of educational events from AstraZeneca, GSK, Regeneron Pharmaceuticals, Sanofi, and Teva Pharmaceuticals; has received consultancy fees from Almirall, AstraZeneca, Boehringer Ingelheim, Chiesi, Circassia Pharmaceuticals, Dey Pharma, Genentech, GSK, Knopp Biosciences, Merck, MSD, Napp Pharmaceuticals, Novartis, Regeneron Pharmaceuticals, RespiVert, Sanofi, Schering-Plough, and Teva Pharmaceuticals; has received international scientific meeting sponsorship from AstraZeneca, Boehringer Ingelheim, Chiesi, GSK, Napp Pharmaceuticals, Regeneron Pharmaceuticals, Sanofi, and Teva Pharmaceuticals; and has received a research grant from Chiesi. Prof Wechsler has received consulting, advisory or speaker fees from Amgen, Areteia Therapeutics, AstraZeneca, Avalo Therapeutics, Boehringer Ingelheim, Celldex Therapeutics, Cellergy Pharma, Cerecor, CytoReason, Eli Lilly, Equillium, GSK, Incyte, Kinaset Therapeutics, Merck, Novartis, Om Pharma, Overtone Therapeutics/Foresite Labs, Phylaxis Bioscience, PULMATRiX, Rapt Therapeutics, Regeneron Pharmaceuticals, Roche/Genentech, Sanofi/Genzyme, Sentien Biotechnologies, Sound Biologics, Tetherex Pharmaceuticals, Teva Pharmaceuticals, Upstream Bio and Verona Pharma. Prof Porsbjerg has received grants and consultancy fees from ALK-Abelló, AstraZeneca, Chiesi, GSK, Novartis, Sanofi, and Teva Pharmaceuticals. Dr Corren has received grants and personal fees from AstraZeneca, Genentech, and Vectura; and has received grants from Optinose, Sanofi, and Teva Pharmaceuticals.

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Randomized Controlled Trial

J Pediatr (Rio J)

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. 2024 Sep-Oct;100(5):539-543.

doi: 10.1016/j.jpmed.2024.03.012. Epub 2024 Apr 30.

[Inhaled magnesium versus inhaled salbutamol in rescue treatment for moderate and severe asthma exacerbations in pediatric patients](#)

[Michelle Siqueira Debiazzi<sup>1</sup>](#), [Rossano César Bonatto<sup>1</sup>](#), [Fábio Joly Campos<sup>1</sup>](#), [Joelma Gonçalves Martin<sup>1</sup>](#), [José Roberto Fioretto<sup>1</sup>](#), [Maria Leticia das Neves Hansen<sup>1</sup>](#), [Arthur Martins de Araújo Luz<sup>1</sup>](#), [Haroldo Teófilo de Carvalho<sup>2</sup>](#)

Affiliations Expand

- PMID: 38693043
- DOI: [10.1016/j.jpmed.2024.03.012](https://doi.org/10.1016/j.jpmed.2024.03.012)

Free article

Abstract

**Objective:** To compare the effectiveness of inhaled Magnesium Sulfate associated with Salbutamol versus Inhaled Salbutamol alone in patients with moderate and severe asthma exacerbations.

**Method:** Clinical, prospective and randomized study with patients between 3 and 14 years of age divided into two groups: one to receive inhaled salbutamol associated with magnesium sulfate (GSM), the other to receive inhaled salbutamol alone (GS).

The sample consisted of 40 patients, 20 patients in each group. Severity was classified using the modified Wood-Downes score, with values between 4 and 7 classified as moderate and 8 or more classified as severe.

**Results:** Post-inhalation scores decreased both in patients who received salbutamol and magnesium and in those who received salbutamol alone, with no statistically significant difference between the groups.

**Conclusions:** Despite the benefits when administered intravenously, inhalation of the drug alone or in combination did not reduce the severity of the exacerbation.

**Keywords:** Asthma; Exacerbation; Pediatrics.

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**Conflict of interest statement**

**Conflicts of interest** The authors declare no conflicts of interest, and they each contributed fully to the preparation of this manuscript.

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**Editorial**

**Am J Respir Crit Care Med**

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. 2024 Sep 1;210(5):533-535.

doi: 10.1164/rccm.202403-0599ED.

[NO Casting of NETs in Allergic Asthma](#)

[Kyle T Mincham](#)<sup>1</sup>, [Krish Sanghavi](#)<sup>1</sup>, [Robert J Snelgrove](#)<sup>1</sup>

## Affiliations Expand

- PMID: 38598776
- DOI: [10.1164/rccm.202403-0599ED](https://doi.org/10.1164/rccm.202403-0599ED)

*No abstract available*

## Comment on

- [Human Neutrophils Couple Nitric Oxide Production and Extracellular Trap Formation in Allergic Asthma.](#)

Chacón P, Vega-Rioja A, Doukkali B, Del Valle Rodriguez A, Fernández-Delgado L, Domínguez-Cereijo L, Segura C, Pérez-Machuca BM, Perkins JR, El Bekay R, Cornejo-García JA, Hajji N, Monteseirín J, Rivas-Pérez D. *Am J Respir Crit Care Med.* 2024 Sep 1;210(5):593-606. doi: 10.1164/rccm.202305-0889OC. PMID: 38445953

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## J Asthma

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. 2024 Sep;61(9):1083-1088.

doi: 10.1080/02770903.2024.2327036. Epub 2024 Mar 11.

[Are nighttime respiratory symptoms assessed by asthma control test affected by comorbidities?](#)

[Alida Benfante](#)<sup>1</sup>, [Alessandra Tomasello](#)<sup>1</sup>, [Chiara Caponetto](#)<sup>1</sup>, [Salvatore Battaglia](#)<sup>1</sup>, [Nicola Scichilone](#)<sup>1</sup>

## Affiliations Expand

- PMID: 38446620
- DOI: [10.1080/02770903.2024.2327036](https://doi.org/10.1080/02770903.2024.2327036)

## Abstract

**Objective:** Nocturnal symptoms are common in the asthmatic population, reflecting an exaggerated airway narrowing overnight due to several factors; it is questioned to what extent the awakenings documented in the clinical assessment of asthma control are due to the disease itself or to comorbidities. To answer this question, we aimed to evaluate to what proportion rhinitis, gastroesophageal reflux and the likelihood of being affected by OSAS were related to poor asthma control, by means of ACT evaluation.

**Methods:** Asthmatics attending the outpatient clinic were enrolled and administered the following questionnaires: ACT, Total 5 Symptom Score, GERD Impact Scale, Pittsburgh Sleep Quality Index and the Sleep Disorders Questionnaire.

**Results:** One-hundred consecutive patients (M/F: 42/58, mean age  $52 \pm 15$  years) were recruited. According to the ACT findings, 14 asthmatics resulted as fully controlled (FC, ACT equal to 25), 55 partially controlled (PC,  $25 < \text{ACT} > 19$ ) and 31 as uncontrolled (UC,  $\text{ACT} < 19$ ). GERD was not associated with the ACT score neither did rhinitic symptomatology. On the other hand, the PSQI scores appeared to significantly increase with the lack of symptom control: FC, 2.0 (1-4); PC, 3.5 (2-5); UC, 6.6 (4-8) ( $p = 0.002$ ). The SA-SDQ questionnaire results significantly increased with the loss of asthma control: FC, 11.0 (9-12); PC, 12.5 (10-14); UC, 15.1 (14-16) ( $p = 0.005$ ).

**Conclusions:** These results confirm and extend previous findings showing that there is a higher likelihood that underlying unknown sleep disturbances worsen asthma control, suggesting that a more comprehensive assessment is necessary to clarify the cause of nocturnal symptoms in asthma.

**Keywords:** Asthma control; OSAS; nocturnal symptoms; obesity; rhinitis.

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Am J Respir Crit Care Med

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. 2024 Sep 1;210(5):607-617.

doi: 10.1164/rccm.202308-1452OC.

## Susceptible Young Adults and Development of Chronic Obstructive Pulmonary Disease Later in Life

Yunus Çolak<sup>1 2 3</sup>, Peter Lange<sup>1 2 3 4</sup>, Jørgen Vestbo<sup>5</sup>, Børge G Nordestgaard<sup>2 6 3</sup>, Shoaib Afzal<sup>2 6 3</sup>

### Affiliations Expand

- PMID: 38364200
- DOI: [10.1164/rccm.202308-1452OC](https://doi.org/10.1164/rccm.202308-1452OC)

### Abstract

**Rationale:** Chronic obstructive pulmonary disease (COPD) has its origin in early life, and the Global Initiative for Chronic Obstructive Lung Disease (GOLD) proposes a predisease state termed "pre-COPD." **Objectives:** We tested the hypothesis that susceptible young adults identified with chronic bronchitis and subtle lung function impairment will develop COPD later in life. **Methods:** We followed random individuals without COPD ages 20-50 years from two population-based cohorts from different smoking eras-the Copenhagen General Population Study from 2003 ( $N = 5,497$ ) and the Copenhagen City Heart Study from 1976-1978 ( $N = 2,609$ )-for 10 and 25 years, for the development of COPD ( $FEV_1/FVC < 0.70$ ) and COPD GOLD Stages 2-4 (additionally,  $FEV_1 < 80\%$  predicted). **Measurements and Main Results:** After 10 years, 28% developed COPD and 13% developed COPD GOLD Stages 2-4 in individuals susceptible to COPD, compared with 8% and 1% in those without any susceptibility to COPD. Correspondingly, after 25 years, 22% versus 13% developed COPD and 20% versus 8% developed COPD GOLD Stages 2-4. More than half of incident COPD cases developed from a susceptible state. Compared with those without susceptibility to COPD, multivariable-adjusted odds ratios in those susceptible to COPD were 3.42 (95% confidence interval: 2.78-4.21) for COPD and 10.1 (6.77-15.2) for COPD GOLD Stages 2-4 after 10 years and were 1.54 (1.23-1.93) and 2.12 (1.64-2.73) after 25 years. The ability of a COPD risk score-consisting of the state of susceptibility to COPD with smoking and asthma as risk factors-to predict COPD later in life was high. **Conclusions:** Our study suggests the existence of a predisease state of COPD, which can be used for early identification of susceptible individuals at risk for COPD later in life.

### Comment in

- [The Evolving Contours of Chronic Obstructive Pulmonary Disease.](#)

Roche N, Han MK. Am J Respir Crit Care Med. 2024 Sep 1;210(5):535-537. doi: 10.1164/rccm.202403-0565ED. PMID: 38564415 No abstract available.

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J Asthma

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. 2024 Sep;61(9):905-911.

doi: 10.1080/02770903.2024.2311236. Epub 2024 Feb 7.

[Biologics for asthma and risk of pneumonia](#)

[Maria Gabriella Matera](#)<sup>1</sup>, [Josuel Ora](#)<sup>2</sup>, [Luigino Calzetta](#)<sup>3</sup>, [Paola Rogliani](#)<sup>2,4</sup>, [Mario Cazzola](#)<sup>4</sup>

Affiliations Expand

- PMID: 38294705
- DOI: [10.1080/02770903.2024.2311236](https://doi.org/10.1080/02770903.2024.2311236)

Abstract

**Objective:** Modification of the immune system with biologics raises theoretical concerns about the risk of infections but it is still unclear whether currently routinely used biologics in severe asthma may facilitate the development of pneumonia. Therefore, we aimed to determine whether omalizumab, mepolizumab, benralizumab, and dupilumab are associated with pneumonia in a real-world setting.

**Methods:** A retrospective disproportionality analysis was performed using adverse event (AE) reports submitted to FAERS from January 2020 to September 30, 2023.

MedDRA was used to identify infections and infestations and then pneumonia cases. ROR and PRR were used to measure disproportionality.

**Results:** The percentage of reported cases of pneumonia compared to infections and infestations was highest for mepolizumab (36.8%), followed by omalizumab (32.6%), benralizumab (19.2%) and dupilumab (5.7%). We found a moderate or strong signal for increased risk of pneumonia with mepolizumab (ROR = 3.74, 95%CI 3.50-4.00), omalizumab (ROR = 3.26, 95%CI 3.06-3.49) and benralizumab (ROR = 2.65, 95%CI 2.49-2.83).

**Conclusions:** Mepolizumab, omalizumab and benralizumab, but not dupilumab, were associated with high odds of reporting pneumonia. Our results represent only potential associations between these biologics and pneumonia but not causality. The nature of the FAERS database is such that the cause of the reported events is uncertain. Therefore, we can only roughly estimate the incidence of AEs by the signal strength (ROR value). Nevertheless, although causality could not be assessed, the signal from our study is interesting. We believe it deserves to be further substantiated by real-world studies with robust designs.

**Keywords:** Biologics; Food and Drug Administration Adverse Event Reporting System; infections; pneumonia; severe asthma.

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. 2024 Aug 30;14(8):e080263.

doi: 10.1136/bmjopen-2023-080263.

[Machine learning-derived phenotypic trajectories of asthma and allergy in children and adolescents: protocol for a systematic review](#)

[Daniil Lisik](#)<sup>1</sup>, [Gregorio Paolo Milani](#)<sup>2,3</sup>, [Michael Salisu](#)<sup>4</sup>, [Saliha Selin Özüyğur](#)<sup>4</sup>, [Ermis](#)<sup>4</sup>, [Emma Goksör](#)<sup>5</sup>, [Rani Basna](#)<sup>4,6</sup>, [Göran Wennergren](#)<sup>4,5</sup>, [Hannu Kankaanranta](#)<sup>4,7</sup>, [Bright I Nwaru](#)<sup>4,8</sup>

## Affiliations Expand

- PMID: 39214659
- DOI: [10.1136/bmjopen-2023-080263](https://doi.org/10.1136/bmjopen-2023-080263)

## Abstract

**Introduction:** Development of asthma and allergies in childhood/adolescence commonly follows a sequential progression termed the 'atopic march'. Recent reports indicate, however, that these diseases are composed of multiple distinct phenotypes, with possibly differential trajectories. We aim to synthesise the current literature in the field of machine learning-based trajectory studies of asthma/allergies in children and adolescents, summarising the frequency, characteristics and associated risk factors and outcomes of identified trajectories and indicating potential directions for subsequent research in replicability, pathophysiology, risk stratification and personalised management. Furthermore, methodological approaches and quality will be critically appraised, highlighting trends, limitations and future perspectives.

**Methods and analyses:** 10 databases (CAB Direct, CINAHL, Embase, Google Scholar, PsycInfo, PubMed, Scopus, Web of Science, WHO Global Index Medicus and WorldCat Dissertations and Theses) will be searched for observational studies (including conference abstracts and grey literature) from the last 10 years (2013-2023) without restriction by language. Screening, data extraction and assessment of quality and risk of bias (using a custom-developed tool) will be performed independently in pairs. The characteristics of the derived trajectories will be narratively synthesised, tabulated and visualised in figures. Risk factors and outcomes associated with the trajectories will be summarised and pooled estimates from comparable numerical data produced through random-effects meta-analysis. Methodological approaches will be narratively synthesised and presented in tabulated form and figure to visualise trends.

**Ethics and dissemination:** Ethical approval is not warranted as no patient-level data will be used. The findings will be published in an international peer-reviewed journal.

Prospero registration number: CRD42023441691.

**Keywords:** Allergy; Asthma; Meta-Analysis; Risk Factors; Systematic Review.

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## Conflict of interest statement

**Competing interests:** HK reports personal fees for lectures and consulting from AstraZeneca, Boehringer-Ingelheim, Chiesi Pharma, GSK, MSD, Novartis, Orion

Pharma and Sanofi Genzyme outside the current work. The remaining authors report that they have no conflict of interest.

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. 2024 Aug 30;8(1):e002634.

doi: 10.1136/bmjpo-2024-002634.

[Design of the 18-year follow-up of the Danish COPSAC<sub>2000</sub> birth cohort](#)

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Affiliations Expand

- PMID: 39214547
- DOI: [10.1136/bmjpo-2024-002634](https://doi.org/10.1136/bmjpo-2024-002634)

Abstract

**Background:** Atopic diseases, obesity and neuropsychiatric disorders are lifestyle-related and environmental-related chronic inflammatory disorders, and the incidences have increased in the last years.

**Objective:** To outline the design of the 18-year follow-up of the Copenhagen Prospective Study on Asthma in Childhood (COPSAC<sub>2000</sub>) birth cohort, where risk

factors of atopic diseases, obesity and neuropsychiatric disorders are identified through extensive characterisation of the environment, along with deep clinical phenotyping and biosampling for omics profiling.

**Methods:** COPSAC<sub>2000</sub> is a Danish prospective clinical birth cohort study of 411 children born to mothers with asthma who were enrolled at 1 month of age and closely followed at the COPSAC clinical research unit through childhood for the development of atopic diseases. At the 18-year follow-up visit, biomaterial (hair, blood, urine, faeces, throat, and skin swabs, nasal lining fluid and scraping, and hypopharyngeal aspirates) and extensive information on environmental exposures and risk behaviours were collected along with deep metabolic characterisation and multiorgan investigations including anthropometrics, heart, lungs, kidneys, intestines, bones, muscles and skin. Neuropsychiatric diagnoses were captured from medical records and registers accompanied by electronic questionnaires on behavioural traits and psychopathology.

**Results:** A total of 370 (90%) of the 411 cohort participants completed the 18-year visit. Of these, 25.1% had asthma, 23.4% had a body mass index >25 kg/m<sup>2</sup> and 16.8% had a psychiatric diagnosis in childhood. Of the 62 probands with a neuropsychiatric diagnosis in childhood, a total of 68.7% drank alcohol monthly, and when drinking, 22.2% drank >10 units. Of the participants, 31.4% were currently smoking, and of these, 24.1% smoked daily. A total of 23.8% had tried taking drugs, and 19.7% reported having done self-destructive behaviour. The mean screen time per day was 6.0 hours.

**Conclusion:** This huge dataset on health and habits, exposures, metabolism, multiorgan assessments and biosamples from COPSAC<sub>2000</sub> by age 18 provides a unique opportunity to explore risk factors and underlying mechanisms of atopic disease and other lifestyle-related, non-communicable diseases such as obesity and neuropsychiatric disorders, which are highly prevalent in the community and our cohort.

**Keywords:** Adolescent Health; Child Health; Data Collection; Noncommunicable Diseases; Obesity.

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Conflict of interest statement

Competing interests: None declared.

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. 2024 Aug 30;15(1):387.

doi: 10.1007/s12672-024-01274-9.

[Association between common chronic pulmonary diseases and lung cancer: Mendelian randomization analysis](#)

[Wenbin Zhang](#)<sup>1</sup>, [Xinnan Song](#)<sup>2</sup>, [Tianjun Song](#)<sup>3</sup>, [Dongyun Zeng](#)<sup>4 5</sup>

Affiliations Expand

- PMID: 39212755
- DOI: [10.1007/s12672-024-01274-9](#)

Abstract

**Background:** Lung cancer is a leading public health concern worldwide. Previous evidence suggests that chronic obstructive pulmonary disease (COPD) and asthma may contribute to its development. However, whether these common chronic pulmonary diseases are causal factors of lung cancer remained unclear.

