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

1
COPD

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. 2024 Dec;21(1):2277158.

doi: 10.1080/15412555.2023.2277158. Epub 2024 Feb 13.

[Impressions and Perceptions of a Smartphone and Smartwatch Self-Management Tool for Patients With COPD: A Qualitative Study](#)

[Robert Wu](#)^{1,2}, [Maryann Calligan](#)¹, [Tanya Son](#)¹, [Harshmeet Rakhra](#)¹, [Eyal de Lara](#)³, [Alex Mariakakis](#)³, [Andrea S Gershon](#)^{2,4,5,6}

Affiliations expand

- PMID: 38348964
- DOI: [10.1080/15412555.2023.2277158](https://doi.org/10.1080/15412555.2023.2277158)

Abstract

Background: Patients with chronic obstructive pulmonary disease (COPD) often do not seek care until they experience an exacerbation. Improving self-management for these patients may increase health-related quality of life and reduce hospitalizations. Patients are willing to use wearable technology for real-time data reporting and perceive mobile technology as potentially helpful in COPD management, but there are many barriers to the uptake of these technologies.

Objective: We aimed to understand patients' experiences using a wearable and mobile app and identify areas for improvement.

Methods: We conducted semi-structured interviews as part of a larger prospective cohort study wherein patients used a wearable and app for 6 months. We asked which features patients found accessible, acceptable and useful.

Results: We completed 26 interviews. We summarized our research findings into four main themes: (1) information, support and reassurance, (2) barriers to adoption, (3) impact on communication with health care providers, and (4) opportunities for improvement. Most patients found the feedback received through the app to be reassuring and useful. Some patients experienced technical difficulties with the app and found the wearable to be uncomfortable.

Conclusions: Patients found a wearable device and mobile application to be acceptable and useful for the management of COPD. We identified barriers to adoption and opportunities for improvement to the design of our app. Further research is needed to understand what people with COPD and their healthcare providers want and will use in a mobile app and wearable for COPD management.

Keywords: COPD; Chronic obstructive pulmonary disease; digital health; eHealth; mHealth; mobile application; self-management; wearable.

SUPPLEMENTARY INFO

MeSH termsexpand

FULL TEXT LINKS



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Review

COPD

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. 2024 Dec;21(1):2301549.

doi: 10.1080/15412555.2023.2301549. Epub 2024 Feb 13.

[Beyond Spirometry: Linking Wasted Ventilation to Exertional Dyspnea in the Initial Stages of COPD](#)

[J Alberto Neder](#)¹, [Giles Santyr](#)², [Brandon Zanette](#)², [Miranda Kirby](#)³, [Marina Pourafkari](#)⁴, [Matthew D James](#)¹, [Sandra G Vincent](#)¹, [Carrie Ferguson](#)⁵, [Chu-Yi Wang](#)⁵, [Nicolle J Domnik](#)^{1,6}, [Devin B Phillips](#)⁷, [Janos Porszasz](#)⁵, [William W Stringer](#)⁵, [Denis E O'Donnell](#)¹

Affiliations expand

- PMID: 38348843
- DOI: [10.1080/15412555.2023.2301549](https://doi.org/10.1080/15412555.2023.2301549)

Abstract

Exertional dyspnea, a key complaint of patients with chronic obstructive pulmonary disease (COPD), ultimately reflects an increased inspiratory neural drive to breathe. In non-hypoxemic patients with largely preserved lung mechanics - as those in the initial stages of the disease - the heightened inspiratory neural drive is strongly associated with an exaggerated ventilatory response to metabolic demand. Several lines of evidence indicate that the so-called excess ventilation (high ventilation-CO₂ output relationship) primarily reflects poor gas exchange efficiency, namely increased physiological dead space. Pulmonary function tests estimating the extension of the wasted ventilation and selected cardiopulmonary exercise testing variables can, therefore, shed unique light on the genesis of patients' out-of-proportion dyspnea. After a succinct overview of the basis of gas exchange efficiency in health and inefficiency in COPD, we discuss how wasted ventilation

translates into exertional dyspnea in individual patients. We then outline what is currently known about the structural basis of wasted ventilation in "minor/trivial" COPD vis-à-vis the contribution of emphysema versus a potential impairment in lung perfusion across non-emphysematous lung. After summarizing some unanswered questions on the field, we propose that functional imaging be amalgamated with pulmonary function tests beyond spirometry to improve our understanding of this deeply neglected cause of exertional dyspnea. Advances in the field will depend on our ability to develop robust platforms for deeply phenotyping (structurally and functionally), the dyspneic patients showing unordinary high wasted ventilation despite relatively preserved FEV₁.

Keywords: Dsypnea; blood flow; emphysema; gas exchange; mild COPD.

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

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BMC Pulm Med



. 2024 Feb 17;24(1):90.

doi: 10.1186/s12890-024-02895-0.

[Clinical course of COPD patients with exercise-induced elevation of pulmonary artery pressure or less severe pulmonary hypertension presenting with respiratory symptoms](#)

and the impact of bosentan intervention-prospective, single- center, randomized, parallel-group study

[Takeru Kashiwada](#)¹, [Yosuke Tanaka](#)^{2,3}, [Toru Tanaka](#)¹, [Tetsuya Okano](#)⁴, [Yoshinobu Saito](#)¹, [Masahiro Seike](#)¹, [Mitsunori Hino](#)⁴, [Hiroshi Kimura](#)¹, [Akihiko Gemma](#)¹

Affiliations expand

- PMID: 38368315
- DOI: [10.1186/s12890-024-02895-0](https://doi.org/10.1186/s12890-024-02895-0)

Abstract

Background: The data on bosentan were lacking for the treatment of exercise-induced elevation of pulmonary artery pressure (eePAP) or less severe PH in COPD. This study was conducted to investigate long-term efficacy and safety of bosentan for the treatment of eePAP or less severe PH in COPD.

Methods: COPD patients diagnosed at this hospital as having COPD (WHO functional class II, III or IV) with eePAP or less severe PH whose respiratory symptoms were stable but remained and gradually progressed even after COPD therapy were randomly assigned in a 1:1 ratio to receive either bosentan or no PH treatment for two years and assessed at baseline and every 6 months for respiratory failure, activities of daily living (ADL), lung and heart functions by right heart catheterization (RHC), and other parameters.

Results: A total of 29 patients who underwent RHC for detail examination were enrolled in the current study between August 2010 and October 2018. No death occurred in drug-treated group (n = 14) for 2 years; 5 patients died in untreated group (n = 15). Significant differences were noted between the 2 group in hospital-free survival (686.00 ± 55.87 days vs. 499.94 ± 53.27 days; hazard ratio [HR], 0.18; P = 0.026) and overall survival (727 days vs. 516.36 ± 55.38 days; HR, 0.095; P = 0.030) in all causes of death analysis, but not in overall survival in analysis of respiratory-related death. Bosentan was not associated with increased adverse events including requiring O₂ inhalation.

Conclusions: This study suggested that the prognosis for COPD patients with eePAP or less severe PH presenting with respiratory symptoms was very poor and that bosentan

tended to improve their prognosis and suppress ADL deterioration without worsening respiratory failure.

Trial registration: This study was registered with UMIN-CTR Clinical Trial as UMIN000004749 . First trial registration at 18/12/2010.

Keywords: COPD; Echocardiography; Endothelin receptor antagonists; Pulmonary hypertension; Right heart catheterization.

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- [45 references](#)

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BMJ Case Rep

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. 2024 Feb 17;17(2):e256764.

doi: 10.1136/bcr-2023-256764.

[Retreatment of symptomatic chronic bronchitis with bronchial rheoplasty](#)

[Theresa Klemm](#)¹, [William Krinsky](#)², [Kelly Welz](#)³, [Arschang Valipour](#)³

Affiliations expand

- PMID: 38367996

- DOI: [10.1136/bcr-2023-256764](https://doi.org/10.1136/bcr-2023-256764)

Abstract

A man in his early 70s with a long-standing history of chronic bronchitis presented to our department 3 years ago with debilitating chronic cough and excessive sputum production. He had no previous diagnosis of chronic obstructive pulmonary disease and without evidence of severe respiratory tract infections. Due to his symptom burden and impairments in daily activities, the patient was considered to be an appropriate candidate for bronchial rheoplasty, a novel endoscopic treatment for patients with chronic bronchitis. The patient responded well to bilateral treatment but then experienced symptom recurrence roughly 14 months after completing the initial treatment. In the absence of an alternative explanation for the return of these symptoms, he then underwent uneventful retreatment. The patient, again, reported significant symptom improvement and no adverse effects since retreatment. While further studies are necessary to assess the safety and efficacy of retreatment, the findings from this case are encouraging.

Keywords: Bronchitis; Respiratory medicine; Smoking and tobacco.

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Conflict of interest statement

Competing interests: WK: chief medical officer–Galvanize Therapeutics; AV: personal fees from AstraZeneca, Boehringer Ingelheim, Chiesi, Menarini, Merck, Novartis and Roche for lectures and/or advisory boards outside of the submitted study.

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Am J Respir Crit Care Med

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. 2024 Feb 16.

doi: 10.1164/rccm.202308-1452OC. Online ahead of print.

Susceptible Young Adults and Development of COPD Later in Life

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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 pre-disease state "pre-COPD".

Objective: 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 non-obstructive individuals aged 20-50years from two population-based cohorts from different smoking eras, the Copenhagen General Population Study from 2003(N=5497) and Copenhagen City Heart Study from 1976-78(N=2609), for 10 and 25years for development of COPD(forced expiratory volume in one second[FEV₁]/forced vital capacity[FVC]<0.70) and COPD GOLD 2-4 (additionally FEV₁<80% predicted).

Measurements and main results: After 10 years follow-up, 28% developed COPD and 13% COPD GOLD 2-4 in individuals susceptible to COPD compared to 8% and 1% in those without any susceptibility to COPD. Correspondingly, after 25years, 22% versus 13% developed COPD and 20% versus 8% developed COPD GOLD 2-4. More than half of incident COPD cases developed from a susceptible state. Compared to 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 2-4 after 10years, and 1.54(1.23-1.93) and 2.12(1.64-2.73) after 25years. The ability of a COPD risk score consisting of the susceptibility state 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 pre-disease state of COPD, which can be used for early identification of susceptible individuals at risk for COPD later in life.

Keywords: Airway Obstruction; Chronic Bronchitis; Early Diagnosis; Forced Expiratory Volume; Spirometry.

FULL TEXT LINKS



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Eur J Emerg Med



. 2024 Feb 16.

doi: 10.1097/MEJ.0000000000001129. Online ahead of print.

[Risk factors and effect of dyspnea in inappropriate treatment in adults' emergency department: a retrospective cohort study](#)

[Frederic Balen](#)^{1,2}, [Sebastien Lamy](#)², [Léa Froissart](#)¹, [Thomas Mesnard](#)¹, [Benjamin Sanchez](#)¹, [Xavier Dubucs](#)^{1,2,3}, [Sandrine Charpentier](#)^{1,2,3}

Affiliations expand

- PMID: 38364038
- DOI: [10.1097/MEJ.0000000000001129](https://doi.org/10.1097/MEJ.0000000000001129)

Abstract

Dyspnea is a frequent symptom in adults' emergency departments (EDs). Misdiagnosis at initial clinical examination is common, leading to early inappropriate treatment and

increased in-hospital mortality. Risk factors of inappropriate treatment assessable at early examination remain undescribed herein. The objective of this study was to identify clinical risk factors of dyspnea and inappropriate treatment in patients admitted to ED. This is an observational retrospective cohort study. Patients over the age of 15 who were admitted to adult EDs of the University Hospital of Toulouse (France) with dyspnea were included from 1 July to 31 December 2019. The primary end-point was dyspnea and inappropriate treatment was initiated at ED. Inappropriate treatment was defined by looking at the final diagnosis of dyspnea at hospital discharge and early treatment provided. Afterward, this early treatment at ED was compared to the recommended treatment defined by the International Guidelines for Acute Heart Failure, bacterial pneumonia, chronic obstructive pulmonary disease, asthma or pulmonary embolism. A total of 2123 patients were analyzed. Of these, 809 (38%) had inappropriate treatment in ED. Independent risk factors of inappropriate treatment were: age over 75 years (OR, 1.46; 95% CI, 1.18-1.81), history of heart disease (OR, 1.32; 95% CI, 1.07-1.62) and lung disease (OR, 1.47; 95% CI, 1.21-1.78), SpO₂ <90% (OR, 1.64; 95% CI, 1.37-2.02), bilateral rale (OR, 1.25; 95% CI, 1.01-1.66), focal cracklings (OR, 1.32; 95% CI, 1.05-1.66) and wheezing (OR, 1.62; 95% CI, 1.31-2.03). In multivariate analysis, under-treatment significantly increased in-hospital mortality (OR, 2.13; 95% CI, 1.29-3.52) compared to appropriate treatment. Over-treatment nonsignificantly increased in-hospital mortality (OR, 1.43; 95% CI, 0.99-2.06). Inappropriate treatment is frequent in patients admitted to ED for dyspnea. Patients older than 75 years, with comorbidities (heart or lung disease), hypoxemia (SpO₂ <90%) or abnormal pulmonary auscultation (especially wheezing) are at risk of inappropriate treatment.

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Palliat Support Care

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. 2024 Feb 16:1-9.

Development of the conversation tool "I-HARP for COPD" for early identification of palliative care needs in patients with chronic obstructive pulmonary disease

[Daniël C M Huijten](#)^{1,2}, [Laura Hofstede](#)¹, [Sami O Simons](#)^{3,4}, [Stephanie C M Ament](#)⁵, [Nicolette Gunnink-Boonstra](#)⁶, [Marieke H J van den Beuken-van Everdingen](#)⁷, [Daisy J A Janssen](#)^{1,8}

Affiliations expand

- PMID: 38362720
- DOI: [10.1017/S1478951524000191](https://doi.org/10.1017/S1478951524000191)

Abstract

Objectives: This study aimed to develop the conversation tool "I-HARP for COPD" for timely identification of palliative care needs in Dutch patients with chronic obstructive pulmonary disease (COPD).

Methods: An iterative and participatory research design was used to develop "I-HARP for COPD". There were 2 phases to the development of "I-HARP for COPD": content development and testing. A review of current literature, parallel focus groups, and a questionnaire among experts were used to develop the content of "I-HARP for COPD". "I-HARP for COPD" was then assessed by health-care professionals (HCPs) in clinical practice for understanding, difficulty, and relevance.

Results: A total of 46 HCPs, 6 patients, 1 informal caregiver, and 1 bereaved informal caregiver participated in this study. "I-HARP for COPD" included 14 screening questions, additional in-depth questions, and recommendations to address identified needs. The content of "I-HARP for COPD" was accepted by 86.2% of the HCPs.

Significance of results: "I-HARP for COPD" was successfully developed for providing guidance in the palliative care of Dutch patients with COPD and their informal caregivers. By supporting HCPs with "I-HARP for COPD", they are better able to timely identify and direct palliative care needs.

Keywords: COPD; advance care planning; needs assessment; palliative care.

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Review

Expert Rev Respir Med

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. 2024 Feb 16:1-11.

doi: 10.1080/17476348.2024.2316167. Online ahead of print.

Bayesian or frequentist: there is no question when comparing single-inhaler triple therapies via network meta-analysis. Focus on fluticasone furoate/umeclidinium/vilanterol fixed-dose combination in chronic obstructive pulmonary disease

[Luigino Calzetta](#)¹, [Paola Rogliani](#)²

Affiliations expand

- PMID: 38318884

- DOI: [10.1080/17476348.2024.2316167](https://doi.org/10.1080/17476348.2024.2316167)

Abstract

Objectives: Single-inhaler triple therapies (SITTs) have never been directly compared in randomized controlled trials (RCTs) in chronic obstructive pulmonary disease (COPD). Cochrane recommends the Bayesian approach for indirect comparisons but a frequentist network meta-analysis (NMA) reported superiority of fluticasone furoate/umeclidinium/vilanterol (FF/UMEC/VI) over other SITT. We assessed the most appropriate inference method for NMA characterized by between-study heterogeneity on SITT in COPD.

Methods: Bayesian and frequentist NMA were performed on RCTs investigating the effect of SITT on exacerbations and trough forced expiratory volume in the 1st second (FEV₁) in COPD.

Results: The included RCTs (ETHOS, FULFIL, IMPACT, KRONOS 200812) reported significant between-study heterogeneity ($I^2 > 99\%$, $p < 0.001$). The Bayesian random-effect NMA provided unbiased evidence that FF/UMEC/VI was not superior to other SITT on exacerbations and trough FEV₁. The frequentist fixed-effect NMA indicated that FF/UMEC/VI was significantly ($p < 0.05$) more effective than other SITT, although results were affected by dispersion, asymmetry, and significant risk of bias. Frequentist random-effect NMA provided effect estimates rather similar but not equal to those of Bayesian approach.

Conclusion: Indirect comparison should be performed via Bayesian approach instead of frequentist inference with a fixed-effect model. Claiming the superiority of a specific medication over other therapies should be confirmed by findings originating from well-designed RCTs.

Keywords: Bayesian; chronic obstructive pulmonary disease; frequentist; network meta-analysis; single-inhaler triple therapies.

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Am J Respir Crit Care Med



. 2024 Feb 15.

doi: 10.1164/rccm.202311-2120PP. Online ahead of print.

Early Diagnosis and Treatment of COPD: The Costs and Benefits of Case-Finding

[Shawn D Aaron](#)¹, [Maria Montes de Oca](#)², [Bartolome Celli](#)^{3,4}, [Surya P Bhatt](#)⁵, [Jean Bourbeau](#)^{6,7}, [Gerard J Criner](#)^{8,9}, [Dawn L DeMeo](#)¹⁰, [David M G Halpin](#)^{11,12}, [MeiLan K Han](#)¹³, [John R Hurst](#)¹⁴, [Jamuna K Krishnan](#)¹⁵, [David Mannino](#)¹⁶, [Job F M van Boven](#)^{17,18}, [Claus F Vogelmeier](#)¹⁹, [Jadwiga A Wedzicha](#)²⁰, [Barbara P Yawn](#)²¹, [Fernando J Martinez](#)²²

Affiliations expand

- PMID: 38358788
- DOI: [10.1164/rccm.202311-2120PP](https://doi.org/10.1164/rccm.202311-2120PP)

No abstract available

Keywords: COPD; case finding; screening.

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J Clin Invest



. 2024 Feb 15;134(4):e177753.

doi: 10.1172/JCI177753.

Reduced Bik expression drives low-grade airway inflammation and increased risk for COPD in females

[Irina Petrache](#)^{1,2}, [David Wh Riches](#)^{2,3,4}

Affiliations expand

- PMID: 38357926
- PMCID: [PMC10866644](#)
- DOI: [10.1172/JCI177753](#)

Abstract

Chronic low-grade inflammation is increasingly recognized as a subtle yet potent risk factor for a multitude of age-related disorders, including respiratory diseases, cardiovascular conditions, metabolic syndromes, autoimmunity, and cancer. In this issue of the JCI, Mebratu, Jones, and colleagues shed new light on the mechanisms that promote low-grade airway inflammation and how this contributes to the development of chronic obstructive pulmonary disease (COPD). Their finding that Bik deficiency leads to spontaneous emphysema in female mice, but not in males, marks a notable advancement in our understanding of how inflammatory processes can diverge based on biological sex. This finding is of clinical relevance, given the vulnerability of women to developing COPD.