**Methods:** Summary statistics from genome-wide association studies (GWAS) were used for Mendelian randomization (MR) analysis. Genetic data for COPD were obtained from the Global Biobank Meta-Analysis Initiative, and asthma data were retrieved from the UK Biobank cohort. Suitable instrumental variables were selected based on quality control measures. GWAS summary data for lung cancer were obtained from a large study involved 85,716 participants. MR analysis was performed using various methods, and sensitivity analyses were conducted. Multivariable MR (MVMR) analysis was employed to account for potential confounding factors.

**Results:** Our MR analysis revealed a significant causal association between COPD and lung cancer, including its subtypes such as lung squamous cell carcinoma, lung adenocarcinoma, and small cell lung carcinoma. Genetically predicted COPD was associated with a 64% increased risk of lung cancer and a 2.3 to 2.8-fold increased risk of the different subtypes. However, in the MVMR analysis adjusting for smoking, alcohol drinking, and body mass index, the association between COPD and lung cancer became non-significant. No significant association was observed

between asthma (childhood-onset and adult-onset) and lung cancer and its histological subtypes.

**Conclusions:** Our study suggests a potential causal association between COPD and lung cancer. However, this association became non-significant after adjusting for smoking in the multivariable analysis.

**Keywords:** Asthma; COPD; Lung cancer; Mendelian randomization.

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. 2024 Aug 30.

doi: 10.1002/ppul.27233. Online ahead of print.

[A matched analysis of the use of high flow nasal cannula for pediatric severe acute asthma](#)

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- PMID: 39212235
- DOI: [10.1002/ppul.27233](#)

Abstract

**Rationale:** The high-flow nasal cannula (HFNC) device is commonly used to treat pediatric severe acute asthma. However, there is little evidence regarding its effectiveness in real-world practice.

**Objectives:** We sought to compare the physiologic effects and clinical outcomes for children treated for severe acute asthma with HFNC versus matched controls.

**Methods:** This was a single-center retrospective matched cohort study at a quaternary care children's hospital. Children ages 2-18 hospitalized for severe acute asthma from 2015 to 2022 were included. Encounters receiving treatment with HFNC within the first 24 h of hospitalization were included as cases. Controls were primarily treated with oxygen facemask. Logistic regression 1:1 propensity score matching was done using demographics, initial vital signs, and medications. The primary outcome was an improvement in clinical asthma symptoms in the first 24 h of hospitalization measured as percent change from initial.

**Measurements and main results:** Of 693 eligible cases, 443 were matched to eligible controls. Propensity scores were closely aligned between the cohorts, with the only significant difference in clinical characteristics being a higher percentage of patients of Black race in the control group (54.3% vs. 46.6%;  $p = 0.02$ ). Compared to the matched controls, the HFNC cohort had smaller improvements in heart rate (-11.5% [-20.9; -0.9] vs. -14.7% [-22.6; -5.7];  $p < 0.01$ ), respiratory rate (-14.3% [-27.9; 5.4] vs. -16.7% [-31.5; 0.0];  $p = 0.03$ ), and pediatric asthma severity score (-14.3% [-28.6; 0.0] vs. -20.0% [-33.3; 0.0];  $p < 0.01$ ) after 24 h of hospitalization. The HFNC cohort also had longer pediatric intensive care unit (PICU) length of stay (LOS) (1.5 days [1.1; 2.1] vs. 1.2 days [0.9; 1.8];  $p < 0.01$ ) and hospital LOS (2.8 days [2.1; 3.8] vs. 2.5 days [1.9; 3.4];  $p < 0.01$ ). When subgrouping to younger patients (2-3 years old), or those with the highest severity scores (PASS > 9), those treated with HFNC had no difference in clinical symptom improvements but maintained a longer PICU LOS.

**Conclusions:** Encounters using HFNC for severe acute pediatric asthma had decreased clinical improvement in 24 h of hospitalization compared to matched controls and increased LOS. Specific subgroups of younger patients and those with the highest severity scores showed no differences in clinical symptom improvement suggesting differential effects in specific patient populations.

**Keywords:** asthma; clinical research; informatics; pediatrics.

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. 2024 Aug 30:1-10.

doi: 10.1080/02770903.2024.2394152. Online ahead of print.

[Evaluating the timing of triple therapy initiation for the treatment of asthma in Japan: prompt versus delayed](#)

[Gema Requena<sup>1</sup>](#), [Robert Wood<sup>2</sup>](#), [Risako Ito<sup>3</sup>](#), [Rosie Wild<sup>2</sup>](#), [Chifuku Mita<sup>3</sup>](#), [Poppy Payne<sup>2</sup>](#), [Isao Mukai<sup>4</sup>](#), [Catherine M Castillo<sup>2</sup>](#), [Steven Gelwicks<sup>5</sup>](#), [Rad Siddiqui<sup>2</sup>](#), [Stephen G Noorduyn<sup>6,7</sup>](#), [Toru Oga<sup>8</sup>](#)

Affiliations Expand

- PMID: 39210778
- DOI: [10.1080/02770903.2024.2394152](#)

Abstract

**Objective:** In Japan, the optimal initiation timing and efficacy of single-inhaler triple therapy (SITT) in asthma management remain unexplored. This study investigated SITT initiation timing following an asthma exacerbation, and examined patient demographics and clinical characteristics.

**Methods:** Observational, retrospective cohort study in patients with asthma aged  $\geq 15$  years who initiated SITT following their earliest observed asthma exacerbation (February-November 2021), using data from Japanese health insurance claims databases (JMDC and Medical Data Vision [MDV]). The study period ended May 2022 for JMDC and September 2022 for MDV. Descriptive analyses were performed independently by database. Variables evaluated included timing of SITT initiation post exacerbation (prompt, delayed and late,  $\leq 30$ , 31-180 and  $> 180$  days post index, respectively), patient demographics, clinical characteristics, and pre-index treatment.

**Results:** Of patients in the JMDC and MDV databases, most initiated SITT promptly after an asthma exacerbation, 60.8% ( $n = 951/1565$ ) and 44.4% ( $n = 241/543$ ), respectively. Delayed initiation occurred in 22.6% ( $n = 354/1565$ ) and 26.3% ( $n = 143/543$ ) of patients, and late initiation occurred in 16.6% ( $n = 260/1565$ ) and 29.3% ( $n = 159/543$ ), respectively. Most patients were indexed on a moderate asthma-related exacerbation, 97.1% ( $n = 1519/1565$ ) and 68.7% ( $n = 373/543$ ), respectively.

**Conclusion:** Most patients with asthma initiated SITT promptly following a moderate exacerbation, with delayed and late initiation more common among patients with complex clinical profiles. The findings underscore the necessity for future research to examine the interaction between patient characteristics, clinical outcomes, and the timing of SITT initiation to optimize treatment strategies, as clinical practice may vary by exacerbation severity.

**Keywords:** Asthma management; ICS/LAMA/LABA; JMDC; Japanese health insurance claims data; MDV; asthma exacerbations; single-inhaler triple therapy (SITT); timing of treatment initiation.

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Respir Investig

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. 2024 Aug 29;62(6):995-1005.

doi: 10.1016/j.resinv.2024.08.014. Online ahead of print.

[Lung imaging in COPD and asthma](#)

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Affiliations Expand

- PMID: 39213987
- DOI: [10.1016/j.resinv.2024.08.014](https://doi.org/10.1016/j.resinv.2024.08.014)

Abstract

Chronic obstructive pulmonary disease (COPD) and asthma are common lung diseases with heterogeneous clinical presentations. Lung imaging allows evaluations of underlying pathophysiological changes and provides additional personalized approaches for disease management. This narrative review provides an overview of recent advances in chest imaging analysis using various modalities, such as computed tomography (CT), dynamic chest radiography, and magnetic resonance imaging (MRI). Visual CT assessment localizes emphysema subtypes and mucus plugging in the airways. Dedicated software quantifies the severity and spatial distribution of emphysema and the airway tree structure, including the central airway wall thickness, branch count and fractal dimension of the tree, and airway-to-lung size ratio. Nonrigid registration of inspiratory and expiratory CT scans quantifies small airway dysfunction, local volume changes and shape deformations in specific regions. Lung ventilation and diaphragm movement are also evaluated on dynamic chest radiography. Functional MRI detects regional oxygen transfer across the alveolus using inhaled oxygen and ventilation defects and gas diffusion into the alveolar-capillary barrier tissue and red blood cells using inhaled hyperpolarized  $^{129}\text{Xe}$  gas. These methods have the potential to determine local functional properties in the lungs that cannot be detected by lung function tests in patients with COPD and asthma. Further studies are needed to apply these technologies in clinical practice, particularly for early disease detection and tailor-made interventions, such as the efficient selection of patients likely to respond to biologics. Moreover, research should focus on the extension of healthy life expectancy in patients at higher risk and with established diseases.

**Keywords:** Asthma; Chronic obstructive pulmonary disease; Computed tomography; Contents; Lung function; Quantitative imaging.

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#### Conflict of interest statement

Declaration of competing interest N.T. received honoraria for lectures from AstraZeneca and research funding from Fujifilm and Daiichi Sankyo. H. Nakagawa and S.S. have no conflicts of interest. Y.O. received research funding from Canon Medical Systems Corporation and the Smoking Research Foundation. K.S. and H Nakamura has no conflicts of interest. M.H. received honoraria for lectures from AstraZeneca and Nippon Boehringer Ingelheim. Y.N. received honoraria for lectures from AstraZeneca, GSK, and Nippon Boehringer Ingelheim; research funding from GSK and Clairvo Technologies; and subsidies from Nippon Boehringer Ingelheim and Fukuda Life Tech. T.H. received research funding from Fujifilm and Daiichi Sankyo.

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Randomized Controlled Trial

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. 2024 Aug 29;24(1):421.

doi: [10.1186/s12890-024-03227-y](https://doi.org/10.1186/s12890-024-03227-y).

[Utility of exhaled nitric oxide to guide mild asthma treatment in atopic patients and its correlation with asthma control test score: a randomized controlled trial](#)

[Edwin Pesantes](#)<sup>1</sup>, [Rosana Hernando](#)<sup>2</sup>, [Carmen Lores](#)<sup>3</sup>, [Jonathan Cámara](#)<sup>2</sup>, [Elías Arévalo](#)<sup>4</sup>, [Luis Lores](#)<sup>2</sup>

Affiliations Expand

- PMID: 39210358
- DOI: [10.1186/s12890-024-03227-y](https://doi.org/10.1186/s12890-024-03227-y)

Abstract

**Background:** Fractional exhaled nitric oxide (FeNO) is used for the diagnosis and monitoring of asthma, although its utility to guide treatment and its correlation with other tools is still under discussion. We study the possibility to withdraw inhaled corticosteroid treatment in atopic patients with mild asthma based on the FeNO level, as well as to study its correlation with other clinical control tools.

**Methods:** Prospective and randomized study including atopic patients aged 18 to 65 with mild asthma, stable, on low-dose inhaled corticosteroid (ICS) treatment, who had their treatment withdrawn based on a FeNO level of 40 ppb. Patients were randomized into two groups: control group (treatment with ICS was withdrawn regardless of FeNO level) and experimental group (according to the FeNO levels, patients were assigned to one of two groups: FeNO > 40 ppb on treatment with budesonide 200 mcg every 12 h and SABA on demand; FeNO ≤ 40 ppb only with SABA on demand). Follow-up was conducted for one year, during which medical assessment was performed with FeNO measurements, asthma control test (ACT), lung function tests (FEV1, FEV1/FVC, PEF, and RV/TLC), and recording of the number of exacerbations.

**Results:** Ninety-two patients were included, with a mean age of 39.92 years (SD 13.99); 46 patients were assigned to the control group, and 46 patients to the experimental group. The number of exacerbations was similar between the groups ( $p = 0.301$ ), while the time to the first exacerbation was significantly shorter in the control group (30.86 vs. 99.00 days),  $p < 0.001$ , 95% CI (43.332-92.954). Lung function tests (FEV<sub>1</sub>, FEV<sub>1</sub>/FVC, PEF, and RV/TLC) showed no differences between the groups ( $p > 0.05$ ). Both FeNO and ACT showed significant changes in the groups in which ICS was withdrawn ( $p < 0.05$  for both parameters). A significant negative correlation was observed between FeNO and ACT ( $r = -0.139$ ,  $p = 0.008$ ).

**Conclusions:** In atopic patients with mild asthma, withdrawal of ICS based on an FeNO of 40 ppb led to worsened symptoms but without changes in lung function tests or an increase in exacerbations. There was a negative correlation between FeNO values and symptomatic control measured by the ACT.

**Trial registration:** Clinical Trial Number: 2012-000372-42. Start Date: 2012-07-23. Trial registered prospectively ( <https://www.clinicaltrialsregister.eu/ctr-search/search?query=2012-000372-42> ). This study adheres to CONSORT guidelines of randomised control trials.

**Keywords:** Asthma; Asthma control test; Atopy; Fractional exhaled nitric oxide (FeNO).

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. 2024 Aug 29;64(2):24E6402.

doi: 10.1183/13993003.E6402-2024. Print 2023 Aug.

## [ERJ Podcast August 2024: Titration of anti-IL-5 biologics in severe asthma](#)

*No authors listed*

- PMID: 39209463
- DOI: [10.1183/13993003.E6402-2024](https://doi.org/10.1183/13993003.E6402-2024)

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J Aerosol Med Pulm Drug Deliv

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. 2024 Aug 29.

doi: 10.1089/jamp.2024.0025. Online ahead of print.

[Comparison of Systemic Exposure Between Epinephrine Delivered via Metered-Dose Inhalation and Intramuscular Injection](#)

[Jack Yongfeng Zhang](#)<sup>1</sup>, [Mary Ziping Luo](#)<sup>1</sup>, [Tony Marrs](#)<sup>1</sup>, [Edward M Kerwin](#)<sup>2</sup>, [Don A Bukstein](#)<sup>3</sup>

Affiliations Expand

- PMID: 39207239
- DOI: [10.1089/jamp.2024.0025](https://doi.org/10.1089/jamp.2024.0025)

Abstract

**Background:** Primatene<sup>®</sup> MIST, an epinephrine metered-dose inhaler (MDI), has long been questioned by some medical professionals for asthma treatment despite having been approved by the Food and Drug Administration. One of the primary reasons for their concerns stemmed from potential cardiovascular complications following epinephrine administration. However, the majority of documented cardiovascular complications seemed to occur following the injection route of the epinephrine. The aim of this study was to evaluate the systemic exposure of epinephrine delivered through different administration routes and to understand its relationship with cardiovascular effects. Since albuterol inhalers are commonly recommended for asthma, albuterol was also studied as a comparator drug. **Method:** A randomized, evaluator-blinded, three-arm crossover study was conducted in 28 healthy adult subjects to compare the profiles of systemic exposure for epinephrine delivered by MDI versus epinephrine intramuscular (IM) injection and albuterol MDI. Serially sampled plasma epinephrine and albuterol levels were measured and compared between treatment groups. Safety was assessed by adverse events, serial vital signs, electrocardiograms (ECGs), and clinical laboratory tests obtained at each crossover dosing visit. **Results:** Systemic exogenous drug exposure for inhaled epinephrine MDI (39 pg/mL × hour) was ~9 times lower than that of epinephrine IM (435 pg/mL × hour) and 122 times lower than that of albuterol MDI (3453 pg/mL × hour) after dose normalization. The C<sub>max</sub> in epinephrine MDI (345 pg/mL) was approximately half of that of epinephrine IM (816 pg/mL) and that of albuterol MDI (681 pg/mL). Plasma drug concentrations for epinephrine MDI dropped rapidly to baseline (~0.6 hour), while epinephrine IM took ~8 hours, and albuterol MDI required more than 24 hours. Epinephrine MDI and albuterol MDI resulted in minimal, clinically insignificant changes in vital signs and ECGs, whereas epinephrine IM led to mild transient increases in systolic blood pressure, heart rate, and corrected QT interval. **Conclusion:** Epinephrine MDI (Primatene MIST) had ~9 times lower systemic drug exposure (SDE) than that of epinephrine IM and ~122 times lower than that of albuterol MDI. The lower SDE of inhaled epinephrine also correlated with reassuring safety findings, with no significant cardiovascular adverse effects found, compared with transient effects seen after IM epinephrine. Clinical trial registration number: [NCT04207840](#).

**Keywords:** albuterol; asthma; epinephrine; intramuscular injection; metered-dose inhaler; systemic exposure.

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. 2024 Aug 28:S0091-6749(24)00869-8.

doi: 10.1016/j.jaci.2024.08.017. Online ahead of print.

## [Deep Multi-Omic Profiling Reveals Molecular Signatures that Underpin Preschool Wheeze and Asthma](#)

[Matthew Macowan](#)<sup>1</sup>, [Céline Pattaroni](#)<sup>2</sup>, [Katie Bonner](#)<sup>3</sup>, [Roxanne Chatzis](#)<sup>1</sup>, [Carmel Daunt](#)<sup>1</sup>, [Mindy Gore](#)<sup>3</sup>, [Adnan Custovic](#)<sup>4</sup>, [Michael D Shields](#)<sup>5</sup>, [Ultan F Power](#)<sup>5</sup>, [Jonathan Grigg](#)<sup>6</sup>, [Graham Roberts](#)<sup>7</sup>, [Peter Ghazal](#)<sup>8</sup>, [Jürgen Schwarze](#)<sup>9</sup>, [Steve Turner](#)<sup>10</sup>, [Andrew Bush](#)<sup>3</sup>, [Sejal Saqlani](#)<sup>11</sup>, [Clare M Lloyd](#)<sup>12</sup>, [Benjamin J Marsland](#)<sup>1</sup>

Affiliations Expand

- PMID: 39214237
- DOI: [10.1016/j.jaci.2024.08.017](#)

Abstract

**Background:** Wheezing in childhood is prevalent, with over half of all children experiencing at least one episode by age six. The pathophysiology of wheeze, especially why some children develop asthma while others do not, remains unclear.

**Objective:** This study addresses the knowledge gap by investigating the transition from preschool wheeze to asthma using multi-omic profiling.

**Methods:** Unsupervised, group-agnostic integrative multi-omic factor analysis was performed using host/bacterial (meta-)transcriptomic and bacterial shotgun metagenomic datasets from bronchial brush samples paired with metabolomic/lipidomic data from bronchoalveolar lavage samples acquired from children 1-17 years old.

**Results:** Two multi-omic factors were identified: one characterising preschool-aged recurrent wheeze and another capturing an inferred trajectory from health to wheeze and school-aged asthma. Recurrent wheeze was driven by Type 1-immune signatures, coupled with upregulation of immune-related and neutrophil-associated lipids and metabolites. Comparatively, progression towards asthma from ages 1-18 was dominated by changes related to airway epithelial cell gene expression, Type 2-immune responses, and constituents of the airway microbiome, such as increased *Haemophilus influenzae*.

**Conclusion:** These factors highlighted distinctions between an inflammation-related phenotype in preschool wheeze, and the predominance of airway epithelial-related changes linked with the inferred trajectory toward asthma. These findings provide

insights into the differential mechanisms driving the progression from wheeze to asthma and may inform targeted therapeutic strategies.

**Keywords:** asthma; disease trajectory; gene expression; lipidomics; metabolomics; metagenomics; multi-omics; wheeze.

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. 2024 Aug 27:S2213-2198(24)00858-4.

doi: 10.1016/j.jaip.2024.08.038. Online ahead of print.