Conflict of interest statement

Conflict of interest: IP is coscientific founder of, and consultant to, Allinaire Therapeutics Inc.

Comment on

- Bik promotes proteasomal degradation to control low-grade inflammation
- [17 references](#)
- [1 figure](#)

SUPPLEMENTARY INFO

MeSH terms, Substances [expand](#)

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Review

Heliyon

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. 2024 Feb 1;10(3):e25393.

doi: 10.1016/j.heliyon.2024.e25393. eCollection 2024 Feb 15.

[The application of nanoparticles as advanced drug delivery systems in Attenuating COPD](#)

[Victoria Jessamine](#)¹, [Samir Mehndiratta](#)^{1,2}, [Gabriele De Rubis](#)^{1,2}, [Keshav Raj Paudel](#)^{2,3}, [Saritha Shetty](#)⁴, [Divya Soares](#)⁴, [Dinesh Kumar Chellappan](#)⁵, [Brian G Oliver](#)^{6,7}, [Phillip M Hansbro](#)³, [Kamal Dua](#)^{1,2}

Affiliations [expand](#)

- PMID: 38356590
- PMCID: [PMC10864912](#)
- DOI: [10.1016/j.heliyon.2024.e25393](#)

Free PMC article

Abstract

Chronic Obstructive Pulmonary Disease (COPD) is a dilapidating condition which is characterized by inflammation, an excess in free radical generation and airway obstruction. Currently, the drugs commercially available for the management of COPD pose several limitations such as systemic adverse effects, including bone density loss and an increased risk of developing pneumonia. Moreover, another limitation includes the need for regular and frequent dosing regimens; which can affect the adherence to the therapy. Furthermore, these current treatments provide symptomatic relief; however, they cannot stop the progression of COPD. Comparatively, nanoparticles (NPs) provide great therapeutic potential to treat COPD due to their high specificity, biocompatibility, and higher bioavailability. Furthermore, the NP-based drug delivery systems involve less frequent dosing requirements and in smaller doses which assist in minimizing side effects. In this review, the benefits and limitations of conventional therapies are explored, while providing an in-depth insight on advanced applications of NP-based systems in the treatment of COPD.

Keywords: COPD; Clinical trials; Drug delivery; Inhaled corticosteroids; Nanoparticles; Polymeric nanoparticles; miRNA nanotherapeutics.

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Conflict of interest statement

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Dr. Keshav Raj Paudel is co-author and also an associate editor of Heliyon.

- [64 references](#)
- [5 figures](#)

SUPPLEMENTARY INFO

Publication types [expand](#)

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Heliyon



. 2024 Jan 20;10(3):e24824.

doi: 10.1016/j.heliyon.2024.e24824. eCollection 2024 Feb 15.

[Research trends on airway remodeling: A bibliometrics analysis](#)

[Pengcheng Liu](#)¹, [Yu Wang](#)¹, [Chen Chen](#)¹, [Hui Liu](#)¹, [Jing Ye](#)¹, [Xiaoming Zhang](#)², [Changxiu Ma](#)¹, [Dahai Zhao](#)¹

Affiliations [expand](#)

- PMID: 38333835
- PMCID: [PMC10850909](#)
- DOI: [10.1016/j.heliyon.2024.e24824](#)

Free PMC article

Abstract

Background: Airway remodeling is an essential pathological basis of respiratory diseases such as asthma and COPD, which is significantly related to pulmonary function and clinical symptoms. And pulmonary disease can be improved by regulating airway remodeling. This study aimed to establish a knowledge map of airway remodeling to clarify current research hotspots and future research trends.

Methods: A comprehensive search was performed to analyze all relevant articles on airway remodeling using the Web of Science Core Collection Database from January 01, 2004 to June 03, 2023. 2 reviewers screened the retrieved literature. Besides, the CiteSpace (6.2. R3) and VOSviewer (1.6.19) were utilized to visualize the research focus and trend regarding the effect of airway remodeling.

Results: A total of 4077 articles about airway remodeling were retrieved. The United States is the country with the most published literature, underscoring the country's role in airway remodeling. In recent years, China has been the country with the fastest growth in the number of published literature, suggesting that China will play a more critical role in airway remodeling in the future. From the perspective of co-operation among countries, European co-operation was closer than Asian co-operation. The co-citation analysis showed that 98,313 citations were recorded in 3594 articles, and 25 clusters could be realized. In recent years, Burst detection shows that oxidative stress and epithelial-mesenchymal transition are hot words.

Conclusions: Based on the bibliometric analysis of airway remodeling studies in the past 20 years, a multi-level knowledge structure map was drawn, it mainly includes countries, institutions, research fields, authors, journals, keywords and so on. The research directions represented by obstructive airway disease, PDGF-BB treatment of airway smooth muscle, allergen-induced airway remodeling, extracellular matrix, and non-coding RNA are the research hotspots in the field of airway remodeling. While the risk factors for airway remodeling, the application of new noninvasively assessing tools, biomarkers as well as The molecular mechanism represented by EMT and autophagy had been frontiers in recent years.

Keywords: Airway remodeling; Asthma; Bibliometric analysis; COPD; Citespace; VOSviewer.

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Conflict of interest statement

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

- [78 references](#)
- [14 figures](#)

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Thorax

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. 2024 Feb 15;79(3):209-218.

doi: 10.1136/thorax-2023-220435.

[Cluster randomised controlled trial of specialist-led integrated COPD care \(INTEGR COPD\)](#)

[Ketan Patel](#)¹, [Anita Pye](#)², [Ross G Edgar](#)³, [Helen Beadle](#)⁴, [Paul R Ellis](#)², [Alice Sitch](#)⁵, [Andrew P Dickens](#)⁶, [Alice M Turner](#)²

Affiliations expand

- PMID: 38286619
- DOI: [10.1136/thorax-2023-220435](https://doi.org/10.1136/thorax-2023-220435)

Free article

Abstract

Objective: Studies in hospital settings demonstrate that there is greater guideline adherence when care is delivered by a respiratory specialist, however, this has not been explored in primary care. The aim of this study is to determine the impact integrating respiratory specialists into primary care has on the delivery of guideline adherent chronic obstructive pulmonary disease (COPD) care.

Methods: 18 general practitioner (GP) practices were randomised to provide either usual or specialist-led COPD care. Patients at participating practices were included if they had an existing diagnosis of COPD. Outcomes were measured at the individual patient level. The primary outcome was guideline adherence, assessed as achieving four or more items of the COPD care bundle. Secondary outcome measures included quality of life, number of exacerbations, number of COPD-related hospitalisations and respiratory outpatient attendances.

Results: 586 patients from 10 practices randomised to the intervention and 656 patients from 8 practices randomised to the control arm of the study were included. The integration of respiratory specialists into GP practices led to a statistically significant ($p < 0.001$) improvement in the provision of guideline adherent care when compared with usual care in this cohort (92.7% vs 70.1%) (OR 4.14, 95% CI 2.14 to 8.03).

Conclusion: This is the first study to demonstrate that guideline adherence is improved through the integration of respiratory specialists into GP practices to deliver annual COPD reviews. To facilitate changes in current healthcare practice and policy, the findings of this paper need to be viewed in combination with qualitative research exploring the acceptability of specialist integration.

Trial registration number: [NCT03482700](https://www.clinicaltrials.gov/ct2/show/study/NCT03482700).

Keywords: COPD Exacerbations; COPD epidemiology.

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Conflict of interest statement

Competing interests: All authors have completed the ICMJE uniform disclosure form at <http://www.icmje.org/disclosure-of-interest/> (available on request from the corresponding author). AMT and KP were supported financially in relation to this study through a non-commercial grant from AstraZeneca. AMT has received grants not in relation to this study from Chiesi, NIHR, CSL Behring and Grifols Biotherapeutics. AS has received support from Birmingham NIHR Biomedical Research Centre. AP, PRE, RGE, HB and APD declare no support from any organisation for the submitted work; no financial relationships with any organisations that might have an interest in the submitted work in the previous 3 years, and no other relationships or activities that could appear to have influenced the submitted work.

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Editorial

Am J Respir Crit Care Med

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. 2024 Feb 15;209(4):349-351.

doi: 10.1164/rccm.202312-2248ED.

[Bronchodilator Responsiveness in Asthma and Chronic Obstructive Pulmonary Disease: Time to Stop Chasing Shadows](#)

[David M G Halpin](#)¹

Affiliations expand

- PMID: 38190497
- DOI: [10.1164/rccm.202312-2248ED](https://doi.org/10.1164/rccm.202312-2248ED)

No abstract available

Comment on

- [Prevalence, Diagnostic Utility and Associated Characteristics of Bronchodilator Responsiveness.](#)

Beasley R, Hughes R, Agusti A, Calverley P, Chipps B, Del Olmo R, Papi A, Price D, Reddel H, Müllerová H, Rapsomaniki E. *Am J Respir Crit Care Med*. 2024 Feb 15;209(4):390-401. doi: 10.1164/rccm.202308-1436OC.PMID: 38029294

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances expand

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Am J Respir Crit Care Med



. 2024 Feb 15;209(4):390-401.

doi: 10.1164/rccm.202308-1436OC.

[Prevalence, Diagnostic Utility and Associated Characteristics of Bronchodilator Responsiveness](#)

[Richard Beasley](#)¹, [Rod Hughes](#)², [Alvar Agusti](#)³, [Peter Calverley](#)⁴, [Bradley Chipps](#)⁵, [Ricardo Del Olmo](#)⁶, [Alberto Papi](#)⁷, [David Price](#)^{8,9}, [Helen Reddel](#)^{10,11}, [Hana Müllerová](#)¹², [Eleni Rapsomaniki](#)¹²

Affiliations expand

- PMID: 38029294
- DOI: [10.1164/rccm.202308-1436OC](https://doi.org/10.1164/rccm.202308-1436OC)

Abstract

Rationale: The prevalence and diagnostic utility of bronchodilator responsiveness (BDR) in a real-life setting is unclear. **Objective:** To explore this uncertainty in patients aged ≥ 12 years with physician-assigned diagnoses of asthma, asthma and chronic obstructive pulmonary disease (COPD), or COPD in NOVELTY, a prospective cohort study in primary and secondary care in 18 countries. **Methods:** The proportion of patients with a positive BDR test in each diagnostic category was calculated using 2005 (ΔFEV_1 or $\Delta FVC \geq 12\%$ and ≥ 200 ml) and 2021 (ΔFEV_1 or $\Delta FVC > 10\%$ predicted) European Respiratory Society/American Thoracic Society criteria. **Measurements and Main Results:** We studied 3,519 patients with a physician-assigned diagnosis of asthma, 833 with a diagnosis of asthma + COPD, and 2,436 with a diagnosis of COPD. The prevalence of BDR was 19.7% (asthma), 29.6% (asthma + COPD), and 24.7% (COPD) using 2005 criteria and 18.1%, 23.3%, and 18.0%, respectively, using 2021 criteria. Using 2021 criteria in patients diagnosed with asthma, BDR was associated with higher fractional exhaled nitric oxide; lower lung function; higher symptom burden; more frequent hospital admissions; and greater use of triple therapy, oral corticosteroids, or biologics. In patients diagnosed with COPD, BDR (2021) was associated with lower lung function and higher symptom burden. **Conclusions:** BDR prevalence in patients with chronic airway diseases receiving treatment ranges from 18% to 30%, being modestly lower with the 2021 than with the 2005 European Respiratory Society/American Thoracic Society criteria, and it is associated with lower lung function and greater symptom burden. These observations question the validity of BDR as a key diagnostic tool for asthma managed in clinical practice or as a standard inclusion criterion for clinical trials of asthma and instead suggest that BDR be considered a treatable trait for chronic airway disease.

Keywords: BDR; asthma; chronic obstructive pulmonary disease; diagnosis.

Comment in

- [Bronchodilator Responsiveness in Asthma and Chronic Obstructive Pulmonary Disease: Time to Stop Chasing Shadows.](#)

Halpin DMG. *Am J Respir Crit Care Med.* 2024 Feb 15;209(4):349-351. doi: 10.1164/rccm.202312-2248ED. PMID: 38190497 No abstract available.

- [Cited by 1 article](#)

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MeSH terms, Substances, Supplementary concepts, Grants and funding expand

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Thorax

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. 2024 Feb 15;79(3):202-208.

doi: 10.1136/thorax-2022-219320.

Cause-specific mortality in COPD subpopulations: a cohort study of 339 647 people in England

[Hannah Whittaker](#)¹, [Kieran J Rothnie](#)², [Jennifer K Quint](#)³

Affiliations expand

- PMID: 37328279
- DOI: [10.1136/thorax-2022-219320](https://doi.org/10.1136/thorax-2022-219320)

Free article

Abstract

Background: Identifying correlates of cause-specific mortality in patients with chronic obstructive pulmonary disease (COPD) may aid the targeting of therapies to reduce mortality. We determined factors associated with causes of death in a primary care COPD population.

Methods: Clinical Practice Research Datalink Aurum was linked to Hospital Episode Statistics and death certificate data. People with COPD alive between 1 January 2010 and 1 January 2020 were included. Patient characteristics were defined before the start of follow-up: (a) frequency and severity of exacerbations; (b) emphysema or chronic bronchitis; (c) Global Obstructive Lung Disease (GOLD) groups A-D; and (d) airflow limitation. We used Cox Proportional Hazards regression and competing risks to investigate the association

between patient characteristics and risk of all-cause, COPD and cardiovascular (CV) mortality.

Results: 339 647 people with COPD were included of which 97 882 died during follow-up (25.7% COPD related and 23.3% CV related). Airflow limitation, GOLD group, exacerbation frequency and severity, and COPD phenotype were associated with all-cause mortality. Exacerbations, both increased frequency and severity, were associated with COPD-related mortality (≥ 2 exacerbations vs none adjusted HR: 1.64, 1.57-1.71; 1 severe vs none adjusted HR: 2.17, 2.04-2.31, respectively). Patients in GOLD groups B-D had a higher risk of COPD and CV mortality compared with GOLD group A (GOLD group D vs group A, adjusted HR for COPD mortality: 4.57, 4.23-4.93 and adjusted HR for CV mortality: 1.53, 1.41-1.65). Increasing airflow limitation was also associated with both COPD and CV mortality (GOLD 4 vs 1, adjusted HR: 12.63, 11.82-13.51 and adjusted HR: 1.75, 1.60-1.91, respectively).

Conclusion: Poorer airflow limitation, worse functional status and exacerbations had substantial associations with risk of all-cause mortality. Differing results for CV and COPD-related mortality suggests interventions to prevent mortality may need to target particular characteristics or time points in the disease course.

Keywords: COPD epidemiology.

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Conflict of interest statement

Competing interests: This study, 214667, is a supported collaborative study where GlaxoSmithKline provided support and collaborated with the research sponsor. No payment was made for manuscript development. HW and JKQ report grants from GlaxoSmithKline, during the conduct of this study. KJR is an employee of and holds shared in GlaxoSmithKline.

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Semin Cell Dev Biol

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. 2024 Feb 15;154(Pt C):346-354.

doi: 10.1016/j.semcdb.2023.05.003. Epub 2023 May 23.

Epigenetic regulation of pulmonary inflammation

[Shama Ahmad](#)¹, [Xiao Lu Zhang](#)¹, [Aftab Ahmad](#)²

Affiliations expand

- PMID: 37230854
- PMCID: PMC10592630 (available on 2025-02-15)
- DOI: [10.1016/j.semcdb.2023.05.003](https://doi.org/10.1016/j.semcdb.2023.05.003)

Abstract

Pulmonary disease such as chronic obstructive pulmonary disease (COPD), asthma, pulmonary fibrosis and pulmonary hypertension are the leading cause of deaths. More importantly, lung diseases are on the rise and environmental factors induced epigenetic modifications are major players on this increased prevalence. It has been reported that dysregulation of genes involved in epigenetic regulation such as the histone deacetylase (HDACs) and histone acetyltransferase (HATs) play important role in lung health and pulmonary disease pathogenesis. Inflammation is an essential component of respiratory diseases. Injury and inflammation trigger release of extracellular vesicles that can act as epigenetic modifiers through transfer of epigenetic regulators such as microRNAs (miRNAs), long non-coding RNAs (lncRNAs), proteins and lipids, from one cell to another. The immune dysregulations caused by the cargo contents are important contributors of respiratory disease pathogenesis. N6 methylation of RNA is also emerging to be a critical mechanism of epigenetic alteration and upregulation of immune responses to environmental stressors. Epigenetic changes such as DNA methylation are stable and often

long term and cause onset of chronic lung conditions. These epigenetic pathways are also being utilized for therapeutic intervention in several lung conditions.

Keywords: Epigenetics; Exosomes; Lung; Pulmonary disease; Therapies.

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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.

- [179 references](#)

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J Epidemiol Glob Health

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. 2024 Feb 14.

doi: 10.1007/s44197-023-00183-4. Online ahead of print.

[Epidemiology of Osteoporosis in Patients with Chronic Obstructive Pulmonary Disease in Taiwan](#)

[Kung-Ming Liao](#)¹, [Chuan-Wei Shen](#)², [Kai-Lin Chiu](#)^{2,3}, [Chun-Hui Lu](#)⁴, [Chih-Wun Fang](#)⁵, [Chung-Yu Chen](#)^{6,7,8,9}

Affiliations expand

- PMID: 38353916
- DOI: [10.1007/s44197-023-00183-4](https://doi.org/10.1007/s44197-023-00183-4)

Abstract

Background: Chronic obstructive pulmonary disease (COPD) is a preventable and treatable chronic condition characterized by progressive, partially reversible airflow obstruction. Osteoporosis represents a significant comorbidity in individuals with COPD. However, the incidence and prevalence of osteoporosis among the COPD population remain unclear in Taiwan. Therefore, our objective is to investigate the incidence and prevalence of osteoporosis in patients with COPD.

Methods: In this cross-sectional study, we enrolled a COPD population retrieved from the Taiwan National Health Insurance Research Database (NHIRD) spanning the years 2003 to 2016. Osteoporosis patients were identified using diagnosis codes. The study included newly diagnosed COPD patients from 2003 to 2016. The case group comprised patients who developed osteoporosis or osteoporotic fractures after their COPD diagnosis. We calculated the prevalence and incidence of osteoporosis in individuals with COPD and conducted trend tests.

Results: A total of 1,297,579 COPD patients were identified during the period from 2003 to 2016, with 275,233 of them in the osteoporosis group. The average prevalence of osteoporosis among individuals with COPD was 21.21% from 2003 to 2016 in Taiwan. The number of osteoporosis cases increased from 6,727 in 2003 to 24,184 in 2016. The prevalence of osteoporosis among COPD patients increased from 3.62% in 2003 to 18.72% in 2016. The number of osteoporosis cases among individuals with COPD continued to rise over the years, reaching its highest point in 2016 with 24,184 new cases. The incidence of osteoporosis fluctuated during the study period but generally remained around 3,000 cases per 100,000 person-years. Notably, there was a significant upward trend in incidence from 2003 to 2006, after which the trend stabilized and remained relatively constant.

Conclusions: Our study highlights an increase in both the prevalence and incidence of osteoporosis in individuals with COPD. Given the significant medical, economic, and social implications associated with osteoporosis, a comprehensive and robust assessment of its healthcare burden can offer valuable insights for healthcare system planning and policymaking.

Keywords: Chronic obstructive pulmonary disease; Epidemiology; Fracture; Osteoporosis.

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. 2024 Feb 13;14(1):3649.

doi: 10.1038/s41598-024-54338-9.