[Dupilumab Efficacy in Children With Type 2 Asthma Receiving High/Medium-Dose ICS \(VOYAGE\)](#)

[Jorge F Maspero](#)<sup>1</sup>, [Martti A Antila](#)<sup>2</sup>, [Antoine Deschildre](#)<sup>3</sup>, [Leonard B Bacharier](#)<sup>4</sup>, [Arman Altincatal](#)<sup>5</sup>, [Elizabeth Laws](#)<sup>6</sup>, [Eric Mortensen](#)<sup>7</sup>, [Amr Radwan](#)<sup>7</sup>, [Juby A Jacob-Nara](#)<sup>6</sup>, [Yamo Deniz](#)<sup>7</sup>, [Paul J Rowe](#)<sup>6</sup>, [David J Lederer](#)<sup>7</sup>, [Megan Hardin](#)<sup>5</sup>

Affiliations Expand

- PMID: 39209068
- DOI: [10.1016/j.jaip.2024.08.038](https://doi.org/10.1016/j.jaip.2024.08.038)

Abstract

**Background:** In phase 3 VOYAGE ([NCT02948959](#)), dupilumab showed clinical efficacy with an acceptable safety profile in children (6-11 years) with uncontrolled, moderate-to-severe type 2 asthma (blood eosinophils  $\geq 150$  cells/ $\mu$ L or fractional exhaled nitric oxide  $\geq 20$  ppb).

**Objective:** We analyzed dupilumab's efficacy in children with type 2 asthma by high- or medium-dose inhaled corticosteroids (ICS) at baseline.

**Methods:** Children were randomized to receive add-on dupilumab 100/200 mg (by body-weight  $\leq 30$  kg/ $>30$  kg) every 2 weeks or placebo for 52 weeks and stratified by high- or medium-dose ICS at baseline. Endpoints were annualized severe exacerbation rate, changes from baseline in percent-predicted forced expiratory volume in 1 second (ppFEV<sub>1</sub>) and 7-item Asthma Control Questionnaire - Interviewer Administered (ACQ-7-IA) score, proportions of ACQ-7-IA responders (improvement  $\geq 0.5$ ), and biomarker changes.

**Results:** In children receiving high- (n = 152) or medium- (n = 195) dose ICS at baseline, dupilumab versus placebo reduced severe exacerbation rates by 63% (P < .001) and 59% (P = .003), respectively. At week 52, dupilumab improved ppFEV<sub>1</sub> by least squares mean difference versus placebo of 5.7 percentage points (P = .02) and 9.35 points (P < .001), and reduced ACQ-7-IA scores by 0.53 points (P < .001) and 0.40 points (P < .001), respectively. No significant treatment interactions between ICS subgroups were detected at week 52. Significant improvements were observed in ACQ-7-IA responder rates and most type 2 biomarker levels.

**Conclusion:** Dupilumab reduced severe exacerbation rates and improved lung function and asthma control in children with uncontrolled, moderate-to-severe type 2 asthma, regardless of ICS dose at baseline.

**Keywords:** Asthma control; Asthma exacerbation; Dupilumab; Inhaled corticosteroid(s); Lung function; Pediatric asthma; Type 2 inflammation.

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. 2024 Aug 27:S0012-3692(24)05078-5.

doi: 10.1016/j.chest.2024.08.026. Online ahead of print.

## [Risk factors, morbidity and mortality in association with Preserved Ratio Impaired Spirometry \(PRISm\) and Restrictive Spirometric Pattern \(RSP\)](#)

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Affiliations Expand

- PMID: 39209063
- DOI: [10.1016/j.chest.2024.08.026](#)

Abstract

**Background:** Preserved Ratio Impaired Spirometry (PRISm) and Restrictive Spirometric Pattern (RSP) are often considered interchangeable in identifying restrictive impairment in spirometry.

**Research question:** Do PRISm and RSP have different individual associations with risk factors, morbidity, and mortality?

**Study design and methods:** In a cross-sectional and longitudinal study, including 26,091 30-46-year-old Norwegian general population men, we explored the association of PRISm and RSP with smoking habits, BMI, education, respiratory symptoms, self-reported cardiopulmonary disease, and mortality after 26 years of follow-up. PRISm was defined as  $FEV_1/FVC \geq$  lower limit of normal (LLN) &  $FEV_1 < LLN$ , RSP as  $FEV_1/FVC \geq LLN$  &  $FVC < LLN$ . We compared the associations of PRISm and RSP to airflow obstruction and normal spirometry, both as mutually (PRISm-alone, RSP-alone) and non-mutually exclusive (PRISm, RSP) categories, adjusting for age, BMI, smoking, education. We also conducted sensitivity analyses using GOLD criteria to define spirometric abnormalities.

**Results:** The prevalence of the mutually exclusive spirometric patterns was: normal 82.4%, obstruction 11.0%, PRISm-alone 1.4%, RSP-alone 1.7%, PRISm+RSP 3.5%. PRISm-alone subjects were frequently obese (11.2%), current or former smokers, commonly reporting cough, phlegm, wheeze, asthma, and bronchitis. RSP-alone subjects were both obese (14.6%) and underweight (2.9%), with increased breathlessness, but similar smoking habits to subjects with normal spirometry. The prevalence of heart disease was 4.6% in PRISm-alone, 2.7% in RSP-alone and 1.6% in obstruction. With normal spirometry as a reference, RSP-alone had increased all-cause (HR 1.57 (1.21-2.04 95%CI), cardiovascular (1.48 (0.88-2.48)), diabetes (6.43 (1.88-21.97)), and cancer (excl. lung) mortality (1.51 (0.95-2.42)). PRISm-alone had increased respiratory disease mortality (HR 4.00 (1.22-13.16 95%CI)). Subjects with PRISm+RSP had intermediate characteristics and the worst prognosis. Findings were overall confirmed with non-mutually exclusive categories and GOLD criteria.

**Interpretation:** PRISm and RSP are spirometric patterns with distinct risk factors, morbidity and mortality, which should be differentiated in future studies.

**Keywords:** BMI; lung function; obstruction; respiratory symptoms; restriction.

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Am J Epidemiol

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[Emulating Randomized Trials by Observational Database Studies: The RCT-DUPLICATE Initiative in COPD and Asthma](#)

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Affiliations Expand

- PMID: 39191649
- DOI: [10.1093/aje/kwae319](#)

Abstract

Observational studies are increasingly used to provide real-world evidence in regulatory decision-making. The RCT-DUPLICATE initiative conducted observational studies emulating two trials in patients with asthma and three in COPD. For each trial, new-user cohorts were constructed from two US healthcare claims databases, comparing initiators of the study and comparator drugs, matched on propensity scores. Proportional hazards models were used to compare the treatments on study outcomes. The observational studies involved more subjects than the corresponding trials, with treatment arms well-matched on baseline characteristics. An asthma example involved emulation of the 26-week FDA-mandated D5896 trial. With 6,494 asthma patients per arm, the hazard ratio (HR) of a serious asthma-related event with budesonide-formoterol versus budesonide was 1.29 (95% CI: 0.63-2.65), compared with 1.07 (95% CI: 0.70-1.65) in the trial. A COPD example is the emulation of the one-year IMPACT trial. With 4,365 COPD patients per arm, the HR of a COPD exacerbation with triple therapy versus dual bronchodilators was 1.08 (95% CI: 1.00-1.17), compared with 0.84 (95% CI: 0.78-0.91) in the trial. We found mainly discordant results between observational analyses and

randomized trials, likely from the forced discontinuation of treatments prior to randomization in the trials, not mimicable in the observational analyses.

**Keywords:** COPD exacerbation; cohort studies; propensity scores; real-world evidence.

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. 2024 Aug 27:3:e57983.

doi: [10.2196/57983](https://doi.org/10.2196/57983).

[Exploring Machine Learning Applications in Pediatric Asthma Management: Scoping Review](#)

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Affiliations Expand

- PMID: 39190449
- DOI: [10.2196/57983](https://doi.org/10.2196/57983)

Free article

Abstract

**Background:** The integration of machine learning (ML) in predicting asthma-related outcomes in children presents a novel approach in pediatric health care.

**Objective:** This scoping review aims to analyze studies published since 2019, focusing on ML algorithms, their applications, and predictive performances.

**Methods:** We searched Ovid MEDLINE ALL and Embase on Ovid, the Cochrane Library (Wiley), CINAHL (EBSCO), and Web of Science (core collection). The search covered the period from January 1, 2019, to July 18, 2023. Studies applying ML models in predicting asthma-related outcomes in children aged <18 years were included. Covidence was used for citation management, and the risk of bias was assessed using the Prediction Model Risk of Bias Assessment Tool.

**Results:** From 1231 initial articles, 15 met our inclusion criteria. The sample size ranged from 74 to 87,413 patients. Most studies used multiple ML techniques, with logistic regression (n=7, 47%) and random forests (n=6, 40%) being the most common. Key outcomes included predicting asthma exacerbations, classifying asthma phenotypes, predicting asthma diagnoses, and identifying potential risk factors. For predicting exacerbations, recurrent neural networks and XGBoost showed high performance, with XGBoost achieving an area under the receiver operating characteristic curve (AUROC) of 0.76. In classifying asthma phenotypes, support vector machines were highly effective, achieving an AUROC of 0.79. For diagnosis prediction, artificial neural networks outperformed logistic regression, with an AUROC of 0.63. To identify risk factors focused on symptom severity and lung function, random forests achieved an AUROC of 0.88. Sound-based studies distinguished wheezing from nonwheezing and asthmatic from normal coughs. The risk of bias assessment revealed that most studies (n=8, 53%) exhibited low to moderate risk, ensuring a reasonable level of confidence in the findings. Common limitations across studies included data quality issues, sample size constraints, and interpretability concerns.

**Conclusions:** This review highlights the diverse application of ML in predicting pediatric asthma outcomes, with each model offering unique strengths and challenges. Future research should address data quality, increase sample sizes, and enhance model interpretability to optimize ML utility in clinical settings for pediatric asthma management.

**Keywords:** artificial intelligence; asthma management; exacerbation; machine learning; pediatric asthma; predictive modeling.

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J Asthma

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. 2024 Aug 27:1-12.

doi: 10.1080/02770903.2024.2393677. Online ahead of print.

[Physical comorbidity is associated with overnight hospitalization in U.S. adults with asthma: an assessment of the 2005-2018 National Health and Nutrition Examination Surveys](#)

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Affiliations Expand

- PMID: 39155766
- DOI: [10.1080/02770903.2024.2393677](#)

Abstract

**Objective:** Identifying the effects of comorbidity on healthcare utilization is critical for understanding the benefits of improved comorbidity management. Asthma is a common respiratory condition, associated with gastrointestinal, metabolic, psychiatric, and other respiratory conditions. Adults with asthma represent a key population in understanding comorbidity and its consequences. The objective was to explore the relationship between comorbidity and overnight hospitalizations in U.S. adults with asthma.

**Study design and methods:** A cross-sectional sample of 3,887 subjects aged 20-79 was aggregated from seven cycles (2005-2018) of the National Health and Nutrition Examination Survey (NHANES). The survey design was created using the full seven cycles, then a subpopulation was used for the analysis. Design-based modified Poisson regression with robust standard errors compared the prevalence of overnight hospitalizations in subjects with and without comorbidities. Comorbidity was defined as the presence of one or more additional chronic conditions.

**Results:** Over half (61.6%) of patients with asthma reported having comorbidities. The overnight hospitalization prevalence was higher in those with comorbidities (21.6%) than those without (7.4%). The adjusted prevalence ratio of overnight

hospitalizations in those with comorbidities vs. those without was 2.02 (95% CI: 1.54-2.66). Conclusions from sensitivity analyses remained the same.

**Conclusions:** Comorbidity in U.S. adult asthma patients is associated with increased overnight hospitalizations. Study results concur with examinations of other healthcare utilization outcomes, revealing how comorbidity influences healthcare utilization patterns in patients with asthma. The reduction of overnight hospitalizations should be a targeted goal when developing and evaluating interventions to manage comorbidities in patients with asthma.

**Keywords:** Coexisting disease; NHANES; asthma; comorbidity; healthcare utilization; multimorbidity; overnight hospitalization; survey data.

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J Allergy Clin Immunol Pract

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. 2024 Aug 26:S2213-2198(24)00852-3.

doi: 10.1016/j.jaip.2024.08.033. Online ahead of print.

[Long-Term Clinical and Sustained REMission in Severe Eosinophilic Asthma treated with Mepolizumab: The REMI-M study](#)

[Claudia Crimi](#)<sup>1</sup>, [Santi Nolasco](#)<sup>2</sup>, [Alberto Noto](#)<sup>3</sup>, [Angelantonio Maglio](#)<sup>4</sup>, [Vitaliano Nicola Quaranta](#)<sup>5</sup>, [Danilo Di Bona](#)<sup>6</sup>, [Giulia Scioscia](#)<sup>7</sup>, [Francesco Papia](#)<sup>8</sup>, [Maria Filomena Caiaffa](#)<sup>9</sup>, [Cecilia Calabrese](#)<sup>9</sup>, [Maria D'Amato](#)<sup>10</sup>, [Corrado Pelaia](#)<sup>11</sup>, [Raffaele Campisi](#)<sup>12</sup>, [Carolina Vitale](#)<sup>4</sup>, [Luigi Ciampo](#)<sup>4</sup>, [Silvano Dragonieri](#)<sup>5</sup>, [Elena Minenna](#)<sup>6</sup>, [Federica Massaro](#)<sup>9</sup>, [Lorena Gallotti](#)<sup>10</sup>, [Luigi Macchia](#)<sup>13</sup>, [Massimo Triggiani](#)<sup>14</sup>, [Nicola Scichilone](#)<sup>15</sup>, [Giuseppe Valenti](#)<sup>8</sup>, [Girolamo Pelaia](#)<sup>11</sup>, [Maria Pia Foschino Barbaro](#)<sup>7</sup>, [Giovanna Elisiana Carpagnano](#)<sup>5</sup>, [Alessandro Vatrella](#)<sup>4</sup>, [Nunzio Crimi](#)<sup>16</sup>; [Southern Italy Network on Severe Asthma Therapy](#)

Collaborators, Affiliations Expand

- PMID: 39197750

- DOI: [10.1016/j.jaip.2024.08.033](https://doi.org/10.1016/j.jaip.2024.08.033)

## Abstract

**Background:** Biological therapies, such as mepolizumab, have transformed the treatment of severe eosinophilic asthma. While mepolizumab's short-term effectiveness is established, there is limited evidence on its ability to achieve long-term clinical remission.

**Objective:** To evaluate the long-term effectiveness and safety of mepolizumab, explore its potential to induce clinical and sustained remission, and identify baseline factors associated with the likelihood of achieving remission over 24 months.

**Methods:** The REMI-M is a retrospective, real-world, multicenter study that analyzed 303 severe eosinophilic asthma patients who received mepolizumab. Clinical, demographic, and safety data were collected at baseline, 3, 6, 12, and 24 months. The most commonly used definitions of clinical remission, which included no exacerbations, no oral corticosteroids (OCS) use, and good asthma control with or without assessment of lung function parameters, were assessed. Sustained remission was defined as reaching clinical remission at 12 months and maintaining it until the end of the 24-month period.

**Results:** Clinical remission rates ranged from 28.6% to 43.2% after 12 months and from 26.8% to 52.9% after 24 months, based on the different remission definitions. The proportion of patients achieving sustained remission varied between 14.6% to 29%. Factors associated with the likelihood of achieving clinical remission included the presence of aspirin-exacerbated respiratory disease, better lung function at baseline, male sex, absence of anxiety/depression, gastro-esophageal reflux disease, bronchiectasis, and reduced OCS consumption. Adverse events were infrequent.

**Conclusions:** This study demonstrates the real-world effectiveness of mepolizumab in achieving clinical remission and sustained remission in severe eosinophilic asthma over 24 months. The identification of distinct factors associated with the likelihood of achieving clinical remission emphasizes the importance of comprehensive management of comorbidities and timely identification of patients who may benefit from biologics.

**Keywords:** Severe asthma; anti-IL-5; biologics; eosinophils; mepolizumab; remission; severe eosinophilic asthma.

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BMC Pulm Med

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[Causal associations of obstructive sleep apnea with Chronic Respiratory Diseases: a Mendelian Randomization study](#)

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Affiliations Expand

- PMID: 39187806
- PMCID: [PMC11345951](#)
- DOI: [10.1186/s12890-024-03228-x](#)

Abstract

**Purpose:** This study aimed to elucidate the causal relationship between Obstructive Sleep Apnea (OSA) and Chronic Respiratory Diseases (CRDs), employing Mendelian Randomization (MR) to overcome limitations inherent in observational studies.

**Methods:** Utilizing a two-sample MR approach, this study analyzed genetic variants as instrumental variables to investigate the causal link between OSA and various CRDs, including chronic obstructive pulmonary disease (COPD), asthma, bronchiectasis, and idiopathic pulmonary fibrosis (IPF). Data were sourced from the FinnGen Consortium (OSA, n = 375,657) and UK Biobank, focusing on genome-wide associations between single-nucleotide polymorphisms (SNPs) and the diseases. Instrumental variables were selected based on strict criteria, and analyses included a random-effects inverse-variance weighted method supplemented by several sensitivity analyses.

**Results:** The study suggests a protective effect of OSA against COPD (OR = 0.819, 95% CI 0.722-0.929, P-value = 0.002), which becomes non-significant after adjusting for BMI, indicating a potential mediating role of BMI in the OSA-COPD nexus. No significant causal links were found between OSA and other CRDs (asthma, IPF, bronchiectasis) or between COPD, asthma, and OSA.

**Conclusions:** Our findings reveal a BMI-mediated protective effect of OSA on COPD, with no causal connections identified between OSA and other CRDs. These results emphasize the complex relationship between OSA, BMI, and COPD, guiding future clinical strategies and research directions, particularly in light of the study's genetic analysis limitations.

**Keywords:** Chronic obstructive pulmonary disease; Chronic respiratory diseases; Mendelian randomization analysis; Obstructive sleep apnea.

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#### Conflict of interest statement

The authors declare no competing interests.

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#### Pediatr Pulmonol

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. 2024 Aug 26.

doi: 10.1002/ppul.27219. Online ahead of print.

[Supraventricular tachycardia diagnosis in asthma patients is associated with adverse health outcomes](#)

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- PMID: 39185635

- DOI: [10.1002/ppul.27219](https://doi.org/10.1002/ppul.27219)

## Abstract

**Introduction:** Supraventricular tachycardia (SVT) can occur during treatment of an acute asthma exacerbation. There are, however, no data on the long-term outcomes of children who are diagnosed with both asthma and SVT. This study aims to analyze the impact of SVT in asthmatic children on mortality and/or cardiac arrest, hypothesizing asthmatic subjects with SVT have increased mortality and/or cardiac arrest compared to asthmatic subject with no-SVT.

**Methods:** This was a retrospective cohort study, utilizing the TriNetX<sup>®</sup> electronic health record (EHR) database that included asthmatic subjects 2-18 years of age. The study population was divided into two groups (subjects with SVT diagnosis and no-SVT diagnosis). Data related to demographics, diagnostic, procedural, and medication codes were collected. The primary outcome was any death and/or cardiac arrest in a patient after the first asthma diagnosis date.