[The six-minute step test can predict COPD exacerbations: a 36-month follow-up study](#)

[Aldair Darlan Santos-de-Araújo¹](#), [Cássia da Luz Goulart¹](#), [Renan Shida Marinho¹](#), [Izadora Moraes Dourado¹](#), [Renata Gonçalves Mendes¹](#), [Meliza Goi Roscani²](#), [Daniela Bassi-Dibai³](#), [Shane A Phillips⁴](#), [Ross Arena⁴](#), [Audrey Borghi-Silva⁵](#)

Affiliations [expand](#)

- PMID: 38351306
- PMCID: [PMC10864352](#)

- DOI: [10.1038/s41598-024-54338-9](https://doi.org/10.1038/s41598-024-54338-9)

Free PMC article

Abstract

The six-minute step test (6MST) has been shown to be effective in assessing exercise capacity in individuals with COPD regardless of severity and, despite its easy execution, accessibility and validity, information on the prognostic power of this test remains uncertain. The aim of this study is to investigate whether the 6MST can predict the occurrence of exacerbations in patients with COPD. This is a prospective cohort study with a 36-month follow-up in patients with COPD. All patients completed a clinical assessment, followed by pulmonary function testing and a 6MST. The 6MST was performed on a 20 cm high step; heart rate, blood pressure, oxygen saturation, BORG dyspnea and fatigue were collected. Sixty-four patients were included in the study, the majority being elderly men. Performance on the 6MST demonstrated lower performance compared to normative values proposed in the literature, indicating a reduced functional capacity. Kaplan Meier analysis revealed that ≤ 59 steps climbed during the 6MST was a strong predictor of COPD exacerbation over a 36-month follow-up. We have identified a minimal threshold number of steps (≤ 59) obtained through the 6MST may be able predict the risk of exacerbations in patients with COPD.

Keywords: Chronic obstructive pulmonary disease; Exacerbation; Functional capacity; Six-minute step test.

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Conflict of interest statement

The authors declare no competing interests.

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

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Thorax



. 2024 Feb 13:thorax-2023-220388.

doi: 10.1136/thorax-2023-220388. Online ahead of print.

[Female reproductive histories and the risk of chronic obstructive pulmonary disease](#)

[Chen Liang](#)¹, [Hsin-Fang Chung](#)¹, [Annette Dobson](#)¹, [Sven Sandin](#)², [Elisabete Weiderpass](#)³, [Gita D Mishra](#)⁴

Affiliations expand

- PMID: 38350732
- DOI: [10.1136/thorax-2023-220388](https://doi.org/10.1136/thorax-2023-220388)

Abstract

Background: Female reproductive factors may influence the development of chronic obstructive pulmonary disease (COPD) through the female hormonal environment, but studies on this topic are limited. This study aimed to assess whether age at menarche, number of children, infertility, miscarriage, stillbirth and age at natural menopause were associated with the risk of COPD.

Methods: Women from three cohorts with data on reproductive factors, COPD and covariates were included. Cause specific Cox regression models were adjusted for birth year, race, educational level, body mass index and pack years of smoking, stratified by asthma, and incorporating interaction between birth year and time. Between cohort differences and within cohort correlations were taken into account.

Results: Overall, 2 83 070 women were included and 10 737 (3.8%) developed COPD after a median follow-up of 11 (IQR 10-12) years. Analyses revealed a U shaped association between age at menarche and COPD (≤ 11 vs 13: HR 1.17, 95% CI 1.11 to 1.23; ≥ 16 vs 13: HR 1.24, 95% CI 1.21 to 1.27). Women with three or more children (3 vs 2: HR 1.14, 95% CI 1.12 to 1.17; ≥ 4 vs 2: HR 1.34, 95% CI 1.28 to 1.40), multiple miscarriages (2 vs 0: HR 1.28, 95% CI 1.24 to 1.32; ≥ 3 vs 0: HR 1.36, 95% CI 1.30 to 1.43) or stillbirth (1 vs 0: HR 1.38, 95% CI 1.25 to 1.53; ≥ 2 vs 0: HR 1.67, 95% CI 1.32 to 2.10) were at a higher risk of COPD. Among postmenopausal women, earlier age at natural menopause was associated with an increased risk of COPD (<40 vs 50-51: HR 1.69, 95% CI 1.63 to 1.75; 40-44 vs 50-51: HR 1.42, 95% CI 1.38 to 1.47).

Conclusions: Multiple female reproductive factors, including age at menarche, number of children, miscarriage, stillbirth, and age at natural menopause were associated with the risk of COPD.

Keywords: COPD epidemiology.

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Conflict of interest statement

Competing interests: GDM reports grants from the Australian National Health and Medical Research Council.

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. 2024 Feb 13:thorax-2023-220333.

doi: 10.1136/thorax-2023-220333. Online ahead of print.

Do pulmonary rehabilitation programmes improve outcomes in patients with COPD posthospital discharge for exacerbation: a systematic review and meta-analysis

[Alex R Jenkins](#)¹, [Chris Burtin](#)^{2,3}, [Pat G Camp](#)^{4,5}, [Peter Lindenauer](#)⁶, [Brian Carlin](#)⁷, [Jennifer A Alison](#)^{8,9}, [Carolyn Rochester](#)^{10,11}, [Anne E Holland](#)^{12,13,14}

Affiliations expand

- PMID: 38350731
- DOI: [10.1136/thorax-2023-220333](https://doi.org/10.1136/thorax-2023-220333)

Abstract

Introduction: Previous systematic reviews have provided heterogeneous and differing estimates for the efficacy of pulmonary rehabilitation following exacerbations of chronic obstructive pulmonary disease (COPD). The aim of this review was to examine the efficacy of pulmonary rehabilitation programmes initiated within 3 weeks of hospital discharge following an exacerbation of COPD.

Methods: An update of a previous Cochrane review was undertaken using the Cochrane Airways Review Group Specialised Register. Searches were conducted from October 2015 to August 2023 for studies that initiated pulmonary rehabilitation within 3 weeks of hospital discharge. Studies assessing the impact of solely inpatient pulmonary rehabilitation were excluded. Forest plots were generated using a generic inverse variance random effects method.

Results: Seventeen studies were included. Posthospital discharge pulmonary rehabilitation reduced hospital re-admissions (OR 0.48, 95% CI 0.30 to 0.77, $I^2=67%$), improved exercise capacity (6 min walk test, mean difference (MD) 57 m, 95% CI 29 to 86, $I^2=89%$; incremental shuttle walk test, MD 43 m, 95% CI 6 to 79, $I^2=81%$), health-related quality of life (St. George's Respiratory Questionnaire, MD -8.7 points, 95% CI -12.5 to -4.9, $I^2=59%$; Chronic Respiratory Disease Questionnaire (CRQ)-emotion, MD 1.0 points, 95% CI 0.4 to 1.6, $I^2=74%$; CRQ-fatigue, MD 0.9 points, 95% CI 0.1 to 1.6, $I^2=91%$), and dyspnoea (CRQ-dyspnoea, MD 1.0 points, 95% CI 0.3 to 1.7, $I^2=87%$; modified Medical Research Council Dyspnoea Scale, MD -0.3 points, 95% CI -0.5 to -0.1, $I^2=60%$). Significant effects were not

observed for CRQ-mastery, COPD assessment test, EuroQol-5 Dimension-5 Level and mortality. No intervention-related adverse events were reported.

Discussion: Pulmonary rehabilitation delivered posthospital discharge for exacerbation of COPD results in a reduction in hospital re-admissions and improvements in exercise capacity, health-related quality of life and dyspnoea in the absence of any intervention-related adverse events.

Trial registration number: CRD42023406397.

Keywords: COPD exacerbations; exercise; pulmonary rehabilitation.

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Conflict of interest statement

Competing interests: None declared.

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Respir Med



. 2024 Feb 12:107557.

doi: 10.1016/j.rmed.2024.107557. Online ahead of print.

[Predicting exacerbations in COPD in the Danish general population](#)

[Jacob Louis Marott](#)¹, [Truls Sylvan Ingebrigtsen](#)², [Yunus Çolak](#)³, [Jørgen Vestbo](#)⁴, [Børge Grønne Nordestgaard](#)⁵, [Peter Lange](#)⁶

Affiliations expand

- PMID: 38355020
- DOI: [10.1016/j.rmed.2024.107557](https://doi.org/10.1016/j.rmed.2024.107557)

Abstract

Background: Risk of exacerbations in individuals with mild chronic obstructive pulmonary disease (COPD) in the general population is less well described than in more advanced disease. We hypothesized that in addition to history of previous exacerbation also other clinical characteristics predict future moderate exacerbations.

Methods: In 96,462 individuals in the Copenhagen General Population Study, we identified 3175 with clinical COPD defined as forced expiratory volume in 1 s (FEV₁)/forced vital capacity (FVC) < 0.70 and FEV₁ <80% predicted in symptomatic individuals without asthma. We estimated the importance of age, sex, FEV₁, modified Medical Research Council (mMRC) dyspnea scale, chronic bronchitis, exacerbation history, comorbidities, cohabitation, body mass index, smoking, and blood eosinophils for the 1-year and 3-year future risk of moderate COPD exacerbations and developed a prediction tool for future exacerbations in COPD in the general population based on easily available clinical information.

Results: We observed 265 exacerbations in 2543 maintenance treatment naïve individuals with COPD and 197 exacerbations in 632 individuals with COPD on maintenance treatment. In the maintenance treatment naïve group, exacerbation history (hazard ratio (HR): 8.53), low FEV₁ (HR: 4.82 for <30% predicted versus 50-79% predicted), and higher age (HR: 1.46 for ≥75 years versus <65 years) were significant predictors of future exacerbations. In the group on maintenance treatment, male sex and mMRC ≥2 also predicted higher risk with borderline significance.

Conclusions: In addition to exacerbation history also higher age and lower FEV₁ predict future exacerbation risk in COPD in the general population.

Keywords: Chronic obstructive pulmonary disease; Exacerbation; Mild disease; Risk score.

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Conflict of interest statement

Declaration of competing interest TS Ingebrigtsen reports a personal fee from AstraZeneca. Y Çolak reports personal fees from AstraZeneca, Boehringer-Ingelheim, GSK, and Sanofi, and grant support from Sanofi. J Vestbo reports personal fees from ALK-Abello,

AstraZeneca, Boehringer-Ingelheim, Chiesi, GSK, Novartis and Teva. P Lange reports personal fees from AstraZeneca, GSK and Sanofi and grant support from Sanofi and another in relation to the present work from AstraZeneca. JL Marott and BG Nordestgaard have no disclosures to report.

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. 2024 Feb 12;10(1):00895-2023.

doi: 10.1183/23120541.00895-2023. eCollection 2024 Jan.

[The many faces of COPD in real life: a longitudinal analysis of the NOVELTY cohort](#)

[Alvar Agustí](#)^{1,2}, [Rod Hughes](#)^{3,2}, [Eleni Rapsomaki](#)³, [Barry Make](#)⁴, [Ricardo Del Olmo](#)⁵, [Alberto Papi](#)⁶, [David Price](#)⁷, [Laura Benton](#)³, [Stefan Franzen](#)³, [Jørgen Vestbo](#)⁸, [Hana Mullerova](#)³

Affiliations expand

- PMID: 38348246
- PMCID: [PMC10860203](#)
- DOI: [10.1183/23120541.00895-2023](#)

Abstract

Background: The diagnosis of COPD requires the demonstration of non-fully reversible airflow limitation by spirometry in the appropriate clinical context. Yet, there are patients with symptoms and relevant exposures suggestive of COPD with either normal spirometry (pre-COPD) or preserved ratio but impaired spirometry (PRISm). Their prevalence, clinical characteristics and associated outcomes in a real-life setting are unclear.

Methods: To investigate them, we studied 3183 patients diagnosed with COPD by their attending physician included in the NOVELTY study (clinicaltrials.gov identifier [NCT02760329](https://clinicaltrials.gov/ct2/show/study/NCT02760329)), a global, 3-year, observational, real-life cohort that included patients recruited from both primary and specialist care clinics in 18 countries.

Results: We found that 1) approximately a quarter of patients diagnosed with (and treated for) COPD in real life did not fulfil the spirometric diagnostic criteria recommended by the Global Initiative for Chronic Obstructive Lung Disease (GOLD), and could be instead categorised as pre-COPD (13%) or PRISm (14%); 2) disease burden (symptoms and exacerbations) was highest in GOLD 3-4 patients (exacerbations per person-year (PPY) 0.82) and lower but similar in those in GOLD 1-2, pre-COPD and PRISm (exacerbations range 0.27-0.43 PPY); 3) lung function decline was highest in pre-COPD and GOLD 1-2, and much less pronounced in PRISm and GOLD 3-4; 4) PRISm and pre-COPD were not stable diagnostic categories and change substantially over time; and 5) all-cause mortality was highest in GOLD 3-4, lowest in pre-COPD, and intermediate and similar in GOLD 1-2 and PRISm.

Conclusions: Patients diagnosed COPD in a real-life clinical setting present great diversity in symptom burden, progression and survival, warranting medical attention.

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Conflict of interest statement

Conflict of Interest: A. Agustí reports support for the present manuscript as a member of the scientific committee of NOVELTY; and grants from GSK and AstraZeneca, consulting fees from GSK, AstraZeneca, Chiesi, Menarini and Sanofi, lecture honoraria from GSK, AstraZeneca, Chiesi, Menarini and Zambon, and an unpaid leadership role as chair of the board of directors of GOLD, outside the submitted work. Conflict of interest: R. Hughes is an employee of AstraZeneca. Conflict of interest: E. Rapsomaniki, L. Benton, S. Franzen and H. Mullerova report support for the present manuscript from AstraZeneca, and stock or stock options in AstraZeneca. Conflict of interest: B. Make reports support for the present manuscript from AstraZeneca; and grants from the NHLBI, the American Lung Association, the Department of Defense and AstraZeneca, royalties from Wolters Kluwer Health (Up-To-

Date), consulting fees from AstraZeneca and Third Pole; lecture honoraria from AstraZeneca, Mt Sinai, Web MD, Novartis, the American College of Chest Physicians, Projects in Knowledge, the Eastern Pulmonary Society, Optimum Patient Care Global Limited, GlaxoSmithKline, Boston University Medical Center and Integritas Communications, advisory board participation with Spiration, GlaxoSmithKline, Mt Sinai, Boehringer Ingelheim, Mylan, Quintiles, the University of Wisconsin, Baystate Medical Center and AstraZeneca, outside the submitted work. Conflict of interest: R. del Olmo reports support for the present manuscript for medical writing from AstraZeneca; and reports lecture honoraria from AstraZeneca, GSK, Boehringer Ingelheim, Elea and Sanofi, and travel support from AstraZeneca, GSK and Boehringer Ingelheim, outside the submitted work. Conflict of interest: A. Papi reports support for the present manuscript from AstraZeneca; and grants from Chiesi, AstraZeneca, GSK, Sanofi and Agenzia Italiana Del Farmaco, consulting fees from Chiesi, AstraZeneca, GSK, Novartis, Sanofi, Avillion and Elpen Pharmaceutica, lecture honoraria from Chiesi, AstraZeneca, GSK, Menarini, Novartis, Zambon, Mundipharma, Sanofi, Edmond Pharma, Iqvia, Avillion and Elpen Pharmaceuticals, and advisory board participation with Chiesi, AstraZeneca, GSK, MSD, Novartis, Sanofi, Iqvia, Avillion and Elpen Pharmaceuticals, outside the submitted work. Conflict of interest: D. Price reports grants from AstraZeneca, Boehringer Ingelheim, Chiesi, Mylan, Novartis, Regeneron Pharmaceuticals, the Respiratory Effectiveness Group, Sanofi Genzyme, Theravance and the UK National Health Service, consulting fees from Airway Vista Secretariat, AstraZeneca, Boehringer Ingelheim, Chiesi, EPG Communication Holdings Ltd, FIECON Ltd, Fieldwork International, GlaxoSmithKline, Mylan, Mundipharma, Novartis, OM Pharma SA, PeerVoice, Phadia AB, Spirosure Inc, Strategic North Limited, Synapse Research Management Partners S.L., Talos Health Solutions, Theravance, WebMD Global LLC, AstraZeneca, Boehringer Ingelheim, Chiesi, Cipla, GlaxoSmithKline, Kyorin, Mylan, Mundipharma, Novartis, Regeneron Pharmaceuticals and Sanofi Genzyme; payment for expert testimony from GlaxoSmithKline; travel support from AstraZeneca, Boehringer Ingelheim, Mundipharma, Mylan, Novartis and Thermofisher, advisory board membership with AstraZeneca, Boehringer Ingelheim, Chiesi, Mylan, Novartis, Regeneron Pharmaceuticals, Sanofi Genzyme and Thermofisher, stock or stock options from AKL Research and Development Ltd, Optimum Patient Care Ltd (Australia and the UK), the Observational and Pragmatic Research Institute Pte Ltd (Singapore) and Timestamp, and acts as peer reviewer for grant committees for UK Efficacy and the Mechanism Evaluation Programme and Health Technology Assessment, outside the submitted work. Conflict of interest: J. Vestbo reports consulting fees from AstraZeneca, ALK, Chiesi, GSK and Teva, and lecture honoraria from AstraZeneca, Boehringer Ingelheim, Chiesi and GSK, outside the submitted work.

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. 2024 Feb 12;10(1):00751-2023.

doi: 10.1183/23120541.00751-2023. eCollection 2024 Jan.

[Biomarkers of chronic airflow limitation and COPD identified by mass spectrometry](#)

[Magnus Molin](#)¹, [Anne Incamps](#)², [Manon Lemasson](#)², [Mats Andersson](#)¹, [Eleftheria Pertsinidou](#)^{1,3}, [Marieann Högman](#)⁴, [Karin Lisspers](#)⁵, [Björn Ställberg](#)⁵, [Anders Sjölander](#)¹, [Andrei Malinovski](#)^{6,7}, [Christer Janson](#)^{4,7}

Affiliations expand

- PMID: 38348244
- PMCID: [PMC10860196](#)
- DOI: [10.1183/23120541.00751-2023](#)

Free PMC article

Abstract

Rationale: COPD affects 300 million people worldwide and is the third leading cause of death according to World Health Organization global health estimates. Early symptoms are subtle, and so COPD is often diagnosed at an advanced stage. Thus, there is an unmet need for biomarkers that can identify individuals at early stages of the disease before clinical symptoms have manifested. To date, few biomarkers are available for clinical diagnostic use in COPD.

Methods: We evaluated a panel of serum biomarkers related to inflammation and infection for their ability to discriminate between 77 subjects with chronic airflow limitation (CAL) and 142 subjects with COPD, *versus* 150 healthy subjects (divided into two control groups that were matched with regards to age, gender and smoking to CAL and COPD). Healthy subjects and CAL were from Burden of Obstructive Lung Disease (BOLD), a population-based study. CAL was defined by post-bronchodilatory forced expiratory volume in 1 s/forced vital capacity ratio <0.7 in the BOLD population. COPD subjects were from Tools for Identifying Exacerbations (TIE), a COPD patient cohort. Quantification of 100 biomarker candidates was done by liquid chromatography-tandem mass spectrometry.

Results: Several protein-derived peptides were upregulated in CAL, compared to controls; most notably peptides representing histidine-rich glycoprotein (HRG), α_1 -acid glycoprotein (AGP1), α_1 -antitrypsin (α_1 AT) and fibronectin. Out of these, HRG-, AGP1- and α_1 AT-specific peptides were also elevated in the COPD cohort.

Conclusion: HRG, AGP1 and α_1 AT biomarkers distinguish subjects with CAL and COPD from healthy controls. HRG and AGP1 represent novel findings.

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Conflict of interest statement

Conflict of interest: M. Molin, A. Incamps, M. Lemasson, E. Pertsinidou, M. Andersson and A. Sjölander are or were employed by Thermo Fisher Scientific. M. Högman, K. Lisspers, B. Ställberg, A. Malinovski and C. Janson declare no competing interests in relation to this study.

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- [3 figures](#)

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. 2024 Feb 12;10(1):00600-2023.

doi: 10.1183/23120541.00600-2023. eCollection 2024 Jan.

Home noninvasive ventilation in severe COPD: in whom does it work and how?

[Tim Raveling](#)^{1,2}, [Judith M Vonk](#)^{2,3}, [Nicholas S Hill](#)⁴, [Peter C Gay](#)⁵, [Ciro Casanova](#)⁶, [Enrico Clini](#)⁷, [Thomas Köhnlein](#)⁸, [Eduardo Márquez-Martin](#)^{9,10}, [Tessa Schneeberger](#)^{11,12}, [Patrick B Murphy](#)¹³, [Fransien M Struik](#)¹, [Huib A M Kerstjens](#)^{1,2}, [Marieke L Duiverman](#)^{1,2}, [Peter J Wijkstra](#)^{1,2}

Affiliations expand

- PMID: 38348241
- PMCID: [PMC10860207](#)
- DOI: [10.1183/23120541.00600-2023](#)

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Abstract

Background: Not all hypercapnic COPD patients benefit from home noninvasive ventilation (NIV), and mechanisms through which NIV improves clinical outcomes remain uncertain. We aimed to identify "responders" to home NIV, denoted by a beneficial effect of NIV on arterial partial pressure of carbon dioxide (P_{aCO_2}), health-related quality of life (HRQoL) and survival, and investigated whether NIV achieves its beneficial effect through an improved P_{aCO_2} .

Methods: We used individual patient data from previous published trials collated for a systematic review. Linear mixed-effect models were conducted to compare the effect of

NIV on P_{aCO_2} , HRQoL and survival, within subgroups defined by patient and treatment characteristics. Secondly, we conducted a causal mediation analysis to investigate whether the effect of NIV is mediated by a change in P_{aCO_2} .

Findings: Data of 1142 participants from 16 studies were used. Participants treated with lower pressure support (<14 *versus* ≥ 14 cmH₂O) and with lower adherence (<5 *versus* ≥ 5 h·day⁻¹) had less improvement in P_{aCO_2} (mean difference (MD) -0.30 kPa, $p < 0.001$ and -0.29 kPa, $p < 0.001$, respectively) and HRQoL (standardised MD 0.10, $p = 0.002$ and 0.11, $p = 0.02$, respectively), but this effect did not persist to survival. P_{aCO_2} improved more in patients with severe dyspnoea (MD -0.30, $p = 0.02$), and HRQoL improved only in participants with fewer than three exacerbations (standardised MD 0.52, $p = 0.03$). The results of the mediation analysis showed that the effect on HRQoL is mediated partially (23%) by a change in P_{aCO_2} .

Interpretation: With greater pressure support and better daily NIV usage, a larger improvement in P_{aCO_2} and HRQoL is achieved. Importantly, we demonstrated that the beneficial effect of home NIV on HRQoL is only partially mediated through a reduction in diurnal P_{aCO_2} .

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Conflict of interest statement

Conflict of interest: T. Raveling reports a travel grant from Breas Medical. N.S. Hill reports consulting fees from Philips, consulting fees and payments from Fisher & Paykel, and participates in boards of Breas and Philips. C. Casanova reports consulting fees from AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Menarini and Novartis, and participates in boards of AstraZeneca and GlaxoSmithKline. E. Clini reports consulting fees from Chiesi Italia and Novartis, payments from AstraZeneca, Boehringer Ingelheim and GaxoSmithKline, and meeting/travel support from Boehringer Ingelheim and Chiesi. T. Köhnlein reports support from Grifols Deutschland GmbH. P.B. Murphy reports grants and payments from Fisher & Paykel, Resmed, Breas Medical and Philips Respironics, and payments from Chiesi and Genzyme. M.L. Duiverman reports grants from Resmed, Philips, Lowenstein, Vivisol, Sencure and Fisher & Paykel, and payments from Chiesi and Breas Medical. P.J. Wijkstra reports grants from Resmed, and grants and consulting fees from Philips.

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. 2024 Feb 12;10(1):00767-2023.

doi: 10.1183/23120541.00767-2023. eCollection 2024 Jan.

[Endothelial to mesenchymal transition is an active process in smokers and patients with early COPD contributing to pulmonary arterial pathology](#)

[Prem Bhattarai](#)^{1,2}, [Wenying Lu](#)^{1,2}, [Ashutosh Hardikar](#)^{3,4}, [Surajit Dey](#)¹, [Archana Vijay Gaikwad](#)¹, [Affan Mahmood Shahzad](#)¹, [Collin Chia](#)^{1,2,5}, [Andrew Williams](#)¹, [Gurpreet Kaur Singhera](#)^{6,7}, [Tillie-Louise Hackett](#)^{6,7}, [Mathew Suji Eapen](#)¹, [Sukhwinder Singh Sohal](#)^{1,2}

Affiliations expand

- PMID: 38348240
- PMCID: [PMC10860200](#)
- DOI: [10.1183/23120541.00767-2023](#)

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Abstract

Background: We have previously reported pulmonary arterial remodelling in smokers and patients with early COPD, which can be attributed to endothelial to mesenchymal transition (EndMT). In this study, we aimed to evaluate if EndMT is an active mechanism in smokers and COPD.

Methods: Immunohistochemical staining for the EndMT biomarkers CD31, N-cadherin, vimentin and S100A4 was done on lung resection tissue from 49 subjects. These comprised 15 nonsmoker controls (NC), six normal lung function smokers (NLFS), nine patients with small airway disease (SAD), nine current smokers with mild-moderate COPD (COPD-CS) and 10 ex-smokers with COPD (COPD-ES). Pulmonary arteries were analysed using Image ProPlus software v7.0.

Results: We noted reduced junctional CD31⁺ endothelial cells ($p < 0.05$) in the intimal layer of all smoking groups compared to NC. We also observed increased abundance of the mesenchymal markers N-cadherin ($p < 0.05$) and vimentin ($p < 0.001$) in all smoking groups and across all arterial sizes *versus* NC, except for N-cadherin in large arteries in COPD-CS. The abundance of S100A4 correlated with arterial thickness (small: $r = 0.29$, $p = 0.05$; medium: $r = 0.33$, $p = 0.03$; large: $r = 0.35$, $p = 0.02$). Vimentin in the small arterial wall negatively correlated with forced expiratory volume in 1 s/forced vital capacity ($r = -0.35$, $p = 0.02$) and forced expiratory flow rate at 25-75% of forced vital capacity ($r = -0.34$, $p = 0.03$), while increased cytoplasmic CD31 abundance in the intimal layer of medium and large arteries negatively correlated with predicted diffusing capacity of the lung for carbon monoxide (medium: $r = -0.35$, $p = 0.04$; large: $r = -0.39$, $p = 0.03$).

Conclusion: This is the first study showing the acquisition of mesenchymal traits by pulmonary endothelial cells from NLFS, SAD and mild-moderate COPD patients through EndMT. This informs on the potential early origins of pulmonary hypertension in smokers and patients with early COPD.

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Conflict of interest statement

Conflict of interest: S.S. Sohal reports honoraria for lectures from Chiesi; travel support from Chiesi, AstraZeneca and GSK; and research grants from Boehringer Ingelheim and Lung Therapeutics, outside the submitted work. S.S. Sohal has served on the small airway advisory board for Chiesi Australia, for which an honorarium has been received. Conflict of interest: All the other authors do not have any conflict of interest to declare.

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Respirology

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. 2024 Feb 12.

doi: 10.1111/resp.14676. Online ahead of print.

Respiratory health effects of cannabis- How should we respond to liberalization of cannabis laws?

[Robert J Hancox](#)^{1,2}

Affiliations expand

- PMID: 38346930
- DOI: [10.1111/resp.14676](https://doi.org/10.1111/resp.14676)

No abstract available

Keywords: bronchitis; cannabis; chronic obstructive pulmonary disease; emphysema; lung cancer.

- [16 references](#)

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. 2024 Feb 12;11(1):e001789.

doi: 10.1136/bmjresp-2023-001789.

Impacts of regular physical activity on hospitalisation in chronic obstructive pulmonary disease: a nationwide population-based study

[Bumhee Yang](#)^{#1}, [Hyun Lee](#)^{#2}, [Jiin Ryu](#)², [Dong Won Park](#)², [Tai Sun Park](#)², [Jee-Eun Chung](#)³, [Tae-Hyung Kim](#)², [Jang Won Sohn](#)², [Eung-Gook Kim](#)⁴, [Kang Hyeon Choe](#)¹, [Ho Joo Yoon](#)², [Ji-Yong Moon](#)⁵

Affiliations expand

- PMID: 38346848
- PMCID: [PMC10862297](#)
- DOI: [10.1136/bmjresp-2023-001789](#)

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Abstract

Introduction: Studies that comprehensively evaluate the association between physical activity (PA) levels, particularly by quantifying PA intensity, and healthcare use requiring emergency department (ED) visit or hospitalisation in patients with chronic obstructive pulmonary disease (COPD) are limited in Korea.

Methods: The risk of all-cause and respiratory ED visit or hospitalisation according to the presence or absence of COPD and the level of PA was evaluated in a retrospective nationwide cohort comprising 3308 subjects with COPD (COPD cohort) and 293 358 subjects without COPD (non-COPD cohort) from 2009 to 2017.

Results: The COPD group exhibited a higher relative risk of all-cause and respiratory ED visit or hospitalisation across all levels of PA compared with the highly active control group (≥ 1500 metabolic equivalents (METs)-min/week). Specifically, the highest risk was observed in the sedentary group (adjusted HR (aHR) (95% CI) = 1.70 (1.59 to 1.81) for all-cause ED visit or hospitalisation, 5.45 (4.86 to 6.12) for respiratory ED visit or hospitalisation). A 500 MET-min/week increase in PA was associated with reductions in all-cause and respiratory ED visit or hospitalisation in the COPD cohort (aHR (95% CI) = 0.92 (0.88 to 0.96) for all-cause, 0.87 (0.82 to 0.93) for respiratory cause).

Conclusions: Compared with the presumed healthiest cohort, the control group with PA > 1500 METs-min/week, the COPD group with reduced PA has a higher risk of ED visit or hospitalisation.

Keywords: COPD; epidemiology; physical activity; risk.

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Conflict of interest statement

Competing interests: None declared.

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Drug Alcohol Rev

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. 2024 Feb 12.

doi: 10.1111/dar.13817. Online ahead of print.

Characteristics, toxicology and major organ pathology of deaths due to acute alcohol toxicity in Australia, 2011–2022

[Shane Darke](#)¹, [Johan Duflou](#)^{1,2}, [Amy Peacock](#)¹, [Agata Chrzanowska](#)¹, [Wing See Yuen](#)¹, [Michael Farrell](#)¹, [Julia Lappin](#)^{1,3}

Affiliations expand

- PMID: 38345860
- DOI: [10.1111/dar.13817](https://doi.org/10.1111/dar.13817)

Abstract

Introduction: Acute alcohol toxicity is a significant component of alcohol-related mortality. The study aimed to: (i) determine the circumstances of death and characteristics of fatal alcohol toxicity cases, 2011–2022; (ii) determine their toxicological profile and major autopsy findings; and (iii) determine trends in population mortality rates.

Methods: Retrospective study of acute alcohol toxicity deaths in Australia, 2011–2022, retrieved from the National Coronial Information System.

Results: A total of 891 cases were identified, with a mean age of 49.2 years, 71.0% being male. Alcohol use problems were noted in 71.3%. In 57.5% death was attributed solely to acute alcohol toxicity, and combined acute alcohol toxicity/disease in 42.5%. There was evidence of sudden collapse in 24.9% of cases. The mean BAC was 0.331 g/100 mL (range 0.107–0.936), and spirits were the most commonly reported beverages (35.8%). Cases of combined toxicity/disease had significantly lower BACs than those attributed solely to alcohol toxicity (0.296 vs. 0.358 g/100 mL). Cardiomegaly was diagnosed in 32.5%, and severe coronary artery disease in 22.1%. Aspiration of vomitus was noted in 18.0%, and chronic obstructive pulmonary disease in 19.6%. Severe liver steatosis was present in 33.4% and 13.6% had cirrhosis. There was an average annual percentage increase in deaths of 7.90.

Discussion and conclusions: The 'typical' case was a long-standing, heavy spirits drinker. BACs showed enormous variation and no arbitrary concentration may be deemed lethal.

Clinically significant disease was associated with death at a lower BAC and people with such disease may be at increased risk of alcohol poisoning.

Keywords: alcohol; circumstance; disease; mortality; toxicology.

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Review

Respir Med

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. 2024 Feb 11:224:107553.

doi: 10.1016/j.rmed.2024.107553. Online ahead of print.

[Beyond breathing: Systematic review of global chronic obstructive pulmonary disease guidelines for pain management](#)

[Kaelee Brockway](#)¹, [Shakeel Ahmed](#)²

Affiliations expand

- PMID: 38350512
- DOI: [10.1016/j.rmed.2024.107553](https://doi.org/10.1016/j.rmed.2024.107553)

Abstract

Context: Patients with chronic obstructive pulmonary disease (COPD) experience pain as both symptom and comorbidity. There has been no evaluation of the recommendations for pain management in updated clinical practice guidelines (CPGs).

Objectives: Update the evidence on pain management, determine alignment of pain management recommendations with best-practice, and advocate for optimal pain management in patients with COPD.

Methods: PubMed, Guideline International Network, Guideline Portal, Agency for Healthcare Research and Quality, National Institute for Healthcare Excellence, Scottish International Guidelines Network, Institute of Medicine, grey literature, national websites, and bibliographies were searched. CPGs available online for stable COPD produced by organizations representing reputable knowledge of COPD management were included. CPGs unavailable online, not translatable into English, or not including techniques within the defined scope were excluded. Researchers performed frequency counts for the verbatim terms "pain," "physical activity," "exercise," "rehabilitation," "physical therap(ist)/(y)," "physiotherap(ist)/(y)," recorded context, and collected recommendations for pain management/treatment when present.

Results: Of 32 CPGs, 24 included "pain" verbatim. Of these, 13 included recommendations for pain treatment/management. Common recommendations included opioids, pharmacological management, further medical assessment, and surgical intervention. Two CPGs referred to palliative care, one CPG discussed treating cough, and one discussed massage, relaxation, and breathing.

Conclusions: Pain management recommendations vary and are not aligned with evidence. Pain should be addressed in patients with COPD, whether directly or indirectly related to the disease. Reduction of variability in pain management and the disease burden is necessary. Pain management should include referrals to providers who can maximize benefit of their services.

Keywords: Chronic disease; Chronic obstructive pulmonary disease; Pain management; Systematic review.

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Conflict of interest statement

Declaration of competing interest There is no conflict of interest.

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Respir Med



. 2024 Feb 11:223:107559.

doi: 10.1016/j.rmed.2024.107559. Online ahead of print.

[Analysis of body composition with bioelectrical impedance analysis in patients with severe COPD and pulmonary emphysema](#)

[Christina Rott](#)¹, [Eldridge Limen](#)², [Katharina Kriegsmann](#)³, [Felix Herth](#)⁴, [Judith Maria Brock](#)⁵

Affiliations [expand](#)

- PMID: 38350511
- DOI: [10.1016/j.rmed.2024.107559](https://doi.org/10.1016/j.rmed.2024.107559)

Abstract

Background: Patients with chronic obstructive pulmonary disease (COPD) often suffer from cachexia and malnutrition. Less is known about body composition and nutritional behaviour in patients with advanced COPD and pulmonary emphysema.

Methods: We performed a single-center prospective analysis of patients with COPD GOLD III/IV. Metabolic parameters, dietary and exercise behavior, lung function, exercise capacity and body composition by bioelectrical impedance analysis (BIA) were analyzed. Patients with severe emphysema (emphysema index [EI] >20%) were compared to patients with mild emphysema (EI ≤ 20%).

Results: A total of 121 patients (45.5% female, mean age 64.8 ± 8.1 years, mean FEV₁ 31.0 ± 8.6%, mean RV 234.7 ± 50.6%) were analyzed, of whom 14.1% were underweight. Only 5% of the patients substituted protein and only about 1/3 performed regular exercise training. BIA showed an unfavourable body composition: body fat ↑, ECM/BCM-index ↑, phase angle ↓ (5.0 ± 0.9°), cell percentage ↓, FFMI (fat-free mass index) ↓. The 94 patients with severe emphysema (mean EI 36.6 ± 8.5%) had lower body-mass-index (22.8 ± 4.3 vs. 31.1 ± 5.8 kg/m², p < 0.001), FFMI, body weight and body fat, but did not differ significantly in the quality of body composition (e.g. phase angle). Their lipid and glucose metabolism were even better than in mild emphysema patients.

Conclusion: The finding of significantly lower BMI but similar body composition and better metabolic status in severe emphysema patients needs further investigation. However, it should not distract from the necessity to implement dietary and exercise recommendations for advanced COPD patients.

Keywords: Bioelectrical impedance analysis; Body composition; COPD; Cachexia; Endoscopic lung volume reduction; Malnutrition; Pulmonary emphysema.

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Conflict of interest statement

Declaration of competing interest Christina Rott reports consultation fees outside the submitted work from Flee Flow Medical. Eldridge Limen and Katharina Kriegsmann report no conflicts of interest. Felix Herth reports no conflicts of interest regarding this work. Judith Brock has received honoraria and consultation fees from Boehringer Ingelheim, Astra Zeneca, streamed up!, Intuitive Surgical Inc, Berlin Chemie, Olympus. These activities are outside the submitted work. All authors confirm no conflicts of interest regarding this manuscript.

FULL TEXT LINKS

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

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Eur Child Adolesc Psychiatry

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. 2024 Feb 17.

doi: 10.1007/s00787-024-02390-1. Online ahead of print.