**Results:** This study included 91,066 asthmatic subjects (244 [0.27%] with SVT and 90,822 [99.73%] with no-SVT). Multivariable logistic regression analysis demonstrated that after controlling for demographic and clinical features, the odds of all-cause death and/or cardiac arrest after the first reported asthma exacerbation was significantly higher in asthmatic children with SVT compared to no-SVT (odds ratio [OR]: 4.30, confidence interval [CI]: 2.50-7.39,  $p < .001$ ).

**Conclusions:** Our large nationwide EHR study suggests that asthmatic pediatric patients with documented SVT diagnosis at any point in their EHR may be at increased risk of adverse health outcomes compared to no-SVT. Further studies are needed to determine the factors contributing to the increased risk of mortality and/or cardiac arrest in children with asthma and SVT.

**Keywords:** biostatistics; critical care; pulmonology (general).

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. 2024 Aug 24:S0091-6749(24)00865-0.

doi: 10.1016/j.jaci.2024.07.029. Online ahead of print.

[Comparative Effectiveness of Dupilumab and Omalizumab on Asthma Exacerbations and Systemic Corticosteroid Prescriptions: Real-World US ADVANTAGE Study](#)

[Eugene Bleecker<sup>1</sup>](#), [Michael Blaiss<sup>2</sup>](#), [Juby Jacob-Nara<sup>3</sup>](#), [Lynn Huynh<sup>4</sup>](#), [Mei Sheng Duh<sup>4</sup>](#), [Tracy Guo<sup>4</sup>](#), [Mingchen Ye<sup>4</sup>](#), [Richard H Stanford<sup>5</sup>](#), [Zhixiao Wang<sup>6</sup>](#), [Xavier Soler<sup>6</sup>](#), [Arpita Nag<sup>7</sup>](#), [Radhika Nair<sup>7</sup>](#), [Kinga Borsos<sup>7</sup>](#)

Affiliations Expand

- PMID: 39186985
- DOI: [10.1016/j.jaci.2024.07.029](#)

Abstract

**Background:** In the US, dupilumab is approved for moderate-to-severe eosinophilic or oral corticosteroid-dependent asthma, while omalizumab is approved for managing moderate-to-severe allergic asthma uncontrolled by inhaled corticosteroids. However, limited comparative effectiveness data exist for these biologics due to differing patient characteristics and treatment histories.

**Objective:** This analysis assessed the real-world effectiveness of dupilumab and omalizumab for asthma among patients in the US.

**Methods:** In this retrospective observational study, TriNetX Dataworks electronic medical record data were used to identify asthma patients (age:  $\geq 12$  years) who initiated (index) dupilumab or omalizumab between November 2018 and September 2020, and who had at least 12 months of pre- and post-index clinical information. Inverse probability of treatment weighting (IPTW) was applied to balance potential confounding in treatment groups. Asthma exacerbation rates and systemic corticosteroid (SCS) prescriptions were compared using a doubly robust negative binomial regression model, adjusting for baseline exacerbation/SCS rates and patient characteristics with  $\geq 10\%$  standardized differences after IPTW.

**Results:** Overall, 2,138 patients in dupilumab and 1,313 in omalizumab treatment groups met all inclusion and exclusion criteria. After weighting, the majority of baseline characteristics were balanced (standard difference  $< 10\%$ ) between the two groups. Dupilumab was associated with a 44% lower asthma exacerbation rate ( $p < 0.0001$ ) than omalizumab. Additionally, dupilumab treatment significantly ( $p < 0.05$ ) reduced SCS prescriptions by 28% during the follow-up period compared to omalizumab treatment.

**Conclusion:** The US ADVANTAGE real-world study demonstrated a significant reduction in severe asthma exacerbations and SCS prescriptions for patients prescribed dupilumab compared to those prescribed omalizumab during 12 months of follow-up.

**Keywords:** Allergic asthma; Asthma exacerbations; Comparative effectiveness; Dupilumab; Eosinophilic asthma; Inhaled corticosteroids; Moderate-to-severe asthma; Omalizumab; Real-world study; Systemic corticosteroids.

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Respir Investig

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doi: 10.1016/j.resinv.2024.08.007. Online ahead of print.

[Multidisciplinary team discussion based on etiological treatment improves refractory chronic cough outcomes](#)

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Affiliations Expand

- PMID: 39182399
- DOI: [10.1016/j.resinv.2024.08.007](#)

Abstract

**Background:** Refractory chronic cough (RCC) causes significant impairments in the life quality of patients. Further research into the identification of etiologies and development of the treatment schedules for RCC is needed.

**Patients and methods:** We established an multidisciplinary team (MDT) clinic, by integrating respiratory medicine, otorhinolaryngology, and gastroenterology departments, to investigate cough etiologies and the effectiveness of treatment. The therapeutic effect was assessed quantitatively using the Cough Visual Analog Scales (VAS), Leicester Cough Questionnaire (LCQ), and Reflux Symptoms Index (RSI) scores.

**Results:** In total, 213 patients attending the MDT outpatient clinic were examined, and 115 patients with RCC were included for analysis. The RCC diagnosis rate among the outpatient was 88.7%. Common causes of RCC included gastroesophageal reflux cough (63.5%), upper airway cough syndrome (UACS) (43.5%), and cough variant asthma (CVA) (14.8%). After an average treatment period of  $2.17 \pm 1.06$  weeks (wk), 73.9% of the patients had partial cough remission, and 6.1% had complete cough remission. The cough VAS score before and after treatment was  $6.11 \pm 2.02$  vs.  $3.66 \pm 2.22$  ( $P < 0.05$ ), respectively; LCQ total score before and after treatment was  $10.24 \pm 3.11$  vs.  $13.16 \pm 3.59$  ( $P < 0.05$ ), respectively; and RSI score before and after treatment was  $15.82 \pm 7.01$  vs.  $10.71 \pm 6.64$  ( $P < 0.05$ ), respectively.

**Conclusion:** The etiologies of most patients with RCC could be identified in the MDT clinic, and the cough-related symptoms of a significant number of patients with RCC improved in a short period.

**Keywords:** Cough variant asthma; Gastroesophageal reflux disease; MDT clinic; Refractory chronic cough; Upper airway cough syndrome.

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Conflict of interest statement

Declaration of competing interest The authors have no conflicts of interest.

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Pediatr Res

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doi: 10.1038/s41390-024-03447-2. Online ahead of print.

[Airway inflammation, asthma, and soot](#)

[Katharine L Hamlington](#)<sup>1</sup>, [Andrew H Liu](#)<sup>2</sup>

Affiliations Expand

- PMID: 39181983
- DOI: [10.1038/s41390-024-03447-2](https://doi.org/10.1038/s41390-024-03447-2)

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Observational Study

Am J Otolaryngol

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. 2024 Sep-Oct;45(5):104418.

doi: 10.1016/j.amjoto.2024.104418. Epub 2024 Jul 21.

[Enhancing quality of life with 3-year course of sublingual immunotherapy for house dust mite-induced allergic rhinitis: An observational prospective study in real-life settings](#)

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Affiliations Expand

- PMID: 39067091

- DOI: [10.1016/j.amjoto.2024.104418](https://doi.org/10.1016/j.amjoto.2024.104418)

## Abstract

**Purpose:** This prospective study aims to provide further supportive evidence by assessing the sustained effectiveness and safety of sublingual immunotherapy (SLIT) using a vaccine containing house dust mite (HDM) extracts in patients diagnosed with allergic rhinitis (AR) with/without conjunctivitis (AR/C).

**Materials and methods:** AR/C patients (n = 111, SLIT group: 57, control group: 54) allergic to HDM were treated with standardized SLIT drops or symptomatic drugs from October to December in 2020. The patients were directed by the investigators to attend annual hospital visits for the assessment of various parameters including the Rhinoconjunctivitis Quality of Life Questionnaire (RQLQ), visual analog scale (VAS), total nasal symptom score (TNSS), total ocular symptom score (TOSS) and total medication score (TMS). During the study period, all participants were mandated to maintain comprehensive records of any adverse events (AEs) on diary cards, which were then communicated to the investigators via telephone.

**Results:** At baseline (2020), TNSS, TOSS, TMS, VAS, and RQLQ scores were comparable between SLIT and control groups ( $P > 0.05$ ). After one year of treatment (2021), significant reduction in all scores compared to the baseline for both groups ( $P < 0.001$ ). At the end of the second year of treatment (2022), TNSS and RQLQ score in the SLIT group continued to decrease significantly compared to 2021 ( $P < 0.05$ ). In the third year (2023), the control group showed a rebound in TNSS, TOSS, TMS, and RQLQ scores, significant differences compared to 2022 or 2021 ( $P < 0.05$ ). Besides, the SLIT group had significantly lower scores across all domains of RQLQ compared to the control group ( $P < 0.001$ ). Symptomatic treatment influenced the scores of Nasal Symptoms, Eye Symptoms, Practical Problems, and Emotions domains significantly in 2023 compared to 2021 or 2022 ( $P < 0.05$ ). Within the SLIT group, no significant differences in TNSS, TMS, VAS, and RQLQ scores were observed between monosensitized and polysensitized patients throughout the three years of treatment ( $P > 0.05$ ). All AEs were mild to moderate.

**Conclusion:** The 3-year course of HDM-SLIT has shown significant therapeutic efficacy and a favorable safety profile in patients with AR/C. Importantly, our study presents initial evidence suggesting that the greater impact of AR/C on quality of life (QoL) may primarily stem from nasal symptoms, eye symptoms, practical issues, and emotional well-being.

**Keywords:** Allergic rhinitis (AR); House dust mite (HDM); Quality of life (QoL); Sublingual immunotherapy (SLIT).

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Conflict of interest statement

Declaration of competing interest All authors declare no financial or commercial conflicts of interest.

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. 2024 Sep-Oct;45(5):104423.

doi: 10.1016/j.amjoto.2024.104423. Epub 2024 Jul 20.

[Burden of obstructive sleep apnea and CPAP use on patients with chronic rhinosinusitis](#)

[Connor Hunt](#)<sup>1</sup>, [Amani Kais](#)<sup>2</sup>, [Hassan H Ramadan](#)<sup>2</sup>, [Chadi A Makary](#)<sup>3</sup>

Affiliations Expand

- PMID: 39059166
- DOI: [10.1016/j.amjoto.2024.104423](https://doi.org/10.1016/j.amjoto.2024.104423)

Abstract

**Objective:** To evaluate the impact of obstructive sleep apnea (OSA) on the quality-of-life (QoL) of patients with chronic rhinosinusitis (CRS).

**Methods:** Retrospective cohort study of all adult patients with CRS presenting to our rhinology clinic between August 2020 and February 2023 was performed. OSA was established based on positive polysomnography. Patients' characteristics, apnea-hypopnea index, comorbidities, endoscopy scores, and SNOT-22 scores were collected.

**Results:** A total of 513 patients with CRS were included, 127 patients with OSA and 386 without OSA. CRS patients with OSA were older ( $p < 0.001$ ), had higher BMI ( $p < 0.001$ ), more likely to be males ( $p = 0.07$ ), more likely to have asthma ( $p < 0.001$ ), and more likely to have COPD ( $p = 0.001$ ). Presence of nasal polyps did not differ between the two groups. Baseline SNOT-22 scores were worse in the OSA cohort (44.4 vs 40.5,  $p = 0.064$ ) secondary to worse sleep (13.4 vs 11.1;  $p = 0.002$ ) and psychological (14.2 vs 11.5;  $p = 0.002$ ) domains. Worse SNOT scores were strongly associated with presence of OSA after adjusting for confounding variables,

including age, gender, asthma, allergic rhinitis, nasal septal deviation, and smoking status.

**Conclusion:** OSA is an independent negative contributor to the disease specific QoL in patients with CRS. CPAP use does not seem to affect the QoL in CRS patients with OSA. Further research is warranted to explore the impact of OSA in the outcome of medical and surgical treatment of CRS patients.

**Keywords:** Chronic rhinosinusitis; Obstructive sleep apnea; Quality of life; SNOT-22.

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Comparative Study

Am J Otolaryngol

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. 2024 Sep-Oct;45(5):104393.

doi: 10.1016/j.amjoto.2024.104393. Epub 2024 Jul 18.

[Pre-pubertal sublingual immunotherapy is more effective than immunotherapy during puberty in allergic rhinitis and asthma](#)

[Yongjun Zhu](#)<sup>1</sup>, [Lin Yan](#)<sup>1</sup>, [Nan Cheng](#)<sup>1</sup>, [Yun Xiao](#)<sup>1</sup>, [Dachuan Fan](#)<sup>1</sup>, [Wei Cao](#)<sup>2</sup>, [Jianming Yang](#)<sup>3</sup>

Affiliations Expand

- PMID: 39059165

- DOI: [10.1016/j.amjoto.2024.104393](https://doi.org/10.1016/j.amjoto.2024.104393)

Free article

Abstract

**Background:** To evaluate the clinical efficacy of sublingual-specific immunotherapy (SLIT) and pulmonary function in children with allergic rhinitis and asthma before and after puberty.

**Methods:** This retrospective analysis included 136 patients aged 4-18 years with allergic asthma and rhinitis who received two years of SLIT treatment. Patients were divided into two groups based on age: the prepubertal group (4-10 years old) and the pubertal group (11-18 years old). After half a year, one year, and two years of SLIT, the total nasal symptom score (TNSS), total rhinitis medication score (TRMS), daytime asthma symptom score (DASS), nighttime asthma symptom score (NASS), total asthma medication score (TAMS), asthma control test (ACT), and peak expiratory flow rate (PEF%) were evaluated and compared with the baseline before treatment.

**Results:** In both groups, TNSS, TRMS, DASS, NASS, TAMS, ACT, and PEF% improved significantly after half a year, one year, and two years of SLIT treatment. After half a year of treatment, prepubertal patients showed better therapy for TNSS, DASS, NASS, and TAMS compared to the pubertal group. The TAMS of the pubertal group was higher than that of the prepubertal group after one year of treatment. Finally, the PEF% showed better therapy compared to the pubertal group.

**Conclusion:** SLIT treatment with *Dermatophagoides farinae* drops can effectively control the symptoms of rhinitis and asthma in children with allergic rhinitis and asthma before and after puberty, reduce the use of symptomatic drugs, significantly improve the pulmonary function of patients, and have better effects on asthma in prepubertal children than in adolescents.

**Keywords:** Asthma; Efficacy; Puberty; Pulmonary function; Rhinitis; Sublingual immunotherapy.

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Conflict of interest statement

**Declaration of competing interest** The authors have no conflicts of interest to disclose that could be perceived as prejudicing the impartiality of the research reported.

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Meta-Analysis

J Psychosom Res

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. 2024 Sep:184:111813.

doi: 10.1016/j.jpsychores.2024.111813. Epub 2024 May 31.

[A meta-analysis of the prevalence and risk of mental health problems in allergic rhinitis patients](#)

[Alaa Safia](#)<sup>1</sup>, [Uday Abd Elhadi](#)<sup>2</sup>, [Marwan Karam](#)<sup>3</sup>, [Shlomo Merchavy](#)<sup>3</sup>, [Ashraf Khater](#)<sup>3</sup>

Affiliations Expand

- PMID: 38871533
- DOI: [10.1016/j.jpsychores.2024.111813](https://doi.org/10.1016/j.jpsychores.2024.111813)

Free article

Abstract

**Objective:** Allergic rhinitis (AR), a prevalent global health concern, is increasingly recognized for its impact beyond physical symptoms, affecting mental health. This research examined the extent of AR's psychological burden and sleep disturbances.

**Methods:** A systematic search of four databases yielded 49 studies reporting mental health problems in 18,269,265 individuals (15,151,322 AR patients and 3,117,943 controls). The primary outcomes included all mental health problems in AR patients. Subgroup analyses based on outcome and AR severity, country, AR diagnosis, recruitment setting, and age were performed. Secondary outcomes included the risk of these problems compared to controls (healthy or without AR).

**Results:** In AR, depression (25%), anxiety (25%), stress (65%), distress (57%), suicidal thoughts (14%) and attempts (4%), poor sleep quality (48%), insomnia (36%), sleep impairment (33%), and insufficient sleep duration <7 h (59%) were prevalent. The severity of these outcomes differed significantly. Patients' country, AR diagnostic method, recruitment method/setting, and age group were significant effect modifiers. Compared to controls, AR resulted in significantly higher risk of

depression, anxiety, stress, suicidal attempts and thoughts, insomnia, and sleep impairment.

**Conclusion:** AR patients had significantly lower sleep duration. Mental health problems are very common among AR patients, further exacerbating their sleep quality and duration and intention to suicide.

**Keywords:** COVID-19; Nose diseases; Prevalence; Rhinitis.

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**Conflict of interest statement**

**Declaration of competing interest** All authors, including Alaa Safia, Uday Abd Elhadi, Marwan Karam, Shlomo Merchavy, and Ashraf Khater, declare no competing interests associated with the conduct of this work.

**Supplementary info**

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5

**Meta-Analysis**

**Int Forum Allergy Rhinol**

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. 2024 Sep;14(9):1477-1487.

doi: 10.1002/alr.23367. Epub 2024 May 24.

[Topical steroids for chronic rhinosinusitis without nasal polyps: A systematic review and meta-analysis](#)

[Akash M Bhat](#)<sup>1,2</sup>, [Luke D Heiland](#)<sup>1,3</sup>, [Shaun A Nguyen](#)<sup>1</sup>, [Vinay K Rathi](#)<sup>1</sup>, [Rodney J Schlosser](#)<sup>1,4</sup>, [Zachary M Soler](#)<sup>1</sup>

**Affiliations** Expand

- PMID: 38787291

- DOI: [10.1002/alr.23367](https://doi.org/10.1002/alr.23367)

## Abstract

**Background:** Evidence supporting topical steroids for the treatment of chronic rhinosinusitis without nasal polyposis (CRSsNP) is unclear. Recent trials describe alternative topical steroid delivery modalities, including rinses and exhalation delivery system (EDS), necessitating a re-examination of the current literature.

**Methods:** Cochrane Library, CINAHL, PubMed, and Scopus databases were searched from inception to February 13, 2024 for placebo-controlled randomized control trials on topical steroids used to treat CRSsNP, including topical spray, nasal irrigation, sinonasal catheter, and EDS modalities. Primary outcome measures included total symptom scores (TSS) ( $\Delta$ ) and response rates (odds ratio).

**Results:** Ten trials (N = 751) were included for meta-analysis, with a mean age of 47.5 years (range: 18-80 years; 95% confidence interval [CI]: 43.9-51.2 years). Topical steroids delivered by any method significantly improved TSS in CRSsNP patients ( $\Delta$ 0.4; 95% CI: 0.3-0.6;  $p < 0.0001$ ). When stratified by allergy status, CRSsNP patients without allergy had significantly improved TSS when treated with EDS ( $\Delta$ 0.4; 95% CI: 0.1-0.7;  $p = 0.01$ ), but not with topical spray ( $\Delta$ 0.04; 95% CI: -0.9 to 1.0;  $p = 0.94$ ). Patients treated with EDS or sinonasal catheter responded significantly better compared to placebo (odds ratio [OR]: 3.4; 95% CI: 1.9-6.0;  $p < 0.0001$ ; OR: 12.4; 95% CI: 1.8-83.8;  $p < 0.01$ ), whereas patients treated with topical spray had no significant difference (OR: 1.8; 95% CI: 0.9-4.0;  $p = 0.12$ ).

**Conclusions:** Topical steroids are effective in treating CRSsNP, especially when delivered via EDS or sinonasal catheter. Future trials comparing steroid delivery mechanisms using validated outcome measures in CRSsNP populations are needed.

**Keywords:** CRSsNP; EDS; chronic rhinosinusitis; topical steroids.

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## Laryngoscope

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. 2024 Sep;134(9):3953-3959.

doi: 10.1002/lary.31431. Epub 2024 Apr 2.

[Safety and Pharmacokinetics of a Ciprofloxacin and Azithromycin Stent for Chronic Rhinosinusitis](#)

[Dong-Jin Lim<sup>1</sup>](#), [Brenton T Bicknell<sup>1</sup>](#), [Nicholas Rivers<sup>1</sup>](#), [Martin P Jones<sup>1</sup>](#), [Adithya J Menon<sup>1</sup>](#), [Olivia J Kelly<sup>1</sup>](#), [Daniel Skinner<sup>1</sup>](#), [Shaoyan Zhang<sup>1</sup>](#), [Bradford A Woodworth<sup>1,2</sup>](#), [Do-Yeon Cho<sup>1,2,3</sup>](#)

## Affiliations Expand

- PMID: 38563347
- PMCID: PMC11305968 (available on 2025-09-01)
- DOI: [10.1002/lary.31431](https://doi.org/10.1002/lary.31431)

## Abstract

**Objectives:** Previously, we developed a novel double-coated sinus stent containing ciprofloxacin (inner layer) and azithromycin (outer layer) (CASS), but released drug concentrations were found to be insufficient for clinical usage. Our objectives are to improve drug release of CASS and assess safety and pharmacokinetics in rabbits.

**Methods:** Dip coating was used to create the CASS with 2 mg ciprofloxacin and 5 mg azithromycin. A uniformed double coating was assessed with scanning electron microscopy (SEM), and the release patterns of both drugs and lactate dehydrogenase (LDH) assay were evaluated over 14 days in vitro. Safety, tolerability, and pharmacokinetics of the CASS were tested in rabbits through insertion into the maxillary sinus and evaluated with nasal endoscopy, CT scans, histology, blood counts and chemistries, and in vivo drug release.

**Results:** SEM confirmed the uniformity of the dual coating of ciprofloxacin and azithromycin, and thickness ( $\mu\text{m}$ ) was found to be  $14.7 \pm 2.4$  and  $28.1 \pm 4.6$ , respectively. The inner coated ciprofloxacin showed a sustained release over 14 days (release %) when soaked in saline solution (day 7,  $86.2 \pm 3.4$  vs. day 14,  $99.2 \pm 5.1$ ). In vivo analysis showed that after 12 days,  $78.92 \pm 7.67\%$  of CP and  $84.12 \pm 0.45\%$  of AZ were released into the sinus. There were no significant differences in body weight, white blood cell counts, and radiographic changes before and after

CASS placement. No significant histological changes were observed compared to the contralateral control side.

**Conclusion:** Findings suggest that the CASS is an effective method for delivering therapeutic levels of antibiotics. Further studies are needed to validate efficacy in a preclinical sinusitis model.

Level of evidence: N/A Laryngoscope, 134:3953-3959, 2024.

**Keywords:** antibiotic stent; antibiotic-eluting sinus stent; azithromycin; chronic rhinosinusitis; chronic sinusitis; ciprofloxacin; rabbits; sinusitis; topical delivery.

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- [59 references](#)

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J Asthma

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. 2024 Sep;61(9):1083-1088.

doi: 10.1080/02770903.2024.2327036. Epub 2024 Mar 11.

[Are nighttime respiratory symptoms assessed by asthma control test affected by comorbidities?](#)

[Alida Benfante](#)<sup>1</sup>, [Alessandra Tomasello](#)<sup>1</sup>, [Chiara Caponetto](#)<sup>1</sup>, [Salvatore Battaglia](#)<sup>1</sup>, [Nicola Scichilone](#)<sup>1</sup>

Affiliations Expand

- PMID: 38446620

- DOI: [10.1080/02770903.2024.2327036](https://doi.org/10.1080/02770903.2024.2327036)

## Abstract

**Objective:** Nocturnal symptoms are common in the asthmatic population, reflecting an exaggerated airway narrowing overnight due to several factors; it is questioned to what extent the awakenings documented in the clinical assessment of asthma control are due to the disease itself or to comorbidities. To answer this question, we aimed to evaluate to what proportion rhinitis, gastroesophageal reflux and the likelihood of being affected by OSAS were related to poor asthma control, by means of ACT evaluation.

**Methods:** Asthmatics attending the outpatient clinic were enrolled and administered the following questionnaires: ACT, Total 5 Symptom Score, GERD Impact Scale, Pittsburgh Sleep Quality Index and the Sleep Disorders Questionnaire.

**Results:** One-hundred consecutive patients (M/F: 42/58, mean age  $52 \pm 15$  years) were recruited. According to the ACT findings, 14 asthmatics resulted as fully controlled (FC, ACT equal to 25), 55 partially controlled (PC,  $25 < \text{ACT} > 19$ ) and 31 as uncontrolled (UC,  $\text{ACT} < 19$ ). GERD was not associated with the ACT score neither did rhinitic symptomatology. On the other hand, the PSQI scores appeared to significantly increase with the lack of symptom control: FC, 2.0 (1-4); PC, 3.5 (2-5); UC, 6.6 (4-8) ( $p = 0.002$ ). The SA-SDQ questionnaire results significantly increased with the loss of asthma control: FC, 11.0 (9-12); PC, 12.5 (10-14); UC, 15.1 (14-16) ( $p = 0.005$ ).

**Conclusions:** These results confirm and extend previous findings showing that there is a higher likelihood that underlying unknown sleep disturbances worsen asthma control, suggesting that a more comprehensive assessment is necessary to clarify the cause of nocturnal symptoms in asthma.

**Keywords:** Asthma control; OSAS; nocturnal symptoms; obesity; rhinitis.

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Otolaryngol Head Neck Surg

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2024 Sep;171(3):708-715.

doi: 10.1002/ohn.646. Epub 2024 Jan 31.

**[When It's Not Allergic Rhinitis: Clinical Signs to Raise a Patient's Suspicion for Chronic Rhinosinusitis](#)**

**[Firas A Houssein](#)<sup>1</sup>, [Katie M Phillips](#)<sup>1</sup>, [Ahmad R Sedaghat](#)<sup>1</sup>**

**Affiliations Expand**

- PMID: 38298003
- DOI: [10.1002/ohn.646](https://doi.org/10.1002/ohn.646)

**Abstract**

**Objective:** To identify predictors of chronic rhinosinusitis (CRS) in patients presenting with the chief complaint of nasal allergies.

**Study design:** Cross-sectional study.

**Setting:** Tertiary care, academic center.

**Methods:** Clinical and demographic characteristics were collected from participants who were patients presenting with the chief complaint of nasal allergies. From all participants, a 22-item Sinonasal Outcome Test (SNOT-22) was collected, and a modified Lund-Kennedy endoscopy score was calculated from nasal endoscopy. Association was sought between having CRS and variables of clinical and demographic characteristics, SNOT-22, and endoscopy score.

**Results:** A total of 219 patients were recruited and 91.3% were diagnosed with allergic rhinitis; 45.2% were also diagnosed with CRS. Approximately half of the patients with CRS reported no intranasal corticosteroid usage. Having CRS was associated with male sex (odds ratio [OR] = 2.29, 95% confidence interval [CI]: 1.30-4.04, P = .004), endoscopy score (OR = 1.96, 95% CI: 1.59-2.42, P < .001), and the SNOT-22 nasal subdomain score (OR = 1.07, 95% CI: 1.03-1.11, P = .001) related to SNOT-22 items: "need to blow nose," "thick nasal discharge," "sense of taste/smell," and "blockage/congestion of nose." At least moderate (item score ≥3) "blockage/congestion of nose" or "thick nasal discharge," mild "need to blow nose" (item score ≥2) or very mild decreased "sense of taste/smell" (item score ≥1), and any nasal endoscopy findings (endoscopy score ≥1) were statistically significant predictors of CRS.

**Conclusion:** Moderate or more severe nasal obstruction or discharge symptoms, any decreased sense of smell/taste, or positive nasal endoscopy findings in patients believing they have allergic rhinitis should prompt further evaluation of CRS to avoid delays in treatment.

**Keywords:** SNOT-22; allergic rhinitis; allergy; anosmia; chief complaint; chronic rhinosinusitis; hyposmia; nasal obstruction.

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Int Forum Allergy Rhinol

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. 2024 Aug 30.

doi: 10.1002/alr.23444. Online ahead of print.

[The effect of open-label placebo on allergic rhinitis symptoms: A systematic review and meta-analysis of randomized controlled trials](#)

[Ebraheem Albazee](#)<sup>1</sup>, [Abdullah M Alharran](#)<sup>2</sup>, [Mooza M Alzayed](#)<sup>2</sup>

Affiliations Expand

- PMID: 39212086
- DOI: [10.1002/alr.23444](#)

Abstract

The evidence regarding the open-label placebo effect on allergic rhinitis symptoms remains uncertain. Open-label placebo significantly reduced the frequency of symptoms in allergic rhinitis patients with similar safety profiles; however, there was no effect on the severity of symptoms and impairment due to symptoms. The statistically significant impact on symptom frequency can be considered not clinically significant.

Keywords: allergic rhinitis; allergic symptoms; meta-analysis; open-label placebo.

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Eur Arch Otorhinolaryngol

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. 2024 Aug 24.

doi: 10.1007/s00405-024-08893-6. Online ahead of print.

[Asthma as a risk factor and allergic rhinitis as a protective factor for COVID-19 severity: a case-control study](#)

[Martha Débora Lira Tenório<sup>1,2</sup>](#), [Gabriel Valentim Dos Santos Menezes Siqueira<sup>3</sup>](#), [Gustavo Costa Caldas<sup>3</sup>](#), [Roque Pacheco de Almeida<sup>1,3</sup>](#), [Amélia Ribeiro de Jesus<sup>1,3</sup>](#), [Paulo Ricardo Martins-Filho<sup>4,5,6</sup>](#)

Affiliations Expand

- PMID: 39180537
- DOI: [10.1007/s00405-024-08893-6](#)

Abstract

**Purpose:** The COVID-19 pandemic has resulted in significant global morbidity and mortality. The disease presents a broad clinical spectrum, significantly influenced by underlying comorbidities. While certain conditions are known to exacerbate COVID-19 outcomes, the role of chronic inflammatory airway diseases such as asthma and rhinitis in influencing disease severity remains controversial. This study investigates the association between asthma and allergic rhinitis and the severity of COVID-19 outcomes in a specific geographical region prior to widespread vaccine deployment.

**Methods:** We conducted a case-control study with unvaccinated adult patients who had laboratory-confirmed COVID-19 by polymerase chain reaction (PCR). Cases were defined as severe or critical COVID-19 patients requiring intensive care unit (ICU) admission, and controls were non-severe patients without signs of viral pneumonia or hypoxia. We utilized the International Study of Asthma and Allergies in Childhood (ISAAC) questionnaire to assess the presence of asthma and allergic rhinitis. The association between these chronic inflammatory airway diseases and the severity of COVID-19 was evaluated using multivariate logistic regression analysis.

**Results:** A total of 122 patients were analyzed, with 61 in each group. The presence of asthma (9 patients) was associated with an increased likelihood of severe COVID-19 (OR = 13.0; 95% CI 1.27-133.74), while rhinitis (39 patients) was associated with a protective effect against severe outcomes (OR = 0.36; 95% CI 0.13-0.99). No significant association was found between the frequency of asthmatic episodes or the severity of rhinitis and the severity of COVID-19 outcomes.

**Conclusion:** This study underscores the divergent effects of chronic inflammatory airway diseases on COVID-19 severity, with asthma associated with a higher likelihood of severe outcomes and rhinitis potentially offering protective effects. These findings enhance our understanding of the complex interactions between respiratory allergies and COVID-19, emphasizing the importance of targeted clinical management and public health strategies.

**Keywords:** Asthma; COVID-19; Rhinitis; SARS-CoV-2.

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## chronic cough

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Respir Med

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. 2024 Sep:231:107739.

doi: 10.1016/j.rmed.2024.107739. Epub 2024 Jul 17.

## [A systematic review of the psychometric properties of the Leicester Cough Questionnaires based on the COSMIN guidelines](#)

[Anne Bottine](#)<sup>1</sup>, [Julien Grandjean](#)<sup>2</sup>, [Marie Standaert](#)<sup>3</sup>, [Aldjia Abdellaoui](#)<sup>4</sup>, [Gregory Reyckler](#)<sup>5</sup>

Affiliations Expand

- PMID: 39029808
- DOI: [10.1016/j.rmed.2024.107739](#)

### **Abstract**

**Background:** Chronic cough affects around 10 % of the general adult population, impairing all aspects of quality of life.

**Research question:** What are the Leicester Cough Questionnaire's psychometric properties?

**Study design and methods:** Electronic searches of PubMed, CINAHL, and ScienceDirect databases were conducted from inception until October 1st 2022. All full-text articles, published in French or English, aimed at evaluating the LCQ's content validity or psychometric properties were included. The COSMIN Risk of Bias checklist was applied to assess their methodological quality and results. Results were qualitatively summarised and rated by a modified GRADE approach.

**Results:** 40 studies were included accounting for 8731 adults, subject to cough or a respiratory condition. Chronic cough (>8 weeks) was the most represented. The LCQ's total score is relevant and comprehensible for the assessment of the impact of cough on QoL. The original 3-factor model showed a satisfactory model fit. Good convergent validity was found for the total and physical domain scores. These scores demonstrate good internal consistency and test retest reliability, with some variability noted and they are responsive to change. Recent estimates of MID thresholds were 1.7 and 0.4 for total and domain scores respectively. The quality of the studies is globally poor.

**Interpretation:** The LCQ is a valid outcome to assess the intra-individual impact of cough on QoL and to detect large changes in quality of life mainly in a short-term clinical trial setting.

**Clinical trial registration:** The protocol was registered with PROSPERO (CRD42022355191).

**Keywords:** Cough; LCQ; Properties; Systematic review.

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**Conflict of interest statement**

Declaration of competing interest The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper. A member of the review team is also an author of one of the included validation studies(1).

Supplementary info

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Respir Investig

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. 2024 Sep;62(5):811-816.

doi: 10.1016/j.resinv.2024.07.006. Epub 2024 Jul 16.

**[Prevalence and clinical relevance of comorbid pertussis infection in adult patients with asthma: A prospective, cross-sectional study](#)**

[Hirono Nishiyama](#)<sup>1</sup>, [Tomoko Tajiri](#)<sup>2</sup>, [Ryota Kurokawa](#)<sup>1</sup>, [Tatsuro Suzuki](#)<sup>1</sup>, [Keima Ito](#)<sup>1</sup>, [Yuta Mori](#)<sup>1</sup>, [Kensuke Fukumitsu](#)<sup>1</sup>, [Satoshi Fukuda](#)<sup>1</sup>, [Yoshihiro Kanemitsu](#)<sup>1</sup>, [Takehiro Uemura](#)<sup>1</sup>, [Hirotugu Ohkubo](#)<sup>1</sup>, [Ken Maeno](#)<sup>1</sup>, [Yutaka Ito](#)<sup>1</sup>, [Tetsuya Oguri](#)<sup>1</sup>, [Masaya Takemura](#)<sup>1</sup>, [Akio Niimi](#)<sup>1</sup>

Affiliations Expand

- PMID: 39018657
- DOI: [10.1016/j.resinv.2024.07.006](https://doi.org/10.1016/j.resinv.2024.07.006)

**Abstract**

**Background:** Viral or atypical bacterial respiratory infections are involved in the new development and the pathogenesis of asthma. Though an association between pertussis and asthma has been expected, few studies have reported it consistently. We assessed the prevalence and clinical relevance of pertussis infection in adult patients with asthma.

**Methods:** In this prospective, cross-sectional study, newly referred, adult patients with asthma (n = 107) and with non-asthmatic subacute/chronic cough (n = 31) were enrolled. The prevalence of pertussis in patients with asthma and in those with non-asthmatic subacute/chronic cough was assessed. Next, the prevalence of newly diagnosed asthma was compared between asthmatic patients with and without pertussis. Finally, demographic characteristics of patients, blood test results, pulmonary function test results, and questionnaire scores were compared between the two patient groups.

**Results:** The prevalence of pertussis infection was significantly higher in patients with asthma than in those with non-asthmatic subacute/chronic cough (36% vs 10%; P = 0.004). The prevalence of newly diagnosed asthma was significantly higher in asthmatic patients with pertussis than in those without (74.4% vs 50.0%; P = 0.014). The physical, psychological, and total scores of the Leicester Cough Questionnaire were significantly lower in asthmatic patients with pertussis than in those without (all P < 0.05). The acid-reflux, dyspeptic, and total scores of the Frequency Scale for Symptoms of Gastroesophageal Reflux Disease (GERD) (FSSG) were significantly higher in asthmatic patients with pertussis than in those without (all P ≤ 0.05). The FSSG acid-reflux score was negatively correlated with the cough-specific quality of life (QOL) score only in asthmatic patients with pertussis (rho = -0.68, P = 0.01).

**Conclusions:** The prevalence of pertussis infection was significantly higher in adult patients with asthma than in those with non-asthmatic subacute/chronic cough. In patients with asthma, comorbid pertussis infection may play a role in newly diagnosed asthma and may contribute to impaired cough-specific QOL partly due to worsening acid-reflux symptoms of GERD.

**Keywords:** Asthma; Cough-specific quality of life; Gastroesophageal reflux disease; Pertussis; Prevalence.

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### **Conflict of interest statement**

Declaration of competing interest The authors have no conflicts of interest.

Supplementary info

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Review

Hum Cell

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. 2024 Sep;37(5):1316-1324.

doi: 10.1007/s13577-024-01089-4. Epub 2024 Jun 24.

### [The role of neutrophils in chronic cough](#)

[Guan-Zhen Xue](#)<sup>1,2</sup>, [Hai-Zhen Ma](#)<sup>3</sup>, [Ta-Na Wuren](#)<sup>4,5</sup>

Affiliations Expand

- PMID: 38913146
- DOI: [10.1007/s13577-024-01089-4](https://doi.org/10.1007/s13577-024-01089-4)

### **Abstract**

Chronic cough is a common disorder lasting more than 8 weeks and affecting all age groups. The evidence supporting the role of neutrophils in chronic cough pathology is based on many patients with chronic cough developing airway neutrophilia. How neutrophils influence the development of chronic cough is unknown. However, they are likely involved in multiple aspects of cough etiology, including promoting airway inflammation, airway remodeling, hyper-responsiveness, local neurogenic inflammation, and other possible mechanisms. Neutrophilic airway inflammation is also associated with refractory cough, poor control of underlying diseases (e.g., asthma), and insensitivity to cough suppressant therapy. The potential for targeting neutrophils in chronic cough needs exploration, including developing new drugs targeting one or more neutrophil-mediated pathways or altering the neutrophil phenotype to alleviate chronic cough. How the airway microbiome differs, plays a role, and interacts with neutrophils in different cough etiologies

is poorly understood. Future studies should focus on understanding the relationship between the airway microbiome and neutrophils.