Developmental origins of psycho- cardiometabolic multimorbidity in adolescence and their underlying pathways through methylation markers: a two-cohort study

[Priyanka Choudhary](#)¹, [Justiina Ronkainen](#)², [Jennie Carson](#)^{3,4}, [Ville Karhunen](#)^{2,5}, [Ashleigh Lin](#)^{3,6}, [Phillip E Melton](#)^{4,7}, [Marjo-Riitta Jarvelin](#)^{8,9,10,11}, [Jouko Miettunen](#)^{2,11}, [Rae-Chi Huang](#)^{#3,12,13}, [Sylvain Sebert](#)^{#2}

Affiliations expand

- PMID: 38366065
- DOI: [10.1007/s00787-024-02390-1](https://doi.org/10.1007/s00787-024-02390-1)

Abstract

Understanding the biological mechanisms behind multimorbidity patterns in adolescence is important as they may act as intermediary risk factor for long-term health. We aimed to explore relationship between prenatal exposures and adolescent's psycho-cardiometabolic intermediary traits mediated through epigenetic biomarkers, using structural equation modeling (SEM). We used data from mother-child dyads from pregnancy and adolescents at 16-17 years from two prospective cohorts: Northern Finland Birth Cohort 1986

(NFBC1986) and Raine Study from Australia. Factor analysis was applied to generate two different latent factor structures: (a) prenatal exposures and (b) adolescence psycho-cardiometabolic intermediary traits. Furthermore, three types of epigenetic biomarkers were included: (1) DNA methylation score for maternal smoking during pregnancy (DNAmMSS), (2) DNAm age estimate PhenoAge and (3) DNAm estimate for telomere length (DNAmTL). Similar factor structure was observed between both cohorts yielding three prenatal factors, namely BMI (Body Mass Index), SOP (Socio-Obstetric-Profile), and Lifestyle, and four adolescent factors: Anthropometric, Insulin-Triglycerides, Blood Pressure, and Mental health. In the SEM pathways, stronger direct effects of $F1_{\text{prenatal}}\text{-BMI}$ (NFBC1986 = β : 0.27; Raine = β : 0.39) and $F2_{\text{prenatal}}\text{-SOP}$ (β : -0.11) factors were observed on adolescent psycho-cardiometabolic multimorbidity. We observed an indirect effect of prenatal latent factors through epigenetic markers on a psycho-cardiometabolic multimorbidity factor in Raine study ($P < 0.05$). The present study exemplifies an evidence-based approach in two different birth cohorts to demonstrate similar composite structure of prenatal exposures and psycho-cardiometabolic traits (despite cultural, social, and genetic differences) and a common plausible pathway between them through underlying epigenetic markers.

Keywords: Adolescents; DNA methylation age; Epigenetics; Multimorbidity; Psycho-cardiometabolic.

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Editorial

Br J Dermatol

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. 2024 Feb 16;190(3):299-300.

doi: 10.1093/bjd/ljad475.

New analyses exploring multimorbidity in psoriasis

[Nick Dand](#)¹, [Ravi Ramessur](#)²

Affiliations expand

- PMID: 38011326
- DOI: [10.1093/bjd/ljad475](https://doi.org/10.1093/bjd/ljad475)

No abstract available

Conflict of interest statement

Conflicts of interest The authors declare they have no conflicts of interest.

Comment on

- [Multiple long-term conditions in people with psoriasis: a latent class and bidirectional Mendelian randomization analysis.](#)
Chalitsios CV, Meena D, Manou M, Papagiannopoulos C, Markozannes G, Gill D, Su B, Tsilidis KK, Evangelou E, Tzoulaki I. *Br J Dermatol.* 2024 Feb 16;190(3):364-373. doi: 10.1093/bjd/ljad410. PMID: 37874776

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BMJ Open



. 2024 Feb 15;14(2):e074390.

doi: 10.1136/bmjopen-2023-074390.

[Development and validation of new multimorbidity-weighted index for ICD-10-coded electronic health record and claims data: an observational study](#)

[Melissa Y Wei](#)^{1,2}, [Aleda M Leis](#)³, [Arseniy Vasilyev](#)⁴, [Ashley J Kang](#)⁴

Affiliations expand

- PMID: 38365301
- DOI: [10.1136/bmjopen-2023-074390](https://doi.org/10.1136/bmjopen-2023-074390)

Abstract

Objective: Map multimorbidity-weighted index (MWI) conditions to International Classification of Diseases, 10th Revision (ICD-10), expand the conditions and codes to develop a new ICD-10-coded MWI (MWI-ICD10) and updated MWI-ICD9, and assess their consistency.

Design: Population-based retrospective cohort.

Setting: Large medical centre between 2013 and 2017.

Participants: Adults ≥ 18 years old with encounters in each of 4 years (2013, 2014, 2016, 2017).

Main outcome measures: MWI conditions mapped to ICD-10 codes, and additional conditions and codes added to produce a new MWI-ICD10 and updated MWI-ICD9. We compared the prevalence of ICD-coded MWI conditions within the ICD-9 era (2013-2014), within the ICD-10 era (2016-2017) and across the ICD-9-ICD-10 transition in 2015 (washout period) among adults present in both sets of comparison years. We computed the prevalence and change in prevalence of conditions when using MWI-ICD10 versus MWI-ICD9.

Results: 88 175 adults met inclusion criteria. Participants were 60.8% female, 50.5% white, with mean age 54.7 ± 17.3 years and baseline MWI-ICD9 4.47 ± 6.02 (range 0-64.33). Of 94 conditions, 65 had <1% difference across the ICD-9-ICD-10 transition and similar minimal changes within ICD coding eras.

Conclusions: MWI-ICD10 captured the prevalence of chronic conditions nearly identically to that of the validated MWI-ICD9, along with notable but explicable changes across the ICD-10 transition. This new comprehensive person-centred index enables quantification of cumulative disease burden and physical functioning in adults as a clinically meaningful measure of multimorbidity in electronic health record and claims data.

Keywords: Chronic Disease; EPIDEMIOLOGY; Electronic Health Records; GENERAL MEDICINE (see Internal Medicine); INTERNAL MEDICINE; Patient-Centered Care.

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Conflict of interest statement

Competing interests: None declared.

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BMJ Med

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. 2024 Feb 13;3(1):e000474.

doi: 10.1136/bmjmed-2022-000474. eCollection 2024.

Effect of timeframes to define long term conditions and sociodemographic factors on prevalence of multimorbidity using disease code frequency in primary care electronic health records: retrospective study

[Thomas Beaney](#)^{1,2}, [Jonathan Clarke](#)², [Thomas Woodcock](#)¹, [Azeem Majeed](#)¹, [Mauricio Barahona](#)², [Paul Aylin](#)¹

Affiliations expand

- PMID: 38361663
- PMCID: [PMC10868275](#)
- DOI: [10.1136/bmjmed-2022-000474](#)

Abstract

Objective: To determine the extent to which the choice of timeframe used to define a long term condition affects the prevalence of multimorbidity and whether this varies with sociodemographic factors.

Design: Retrospective study of disease code frequency in primary care electronic health records.

Data sources: Routinely collected, general practice, electronic health record data from the Clinical Practice Research Datalink Aurum were used.

Main outcome measures: Adults (≥ 18 years) in England who were registered in the database on 1 January 2020 were included. Multimorbidity was defined as the presence of two or more conditions from a set of 212 long term conditions. Multimorbidity prevalence was compared using five definitions. Any disease code recorded in the electronic health

records for 212 conditions was used as the reference definition. Additionally, alternative definitions for 41 conditions requiring multiple codes (where a single disease code could indicate an acute condition) or a single code for the remaining 171 conditions were as follows: two codes at least three months apart; two codes at least 12 months apart; three codes within any 12 month period; and any code in the past 12 months. Mixed effects regression was used to calculate the expected change in multimorbidity status and number of long term conditions according to each definition and associations with patient age, gender, ethnic group, and socioeconomic deprivation.

Results: 9 718 573 people were included in the study, of whom 7 183 662 (73.9%) met the definition of multimorbidity where a single code was sufficient to define a long term condition. Variation was substantial in the prevalence according to timeframe used, ranging from 41.4% (n=4 023 023) for three codes in any 12 month period, to 55.2% (n=5 366 285) for two codes at least three months apart. Younger people (eg, 50-75% probability for 18-29 years v 1-10% for ≥ 80 years), people of some minority ethnic groups (eg, people in the Other ethnic group had higher probability than the South Asian ethnic group), and people living in areas of lower socioeconomic deprivation were more likely to be re-classified as not multimorbid when using definitions requiring multiple codes.

Conclusions: Choice of timeframe to define long term conditions has a substantial effect on the prevalence of multimorbidity in this nationally representative sample. Different timeframes affect prevalence for some people more than others, highlighting the need to consider the impact of bias in the choice of method when defining multimorbidity.

Keywords: Epidemiology; Healthcare Disparities; Primary health care; Public health.

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Conflict of interest statement

Competing interests: All authors have completed the ICMJE uniform disclosure form at www.icmje.org/disclosure-of-interest/ and declare: no support from any organisation for the submitted work; no financial relationships with any organisations that might have an interest in the submitted work in the previous three years; no other relationships or activities that could appear to have influenced the submitted work.

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

FULL TEXT LINKS

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

1

Ann Med

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. 2024 Dec;56(1):2317356.

doi: 10.1080/07853890.2024.2317356. Epub 2024 Feb 16.

Clinical characteristics of complete responders versus non-complete responders to omalizumab, benralizumab and mepolizumab in patients with severe asthma: a long-term retrospective analysis

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Affiliations expand

- PMID: 38364218
- DOI: [10.1080/07853890.2024.2317356](https://doi.org/10.1080/07853890.2024.2317356)

Abstract

Background: Some patients with severe asthma may benefit from treatment with biologics, but evidence has been mostly collected from randomized controlled trials (RCTs), in which patients' characteristics are different from those encountered in asthma patients in the real-world setting. The aim of this study was to describe the clinical features of complete responders versus non-complete responders to long-term treatment with biologics in patients with severe asthma attended in routine daily practice.

Methods: Data of a cohort of 90 patients with severe asthma who were treated with biologics (omalizumab, benralizumab, and mepolizumab) for at least 12 months and were followed up to March 2022. Data recorded included clinical characteristics and effectiveness of treatment (exacerbation, Asthma Control Test [ACT] score, lung function, use of maintenance oral corticosteroids [mOCS]), FeNO, and blood eosinophils at baseline, at 12 months, and at the end of follow-up. Complete response is considered if, in addition to not presenting exacerbations or the use of mOCS, the ACT score was >20 and, the FEV₁ $>80\%$ predicted.

Results: An improvement in all asthma control parameters was observed after 12 months of treatment and a mean follow-up of 55 months. After 12 months of treatment 27.2% of patients met the criteria of complete response and this percentage even increased to 35.3% at the end of follow-up. Long-term complete response was associated to better lung function with mepolizumab and omalizumab treatment and to less previous exacerbations in the benralizumab group. The main cause of not achieving a complete response was the persistence of an airflow obstructive pattern.

Conclusions: This study shows that omalizumab, benralizumab, and mepolizumab improved the clinical outcomes of patients with severe asthma in a clinic environment with similar effect sizes to RCTs in the long term follow-up. Airflow obstruction, however, was a predictor of a non-complete response to biologics.

Keywords: Severe asthma; benralizumab; biologics; mepolizumab; omalizumab; retrospective analysis.

Plain language summary

Treatment with anti-IgE and anti-IL-5 biologics significantly improved clinical outcomes in severe asthma patients. The rate of complete responders of 27.2% at 12 months even increased to 35.3% at the end of a mean follow-up of 55 months. The persistence of an airflow obstructive pattern was the main cause of the failure to achieve complete response.

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[Review](#)

Allergy



. 2024 Feb 17.

doi: 10.1111/all.16051. Online ahead of print.

The impact of indoor pollution on asthma-related outcomes: A systematic review for the EAACI guidelines on environmental science for allergic diseases and asthma

[Ioana Agache](#)¹, [Carlos Canelo-Aybar](#)^{2,3}, [Isabella Annesi-Maesano](#)⁴, [Lorenzo Cecchi](#)⁵, [Benedetta Biagioni](#)⁶, [Fan Chung](#)⁷, [Gennaro D'Amato](#)^{8,9}, [Athanasios Damialis](#)¹⁰, [Stefano Del Giacco](#)¹¹, [Leticia De Las Vecillas](#)¹², [Javier Dominguez-Ortega](#)¹², [Carmen Galàn](#)¹³, [Stefanie Gilles](#)¹⁴, [Mattia Giovannini](#)^{15,16}, [Stephen Holgate](#)¹⁷, [Mohamed Jeebhay](#)¹⁸, [Kari Nadeau](#)¹⁹, [Nikos Papadopoulos](#)^{20,21}, [Santiago Quirce](#)¹², [Joaquin Sastre](#)²², [Claudia Traidl-Hoffmann](#)^{23,24,25}, [Jolanta Walusiak-Skorupa](#)²⁶, [Bernardo Sousa-Pinto](#)²⁷, [Josefina Salazar](#)^{2,3}, [L Yesenia Rodríguez-Tanta](#)^{2,3}, [Yahveth Cantero](#)^{2,3}, [Camila Montesinos-Guevara](#)^{2,3,28}, [Yang Song](#)^{2,3}, [Giancarlo Alvarado-Gamarra](#)^{2,3}, [Ivan Sola](#)^{2,3}, [Pablo Alonso-Coello](#)^{2,3,29}, [Wendy Nieto-Gutierrez](#)^{2,3}, [Marek Jutel](#)³⁰, [Cezmi A Akdis](#)³¹

Affiliations expand

- PMID: 38366695
- DOI: [10.1111/all.16051](https://doi.org/10.1111/all.16051)

Abstract

Systematic review using GRADE of the impact of exposure to volatile organic compounds (VOCs), cleaning agents, mould/damp, pesticides on the risk of (i) new-onset asthma (incidence) and (ii) adverse asthma-related outcomes (impact). MEDLINE, EMBASE and Web of Science were searched for indoor pollutant exposure studies reporting on new-onset asthma and critical and important asthma-related outcomes. Ninety four studies were included: 11 for VOCs (7 for incidence and 4 for impact), 25 for cleaning agents (7 for

incidence and 8 for impact), 48 for damp/mould (26 for incidence and 22 for impact) and 10 for pesticides (8 for incidence and 2 for impact). Exposure to damp/mould increases the risk of new-onset wheeze (moderate certainty evidence). Exposure to cleaning agents may be associated with a higher risk of new-onset asthma and with asthma severity (low level of certainty). Exposure to pesticides and VOCs may increase the risk of new-onset asthma (very low certainty evidence). The impact on asthma-related outcomes of all major indoor pollutants is uncertain. As the level of certainty is low or very low for most of the available evidence on the impact of indoor pollutants on asthma-related outcomes more rigorous research in the field is warranted.

Keywords: GRADE; asthma; guideline; indoor pollution; systematic review.

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Am J Respir Crit Care Med

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. 2024 Feb 16.

doi: 10.1164/rccm.202308-1452OC. Online ahead of print.

[Susceptible Young Adults and Development of COPD Later in Life](#)

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 pre-disease state "pre-COPD".

Objective: 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 non-obstructive individuals aged 20-50years from two population-based cohorts from different smoking eras, the Copenhagen General Population Study from 2003(N=5497) and Copenhagen City Heart Study from 1976-78(N=2609), for 10 and 25years for development of COPD(forced expiratory volume in one second[FEV₁]/forced vital capacity[FVC]<0.70) and COPD GOLD 2-4 (additionally FEV₁<80% predicted).

Measurements and main results: After 10 years follow-up, 28% developed COPD and 13% COPD GOLD 2-4 in individuals susceptible to COPD compared to 8% and 1% in those without any susceptibility to COPD. Correspondingly, after 25years, 22% versus 13% developed COPD and 20% versus 8% developed COPD GOLD 2-4. More than half of incident COPD cases developed from a susceptible state. Compared to 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 2-4 after 10years, and 1.54(1.23-1.93) and 2.12(1.64-2.73) after 25years. The ability of a COPD risk score consisting of the susceptibility state 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 pre-disease state of COPD, which can be used for early identification of susceptible individuals at risk for COPD later in life.

Keywords: Airway Obstruction; Chronic Bronchitis; Early Diagnosis; Forced Expiratory Volume; Spirometry.

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Eur J Emerg Med



. 2024 Feb 16.

doi: 10.1097/MEJ.0000000000001129. Online ahead of print.

[Risk factors and effect of dyspnea in inappropriate treatment in adults' emergency department: a retrospective cohort study](#)

[Frederic Balen](#)^{1,2}, [Sebastien Lamy](#)², [Léa Froissart](#)¹, [Thomas Mesnard](#)¹, [Benjamin Sanchez](#)¹, [Xavier Dubucs](#)^{1,2,3}, [Sandrine Charpentier](#)^{1,2,3}

Affiliations expand

- PMID: 38364038
- DOI: [10.1097/MEJ.0000000000001129](https://doi.org/10.1097/MEJ.0000000000001129)

Abstract

Dyspnea is a frequent symptom in adults' emergency departments (EDs). Misdiagnosis at initial clinical examination is common, leading to early inappropriate treatment and increased in-hospital mortality. Risk factors of inappropriate treatment assessable at early examination remain undescribed herein. The objective of this study was to identify clinical risk factors of dyspnea and inappropriate treatment in patients admitted to ED. This is an observational retrospective cohort study. Patients over the age of 15 who were admitted to adult EDs of the University Hospital of Toulouse (France) with dyspnea were included from 1 July to 31 December 2019. The primary end-point was dyspnea and inappropriate

treatment was initiated at ED. Inappropriate treatment was defined by looking at the final diagnosis of dyspnea at hospital discharge and early treatment provided. Afterward, this early treatment at ED was compared to the recommended treatment defined by the International Guidelines for Acute Heart Failure, bacterial pneumonia, chronic obstructive pulmonary disease, asthma or pulmonary embolism. A total of 2123 patients were analyzed. Of these, 809 (38%) had inappropriate treatment in ED. Independent risk factors of inappropriate treatment were: age over 75 years (OR, 1.46; 95% CI, 1.18-1.81), history of heart disease (OR, 1.32; 95% CI, 1.07-1.62) and lung disease (OR, 1.47; 95% CI, 1.21-1.78), SpO₂ <90% (OR, 1.64; 95% CI, 1.37-2.02), bilateral rale (OR, 1.25; 95% CI, 1.01-1.66), focal cracklings (OR, 1.32; 95% CI, 1.05-1.66) and wheezing (OR, 1.62; 95% CI, 1.31-2.03). In multivariate analysis, under-treatment significantly increased in-hospital mortality (OR, 2.13; 95% CI, 1.29-3.52) compared to appropriate treatment. Over-treatment nonsignificantly increased in-hospital mortality (OR, 1.43; 95% CI, 0.99-2.06). Inappropriate treatment is frequent in patients admitted to ED for dyspnea. Patients older than 75 years, with comorbidities (heart or lung disease), hypoxemia (SpO₂ <90%) or abnormal pulmonary auscultation (especially wheezing) are at risk of inappropriate treatment.

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- [20 references](#)

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J Asthma

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. 2024 Feb 16:1-6.

doi: 10.1080/02770903.2024.2316726. Online ahead of print.

[Digitally monitored inhaled therapy: a 'smart' way to manage severe asthma?](#)

[Dominic L Sykes](#)^{1,2}, [Yee Yong See](#)², [Evon C Y Chow](#)², [Michael G Crooks](#)^{1,2}, [Helena Cummings](#), [Mandy Robinson](#)², [Karen Watkins](#)², [Joanne Thompson](#)², [Kylie Overton](#)², [Charlotte Riches](#)², [Shoaib Faruqi](#)^{1,2}

Affiliations expand

- PMID: 38323583
- DOI: [10.1080/02770903.2024.2316726](https://doi.org/10.1080/02770903.2024.2316726)

Abstract

Introduction: One of the fundamental challenges of managing patients with severe asthma is treatment adherence, particularly with inhaled corticosteroids. Adherence is difficult to measure objectively and poor adherence is associated with worse outcomes. In this study, assess the ability of a 'smart' inhaler to record adherence in severe asthma patients and measure the impact of this on asthma control.

Methods: Consecutive consenting patients meeting criteria for biologics had their existing high-dose ICS/LABA//LAMA combination inhaler/s switched to mometasone/indacaterol/glycopyrronium (114/46/136). Routine clinical data, including blood eosinophils, FeNO, and ACQ-6 scores were collected at baseline and at 4 wk. Adherence was then checked on the Propeller Health app, and good adherence was defined as >80% of prescribed usage. Participants were then followed-up at 12 months to record the proportion of patients who were initiated on biologics.