**Keywords:** Airway hyper-responsiveness; Airway inflammation; Chronic cough; Neutrophil.

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Review

Curr Opin Pulm Med

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. 2024 Sep 1;30(5):523-529.

doi: 10.1097/MCP.0000000000001087. Epub 2024 Jun 24.

**[What causes cough in pulmonary fibrosis, and how should we treat it?](#)**

[Katherine J Myall](#)<sup>1,2</sup>, [Peter S P Cho](#)<sup>1,2</sup>, [Surinder S Biring](#)<sup>1,2</sup>

Affiliations Expand

- PMID: 38913018
- DOI: [10.1097/MCP.0000000000001087](https://doi.org/10.1097/MCP.0000000000001087)

## Abstract

**Purpose of review:** To review the current understanding of the impact, mechanisms and treatments for cough in patients with interstitial lung disease (ILD). Evidence suggests that cough is a prevalent symptom in patients with ILD and has a significant impact on patients.

**Recent findings:** There is increasing interest in the role of cough hypersensitivity as seen in chronic refractory cough in patients with ILD, and encouraging recent results suggest that ILD-associated cough responds to opiate therapy.

**Summary:** Understanding the aetiology of cough in patients with ILD is crucial to continue to develop therapies which might be effective in reducing cough and increasing quality of life.

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BMC Pulm Med

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. 2024 Aug 29;24(1):427.

doi: 10.1186/s12890-024-03218-z.

[\*\*Determinants of cough-related quality of life in interstitial lung diseases\*\*](#)

[Eeva Saari](#)<sup>1,2</sup>, [Minna Mononen](#)<sup>3</sup>, [Hannele Hasala](#)<sup>4</sup>, [Hanna Nurmi](#)<sup>1,2</sup>, [Hannu-Pekka Kettunen](#)<sup>5</sup>, [Sanna Suoranta](#)<sup>5,6</sup>, [Elisa Lappi-Blanco](#)<sup>7,8</sup>, [Riitta Kaarteenaho](#)<sup>9,10</sup>, [Minna Purokivi](#)<sup>2</sup>, [Heikki Olavi Koskela](#)<sup>11,12</sup>

Affiliations Expand

- PMID: 39210302
- DOI: [10.1186/s12890-024-03218-z](https://doi.org/10.1186/s12890-024-03218-z)

## Abstract

**Background:** Interstitial lung diseases (ILD) include a wide range of diseases impacting lung parenchyma and leading to fibrosis and architectural distortion. Chronic cough and dyspnea are common symptoms which affect the quality of life (QoL) in ILD patients. The mechanisms of cough in ILD patients are still unknown. The aim of this study was to prospectively investigate histological, radiological, and physiological determinants of cough-related QoL in ILD patients who underwent transbronchial lung cryobiopsy (TBLC).

**Methods:** All patients (n = 111) filled in The Leicester Cough Questionnaire (LCQ) and The St George's Respiratory Questionnaire (SGRQ). They underwent lung function tests, forced vital capacity (FVC), forced vital expiratory volume in 1 s (FEV1), diffusion capacity to carbon monoxide (DLCO), high-resolution computed tomography (HRCT), and blood samples before diagnostic TBLC. Two experienced radiologists assessed the extents of following HRCT patterns: ground-glass opacities (GGO), honeycombing, reticulation, traction bronchiectasis, and emphysema. Histology of TBLC were re-analyzed by two experienced pulmonary pathologists and the presence of fibroblast foci, fibrosis, giant cells, granulomas, and honeycombing were recorded.

**Results:** In the median multivariate regression analysis, BMI (-0.19; 95% CI -0.37- -0.014; p 0.035), GGO (-0.38; 95% CI -0.61- -0.15; p 0.001), granulomas (-3.21; 95% CI -6.12- -0.30; p 0.031), and current smoking (2.49; 95% CI 0.12-4.86; p 0.040) showed independent associations with LCQ total score. BMI (1.3; 95% CI 0.20-2.42; p 0.021) and DLCO (-0.51; 95% CI -0.85 - -0.16; p 0.004) showed independent association with SGRQ total score.

**Conclusion:** Determinants of cough-related QoL in ILD patients are multifactorial including physiological, radiological and histological parameters.

**Keywords:** Cough; Interstitial lung disease; Leicester cough questionnaire; Quality of life.

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- [50 references](#)

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Respir Investig

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. 2024 Aug 27;62(6):987-994.

doi: 10.1016/j.resinv.2024.08.005. Online ahead of print.

### [\*\*Cough severity visual analog scale scores and quality of life in patients with refractory or unexplained chronic cough\*\*](#)

[Christian Domingo](#)<sup>1</sup>, [Santiago Quirce](#)<sup>2</sup>, [Ignacio Dávila](#)<sup>3</sup>, [Astrid Crespo-Lessman](#)<sup>4</sup>, [Ebymar Arismendi](#)<sup>5</sup>, [Alfredo De Diego](#)<sup>6</sup>, [Francisco Javier González-Barcala](#)<sup>7</sup>, [Luis Pérez de Llano](#)<sup>8</sup>, [Luis Cea-Calvo](#)<sup>9</sup>, [Marta Sánchez-Jareño](#)<sup>10</sup>, [Pilar López-Cotarelo](#)<sup>10</sup>, [Luis Puente-Maestu](#)<sup>11</sup>

Affiliations Expand

- PMID: 39197381
- DOI: [10.1016/j.resinv.2024.08.005](https://doi.org/10.1016/j.resinv.2024.08.005)

#### **Abstract**

**Background:** Refractory chronic cough (RCC) and unexplained chronic cough (UCC) adversely affect patients' quality of life (QoL). This multicenter, non-interventional study evaluates the relationship between cough severity and QoL and other patient-reported outcomes (PROs) in Spanish outpatients.

**Methods:** RCC/UCC patients self-administered a printed survey comprising the cough-severity visual analog scale (VAS), adapted Cough Severity Diary (CSD), and Leicester Cough Questionnaire (LCQ), plus purpose-designed items regarding the physical and

everyday-life impact of cough. Patients were stratified into VAS score tertiles. The impact of cough on QoL and other PROs in each tertile, and relationships between LCQ scores and the tertiles, were assessed.

**Results:** The VAS was completed by 189 patients, and VAS score tertiles were identified as 0-50, 60-70, and 80-100 mm. The only between-tertile difference in demographic or cough characteristics was cough duration. VAS score tertiles were linearly associated with mean LCQ domain and total scores, as well as the proportion of patients with the highest scores on all adapted CSD items, and almost all physical and everyday-life impact items. In multiple linear-regression models, an increase of one tertile in the VAS score was associated with a decrease of 2.23 points in the LCQ total score, indicating poorer cough-related QoL.

**Conclusion:** As self-assessed in patients with RCC/UCC, cough-severity VAS scores were strongly associated with the impact of cough on QoL and everyday life. Patients with VAS scores of 60-100 mm reported the greatest impact and thus may benefit the most from targeted cough therapies.

**Keywords:** Cough severity; Patient-reported outcomes; Quality of life; Unexplained chronic cough; refractory chronic cough.

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### **Conflict of interest statement**

Declaration of competing interest Christian Domingo has received consultant and speaker's honoraria from MSD, Novartis, Boehringer, Sanofi, TEVA, AstraZeneca, ALK, Allergy Therapeutics. Santiago Quirce has received speaking, lecture and consulting fees from Allergy Therapeutics, AstraZeneca, GSK, Mundipharma, Novartis, Sanofi, and Teva. Ignacio Dávila has received consulting fees from Allergy Therapeutics, AstraZeneca, GSK, MSD, Novartis, and Sanofi. Lectures for Allergy Therapeutics, AstraZeneca, Chiesi, Diater, GSK, LETI, Novartis, and Sanofi. Grants to his institution from ISCIII (public entity), Junta de Castilla de León (public entity), and ThermoFisher. Astrid Crespo-Lessman has received consultant's honoraria from AstraZeneca, Sanofi, GlaxoSmithKline, and her institution has received grants from AstraZeneca and GlaxoSmithKline. Luis Puente-Maestu declares no conflict of interest. Ebymar Arismendi declares no conflict of interest. Alfredo De Diego declares no conflict of interest. Francisco Javier González-Barcala has received consulting fees and speaker's honoraria from ALK, AstraZeneca, Bial, Chiesi, GebroPharma, GlaxoSmithKline, Menarini, Novartis, Rovi, Roxall, Sanofi, Stallergenes-Greer and Teva. Luis Pérez De Llano has received consulting fees and speaker's honoraria from AstraZeneca, Chiesi, GlaxoSmithKline, FAES, MSD, Sanofi, Techdow Pharma and Teva, and his institution has received grants from AstraZeneca, FAES and Sanofi. Luis Cea-Calvo, Marta Sánchez-Jareño, and Pilar López-Cotarelo are full-time employees of MSD Spain. Assessed using an 11-point Likert scale, where higher numbers indicate greater severity/impact. Results pertain to the day before the study visit. Not all patients responded to all items. The total

number of respondents is specified for each item. Percentages in each cough-severity VAS tertile are calculated based on the number of respondents in that tertile.

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. 2024 Aug 27;25(1):325.

doi: 10.1186/s12931-024-02897-w.

**[The burden of cough in idiopathic pulmonary fibrosis and other interstitial lung diseases: a systematic evidence synthesis](#)**

[Rhiannon Green](#)<sup>1</sup>, [Michael Baldwin](#)<sup>2</sup>, [Nick Pooley](#)<sup>1</sup>, [Kate Misso](#)<sup>1</sup>, [Maureen Pmh Rutten-van Mólken](#)<sup>3</sup>, [Nina Patel](#)<sup>4</sup>, [Marlies S Wijsenbeek](#)<sup>5</sup>

Affiliations Expand

- PMID: 39192278
- PMCID: [PMC11351049](#)
- DOI: [10.1186/s12931-024-02897-w](#)

**Abstract**

**Background:** Cough remains a persistent symptom in patients with idiopathic pulmonary fibrosis (IPF) and other interstitial lung diseases (ILDs). To inform future research, treatment and care models, we conducted the first systematic synthesis of evidence on its associated burden.

**Methods:** A literature search was performed for articles published between January 2010 and October 2023 using databases including Embase, MEDLINE and the Cochrane Library. Studies in patients with IPF and other ILDs reporting cough-related measures were eligible for inclusion. Included studies were categorised based on the types of ILD they examined and their design. Study details, patient characteristics and outcomes were extracted, and the risk of bias was assessed. A narrative synthesis approach was employed to interpret the findings.

**Results:** Sixty-one studies were included: 33 in IPF, 18 in mixed-ILDs, six in connective tissue disease-associated-ILDs and four in sarcoidosis. Across the studies, a range of tools to assess cough and its impact were used. The most frequently used measures of cough were cough severity visual analogue scale (VAS) and objective cough counts, whereas the most frequently used health-related quality of life (HRQoL)/impact measures were the St. George's Respiratory Questionnaire (SGRQ) and Leicester Cough Questionnaire (LCQ). In IPF, studies consistently reported correlations between various cough and HRQoL measures, including between cough VAS scores and objective cough counts, LCQ scores and SGRQ scores. Similar correlations were observed in studies in other ILDs, but data were more limited. Qualitative studies in both IPF and other ILDs consistently highlighted the significant cough-related burden experienced by patients, including disruption of daily activities, fatigue and social embarrassment. Although there were no studies specifically investigating the economic burden of cough, one study in patients with fibrotic ILD found cough severity was associated with workplace productivity loss.

**Conclusions:** Our study underscores the heterogeneity in assessing cough and its impact in IPF and other ILDs. The findings confirm the negative impact of cough on HRQoL in IPF and suggest a comparable impact in other ILDs. Our synthesis highlights the need for standardised assessment tools, along with dedicated studies, particularly in non-IPF ILDs and on the economic burden of cough.

**Keywords:** Burden; Chronic cough; Connective tissue disease-associated interstitial lung disease; Cough; Health-related quality of life; Idiopathic pulmonary fibrosis; Interstitial lung disease; Progressive pulmonary fibrosis; Quality of life; Sarcoidosis.

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- [86 references](#)

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Editorial

Respir Investig

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. 2024 Aug 25;62(6):960-962.

doi: 10.1016/j.resinv.2024.04.020. Online ahead of print.

## **[Implication of "Cough hypersensitivity syndrome \(CHS\)" in cough treatment](#)**

[Yasushi Obase](#)<sup>1</sup>

Affiliations Expand

- PMID: 39186879
- DOI: [10.1016/j.resinv.2024.04.020](https://doi.org/10.1016/j.resinv.2024.04.020)

*No abstract available*

**Keywords:** Chronic cough; Dry cough; P2X3 receptor antagonist; Refractory chronic cough; Unexplained chronic cough.

### **Conflict of interest statement**

Declaration of competing interest The author has no conflict of interest.

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. 2024 Aug 24;62(6):942-950.

doi: 10.1016/j.resinv.2024.08.007. Online ahead of print.

### [\*\*Multidisciplinary team discussion based on etiological treatment improves refractory chronic cough outcomes\*\*](#)

[Yicong Lu](#)<sup>1</sup>, [Wanting Huang](#)<sup>2</sup>, [Danruo Fang](#)<sup>1</sup>, [Huijie Wang](#)<sup>3</sup>, [Jiangying Guo](#)<sup>1</sup>, [Na Li](#)<sup>1</sup>, [Xuefen Wang](#)<sup>4</sup>, [Miaoyan Chen](#)<sup>5</sup>, [Jia Chen](#)<sup>6</sup>, [Huaqiong Huang](#)<sup>7</sup>

Affiliations Expand

- PMID: 39182399
- DOI: [10.1016/j.resinv.2024.08.007](https://doi.org/10.1016/j.resinv.2024.08.007)

#### **Abstract**

**Background:** Refractory chronic cough (RCC) causes significant impairments in the life quality of patients. Further research into the identification of etiologies and development of the treatment schedules for RCC is needed.

**Patients and methods:** We established an multidisciplinary team (MDT) clinic, by integrating respiratory medicine, otorhinolaryngology, and gastroenterology departments, to investigate cough etiologies and the effectiveness of treatment. The therapeutic effect was assessed quantitatively using the Cough Visual Analog Scales (VAS), Leicester Cough Questionnaire (LCQ), and Reflux Symptoms Index (RSI) scores.

**Results:** In total, 213 patients attending the MDT outpatient clinic were examined, and 115 patients with RCC were included for analysis. The RCC diagnosis rate among the outpatient

was 88.7%. Common causes of RCC included gastroesophageal reflux cough (63.5%), upper airway cough syndrome (UACS) (43.5%), and cough variant asthma (CVA) (14.8%). After an average treatment period of  $2.17 \pm 1.06$  weeks (wk), 73.9% of the patients had partial cough remission, and 6.1% had complete cough remission. The cough VAS score before and after treatment was  $6.11 \pm 2.02$  vs.  $3.66 \pm 2.22$  ( $P < 0.05$ ), respectively; LCQ total score before and after treatment was  $10.24 \pm 3.11$  vs.  $13.16 \pm 3.59$  ( $P < 0.05$ ), respectively; and RSI score before and after treatment was  $15.82 \pm 7.01$  vs.  $10.71 \pm 6.64$  ( $P < 0.05$ ), respectively.

**Conclusion:** The etiologies of most patients with RCC could be identified in the MDT clinic, and the cough-related symptoms of a significant number of patients with RCC improved in a short period.

**Keywords:** Cough variant asthma; Gastroesophageal reflux disease; MDT clinic; Refractory chronic cough; Upper airway cough syndrome.

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#### **Conflict of interest statement**

Declaration of competing interest The authors have no conflicts of interest.

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

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**J Manag Care Spec Pharm**

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. 2024 Sep;30(9):967-977.

doi: 10.18553/jmcp.2024.30.9.967.

[Real-world treatment patterns, health care resource utilization, and costs in a US Medicare population with bronchiectasis](#)

[Joseph Tkacz](#)<sup>1</sup>, [Benjamin Lewing](#)<sup>1</sup>, [Joseph Feliciano](#)<sup>2</sup>, [Maitreyee Mohanty](#)<sup>2</sup>, [Melanie Lauterio](#)<sup>2</sup>, [Sebastian Fucile](#)<sup>2</sup>, [Alan Barker](#)<sup>3</sup>

## Affiliations Expand

- PMID: 39213146
- DOI: [10.18553/jmcp.2024.30.9.967](https://doi.org/10.18553/jmcp.2024.30.9.967)

## Abstract

**Background:** Bronchiectasis carries a significant economic burden with high health care expenditures associated with frequent hospitalizations, physician visits, and treatments, including oral and intravenous antibiotics for repeated lung infections, airway-clearance therapy, and oxygen administration. Bronchiectasis exacerbations can contribute to this burden.

**Objective:** To estimate US health care resource utilization (HCRU) and costs associated with bronchiectasis and with bronchiectasis exacerbations.

**Methods:** This retrospective study used the 100% Medicare Fee-for-Service database (January 2014 to December 2020) to compare HCRU and costs among patients with bronchiectasis with those of patients without bronchiectasis (controls). For patients with bronchiectasis, the index date was a randomly selected bronchiectasis claim after more than 1 year of disease history and, for controls, a claim closest to their matched bronchiectasis patient's index date. All patients had continuous enrollment for at least 12 months pre-index (baseline) and at least 12 months post-index. Primary outcomes were all-cause, respiratory-related, and bronchiectasis-related HCRU and health care costs, which were presented by the overall sample and by segmented patient cohorts based on the number of exacerbations during baseline (0, 1, or  $\geq 2$ ).

**Results:** 92,529 patients with bronchiectasis (mean [SD] age, 76.7 [8.8] years; 72.3% female) and 92,529 matched controls qualified for the study. Compared with controls, patients with bronchiectasis presented greater mean (SD) all-cause physician visits (15.4 [10.0] vs 13.2 [9.7];  $P < 0.001$ ) and respiratory-related physician visits (5.2 [4.3] vs 1.9 [3.1]), pulmonologist visits (1.9 [2.2] vs 0.3 [1.0]), hospitalizations (0.4 [0.9] vs 0.3 [0.8]), emergency department visits (0.33 [1.0] vs 0.26 [1.0]), and total health care costs (\$10,224 [\$23,263] vs \$6,704 [\$19,593]). Respiratory-related HCRU was also greater in patients with more baseline exacerbations, with total health care costs of \$8,506, \$10,365, and \$14,790 for patients with 0, 1, and at least 2 exacerbations, respectively ( $P < 0.01$ ).

**Conclusions:** This real-world study demonstrates the high disease burden associated with bronchiectasis and with exacerbations, highlighting the need to improve management and reduce exacerbations.

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Int J Tuberc Lung Dis

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. 2024 Sep 1;28(9):427-432.

doi: 10.5588/ijtld.24.0090.

[The impact of bronchiectasis and its severity on long-term renal outcomes](#)

[W C Kwok](#)<sup>1</sup>, [T C C Tam](#)<sup>1</sup>, [J C M Ho](#)<sup>1</sup>, [D C L Lam](#)<sup>1</sup>, [M S M Ip](#)<sup>1</sup>, [D Y H Yap](#)<sup>2</sup>

Affiliations Expand

- PMID: 39188003
- DOI: [10.5588/ijtld.24.0090](#)

Abstract

**INTRODUCTION** While bronchiectasis is associated with adverse cardiovascular outcomes, data regarding its impact on long-term renal outcomes is lacking.