Results: 77 patients (mean [SD] age = 50.4 [15.7] years, 67.5% female [$n = 52$]) participated. 71 participants were able to use the device and 65% ($n = 46$) of these attained good asthma control and were not initiated on biologics at 12-month follow-up. Both groups demonstrated a significant reduction in ACQ6 score at follow-up (2.81 vs. 1.92, $p < 0.001$ and 3.05 vs. 2.60, $p < 0.001$, respectively), but there was no statistically significant difference in improvement between groups. Patients with optimal adherence also demonstrated a significant reduction in median FeNO at follow-up (47 ppb vs. 40 ppb, $p = 0.003$).

Conclusions: In severe asthma patients, 'smart' inhalers may represent an effective management tool to improve adherence and asthma control, therefore avoiding the need for patients to commence biological therapies.

Keywords: Severe asthma; adherence; biologics; digital inhalers.

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Arch Pediatr



. 2024 Feb 15:S0929-693X(23)00214-2.

doi: 10.1016/j.arcped.2023.09.017. Online ahead of print.

[Analysis of risk factors for depression and anxiety related to the degree of asthma control in children according to gender](#)

[Ning Wang](#)¹, [Long Zhao](#)¹, [Cuicui Liu](#)¹, [Xiaolan Shi](#)¹, [Jing Wang](#)¹, [Shouzhen Wu](#)²

Affiliations expand

- PMID: 38365468
- DOI: [10.1016/j.arcped.2023.09.017](https://doi.org/10.1016/j.arcped.2023.09.017)

Abstract

Objective: The purpose of the study was to investigate whether risk factors involved in the degree of asthma control were the same for children of both genders.

Methods: This cross-sectional study collected relevant data from 320 children with asthma attending the respiratory asthma clinic at a local children's hospital. All the patients passed the Asthma Control Test (ACT) or the Childhood Asthma Control Test (cACT), lung-function-related tests, the Children's Depression Inventory (CDI), the Screening Scale for Anxiety-Related Mood Disorders (SCARED), and the Family Personal Information Questionnaire.

Results: The study found that gender ($p=0.034$) was a risk factor for poor asthma control and that girls (odds ratio [OR]=1.669, $p=0.042$) were more likely to have poor asthma control than boys. Univariate logistic regression analysis found that severe wasting (OR=0.075, $p=0.021$), depression (OR=43.550, $p<0.001$), anxiety (OR=4.769, $p=0.036$), FEV1% (OR=0.970, $p=0.043$), FEV1/FVC% (OR=0.921, $p=0.008$), and PEF% (OR=0.961, $p=0.012$) were risk factors for poor asthma control in girls.

Conclusion: The risk factors for the degree of asthma control in children with asthma appeared to vary according to gender.

Keywords: Anxiety; Asthma; Children; Depression; Obesity.

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Conflict of interest statement

Declaration of competing interest The authors have declared that no conflict of interest exists.

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Editorial

Thorax

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. 2024 Feb 15:thorax-2023-221274.

doi: 10.1136/thorax-2023-221274. Online ahead of print.

Blood eosinophils take centre stage in predicting the response to sublingual immunotherapy (SLIT): a familiar twist

[Carlos Andrés Celis-Preciado](#)^{1,2}, [Philippe Lachapelle](#)¹, [Simon Couillard](#)³

Affiliations expand

- PMID: 38359922
- DOI: [10.1136/thorax-2023-221274](https://doi.org/10.1136/thorax-2023-221274)

No abstract available

Keywords: Allergic lung disease; Asthma; Asthma Mechanisms; Asthma Pharmacology; Eosinophil Biology.

Conflict of interest statement

Competing interests: CAC-P: reports speaker honoraria from AstraZeneca, GlaxoSmithKline, and Sanofi-Regeneron; he received consultancy fees from AstraZeneca, GlaxoSmithKline, and Sanofi-Regeneron. PL reports speaker honoraria from AstraZeneca, Sanofi-Regeneron, GlaxoSmithKline, Boehringer Ingelheim and Novartis outside of the submitted work: he received consultancy fees from AstraZeneca, GlaxoSmithKline, and Sanofi-Regeneron. SC reports non-restricted research grants from the NIHR Oxford BRC, the Quebec Respiratory Health Research Network, the Fondation Québécoise en Santé Respiratoire, AstraZeneca, bioMérieux, and Sanofi-Genzyme-Regeneron; he is the holder of the Association Pulmonaire du Québec's Research Chair in Respiratory medicine and is a Clinical research scholar of the Fonds de recherche du Québec; he received speaker honoraria from AstraZeneca, GlaxoSmithKline, Sanofi-Regeneron, and Valeo Pharma; he received consultancy fees for FirstThought, AstraZeneca, GlaxoSmithKline, and Sanofi-Regeneron; he has received sponsorship to attend/speak at international scientific meetings by/for AstraZeneca and Sanofi-Regeneron. He is an advisory board member and will have stock options for Biometry Inc—a company developing a FeNO device (myBiometry). He advised the Institut national d'excellence en santé et services sociaux (INESSS) for an update of the asthma general practice information booklet for general practitioners.

SUPPLEMENTARY INFO

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Pediatr Pulmonol

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. 2024 Feb 15.

doi: 10.1002/ppul.26918. Online ahead of print.

[Allergen immunotherapy in patients with severe asthma: A need for prospective trials](#)

[Margaret P Huntwork](#)¹, [John C Carlson](#)²

Affiliations expand

- PMID: 38358039
- DOI: [10.1002/ppul.26918](https://doi.org/10.1002/ppul.26918)

No abstract available

Keywords: allergy shots; clinical trials.

SUPPLEMENTARY INFO

Publication types, Grants and funding expand

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Environ Health



. 2024 Feb 15;23(1):20.

doi: 10.1186/s12940-024-01060-8.

[Global patterns of asthma burden related to environmental risk factors during 1990–2019: an age–period–cohort analysis for global burden of disease study 2019](#)

[Siying Zhang](#)^{1,2,3}, [Zongshi Gao](#)⁴, [Lihong Wu](#)¹, [Yumei Zhong](#)¹, [Hui Gao](#)⁵, [Fang-Biao Tao](#)^{1,2,3}, [Xiulong Wu](#)^{6,7,8}

Affiliations expand

- PMID: 38355550
- PMCID: [PMC10868053](#)
- DOI: [10.1186/s12940-024-01060-8](#)

Free PMC article

Abstract

Background: Change in asthma burden attributed to specific environmental risk factor has not been evaluated.

Objective: We aimed to explore the age, period, and cohort effects on asthma burden attributable to smoking and occupational asthmagens in different socio-demographic index (SDI) regions and the region and sex disparities.

Methods: Risk factor-specific asthma deaths and disability-adjusted life years (DALYs) rates were extracted from Global Burden of Disease study 2019, estimated by standard Combined Cause of Death Model and DisMod-MR 2.1 modeling tool. Age-period-cohort analysis was conducted to decompose age, period, and cohort effects on asthma burden.

Results: Smoking- and occupational asthmagens-related asthma deaths and DALYs rates dropped by > 45% during 1990-2019. In 2019, Africa, South and Southeast Asia had higher asthma burden than other regions. Male had higher asthma burden than female. Among nearly all age groups, low-middle SDI region had the highest smoking-related asthma burden, and low SDI region had the highest occupational asthmagens-related asthma burden. Inverse "V" shaped trend was observed in the above regions with increasing age. For smoking-related asthma deaths and DALYs rates, the most significant improvement of period rate ratio (RR) occurred in high SDI region, decreased from 1.67 (1.61, 1.74) to 0.34 (0.33, 0.36) and 1.61 (1.57, 1.66) to 0.59 (0.57, 0.61), respectively, as well as the cohort effect on smoking-related asthma burden. For occupational asthmagens-related asthma deaths and DALYs rates, the most sharply decrease of period and cohort RR appeared in the high and high-middle SDI regions. Low SDI region showed least progress in period and cohort RR of smoking- and occupational asthmagens-linked asthma burden.

Conclusion: Smoking- and occupational asthmagens-related asthma burden sharply decreases, but region and sex disparities exist. Policy makers from low SDI region should reinforce tobacco control and prioritize workplace protection.

Keywords: Age-period-cohort analysis; Asthma; Disability-adjusted life years; Occupational asthmagens; Smoking.

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Conflict of interest statement

The authors declare no competing interests.

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

SUPPLEMENTARY INFO

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Heliyon

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. 2024 Jan 20;10(3):e24824.

doi: 10.1016/j.heliyon.2024.e24824. eCollection 2024 Feb 15.

[Research trends on airway remodeling: A bibliometrics analysis](#)

[Pengcheng Liu](#)¹, [Yu Wang](#)¹, [Chen Chen](#)¹, [Hui Liu](#)¹, [Jing Ye](#)¹, [Xiaoming Zhang](#)², [Changxiu Ma](#)¹, [Dahai Zhao](#)¹

Affiliations expand

- PMID: 38333835
- PMCID: [PMC10850909](#)
- DOI: [10.1016/j.heliyon.2024.e24824](#)

Free PMC article

Abstract

Background: Airway remodeling is an essential pathological basis of respiratory diseases such as asthma and COPD, which is significantly related to pulmonary function and clinical symptoms. And pulmonary disease can be improved by regulating airway remodeling. This

study aimed to establish a knowledge map of airway remodeling to clarify current research hotspots and future research trends.

Methods: A comprehensive search was performed to analyze all relevant articles on airway remodeling using the Web of Science Core Collection Database from January 01, 2004 to June 03, 2023. 2 reviewers screened the retrieved literature. Besides, the CiteSpace (6.2. R3) and VOSviewer (1.6.19) were utilized to visualize the research focus and trend regarding the effect of airway remodeling.

Results: A total of 4077 articles about airway remodeling were retrieved. The United States is the country with the most published literature, underscoring the country's role in airway remodeling. In recent years, China has been the country with the fastest growth in the number of published literature, suggesting that China will play a more critical role in airway remodeling in the future. From the perspective of co-operation among countries, European co-operation was closer than Asian co-operation. The co-citation analysis showed that 98,313 citations were recorded in 3594 articles, and 25 clusters could be realized. In recent years, Burst detection shows that oxidative stress and epithelial-mesenchymal transition are hot words.

Conclusions: Based on the bibliometric analysis of airway remodeling studies in the past 20 years, a multi-level knowledge structure map was drawn, it mainly includes countries, institutions, research fields, authors, journals, keywords and so on. The research directions represented by obstructive airway disease, PDGF-BB treatment of airway smooth muscle, allergen-induced airway remodeling, extracellular matrix, and non-coding RNA are the research hotspots in the field of airway remodeling. While the risk factors for airway remodeling, the application of new noninvasively assessing tools, biomarkers as well as The molecular mechanism represented by EMT and autophagy had been frontiers in recent years.

Keywords: Airway remodeling; Asthma; Bibliometric analysis; COPD; Citespace; VOSviewer.

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Conflict of interest statement

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

- [78 references](#)
- [14 figures](#)

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Editorial

Am J Respir Crit Care Med

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. 2024 Feb 15;209(4):349-351.

doi: 10.1164/rccm.202312-2248ED.

[Bronchodilator Responsiveness in Asthma and Chronic Obstructive Pulmonary Disease: Time to Stop Chasing Shadows](#)

[David M G Halpin](#)¹

Affiliations expand

- PMID: 38190497
- DOI: [10.1164/rccm.202312-2248ED](https://doi.org/10.1164/rccm.202312-2248ED)

No abstract available

Comment on

- [Prevalence, Diagnostic Utility and Associated Characteristics of Bronchodilator Responsiveness.](#)

Beasley R, Hughes R, Agusti A, Calverley P, Chipps B, Del Olmo R, Papi A, Price D, Reddel H, Müllerová H, Rapsomaniki E. *Am J Respir Crit Care Med*. 2024 Feb 15;209(4):390-401. doi: 10.1164/rccm.202308-1436OC.PMID: 38029294

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances expand

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Environ Res

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. 2024 Feb 15:243:117831.

doi: 10.1016/j.envres.2023.117831. Epub 2023 Dec 3.

Changes in industrial air pollution and the onset of childhood asthma in Quebec, Canada

[Ying Liu](#)¹, [Xiaohui Geng](#)¹, [Audrey Smargiassi](#)², [Michel Fournier](#)³, [Shayamila Mahagammulla Gamage](#)⁴, [Jad Zalzal](#)⁴, [Shoma Yamanouchi](#)⁴, [Sara Torbatian](#)⁴, [Laura Minet](#)⁵, [Marianne Hatzopoulou](#)⁴, [Stephane Buteau](#)⁶, [Elhadji-Anassour Laouan-Sidi](#)⁷, [Ling Liu](#)⁸

Affiliations expand

- PMID: 38052354
- DOI: [10.1016/j.envres.2023.117831](https://doi.org/10.1016/j.envres.2023.117831)

Abstract

Ambient air pollution has been associated with asthma onset and exacerbation in children. Whether improvement in air quality due to reduced industrial emissions has resulted in improved health outcomes such as asthma in some localities has usually been assessed indirectly with studies on between-subject comparisons of air pollution from all sources and health outcomes. In this study we directly assessed, within small areas in the province of Quebec (Canada), the influence of changes in local industrial fine particulate matter (PM_{2.5}), nitrogen dioxide (NO₂), and sulfur dioxide (SO₂) concentrations, on changes in annual asthma onset rates in children (≤ 12 years old) with a longitudinal ecological design. We identified the yearly number of new cases of childhood asthma in 1282 small areas (census tracts or local community service centers) for the years 2002, 2004, 2005, 2006, and 2015. Annual average concentrations of industrial air pollutants for each of the geographic areas, and three sectors (i.e., pulp and paper mills, petroleum refineries, and metal smelters) were estimated by the Polair3D chemical transport model. Fixed-effects negative binomial models adjusted for household income were used to assess associations; additional adjustments for environmental tobacco smoke, background pollutant concentrations, vegetation coverage, and sociodemographic characteristics were conducted in sensitivity analyses. The incidence rate ratios (IRR) for childhood asthma onset for the interquartile increase in total industrial PM_{2.5}, NO₂, and SO₂ were 1.016 (95% confidence interval, CI: 1.006-1.026), 1.063 (1.045-1.090), and 1.048 (1.031-1.080), respectively. Positive associations were also found with pollutant concentrations from most individual sectors. Results suggest that changes in industrial pollutant concentrations influence childhood asthma onset rates in small localities.

Keywords: Asthma; Children; Fine particulate matter; Industrial air pollution; Nitrogen dioxide; Sulfur dioxide.

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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.

SUPPLEMENTARY INFO

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Am J Respir Crit Care Med



. 2024 Feb 15;209(4):390-401.

doi: 10.1164/rccm.202308-1436OC.

[Prevalence, Diagnostic Utility and Associated Characteristics of Bronchodilator Responsiveness](#)

[Richard Beasley](#)¹, [Rod Hughes](#)², [Alvar Agusti](#)³, [Peter Calverley](#)⁴, [Bradley Chipps](#)⁵, [Ricardo Del Olmo](#)⁶, [Alberto Papi](#)⁷, [David Price](#)^{8,9}, [Helen Reddel](#)^{10,11}, [Hana Müllerová](#)¹², [Eleni Rapsomaniki](#)¹²

Affiliations expand

- PMID: 38029294
- DOI: [10.1164/rccm.202308-1436OC](https://doi.org/10.1164/rccm.202308-1436OC)

Abstract

Rationale: The prevalence and diagnostic utility of bronchodilator responsiveness (BDR) in a real-life setting is unclear. **Objective:** To explore this uncertainty in patients aged ≥ 12 years with physician-assigned diagnoses of asthma, asthma and chronic obstructive pulmonary disease (COPD), or COPD in NOVELTY, a prospective cohort study in primary and secondary care in 18 countries. **Methods:** The proportion of patients with a positive BDR test in each diagnostic category was calculated using 2005 (ΔFEV_1 or $\Delta FVC \geq 12\%$ and ≥ 200 ml) and 2021 (ΔFEV_1 or $\Delta FVC > 10\%$ predicted) European Respiratory Society/American Thoracic Society criteria. **Measurements and Main Results:** We studied 3,519 patients with a physician-assigned diagnosis of asthma, 833 with a diagnosis of asthma + COPD, and 2,436 with a diagnosis of COPD. The prevalence of BDR was 19.7%

(asthma), 29.6% (asthma + COPD), and 24.7% (COPD) using 2005 criteria and 18.1%, 23.3%, and 18.0%, respectively, using 2021 criteria. Using 2021 criteria in patients diagnosed with asthma, BDR was associated with higher fractional exhaled nitric oxide; lower lung function; higher symptom burden; more frequent hospital admissions; and greater use of triple therapy, oral corticosteroids, or biologics. In patients diagnosed with COPD, BDR (2021) was associated with lower lung function and higher symptom burden. **Conclusions:** BDR prevalence in patients with chronic airway diseases receiving treatment ranges from 18% to 30%, being modestly lower with the 2021 than with the 2005 European Respiratory Society/American Thoracic Society criteria, and it is associated with lower lung function and greater symptom burden. These observations question the validity of BDR as a key diagnostic tool for asthma managed in clinical practice or as a standard inclusion criterion for clinical trials of asthma and instead suggest that BDR be considered a treatable trait for chronic airway disease.

Keywords: BDR; asthma; chronic obstructive pulmonary disease; diagnosis.

Comment in

- [Bronchodilator Responsiveness in Asthma and Chronic Obstructive Pulmonary Disease: Time to Stop Chasing Shadows.](#)
Halpin DMG. *Am J Respir Crit Care Med.* 2024 Feb 15;209(4):349-351. doi: 10.1164/rccm.202312-2248ED. PMID: 38190497 No abstract available.
- [Cited by 1 article](#)

SUPPLEMENTARY INFO

MeSH terms, Substances, Supplementary concepts, Grants and funding [expand](#)

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[Review](#)

Chest



. 2024 Feb 14:S0012-3692(24)00156-9.

doi: 10.1016/j.chest.2024.02.010. Online ahead of print.

An Update on Patient-Reported Outcomes in Asthma

[Tianshi David Wu](#)¹, [Zuzana Diamant](#)², [Nicola A Hanania](#)³

Affiliations expand

- PMID: 38365175
- DOI: [10.1016/j.chest.2024.02.010](https://doi.org/10.1016/j.chest.2024.02.010)

Abstract

Topic importance: Patient-reported outcomes (PROs) are information provided by patients on their condition, function, well-being, or experience. Instruments to quantify PROs, called patient-reported outcome measures (PROMs), allow standardized assessment of a unique dimension of health which cannot be physically measured. Here, we discuss how to critically appraise PROMs and provide an update on their use in asthma clinical practice and research.

Review findings: Asthma-specific PROMs have been developed to measure a wide array of disease characteristics, including symptoms, medication use, exacerbations, and impairments to emotional and physical function. Some PROMs also include spirometry or expand questions to overlap with rhinitis symptoms. Use of PROMs to understand asthma control is included in management guidelines, yet real-world evidence of their effectiveness in improving asthma care is still limited. These instruments may be less accurate in characterizing patients with poorly controlled asthma and have modest correlation with exacerbation risk. Two new PROMs are highlighted, the Asthma Impairment and Risk Questionnaire (AIRQ) as an instrument to assess asthma control which incorporates domains related to exacerbation risk and functional impairment, and the CompEx as a composite of daily diary reporting combined with exacerbation events as an early efficacy signal for interventional trials.