**METHODS** We reviewed bronchiectasis patients followed up at Queen Mary Hospital in 2017 and examined their clinical/renal outcomes in the subsequent five years. The relationships between the severity of bronchiectasis as defined by FACED (FEV<sub>1</sub>, Age, Chronic colonisation, Extension, Dyspnoea) scores and adverse renal outcomes were evaluated.

**RESULTS** A total of 315 bronchiectasis patients were included. Seventy-five patients (23.8%) showed renal progression. Baseline FACED score showed a positive correlation with renal progression over 5 years of follow-up (adjusted odds ratio [aOR] 1.30 (95% CI 1.083-1.559, *P* = 0.005). Patients with moderate-to-severe bronchiectasis (FACED score  $\geq 3$ ) showed an increased risk of renal progression (aOR 1.833, 95% CI 1.082-3.106; *P* = 0.024) and more rapid decline in estimated glomerular filtration rate than those with mild disease ( $-4.77 \pm 4.19$  mL/min/1.73 m<sup>2</sup>/year vs.  $-3.49 \pm 3.94$  mL/min/1.73 m<sup>2</sup>/year; *P* = 0.006). Patients who developed renal progression had a higher risk of death (adjusted hazard ratio [aHR] 3.056, 95% CI 1.505-6.206; *P* = 0.002) and subsequent rates of hospitalisation ( $1.56 \pm 2.81$  episodes/year vs.  $0.60 \pm 1.18$  episodes/year; *P* < 0.001) compared to

those without renal progression.</sec><sec><title>CONCLUSIONS</title>Progressive renal function deterioration is prevalent among bronchiectasis patients, and the severity of bronchiectasis is a robust predictor of renal progression.</sec>.

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Review

Radiographics

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. 2024 Sep;44(9):e240008.

doi: 10.1148/rg.240008.

[Update on the Role of Chest Imaging in Cystic Fibrosis](#)

[Scott M Bugenhagen](#)<sup>1</sup>, [Jacob C E Grant](#)<sup>1</sup>, [Daniel B Rosenbluth](#)<sup>1</sup>, [Sanjeev Bhalla](#)<sup>1</sup>

Affiliations Expand

- PMID: 39172707
- DOI: [10.1148/rg.240008](#)

Abstract

Cystic fibrosis is a genetic disease with multisystem involvement and associated morbidity and mortality that are most directly related to progressive lung disease. The hallmark findings of cystic fibrosis in the lungs are chronic inflammation and infection, leading to progressive loss of pulmonary function and often requiring lung transplant. Predominant lung findings include mucous plugging,

bronchiectasis, and air trapping, often with associated atelectasis, consolidation, and emphysema; these findings form the basis of several clinical scoring systems that are used for imaging assessment. Recently, there have been major breakthroughs in the pharmacologic management of cystic fibrosis, including highly effective modulator therapies that directly target the underlying cystic fibrosis transmembrane conductance regulator molecular defect, often leading to remarkable improvements in lung function and quality of life with corresponding significant improvements in imaging markers. The authors review current guidelines regarding cystic fibrosis with respect to disease monitoring, identifying complications, and managing advanced lung disease. In addition, they discuss the evolving role of imaging, including current trends, emerging technologies, and proposed updates to imaging guidelines endorsed by international expert committees on cystic fibrosis, which favor increased use of cross-sectional imaging to enable earlier detection of structural changes in early disease and more sensitive detection of acute changes in advanced disease. It is important for radiologists to be familiar with these trends and updates so that they can most effectively assist clinicians in guiding the management of patients with cystic fibrosis in all stages of disease. ©RSNA, 2024.

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Review

Clin Chest Med

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. 2024 Sep;45(3):717-728.

doi: 10.1016/j.ccm.2024.02.020. Epub 2024 Mar 28.

[Respiratory Aspects of Primary Ciliary Dyskinesia](#)

[Wilfredo De Jesús-Rojas](#)<sup>1</sup>, [Adam J Shapiro](#)<sup>2</sup>, [Amelia Shoemark](#)<sup>3</sup>

## Affiliations Expand

- PMID: 39069333
- DOI: [10.1016/j.ccm.2024.02.020](https://doi.org/10.1016/j.ccm.2024.02.020)

## Abstract

This review article explores the respiratory aspects of primary ciliary dyskinesia (PCD), a rare, heterogenous, genetic disorder characterized by impaired motile ciliary function. It discusses the clinical diagnosis and management strategies for PCD-related respiratory disease, including chronic sinusitis, otitis media with effusion, recurrent pneumonia, and bronchiectasis. The review emphasizes the need for a multidisciplinary approach to optimize care and clinical trials to improve outcomes in individuals with PCD, highlighting the importance of accurate diagnosis.

**Keywords:** Primary ciliary dyskinesia; Pulmonary management; Pulmonary manifestations; Respiratory complications.

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## Conflict of interest statement

Disclosure The authors declare no conflicts of interest related to this article.

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## Review

## Ann Am Thorac Soc

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. 2024 Sep;21(9):1219-1237.

doi: 10.1513/AnnalsATS.202406-651ST.

[Postinfectious Pulmonary Complications: Establishing Research Priorities to Advance the Field: An Official American Thoracic Society Workshop Report](#)

[Sara C Auld](#), [Ajay Sheshadri](#), [Jennifer Alexander-Brett](#), [Yael Aschner](#), [Amy K Barczak](#), [Maria C Basil](#), [Keira A Cohen](#), [Charles Dela Cruz](#), [Claire McGroder](#), [Marcos I Restrepo](#), [Karen M Ridge](#), [Lynn M Schnapp](#), [Katrina Traber](#), [Richard G Wunderink](#), [David Zhang](#), [Assem Ziady](#), [Enqi F Attia](#), [Jane Carter](#), [James D Chalmers](#), [Kristina Crothers](#), [Charles Feldman](#), [Barbara E Jones](#), [Naftali Kaminski](#), [Joseph Keane](#), [David Lewinsohn](#), [Mark Metersky](#), [Joseph P Mizgerd](#), [Alison Morris](#), [Julio Ramirez](#), [Amali E Samarasinghe](#), [Bashar S Staitieh](#), [Cari Stek](#), [Jie Sun](#), [Scott E Evans](#)

- PMID: 39051991
- DOI: [10.1513/AnnalsATS.202406-651ST](#)

#### Abstract

Continued improvements in the treatment of pulmonary infections have paradoxically resulted in a growing challenge of individuals with postinfectious pulmonary complications (PIPCs). PIPCs have been long recognized after tuberculosis, but recent experiences such as the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic have underscored the importance of PIPCs following other lower respiratory tract infections. Independent of the causative pathogen, most available studies of pulmonary infections focus on short-term outcomes rather than long-term morbidity among survivors. In this document, we establish a conceptual scope for PIPCs with discussion of globally significant pulmonary pathogens and an examination of how these pathogens can damage different components of the lung, resulting in a spectrum of PIPCs. We also review potential mechanisms for the transition from acute infection to PIPC, including the interplay between pathogen-mediated injury and aberrant host responses, which together result in PIPCs. Finally, we identify cross-cutting research priorities for the field to facilitate future studies to establish the incidence of PIPCs, define common mechanisms, identify therapeutic strategies, and ultimately reduce the burden of morbidity in survivors of pulmonary infections.

Keywords: bronchiectasis; pneumonia; tuberculosis.

#### Supplementary info

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Case Reports

Radiol Case Rep

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. 2024 Jul 1;19(9):3952-3958.

doi: 10.1016/j.radcr.2024.06.007. eCollection 2024 Sep.

[Kartagener syndrome with pectus excavatum and upper lobar bronchiectasis](#)

[Zain Saleem Khan](#)<sup>1,2</sup>, [Saransh Kumar Saini](#)<sup>1,2</sup>, [Weng Joe Chua](#)<sup>3</sup>, [Hao Ting Jacky Liao](#)<sup>1,2</sup>, [Samuel Manikkam](#)<sup>1</sup>

Affiliations Expand

- PMID: 39050650
- PMCID: [PMC11266874](#)
- DOI: [10.1016/j.radcr.2024.06.007](#)

Abstract

Primary Ciliary Dyskinesia (PCD) is a rare autosomal recessive disorder caused by impaired ciliary function. The incidence of PCD is 1 in 20,000 births. Kartagener's syndrome (KS), a subtype of PCD, is distinguished by the presence of situs inversus. KS occurs in about 1 in 32,000 to 40,000 births. Characterized by a triad of situs inversus totalis, sinusitis, and typically lower lobe bronchiectasis, Kartagener's syndrome presents with distinct radiological features, which are explored in this case study. We report on an adolescent male with Kartagener's syndrome, manifesting atypical bronchiectasis in the left upper lobe, leading to a bilateral lung transplant, and severe pectus excavatum requiring surgical correction. This case documents a male patient with concurrent Kartagener's syndrome and pectus excavatum, supporting a previously explored, albeit theoretical association between these conditions.

Keywords: Bronchiectasis; Excavatum; Kartagener; Situs Inversus.

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. 2024 Sep;62(5):798-803.

doi: [10.1016/j.resinv.2024.07.002](https://doi.org/10.1016/j.resinv.2024.07.002). Epub 2024 Jul 11.

[Validation of a computed tomography diagnostic model for differentiating fibrotic hypersensitivity pneumonitis from idiopathic pulmonary fibrosis](#)

[Hiromitsu Sumikawa<sup>1</sup>](#), [Kosaku Komiya<sup>2</sup>](#), [Ryoko Egashira<sup>3</sup>](#), [Junya Tominaga<sup>4</sup>](#), [Midori Ueno<sup>5</sup>](#), [Taiki Fukuda<sup>6</sup>](#), [Daisuke Yamada<sup>7</sup>](#), [Reoto Takei<sup>8</sup>](#), [Kensuke Kataoka<sup>8</sup>](#), [Tomoki Kimura<sup>8</sup>](#), [Yasuhiro Kondoh<sup>8</sup>](#), [Masaru Ejima<sup>9</sup>](#), [Takashi Shimamura<sup>10</sup>](#), [Tomoya Tateishi<sup>10</sup>](#), [Hiromi Tomioka<sup>11</sup>](#), [Yasunari Miyazaki<sup>10</sup>](#), [Takafumi Suda<sup>12</sup>](#), [Takeshi Johkoh<sup>13</sup>](#)

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- PMID: [38996781](https://pubmed.ncbi.nlm.nih.gov/38996781/)
- DOI: [10.1016/j.resinv.2024.07.002](https://doi.org/10.1016/j.resinv.2024.07.002)

Abstract

**Background:** The diagnosis of fibrotic hypersensitivity pneumonitis (fHP) from other interstitial lung diseases, particularly idiopathic pulmonary fibrosis (IPF), is often

difficult. This study aimed to examine computed tomography (CT) findings that were useful for differentiating between fHP and IPF and to develop and validate a radiological diagnostic model.

**Methods:** In this study, 246 patients (fHP, n = 104; IPF, n = 142) from two institutions were included and randomly divided into the test (n = 164) and validation (n = 82) groups (at a 2:1 ratio). Three radiologists evaluated CT findings, such as pulmonary fibrosis, small airway disease, and predominant distribution, and compared them between fHP and IPF using binomial logistic regression and multivariate analysis. A prognostic model was developed from the test group and validated with the validation group.

**Results:** Ground-glass opacity (GGO) with traction bronchiectasis (TB), honeycombing, hypoattenuation area, three-density pattern, diffuse craniocaudal distribution, peribronchovascular opacities in the upper lung, and random distribution were more common in fHP than in IPF. In multivariate analysis, GGO with TB, peribronchovascular opacities in the upper lung, and random distribution were significant features. The area under the curve of the fHP diagnostic model with the three aforementioned CT features was 0.733 (95% confidence interval [CI], 0.655-0.811,  $p < 0.001$ ) in the test group and 0.630 (95% CI, 0.504-0.755,  $p < 0.047$ ) in the validation group.

**Conclusion:** GGO with TB, peribronchovascular opacities in the upper lung, and random distribution were important CT features for differentiating fHP from IPF.

**Keywords:** CT; Diagnostic model; Fibrotic hypersensitivity pneumonitis; Idiopathic pulmonary fibrosis.

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**Conflict of interest statement**

**Declaration of competing interest** KK received lectures fees from Boehringer Ingelheim. YK received lectures fees from Boehringer Ingelheim. YM received grants from Boehringer Ingelheim, and lectures fees from Boehringer Ingelheim and AstraZeneca. TJ received lectures fees from Bohlinger Ingelheim, AstraZeneca, and Kyorin Inc. The other authors have no conflicts of interest.

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. 2024 Sep;110(1):116327.

doi: 10.1016/j.diagmicrobio.2024.116327. Epub 2024 May 5.

[Culture-independent Multilocus sequence typing screening for Haemophilus influenzae cross-infection in non-cystic fibrosis bronchiectasis](#)

[Catherine R Wilson](#)<sup>1</sup>, [Philip J Mitchelmore](#)<sup>2</sup>, [Nicholas Withers](#)<sup>2</sup>, [Alan R Brown](#)<sup>2</sup>

Affiliations Expand

- PMID: 38878342
- DOI: [10.1016/j.diagmicrobio.2024.116327](https://doi.org/10.1016/j.diagmicrobio.2024.116327)

Abstract

Whether cross-infection of respiratory pathogens between patients with non-cystic fibrosis bronchiectasis occurs is debated. Investigation with traditional microbiological culture risks simplifying the lung microbiome. We demonstrate the use of culture-independent Multilocus sequence typing to screen for Haemophilus influenzae strain types in a cohort of twenty-eight patients with non-cystic fibrosis bronchiectasis.

**Keywords:** Culture-independent MLST; Haemophilus influenzae; Multi-locus sequence typing; cross-infection; non-cystic fibrosis bronchiectasis.

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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). CW received salary support from the Wellcome Trust ISSF grant.

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. 2024 Sep:231:107692.

doi: 10.1016/j.rmed.2024.107692. Epub 2024 Jun 7.

[The roles of bacteria and viruses in COPD-Bronchiectasis association: A prospective cohort study](#)

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Affiliations Expand

- PMID: 38852923
- DOI: [10.1016/j.rmed.2024.107692](https://doi.org/10.1016/j.rmed.2024.107692)

Abstract

**Background:** Exacerbations are implicated in bronchiectasis and COPD, which frequently co-exist [COPD-Bronchiectasis association (CBA)]. We aimed to determine the bacterial and viral spectrum at stable-state and exacerbation onset of CBA, and their association with exacerbations and clinical outcomes of CBA as compared with bronchiectasis.

**Methods:** We prospectively collected spontaneous sputum from adults with CBA, bronchiectasis with (BO) and without airflow obstruction (BNO) for bacterial culture and viral detection at stable-state and exacerbations.

**Results:** We enrolled 76 patients with CBA, 58 with BO, and 138 with BNO (711 stable and 207 exacerbation visits). Bacterial detection rate increased from BNO, CBA to BO at steady-state ( $P = 0.02$ ), but not at AE onset ( $P = 0.91$ ). No significant differences in viral detection rate were found among BNO, CBA and BO. Compared with steady-state, viral isolations occurred more frequently at exacerbation in BNO (15.8 % vs 32.1 %,  $P = 0.001$ ) and CBA (19.5 % vs 30.6 %,  $P = 0.036$ ) only. In CBA, isolation of viruses, human metapneumovirus and bacteria plus viruses was associated with exacerbation. Repeated detection of *Pseudomonas aeruginosa* (PA) correlated with higher modified Reiff score ( $P = 0.032$ ) in CBA but not in BO ( $P =$

0.178). Repeated detection of PA yielded a shorter time to the first exacerbation in CBA [median: 4.3 vs 11.1 months, P = 0.006] but not in BO (median: 8.4 vs 7.6 months, P = 0.47).

**Conclusions:** Isolation of any viruses, human metapneumovirus and bacterial plus viruses was associated with CBA exacerbations. Repeated detection of PA confers greater impact of future exacerbations on CBA than on BO.

**Keywords:** Acute exacerbation; Bacteria; COPD-Bronchiectasis association; Virus.

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Conflict of interest statement

**Declaration of competing interest** The authors declared no conflict of interest with any financial organization regarding the material discussed in the manuscript.

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Int J Infect Dis

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. 2024 Sep:146:107120.

doi: 10.1016/j.ijid.2024.107120. Epub 2024 May 29.

[Characterization of bronchoalveolar lavage fluid microbiota in acute exacerbations of bronchiectasis with non-tuberculous mycobacterial detection](#)

[Qiong Xu](#)<sup>1</sup>, [Zhoufang Mei](#)<sup>2</sup>, [Qiongfang Zha](#)<sup>1</sup>, [Jiajun Chen](#)<sup>1</sup>, [Hui Qin](#)<sup>1</sup>, [Bin Liu](#)<sup>1</sup>, [Zhiyun Jie](#)<sup>2</sup>, [Xueling Wu](#)<sup>3</sup>

Affiliations Expand

- PMID: 38821186

- DOI: [10.1016/j.ijid.2024.107120](https://doi.org/10.1016/j.ijid.2024.107120)

Free article

## Abstract

**Objectives:** Non-tuberculous mycobacteria (NTM) frequently colonize the airways of patients with bronchiectasis; however, there has been limited research into airway microbiota composition and predisposing factors for NTM detection during acute bronchiectasis exacerbations.

**Methods:** This study enrolled 34 patients with bronchiectasis experiencing acute exacerbations. Metagenomic next-generation sequencing was used to detect microbiota in bronchoalveolar lavage fluid (BALF), and bioinformatics methods were used for the comparative analysis of meaningful microbiota in the BALF of patients with acute exacerbations of bronchiectasis. A correlation analysis was conducted to identify susceptibility factors for NTM in patients with bronchiectasis.

**Results:** Compared with patients with community-acquired pneumonia, patients with bronchiectasis had higher detection rates of NTM (38.2%), *Pseudomonas aeruginosa*, and *Haemophilus influenzae*. Patients with NTM-positive bronchiectasis had lower body mass index and lipid profiles than patients who were NTM-negative. Metagenomic next-generation sequencing of BALF revealed patients who were NTM-positive had increased relative abundance of *Rothia* and other anaerobic genera compared with patients who were NTM-negative. Patients who were NTM-positive also showed higher levels of *Streptococcus parasanguinis* at the species level. Elevated *Rothia mucilaginosa* and *S. parasanguinis* correlated with decreased percentages of clusters of differentiation 3+ T lymphocytes and clusters of differentiation 3+ T-cell subgroups in peripheral blood.

**Conclusions:** NTM colonization increases the risk of acute bronchiectasis exacerbations. Low body mass index, lipid levels, and isolation of *R. mucilaginosa* and *S. parasanguinis* in BALF are susceptibility factors for NTM colonization in patients with bronchiectasis.

**Keywords:** Bronchiectasis exacerbations; Bronchoalveolar lavage fluid; Metagenomic next-generation sequencing; Microbiota; Non-tuberculous mycobacteria.

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## Conflict of interest statement

**Declarations of competing interest** The authors have no competing interest to declare. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results.

## Supplementary info

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Comparative Study

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. 2024 Sep;34(9):5597-5609.

doi: 10.1007/s00330-024-10610-0. Epub 2024 Feb 12.