Summary: PROMs are fundamental to asthma assessment. Novel instruments may improve the detection of patients at-risk for poor outcomes and shorten the drug

discovery pipeline. However, urgent research is needed to understand their practical utility in clinical settings.

Keywords: PRO; PROM; asthma; narrative review; outcomes; validity.

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Pediatr Pulmonol



. 2024 Feb 14.

doi: 10.1002/ppul.26909. Online ahead of print.

[Impulse oscillometry bronchodilator response in preschool children](#)

[Aniello Meoli](#)^{1,2}, [Jordis Trischler](#)¹, [Martin Hutter](#)¹, [Melanie Dressler](#)¹, [Susanna Esposito](#)², [Katharina Blümchen](#)¹, [Stefan Zielen](#)¹, [Johannes Schulze](#)¹

Affiliations [expand](#)

- PMID: 38353391
- DOI: [10.1002/ppul.26909](https://doi.org/10.1002/ppul.26909)

Abstract

Background: In preschoolers, performing an acceptable spirometry and measuring bronchodilator response (BDR) is challenging; in this context, impulse oscillometry (IOS) represents a valid alternative. However, more studies on the standardization of BDR for IOS in young children are required.

Objective: The objective of the study was to identify optimal thresholds to define a positive BDR test with IOS in preschoolers with suspected asthma.

Methods: Children aged 3-6 years with suspected asthma and their lung function investigated with both IOS and spirometry pre- and post-BDR were retrospectively analyzed. The spirometric BDR was defined as positive when the change of FEV₁ was $\geq 12\%$ or ≥ 200 mL. The oscillometric BDR was defined as positive in case of change of at least -40% in R5, +50% in X5, and -80% in AX.

Results: Among 72 patients, 36 (age 5.2 ± 1 years; 64% boys) were selected for the subsequent analysis according to ATS/ERS quality criteria of measurements; specifically, 19 patients did not meet IOS and 36 did not meet spirometry criteria. The spirometric BDR was found positive in seven subjects (19.4%); conversely, a positive oscillometric BDR was identified in four patients (11.1%). No patient presented a positive BDR response with both methods. In IOS, the mean decrease in R5 and AX was $19.9\% \pm 10\%$ and $44\% \pm 22.1\%$, and the mean increase in X5 was $23.3\% \pm 17.8\%$, respectively. A decrease in R5 of 25.7% (AUC 0.77, $p = .03$) and an increase in X5 of 25.7% (AUC 0.75, $p = .04$) showed the best combination of sensitivity and specificity to detect an increase of FEV₁ $\geq 12\%$ and/or ≥ 200 mL.

Conclusion: The IOS represents a valid alternative to spirometry to measure BDR in preschool children and should be the gold standard in this age group. We are considering a decrease of 26% in R5 and an increase of 26% in X5 as diagnostic threshold for BDR.

Keywords: bronchodilator response; oscillometry; preschool asthma; spirometry.

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- [57 references](#)

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J Allergy Clin Immunol Pract



. 2024 Feb 13:S2213-2198(24)00163-6.

doi: 10.1016/j.jaip.2024.02.007. Online ahead of print.

[Lebrikizumab in Uncontrolled Asthma: Reanalysis in a Well-Defined Type 2 Population](#)

[Jonathan Corren](#)¹, [Stanley J Szeffler](#)², [Ellen Sher](#)³, [Phillip Korenblat](#)⁴, [Weily Soong](#)⁵, [Nicola A Hanania](#)⁶, [Gary Berman](#)⁷, [Guy Brusselle](#)⁸, [Ralph Zitnik](#)⁹, [Chitra R Natalie](#)¹⁰, [Luna Sun](#)¹¹, [Kimberly Siu](#)¹², [Wen-Shuo Wu](#)¹³, [Peter Lio](#)¹⁴, [April W Armstrong](#)¹⁵

Affiliations expand

- PMID: 38360213
- DOI: [10.1016/j.jaip.2024.02.007](https://doi.org/10.1016/j.jaip.2024.02.007)

Abstract

Background: LAVOLTA (L)I, LII, and ACOUSTICS were randomized, placebo-controlled, Phase 3 trials of lebrikizumab, a monoclonal antibody targeting interleukin-13, in patients with uncontrolled asthma. Failure to demonstrate efficacy may have been related to patient selection in those trials.

Objective: To assess the efficacy in a well-defined subpopulation of patients with elevated blood eosinophil counts and a minimum number of prior asthma exacerbations. An additional analysis in a subpopulation of patients with elevated fractional exhaled nitric oxide (FeNO) and prior exacerbations was performed.

Methods: Adult (LI and LII) and adolescent patients (12-17 years weighing ≥ 40 kg, ACOUSTICS) with uncontrolled asthma received lebrikizumab (125mg, N=832 or 37.5mg, N=829) or placebo (N=833) subcutaneously every 4 weeks. Post-hoc analysis of the annualized adjusted exacerbation rate (AER) was performed in a subpopulation of patients with baseline blood eosinophils ≥ 300 cells/ μ L and history of ≥ 1 exacerbation. In this subpopulation, there were 227 patients in the placebo group, 222 patients in the lebrikizumab 37.5mg group, and 217 patients in the lebrikizumab 125mg group. Safety in patients who received at least 1 dose of lebrikizumab was summarized using adverse events (AEs).

Results: Lebrikizumab significantly reduced AER vs. placebo in adults (AER reduction:125mg, 38%; 37.5mg, 41%) and adolescents (AER reduction:125mg, 59%; 37.5mg, 64%) with baseline blood eosinophils ≥ 300 cells/ μ L and ≥ 1 exacerbation. Most AEs were mild or moderate in severity and did not lead to treatment discontinuation.

Conclusion: Lebrikizumab significantly reduced asthma exacerbations in a subpopulation of patients with elevated blood eosinophils, elevated FeNO, and a history of asthma exacerbation.

Keywords: Allergic asthma; IL-13; efficacy; lebrikizumab; post-hoc analysis; safety.

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Ann Allergy Asthma Immunol

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. 2024 Feb 13:S1081-1206(24)00080-2.

doi: 10.1016/j.anai.2024.02.006. Online ahead of print.

Improved small airway dysfunction in severe asthma with clinical remission by anti-IL-5/IL-5 receptor α

[Taisuke Akamatsu](#)¹, [Toshihiro Shirai](#)², [Kohei Okawa](#)³, [Keita Hirai](#)⁴

Affiliations expand

- PMID: 38360105
- DOI: [10.1016/j.anai.2024.02.006](https://doi.org/10.1016/j.anai.2024.02.006)

No abstract available

Conflict of interest statement

Conflicts of Interest T. Shirai has received payment for lectures from AstraZeneca and GlaxoSmithKline, outside the submitted work. The other authors have nothing to disclose.

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Meta-Analysis

PLoS One

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. 2024 Feb 13;19(2):e0296685.

doi: 10.1371/journal.pone.0296685. eCollection 2024.

Association between age of respiratory syncytial virus infection hospitalization and childhood asthma: A systematic review

[Akihiro Shiroshita](#)^{1,2}, [Tebeb Gebretsadik](#)³, [Pingsheng Wu](#)², [Nejla Zeynep Kubilay](#)⁴, [Tina V Hartert](#)^{2,5}

Affiliations expand

- PMID: 38349900
- PMCID: [PMC10863881](#)
- DOI: [10.1371/journal.pone.0296685](#)

Free PMC article

Abstract

Identifying child age of RSV infection associated with increased risk of asthma is important for developing asthma prevention strategies. Our systematic review aimed to comprehensively summarize studies of the association between age of RSV infection and childhood asthma risk. The study protocol was pre-registered, and our study report adhered to the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA). Inclusion criteria were prospective and retrospective cohort studies and case-control studies which assessed the association of age of RSV infection before age 2 years and risk of childhood asthma after age two years. Relevant studies were identified through MEDLINE, Embase, Cochrane and International Clinical Trials Registry Platform (ICTRP) from study inception through May 5, 2023. Studies were evaluated with the Quality In Prognosis Studies (QUIPS) tool. From 149 studies screened, five studies (two prospective cohort studies and three retrospective cohort studies) were included in our systematic review, including 47,603 participants. Available studies only assessed age of severe RSV infection and asthma risk. The included studies used different age categories and outcome definitions, and were rated as having high risk of bias. Two studies had sample sizes of less than 300 and did not provide conclusive results related to age of RSV hospitalization and asthma risk. The other three studies reported RSV hospitalization between age 6 months and 23 months compared with age 0-6 months being associated with a higher odds ratio, hazard ratio, or incidence rate ratio of asthma diagnosis/hospitalization. Due to the

heterogeneous epidemiological designs, including exposures and outcome ascertainment of the included studies, we could not perform a meta-analysis, or calculate weighted averages of the effect estimates. Our systematic review highlights a major gap in our knowledge about the relationship between age of RSV infection and asthma risk.

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Conflict of interest statement

AS received financial support for his doctoral study from Vanderbilt University Medical Center, Center for Asthma Research and the Fulbright Association, TG is supported by grants from the NIH, TH is supported by grants from the NIH and serves on DSMBs for Pfizer, and as an external scientific consultant for Sanofi. this does not alter our adherence to PLOS ONE policy on sharing data and materials.

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- [3 figures](#)

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PLoS One

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. 2024 Feb 13;19(2):e0297616.

doi: 10.1371/journal.pone.0297616. eCollection 2024.

Inflammatory markers in world trade center workers with asthma: Associations with post traumatic stress disorder

[Juan P Wisnivesky](#)^{1,2}, [Nikita Agrawal](#)², [Jyoti Ankam](#)¹, [Adam Gonzalez](#)³, [Alex Federman](#)¹, [Steven B Markowitz](#)⁴, [Janette M Birmingham](#)⁵, [Paula J Busse](#)⁵

Affiliations expand

- PMID: 38349898
- PMCID: [PMC10863856](#)
- DOI: [10.1371/journal.pone.0297616](#)

Free PMC article

Abstract

Background: Post-traumatic stress disorders (PTSD) is associated with worse asthma outcomes in individuals exposed to the World Trade Center (WTC) site.

Research question: Do WTC workers with coexisting PTSD and asthma have a specific inflammatory pattern that underlies the relationship with increased asthma morbidity?

Study design and methods: We collected data on a cohort of WTC workers with asthma recruited from the WTC Health Program. Diagnosis of PTSD was ascertained with a Structured Clinical Interview for DSM-5 (Diagnostic and Statistical Manual of Mental Disorders) and the severity of PTSD symptoms was assessed with the PTSD Checklist 5. We obtained blood and sputum samples to measure cytokines levels in study participants.

Results: Of the 232 WTC workers with diagnosis of asthma in the study, 75 (32%) had PTSD. PTSD was significantly associated with worse asthma control ($p = 0.002$) and increased resource utilization ($p = 0.0002$). There was no significant association ($p > 0.05$) between most blood or sputum cytokines with PTSD diagnosis or PCL-5 scores both in unadjusted and adjusted analyses.

Interpretation: Our results suggest that PTSD is not associated with blood and sputum inflammatory markers in WTC workers with asthma. These findings suggest that other mechanisms likely explain the association between PTSD and asthma control in WTC exposed individuals.

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Conflict of interest statement

JPW received honorarium from Banook, PPD, Atea Pharmaceutical, and Prospero and research grants from Regeneron, Sanofi, Axella, and Arnold Consulting. PB has received consulting fees from CSL Behring, Takeda, Kalvista, BioCryst, CVS Specialty, Regeneron and research funding from CSL Behring, Takeda, and Kalvista. Other authors declare no conflict of interest. All other authors have no competing interests to declare.

- [35 references](#)

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MeSH terms, Substances, Grants and funding [expand](#)

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Indian J Pediatr

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. 2024 Feb 13.

doi: 10.1007/s12098-024-05028-x. Online ahead of print.

Comparison of Telemedicine versus In-Person Visit for Control of Asthma in Children aged 7-17 years: A Randomized Controlled Trial

[Kkomal C Suvarna](#)¹, [Prawin Kumar](#)¹, [Kuldeep Singh](#)¹, [Jogender Kumar](#)², [Jagdish Prasad Goyal](#)³

Affiliations expand

- PMID: 38349456
- DOI: [10.1007/s12098-024-05028-x](https://doi.org/10.1007/s12098-024-05028-x)

Abstract

Objectives: To compare asthma control between telemedicine and in-person visit in children aged 7 to 17 y.

Methods: A non-inferiority randomized-controlled trial was conducted at a pediatric chest clinic, involving a total of 192 patients, with 96 children in each group of telemedicine and in-person follow-up.

Results: There was a significant improvement in the mean asthma control test (ACT)/Childhood asthma control test (C-ACT) scores from baseline to three months in both groups, with no significant difference in the change of means between the two groups. The mean difference in ACT/C-ACT score at three months in the telemedicine and in-person visit group was -0.35; 95% CI (-1.30 to +0.10) [p-value 0.09]. There was a significant change in the mean Pediatric Quality of Life index (PQLI) scores from 57.2 ± 10.2 to 66.82 ± 7.99 in the telemedicine group and from 56.1 ± 11.7 to 66.71 ± 4.66 in the in-person visit group, however the mean difference in PQLI score in both the groups was not significant ($p = 0.91$). There was no significant difference in the number of asthma exacerbations (4 vs. 1) between telemedicine and in-person visit ($p = 0.10$). The mean telemedicine satisfaction questionnaire score in this study was 3.8 ± 0.7 , which indicates that most of the parents were satisfied with the telemedicine follow-up process.

Conclusions: This study revealed that telemedicine is non-inferior to in-person visit for follow-up of children with asthma and can be used as an alternative to in-person visit for the management of asthma, especially in remote settings and pandemic situations.

Keywords: Asthma control; In-person visit; PQLI; Pediatric Quality of Life index; Telemedicine.

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- [20 references](#)

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Allergy

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. 2024 Feb 13.

doi: 10.1111/all.16059. Online ahead of print.

[Response to correspondence: Prediction of adult asthma risk in early childhood using novel adult asthma predictive risk scores](#)

[Abdal J Farhan](#)^{1,2}, [Dilini M Kothalawala](#)^{3,4}, [Ramesh J Kurukulaaratchy](#)^{1,2,3}, [Raquel Granell](#)⁵, [Angela Simpson](#)⁶, [Clare Murray](#)⁶, [Adnan Custovic](#)⁷, [Graham Roberts](#)^{1,2,3}, [Hongmei Zhang](#)⁸, [S Hasan Arshad](#)^{1,2,3}

Affiliations expand

- PMID: 38348787
- DOI: [10.1111/all.16059](https://doi.org/10.1111/all.16059)

No abstract available

- [5 references](#)

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Publication types [expand](#)

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Respir Med

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. 2024 Feb 12:107557.

doi: 10.1016/j.rmed.2024.107557. Online ahead of print.

[Predicting exacerbations in COPD in the Danish general population](#)

[Jacob Louis Marott](#)¹, [Truls Sylvan Ingebrigtsen](#)², [Yunus Çolak](#)³, [Jørgen Vestbo](#)⁴, [Børge Grønne Nordestgaard](#)⁵, [Peter Lange](#)⁶

Affiliations [expand](#)

- PMID: 38355020
- DOI: [10.1016/j.rmed.2024.107557](https://doi.org/10.1016/j.rmed.2024.107557)

Abstract

Background: Risk of exacerbations in individuals with mild chronic obstructive pulmonary disease (COPD) in the general population is less well described than in more advanced disease. We hypothesized that in addition to history of previous exacerbation also other clinical characteristics predict future moderate exacerbations.

Methods: In 96,462 individuals in the Copenhagen General Population Study, we identified 3175 with clinical COPD defined as forced expiratory volume in 1 s (FEV₁)/forced vital capacity (FVC) < 0.70 and FEV₁ <80% predicted in symptomatic individuals without asthma. We estimated the importance of age, sex, FEV₁, modified Medical Research Council (mMRC) dyspnea scale, chronic bronchitis, exacerbation history, comorbidities, cohabitation, body mass index, smoking, and blood eosinophils for the 1-year and 3-year future risk of moderate COPD exacerbations and developed a prediction tool for future exacerbations in COPD in the general population based on easily available clinical information.

Results: We observed 265 exacerbations in 2543 maintenance treatment naïve individuals with COPD and 197 exacerbations in 632 individuals with COPD on maintenance treatment. In the maintenance treatment naïve group, exacerbation history (hazard ratio (HR): 8.53), low FEV₁ (HR: 4.82 for <30% predicted versus 50-79% predicted), and higher age (HR: 1.46 for ≥75 years versus <65 years) were significant predictors of future exacerbations. In the group on maintenance treatment, male sex and mMRC ≥2 also predicted higher risk with borderline significance.

Conclusions: In addition to exacerbation history also higher age and lower FEV₁ predict future exacerbation risk in COPD in the general population.

Keywords: Chronic obstructive pulmonary disease; Exacerbation; Mild disease; Risk score.

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Conflict of interest statement

Declaration of competing interest TS Ingebrigtsen reports a personal fee from AstraZeneca. Y Çolak reports personal fees from AstraZeneca, Boehringer-Ingelheim, GSK, and Sanofi, and grant support from Sanofi. J Vestbo reports personal fees from ALK-Abello, AstraZeneca, Boehringer-Ingelheim, Chiesi, GSK, Novartis and Teva. P Lange reports personal fees from AstraZeneca, GSK and Sanofi and grant support from Sanofi and another in relation to the present work from AstraZeneca. JL Marott and BG Nordestgaard have no disclosures to report.

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J Allergy Clin Immunol Pract



. 2024 Feb 12:S2213-2198(24)00160-0.

doi: 10.1016/j.jaip.2024.02.004. Online ahead of print.

[Systemic Inflammation in Asthma: What are the risks and impacts outside the airway?](#)

[Matthew C Tattersall](#)¹, [Nizar N Jarjour](#)², [Paula J Busse](#)³

Affiliations expand

- PMID: 38355013
- DOI: [10.1016/j.jaip.2024.02.004](https://doi.org/10.1016/j.jaip.2024.02.004)

Abstract

Airway inflammation in asthma has been well recognized for several decades, with general agreement on its role in asthma pathogenesis, symptoms, propensity toward exacerbation, and decline in lung function. This has led to universal recommendation in asthma management guidelines to incorporate the use of inhaled corticosteroid as an anti-inflammatory therapy for all patients with persistent asthma symptoms. However, there has been limited attention paid to the presence and potential impact of systemic inflammation in asthma. Accumulating evidence from epidemiological observations and cohort studies points to a host of downstream organ dysfunction in asthma especially among patients with longstanding or more severe disease, frequent exacerbations, and underlying risk factors for organ dysfunction. Most studies to date have focused on cognitive impairment, depression/anxiety, metabolic syndrome, and cardiovascular abnormalities. In this review, we summarize some of the evidence demonstrating these abnormalities, highlight the proposed mechanisms and potential benefits of treatment in limiting these

extrapulmonary abnormalities in patients with asthma. The goal of this commentary is to raise awareness of the importance of recognizing potential extra-pulmonary conditions associated with systemic inflammation of asthma. This area of treatment of patients with asthma is a large unmet need.

Keywords: Alzheimer's disease; Anxiety; Asthma; Cardiovascular events; Cognitive impairment; Dementia; Depression; Severe asthma; Systemic inflammation.