[Phenotyping of COPD with MRI in comparison to same-day CT in a multi-centre trial](#)

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Affiliations Expand

- PMID: 38345607
- DOI: [10.1007/s00330-024-10610-0](https://doi.org/10.1007/s00330-024-10610-0)

Abstract

**Objectives:** A prospective, multi-centre study to evaluate concordance of morphologic lung MRI and CT in chronic obstructive pulmonary disease (COPD) phenotyping for airway disease and emphysema.

**Methods:** A total of 601 participants with COPD from 15 sites underwent same-day morpho-functional chest MRI and paired inspiratory-expiratory CT. Two readers systematically scored bronchial wall thickening, bronchiectasis, centrilobular nodules, air trapping and lung parenchyma defects in each lung lobe and determined COPD phenotype. A third reader acted as adjudicator to establish consensus. Inter-modality and inter-reader agreement were assessed using Cohen's kappa (im-κ and ir-κ).

**Results:** The mean combined MRI score for bronchiectasis/bronchial wall thickening was 4.5/12 (CT scores, 2.2/12 for bronchiectasis and 6/12 for bronchial wall thickening; im-κ, 0.04-0.3). Expiratory right/left bronchial collapse was observed in 51 and 47/583 on MRI (62 and 57/599 on CT; im-κ, 0.49-0.52). Markers of small airways disease on MRI were 0.15/12 for centrilobular nodules (CT, 0.34/12), 0.94/12 for air trapping (CT, 0.9/12) and 7.6/12 for perfusion deficits (CT, 0.37/12 for mosaic attenuation; im-κ, 0.1-0.41). The mean lung defect score on MRI was 1.3/12 (CT emphysema score, 5.8/24; im-κ, 0.18-0.26). Airway-/emphysema/mixed COPD phenotypes were assigned in 370, 218 and 10 of 583 cases on MRI (347, 218 and 34 of 599 cases on CT; im-κ, 0.63). For all examined features, inter-reader agreement on MRI was lower than on CT.

**Conclusion:** Concordance of MRI and CT for phenotyping of COPD in a multi-centre setting was substantial with variable inter-modality and inter-reader concordance for single diagnostic key features.

**Clinical relevance statement:** MRI of lung morphology may well serve as a radiation-free imaging modality for COPD in scientific and clinical settings, given that its potential and limitations as shown here are carefully considered.

**Key points:** • In a multi-centre setting, MRI and CT showed substantial concordance for phenotyping of COPD (airway-/emphysema-/mixed-type). • Individual features of COPD demonstrated variable inter-modality concordance with features of pulmonary hypertension showing the highest and bronchiectasis showing the lowest concordance. • For all single features of COPD, inter-reader agreement was lower on MRI than on CT.

**Keywords:** Chronic obstructive pulmonary disease; Computed tomography; Magnetic resonance imaging; Pulmonary emphysema.

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Comment in

- [Evaluating COPD: a comparative analysis of MRI and CT phenotyping.](#)

Ebner L. Eur Radiol. 2024 Sep;34(9):5595-5596. doi: 10.1007/s00330-024-10710-x. Epub 2024 Mar 28. PMID: 38546793 No abstract available.

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Chronic Obstr Pulm Dis

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. 2024 Aug 29.

doi: 10.15326/jcopdf.2024.0526. Online ahead of print.

[Bronchiectasis Occurs Independently of Chronic Obstructive Pulmonary Disease in Alpha-1 Antitrypsin Deficiency](#)

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Affiliations Expand

- PMID: 39213377
- DOI: [10.15326/jcopdf.2024.0526](#)

Abstract

**Introduction:** Bronchiectasis occurs in patients with alpha-1 antitrypsin deficiency (AATD), but it is unknown whether an association exists independently of chronic obstructive pulmonary disease (COPD). We assessed whether bronchiectasis was associated with COPD in our cohort, and whether it has clinical significance for lung function decline, exacerbation rate, or symptoms.

**Study design and methods:** PiZZ, PiSZ and PiMZ patients from the Birmingham AATD Research Database were studied. Demographics were recorded, along with the outcomes of symptoms, FEV1, TLCO, KCO, and annualised exacerbation rate. Lung function decline was calculated for those with  $\geq 3$  measurements. Multivariate regression analyses were conducted to assess for associations of bronchiectasis with each outcome. A further binomial logistic regression model assessed for predictors of bronchiectasis diagnosis, including COPD. Those with alternative bronchiectasis causes were excluded from statistical models.

**Results:** 1290 patients were eligible. PiZZ patients with bronchiectasis were older at presentation (54 vs 49 years,  $p < 0.001$ ), less likely to have smoked (65 vs 76.1%,  $p = 0.001$ ), and had higher mMRC scores (mMRC 2 vs 0 OR 1.97, 95% CI 1.20 - 3.25,  $p = 0.008$ ; mMRC 3 vs 0 OR 2.58 95% CI 1.59 - 4.19,  $p < 0.001$ ; mMRC 4 vs 0 OR 2.2 95% CI 1.23 - 3.92;  $p = 0.008$ ) than those without. The odds ratio of bronchiectasis diagnosis was not associated with COPD diagnosis in any phenotype. Bronchiectasis was associated with lower serum alpha-1 antitrypsin levels in PiZZ patients ( $p = 0.012$ ).

Bronchiectasis was not associated with a difference in FEV1 pp/year decline, KCO pp/year, TLCO pp/year decline, or exacerbation rate in multivariate analysis.

**Conclusion:** Bronchiectasis exists in a significant minority of AATD patients independently of COPD, and is associated with more severe shortness of breath. Appropriate treatment of bronchiectasis in AATD is essential.

**Keywords:** COPD; alpha-1 antitrypsin deficiency; bronchiectasis.

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BMC Pulm Med

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. 2024 Aug 29;24(1):427.

doi: 10.1186/s12890-024-03218-z.

[Determinants of cough-related quality of life in interstitial lung diseases](#)

[Eeva Saari](#)<sup>1,2</sup>, [Minna Mononen](#)<sup>3</sup>, [Hannele Hasala](#)<sup>4</sup>, [Hanna Nurmi](#)<sup>1,2</sup>, [Hannu-Pekka Kettunen](#)<sup>5</sup>, [Sanna Suoranta](#)<sup>5,6</sup>, [Elisa Lappi-Blanco](#)<sup>7,8</sup>, [Riitta Kaarteenaho](#)<sup>9,10</sup>, [Minna Purokivi](#)<sup>2</sup>, [Heikki Olavi Koskela](#)<sup>11,12</sup>

Affiliations Expand

- PMID: 39210302
- DOI: [10.1186/s12890-024-03218-z](#)

Abstract

**Background:** Interstitial lung diseases (ILD) include a wide range of diseases impacting lung parenchyma and leading to fibrosis and architectural distortion. Chronic cough and dyspnea are common symptoms which affect the quality of life (QoL) in ILD patients. The mechanisms of cough in ILD patients are still unknown. The aim of this study was to prospectively investigate histological, radiological, and physiological determinants of cough-related QoL in ILD patients who underwent transbronchial lung cryobiopsy (TBLC).

**Methods:** All patients (n = 111) filled in The Leicester Cough Questionnaire (LCQ) and The St George's Respiratory Questionnaire (SGRQ). They underwent lung function tests, forced vital capacity (FVC), forced vital expiratory volume in 1 s (FEV1), diffusion capacity to carbon monoxide (DLCO), high-resolution computed tomography (HRCT), and blood samples before diagnostic TBLC. Two experienced radiologists assessed the extents of following HRCT patterns: ground-glass opacities (GGO), honeycombing, reticulation, traction bronchiectasis, and emphysema. Histology of TBLC were re-analyzed by two experienced pulmonary pathologists and the presence of fibroblast foci, fibrosis, giant cells, granulomas, and honeycombing were recorded.

**Results:** In the median multivariate regression analysis, BMI (-0.19; 95% CI -0.37- -0.014; p 0.035), GGO (-0.38; 95% CI -0.61- -0.15; p 0.001), granulomas (-3.21; 95% CI -6.12- -0.30; p 0.031), and current smoking (2.49; 95% CI 0.12-4.86; p 0.040) showed independent associations with LCQ total score. BMI (1.3; 95% CI 0.20-2.42; p 0.021) and DLCO (-0.51; 95% CI -0.85 - -0.16; p 0.004) showed independent association with SGRQ total score.

**Conclusion:** Determinants of cough-related QoL in ILD patients are multifactorial including physiological, radiological and histological parameters.

**Keywords:** Cough; Interstitial lung disease; Leicester cough questionnaire; Quality of life.

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. 2024 Aug 29;64(2):2401390.

doi: 10.1183/13993003.01390-2024. Print 2024 Aug.

[Reply to: Sputum colour matters: haemoptysis in a bronchiectasis registry](#)

[Stefano Aliberti](#)<sup>1,2</sup>, [James D Chalmers](#)<sup>3</sup>

Affiliations Expand

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- DOI: [10.1183/13993003.01390-2024](https://doi.org/10.1183/13993003.01390-2024)

*No abstract available*

Conflict of interest statement

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. 2024 Aug 29;64(2):2400745.

doi: 10.1183/13993003.00745-2024. Print 2024 Aug.

[Sputum colour matters: haemoptysis in a bronchiectasis registry](#)

[Shota Yamamoto](#)<sup>1</sup>, [Hideo Ishikawa](#)<sup>2</sup>, [Keita Takeda](#)<sup>3</sup>, [Masahiro Kawashima](#)<sup>3</sup>

Affiliations Expand

- PMID: 39209464
- DOI: [10.1183/13993003.00745-2024](#)

*No abstract available*

Conflict of interest statement

**Conflict of interest:** S. Yamamoto has received overseas scholarships from the Japan Society for Promotion of Science. This organisation has no role in writing this article. H. Ishikawa received payment or honoraria for lectures, presentations, manuscript writing or educational events from Terumo Corporation, Stryker Japan, Boston Scientific Japan and PIOLAX. These companies have no role in writing this article. H. Ishikawa has a leadership role as an unpaid committee member of the Hemoptysis Guideline Committee of the Japan Society for Respiratory Endoscopy. The remaining authors have no potential conflicts of interest to disclose.

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BMJ Open Respir Res

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. 2024 Aug 28;11(1):e002273.

doi: 10.1136/bmjresp-2023-002273.

[Patient pathways for four major chronic respiratory diseases in England between 2008 and 2021](#)

[Anne E Ioannides](#)<sup>1,2</sup>, [Ann D Morgan](#)<sup>3,2</sup>, [Jennifer K Quint](#)<sup>3,2</sup>

Affiliations Expand

- PMID: 39209353
- DOI: [10.1136/bmjresp-2023-002273](https://doi.org/10.1136/bmjresp-2023-002273)

Abstract

**Background:** Not all chronic diseases have clear pathways and time targets for diagnosis. We explored pathways and timings for four major chronic respiratory diseases in England.

**Methods:** Using deidentified electronic healthcare records from Clinical Practice Research Datalink Aurum linked to Hospital Episode Statistics, we derived cohorts of patients diagnosed with asthma, chronic obstructive pulmonary disease (COPD), ILD or bronchiectasis at three time periods (2008/2009, 2018/2019 and 2020/2021). We followed people 2 years before and 2 years after diagnosis, calculating the proportion of people who presented with symptoms, underwent diagnostic tests, were treated and consulted healthcare (primary or secondary) and calculated time intervals between events. We repeated analyses by socioeconomic status and geographical region.

**Results:** We descriptively studied patient pathways for 429 619 individuals across all time frames and diseases. Most people (>87%) had first evidence of diagnosis in primary care. The proportion of people reporting symptoms prior to diagnosis was similar for asthma, COPD and ILD (41.0%-57.9%) and higher in bronchiectasis (67.9%-71.8%). The proportion undergoing diagnostic tests was high for COPD and bronchiectasis (77.6%-89.2%) and lower for asthma (14%-32.7%) and ILD (2.6%-3.3%). The proportion of people undergoing diagnostic tests decreased in 2020/2021 for all diseases, mostly COPD. Time (months) (median (IQR)) between symptoms and diagnosis, averaged over three time periods, was lowest in asthma (~7.5 (1.3-16.0)), followed by COPD (~8.6 (1.8-17.2)), ILD (~10.1 (3.6-18.0)) and bronchiectasis (~13.5 (5.9-19.8)). Time from symptoms to diagnosis increased by ~2 months in

asthma and COPD over the three time periods. Although most patients were symptomatically treated prior to diagnosis, time between diagnosis and postdiagnostic treatment was around 4 months for ILD, 3 months for bronchiectasis and instantaneous for asthma and COPD. Socioeconomic status and regional trends showed little disparity.

**Conclusion:** Current pathways demonstrate missed opportunities to diagnose and manage disease and to improve disease coding.

**Keywords:** Asthma; Bronchiectasis; COPD epidemiology; Clinical Epidemiology; Interstitial Fibrosis; Pulmonary Disease, Chronic Obstructive.

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#### Conflict of interest statement

**Competing interests:** AEI reports grants from Asthma+Lung UK, during the conduct of the study. JKQ has received grants from The Health Foundation, MRC, GSK, Bayer, BI, British Lung Foundation, IQVIA, Chiesi AZ, Insmmed and Asthma UK. JKQ has received personal fees for advisory board participation or speaking fees from GlaxoSmithKline, Boehringer Ingelheim, AstraZeneca, Bayer and Insmmed. AM has no competing interests to declare.

#### Supplementary info

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BMC Cardiovasc Disord

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. 2024 Aug 28;24(1):457.

doi: 10.1186/s12872-024-04129-x.

[Severe bronchiectasis is associated with increased carotid intima-media thickness](#)

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- PMID: 39198746
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Abstract

**Background:** Although bronchiectasis has been shown to be associated with cardiovascular disease, there is limited evidence of an association with subclinical atherosclerosis, especially carotid intima-media thickness (CIMT).

**Methods:** This prospective study compared CIMT among patients with and without bronchiectasis, and among bronchiectatic patients classified according to disease severity using the FACED score. The study was carried out at a major regional hospital and tertiary respiratory referral centre in Hong Kong.

**Results:** Total 155 Chinese patients with non-cystic fibrosis (CF) bronchiectasis and 512 controls were recruited. The mean CIMT was  $0.58 \pm 0.10$  mm,  $0.63 \pm 0.11$  mm and  $0.66 \pm 0.08$  mm respectively among controls, patients with mild-to-moderate bronchiectasis and patients with severe bronchiectasis. There was no statistically significant difference in CIMT between patients with mild-to-moderate bronchiectasis and controls. Multivariate linear regression revealed that CIMT was significantly increased in patients with severe bronchiectasis relative to controls. The same phenomenon was observed among patients without a history of cardiovascular disease or cardiovascular risk factors.

**Conclusions:** CIMT was significantly increased in patients with severe bronchiectasis compared with controls without bronchiectasis, but not among patients with mild-to-moderate bronchiectasis, which suggested the subclinical atherosclerosis to be more prevalent among patients with severe bronchiectasis.

**Keywords:** Bronchiectasis; Cardiovascular disease; Carotid intima thickness; Subclinical atherosclerosis.

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J Allergy Clin Immunol Pract

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. 2024 Aug 26:S2213-2198(24)00852-3.

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[Long-Term Clinical and Sustained REMission in Severe Eosinophilic Asthma treated with Mepolizumab: The REMI-M study](#)

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Collaborators, Affiliations Expand

- PMID: 39197750
- DOI: [10.1016/j.jaip.2024.08.033](#)

Abstract

**Background:** Biological therapies, such as mepolizumab, have transformed the treatment of severe eosinophilic asthma. While mepolizumab's short-term effectiveness is established, there is limited evidence on its ability to achieve long-term clinical remission.

**Objective:** To evaluate the long-term effectiveness and safety of mepolizumab, explore its potential to induce clinical and sustained remission, and identify baseline factors associated with the likelihood of achieving remission over 24 months.

**Methods:** The REMI-M is a retrospective, real-world, multicenter study that analyzed 303 severe eosinophilic asthma patients who received mepolizumab. Clinical, demographic, and safety data were collected at baseline, 3, 6, 12, and 24 months. The most commonly used definitions of clinical remission, which included no exacerbations, no oral corticosteroids (OCS) use, and good asthma control with or without assessment of lung function parameters, were assessed. Sustained

remission was defined as reaching clinical remission at 12 months and maintaining it until the end of the 24-month period.

**Results:** Clinical remission rates ranged from 28.6% to 43.2% after 12 months and from 26.8% to 52.9% after 24 months, based on the different remission definitions. The proportion of patients achieving sustained remission varied between 14.6% to 29%. Factors associated with the likelihood of achieving clinical remission included the presence of aspirin-exacerbated respiratory disease, better lung function at baseline, male sex, absence of anxiety/depression, gastro-esophageal reflux disease, bronchiectasis, and reduced OCS consumption. Adverse events were infrequent.

**Conclusions:** This study demonstrates the real-world effectiveness of mepolizumab in achieving clinical remission and sustained remission in severe eosinophilic asthma over 24 months. The identification of distinct factors associated with the likelihood of achieving clinical remission emphasizes the importance of comprehensive management of comorbidities and timely identification of patients who may benefit from biologics.

**Keywords:** Severe asthma; anti-IL-5; biologics; eosinophils; mepolizumab; remission; severe eosinophilic asthma.

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BMC Pulm Med

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[Causal associations of obstructive sleep apnea with Chronic Respiratory Diseases: a Mendelian Randomization study](#)

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## Affiliations Expand

- PMID: 39187806
- PMCID: [PMC11345951](#)
- DOI: [10.1186/s12890-024-03228-x](#)

## Abstract

**Purpose:** This study aimed to elucidate the causal relationship between Obstructive Sleep Apnea (OSA) and Chronic Respiratory Diseases (CRDs), employing Mendelian Randomization (MR) to overcome limitations inherent in observational studies.

**Methods:** Utilizing a two-sample MR approach, this study analyzed genetic variants as instrumental variables to investigate the causal link between OSA and various CRDs, including chronic obstructive pulmonary disease (COPD), asthma, bronchiectasis, and idiopathic pulmonary fibrosis (IPF). Data were sourced from the FinnGen Consortium (OSA, n = 375,657) and UK Biobank, focusing on genome-wide associations between single-nucleotide polymorphisms (SNPs) and the diseases. Instrumental variables were selected based on strict criteria, and analyses included a random-effects inverse-variance weighted method supplemented by several sensitivity analyses.

**Results:** The study suggests a protective effect of OSA against COPD (OR = 0.819, 95% CI 0.722-0.929, P-value = 0.002), which becomes non-significant after adjusting for BMI, indicating a potential mediating role of BMI in the OSA-COPD nexus. No significant causal links were found between OSA and other CRDs (asthma, IPF, bronchiectasis) or between COPD, asthma, and OSA.

**Conclusions:** Our findings reveal a BMI-mediated protective effect of OSA on COPD, with no causal connections identified between OSA and other CRDs. These results emphasize the complex relationship between OSA, BMI, and COPD, guiding future clinical strategies and research directions, particularly in light of the study's genetic analysis limitations.

**Keywords:** Chronic obstructive pulmonary disease; Chronic respiratory diseases; Mendelian randomization analysis; Obstructive sleep apnea.

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## Conflict of interest statement

The authors declare no competing interests.

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