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Allergy Asthma Clin Immunol



. 2024 Feb 12;20(1):13.

doi: 10.1186/s13223-024-00872-0.

[Acuity of asthma exacerbations in Alberta, Canada is increasing: a population-based study](#)

[Adil Adatia](#) ^{#1,2}, [Jalal Moolji](#) ^{#3}, [Imran Satia](#) ⁴

Affiliations expand

- PMID: 38347595

- PMCID: [PMC10863092](#)

- DOI: [10.1186/s13223-024-00872-0](https://doi.org/10.1186/s13223-024-00872-0)

Free PMC article

Abstract

Background: Asthma is a common respiratory illness affecting 2.8 million Canadians, including 9.7% of Albertans. Prior studies showed a substantial decrease in ED visits for asthma in the decade preceding 2010, followed by a stabilization. This was attributed to improvements in the pharmacologic and non-pharmacologic treatments for asthma during that period followed by a balance between epidemiologic drivers and protective factors in the population.

Methods: We assessed whether this trend continued in Alberta from 2010 to 2022 using population level data for the volume of daily ED visits, acuity of asthma exacerbations in the ED, and hospitalization rate.

Results: The mean number of ED visits decreased from 4.5 to 2.2 per million persons per day, but the acuity of exacerbations and the proportion requiring hospitalization increased. The number of patients presenting with the highest level of acuity increased by over 300%, and the percentage of patients requiring hospitalization increased from 6.8 to 11.3%.

Conclusion: Total ED visits for asthma exacerbations continues to decline in Alberta. The reasons for an increase in more severe exacerbations requires further attention.

Keywords: Asthma; Asthma exacerbations; Critical care; Emergency department; Epidemiology; Hospitalization.

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Conflict of interest statement

The authors declare that they have no competing interests.

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

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Eur Arch Otorhinolaryngol

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. 2024 Feb 12.

doi: 10.1007/s00405-024-08461-y. Online ahead of print.

Switching of biological therapy to dupilumab in comorbid patients with severe asthma and CRSwNP

[Cecilia Rosso](#)^{1,2}, [Eugenio De Corso](#)³, [Valerio Conti](#)⁴, [Letizia Nitro](#)⁴, [Alberto Maria Saibene](#)⁵, [Elena Parazzini](#)⁶, [Rocco Rinaldo](#)⁶, [Sabrina De Pascalis](#)⁶, [Flavio Arnone](#)⁴, [Stefano Centanni](#)⁶, [Claudio Montuori](#)⁷, [Leandro Maria D'Auria](#)⁷, [Giovanni Felisati](#)⁵, [Carlotta Pipolo](#)⁵

Affiliations expand

- PMID: 38347197
- DOI: [10.1007/s00405-024-08461-y](https://doi.org/10.1007/s00405-024-08461-y)

Abstract

Purpose: Nowadays, several efficacious biologic drugs are used for severe asthma with or without chronic rhinosinusitis with nasal polyps (CRSwNP). However, it has been observed that not all comorbid patients (asthma/CRSwNP) receiving biologic treatment for asthma experience satisfactory control of both conditions equally.

Methods: We selected 20 patients who had both severe asthma and comorbid CRSwNP under biological treatment with benralizumab, omalizumab or mepolizumab with adequate control of asthma but inadequate control of nasal symptoms. Patients were switched to dupilumab and outcomes were evaluated at baseline (T0), at 3 months (T1), at 6 months (T2), at 12 months (T3) and finally at 18 months (T4). Data were collected at each time

point including blood tests measuring eosinophil levels and total IgE, SNOT22, ACT, NPS score, rhinomanometry, olfactory testing, and nasal cytology.

Results: The results showed an overall improvement in all the outcomes. Peripheral eosinophilia was observed consistently with existing literature. All patients registered an improvement in sinonasal outcomes, while only one patient had a worsening of asthma. Three patients interrupted the therapy due to various causes: poor asthma control, onset of psoriasis and thrombocytopenia.

Conclusions: The response to a biologic treatment for CRSwNP control may be heterogenous and it seems that patients may benefit from switching improving control in equal measure in the upper and lower airway. Further studies to explore the endotype/phenotype which best fits with each biologic are mandatory to personalize the therapy.

Keywords: Benralizumab; Biological therapy; CRSwNP; Dupilumab; Mepolizumab; Monoclonal antibodies; Nasal polyps; Omalizumab.

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- [31 references](#)

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Thorax

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. 2024 Feb 12:thorax-2023-220967.

doi: 10.1136/thorax-2023-220967. Online ahead of print.

Airway smooth muscle and long-term clinical efficacy following bronchial thermoplasty in severe asthma

[Pieta C Wijsman](#)¹, [Annika W M Goorsenberg](#)¹, [Julia N S d'Hooghe](#)¹, [Nick H T Ten Hacken](#)², [Joris J T H Roelofs](#)³, [Thais Mauad](#)⁴, [Els J M Weersink](#)¹, [Pallav Shah](#)^{5,6}, [Jouke T Annema](#)¹, [Peter I Bonta](#)⁷

Affiliations expand

- PMID: 38346871
- DOI: [10.1136/thorax-2023-220967](https://doi.org/10.1136/thorax-2023-220967)

Abstract

The mechanism of action of bronchial thermoplasty (BT) treatment for patients with severe asthma is incompletely understood. This study investigated the 2.5-year impact of BT on airway smooth muscle (ASM) mass and clinical parameters by paired data analysis in 22 patients. Our findings demonstrate the persistence of ASM mass reduction of >50% after 2.5 years. Furthermore, sustained improvement in asthma control, quality of life and exacerbation rates was found, which is in line with previous reports. An association was found between the remaining ASM and both the exacerbation rate ($r=0.61$, $p=0.04$ for desmin, $r=0.85$, $p<0.01$ for alpha smooth muscle actin (SMA)) and post-bronchodilator forced expiratory volume in 1 s predicted percentage ($r=-0.69$, $p=0.03$ for desmin, $r=-0.58$, $p=0.08$ for alpha SMA). This study provides new insight into the long-term impact of BT.

Keywords: Asthma.

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Conflict of interest statement

Competing interests: No conflicts of interest exist for the following authors—PW, AWMG, JNSd'H, NHTtH, JJTHR, TM, EJMw and PS. JTA reports research grants from Boston Scientific during the conduct of the study. PB reports research grants from Boston Scientific, non-financial support from Boston Scientific related to investigator-initiated research grant, research grants from ZonMw and research grants from Dutch Lung Foundation, during the conduct of the study.

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J Asthma

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. 2024 Feb 12:1-8.

doi: 10.1080/02770903.2024.2314623. Online ahead of print.

Emergency management and asthma risk in young Medicaid-enrolled children with recurrent wheeze

[Isabel J Hardee](#)¹, [Isabella Zaniletti](#)², [Melisa S Tanverdi](#)³, [Andrew H Liu](#)⁴, [Rakesh D Mistry](#)⁵, [Nidhya Navanandan](#)³

Affiliations expand

- PMID: 38324665
- DOI: [10.1080/02770903.2024.2314623](https://doi.org/10.1080/02770903.2024.2314623)

Abstract

Objectives: To describe clinical characteristics of young children presenting to the emergency department (ED) for early recurrent wheeze, and determine factors associated with subsequent persistent wheeze and risk for early childhood asthma.

Methods: Retrospective cohort study of Medicaid-enrolled children 0-3 years old with an index ED visit for wheeze (e.g. bronchiolitis, reactive airway disease) from 2009 to 2013, and at least one prior documented episode of wheeze at an ED or primary care visit. The primary outcome was persistent wheeze between 4 and 6 years of age. Demographics and

clinical characteristics were collected from the index ED visit. Logistic regression was used to estimate the association between potential risk factors and subsequent persistent wheeze.

Results: During the study period, 41,710 children presented to the ED for recurrent wheeze. Mean age was 1.3 years; 59% were male, 42% Black, and 6% Hispanic. At index ED visits, the most common diagnosis was acute bronchiolitis (40%); 77% of children received an oral corticosteroid prescription. Between 4 and 6 years of age, 11,708 (28%) children had persistent wheeze. A greater number of wheezing episodes was associated with an increased odds of ED treatment with asthma medications. Subsequent persistent wheeze was associated with male sex, Black race, atopy, prescription for bronchodilators or corticosteroids, and greater number of visits for wheeze.

Conclusions: Young children with persistent wheeze are at risk for childhood asthma. Thus, identification of risk factors associated with persistent wheeze in young children with recurrent wheeze might aid in early detection of asthma and initiation of preventative therapies.

Keywords: Bronchiolitis; asthma; bronchodilators; children; corticosteroids; treatment; wheeze.

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[Review](#)

Zhonghua Jie He He Hu Xi Za Zhi

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. 2024 Feb 12;47(2):157-162.

doi: 10.3760/cmaj.cn112147-20231129-00348.

[Annual progress on bronchial asthma diagnosis and treatment in 2023]

[Article in Chinese]

[H L Shi](#)¹, [K W Huang](#)¹

Affiliations expand

- PMID: 38309967
- DOI: [10.3760/cmaj.cn112147-20231129-00348](https://doi.org/10.3760/cmaj.cn112147-20231129-00348)

Abstract

in [English](#), [Chinese](#)

Bronchial asthma (referred to as asthma) is a common chronic inflammatory airway disease mediated by various immune cells, cytokines, and inflammatory mediators. This disease exhibits considerable heterogeneity in clinical symptoms, severity, and treatment outcomes, posing significant challenges to the diagnosis and treatment of asthma. This article reviews the literature on both basic and clinical research in asthma, published from October 1, 2022 to September 30, 2023. The review focuses on summarizing and elucidating four aspects of asthma: pathogenesis, diagnosis, assessment, and treatment. The aim is to provide more evidence for clinical diagnosis and treatment and offer new perspectives for future research.

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances, Supplementary conceptsexpand

FULL TEXT LINKS



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

1

Int Immunopharmacol



. 2024 Feb 15:128:111540.

doi: 10.1016/j.intimp.2024.111540. Epub 2024 Jan 18.

Metabolic syndrome facilitates histopathological changes and the risk of postoperative recurrence in chronic rhinosinusitis with nasal polyps

[Tao Jiang](#)¹, [Tao Yu](#)¹, [Lu Jiang](#)¹, [Mengyao Qin](#)¹, [Zongjing Tong](#)²

Affiliations expand

- PMID: 38237227
- DOI: [10.1016/j.intimp.2024.111540](https://doi.org/10.1016/j.intimp.2024.111540)

Abstract

Background: The relationship between metabolic syndrome (MS) and chronic rhinosinusitis with nasal polyps (CRSwNP) remains unclear. This study aimed to examine the effects of MS on histopathological features and postoperative recurrence in patients with CRSwNP.

Methods: We recruited 529 patients with CRSwNP who underwent functional endoscopic sinus surgery. They were divided into MS and non-MS groups and followed up for 2 years to evaluate postoperative recurrence. Clinical characteristics, histopathological features, the immunoactivity of signature cytokines, and the risk of postoperative recurrence were compared between the two groups.

Results: In total, 490 patients with CRSwNP were included in the study, 145 of whom experienced postoperative recurrence. The recurrence rate, tissue eosinophil count and percentage, and expression levels of IL-5 and IL-17A were significantly higher in the MS group compared to the non-MS group. Furthermore, within the MS group, patients who experienced recurrence exhibited higher tissue eosinophil counts and IL-5 and IL-17A levels than those in the non-MS group. Notably, the eosinophil count and IL-5 and IL-17A levels were higher in tissues collected during revision surgery than in those collected during primary surgery, particularly in patients with MS. Binary logistic regression analysis

and Kaplan-Meier survival curves consistently indicated that MS independently increased the risk of postoperative recurrence in patients with CRSwNP. Furthermore, the risk increased with the number of MS components presented.

Conclusion: MS promoted tissue eosinophil infiltration, and IL-5 and IL-17A expression, and increased the risk of postoperative recurrence in patients with CRSwNP. MS was identified as an independent risk factor for postoperative recurrence, and the risk increased with an increase in the number of MS components.

Keywords: Chronic rhinosinusitis with nasal polyps; Functional endoscopic sinus surgery; Metabolic syndrome; Prognosis; Recurrence.

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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](#)

Chest

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. 2024 Feb 14:S0012-3692(24)00156-9.

An Update on Patient-Reported Outcomes in Asthma

[Tianshi David Wu](#)¹, [Zuzana Diamant](#)², [Nicola A Hanania](#)³

Affiliations expand

- PMID: 38365175
- DOI: [10.1016/j.chest.2024.02.010](https://doi.org/10.1016/j.chest.2024.02.010)

Abstract

Topic importance: Patient-reported outcomes (PROs) are information provided by patients on their condition, function, well-being, or experience. Instruments to quantify PROs, called patient-reported outcome measures (PROMs), allow standardized assessment of a unique dimension of health which cannot be physically measured. Here, we discuss how to critically appraise PROMs and provide an update on their use in asthma clinical practice and research.

Review findings: Asthma-specific PROMs have been developed to measure a wide array of disease characteristics, including symptoms, medication use, exacerbations, and impairments to emotional and physical function. Some PROMs also include spirometry or expand questions to overlap with rhinitis symptoms. Use of PROMs to understand asthma control is included in management guidelines, yet real-world evidence of their effectiveness in improving asthma care is still limited. These instruments may be less accurate in characterizing patients with poorly controlled asthma and have modest correlation with exacerbation risk. Two new PROMs are highlighted, the Asthma Impairment and Risk Questionnaire (AIRQ) as an instrument to assess asthma control which incorporates domains related to exacerbation risk and functional impairment, and the CompEx as a composite of daily diary reporting combined with exacerbation events as an early efficacy signal for interventional trials.

Summary: PROMs are fundamental to asthma assessment. Novel instruments may improve the detection of patients at-risk for poor outcomes and shorten the drug discovery pipeline. However, urgent research is needed to understand their practical utility in clinical settings.

Keywords: PRO; PROM; asthma; narrative review; outcomes; validity.

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Pediatr Pulmonol



. 2024 Feb 14.

doi: [10.1002/ppul.26908](https://doi.org/10.1002/ppul.26908). Online ahead of print.

[Acute exposure to pollen and airway inflammation in adolescents](#)

[Nicholas J Nassikas](#)¹, [Heike Luttmann-Gibson](#)², [Sheryl L Rifas-Shiman](#)³, [Emily Oken](#)³, [Diane R Gold](#)^{2,4}, [Mary B Rice](#)¹

Affiliations [expand](#)

- PMID: 38353177
- DOI: [10.1002/ppul.26908](https://doi.org/10.1002/ppul.26908)

Abstract

Introduction: Pollen exposure is known to exacerbate allergic asthma and allergic rhinitis symptoms, yet few studies have investigated if exposure to pollen affects lung function or airway inflammation in healthy children.

Methods: We evaluated the extent to which higher pollen exposure was associated with differences in airway inflammation and lung function among 490 early adolescent participants (mean age of 12.9 years) in Project Viva, a prebirth cohort based in Massachusetts. We obtained regional daily total pollen counts, including tree, grass, and weed pollen, from a Rotorod pollen counter. We evaluated associations of 3- and 7-day moving averages of pollen with fractional exhaled nitric oxide (FeNO) and lung function using linear regression models and evaluated the linearity of associations with penalized splines. We tested if associations of pollen with FeNO and lung function were modified by current asthma diagnosis, history of allergic rhinitis, aeroallergen sensitivity, temperature, precipitation, and air pollution.

Results: Three- and 7-day median pollen concentrations were 19.0 grains/m³ (IQR: 73.4) and 20.9 grains/m³ (IQR: 89.7). In main models, higher concentrations of total pollen over the preceding 3 and 7 days were associated with a 4.6% (95% CI: 0.1,9.2) and 7.4% (95% CI: 0.9,14.3) higher FeNO per IQR of pollen, respectively. We did not find associations of pollen with lung function in main models. Asthma, allergic rhinitis, precipitation, and air pollution (nitrogen dioxide and ozone) modified associations of pollen with lung function ($P_{\text{interaction}} < 0.1$), while temperature, sex, and aeroallergen sensitization did not.

Conclusion: Short-term exposure to pollen was associated with higher FeNO in early adolescents, even in the absence of allergic sensitization and asthma.

Keywords: aeroallergen; asthma; climate change; exhaled nitric oxide; lung function.

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J Allergy Clin Immunol

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. 2024 Feb 13:S0091-6749(24)00156-8.

doi: 10.1016/j.jaci.2024.02.002. Online ahead of print.

Accurate determination of house dust mite sensitization in asthma and allergic rhinitis through cytometric detection of Der p 1 and Der p 2 binding on Basophils (CytoBas)

[Lin Hsin](#)¹, [Nirupama Varese](#)², [Pei Mun Aui](#)¹, [Bruce D Wines](#)³, [Anouk von Borstel](#)¹, [Laurent Mascarell](#)⁴, [P Mark Hogarth](#)³, [Mark Hew](#)⁵, [Robyn E O'Hehir](#)⁶, [Menno C van Zelm](#)⁷

Affiliations expand

- PMID: 38360181
- DOI: [10.1016/j.jaci.2024.02.002](https://doi.org/10.1016/j.jaci.2024.02.002)

Abstract

Background: House dust mite (HDM) is the most common allergen trigger globally for allergic rhinitis and atopic asthma. To expedite accurate confirmation of allergen sensitization, we designed fluorescent allergen tetramers to directly stain specific IgE on basophils to detect specific allergen sensitization using the flow cytometric CytoBas assay.

Methods: Recombinant proteins of major HDM allergens (component), Der f 1, Der p 1 and Der p 2 were biotinylated and conjugated with fluorochrome streptavidins as tetramers. Blood samples from 64 HDM-allergic patients and 26 non-HDM-sensitized controls were incubated with allergen tetramers for evaluation of basophil binding (CytoBas) and activation (BAT) with flow cytometry.

Results: The tetramers effectively bound and activated basophils from allergic patients but not non-sensitized controls. CytoBas with Der p 1 as a single allergen had comparable sensitivity and specificity (92% and 100%) to BAT (91% and 100%) in detecting allergen sensitization, as did CytoBas with Der p 2 (95% and 96%) to BAT (95% and 87%). A positive

staining for Der p 1 and/or Der p 2 in CytoBas was 100% sensitive and 96% specific for HDM allergy.

Conclusions: CytoBas has diagnostic accuracy for group 1 and group 2 HDM allergens that is comparable to BAT, but with additional advantages of multiple allergen components in a single tube and no requirement for in vitro basophil activation. These findings endorse a single, multiplex CytoBas assay for accurate and component-resolved diagnosis of aeroallergen sensitization in patients with allergic asthma and/or rhinitis.

Keywords: Der p 1; Der p 2; House dust mite; allergic rhinitis; asthma.

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Curr Opin Allergy Clin Immunol



. 2024 Feb 13.

doi: 10.1097/ACI.0000000000000968. Online ahead of print.

[Is allergen immunotherapy a model of personalized treatment in pediatric respiratory allergy?](#)

[Gustavo Falbo Wandalsen](#)¹, [Fernando Monteiro Aarestrup](#)², [Dirceu Solé](#)³

Affiliations expand

- PMID: 38359080

- DOI: [10.1097/ACI.0000000000000968](https://doi.org/10.1097/ACI.0000000000000968)

Abstract

Purpose of review: To review recent evidence on allergen immunotherapy (AIT) as a model of personalized medicine in the treatment of children and adolescents with respiratory allergies.

Recent findings: Meta-analysis and systematic review studies continue to point out that AIT is an effective treatment for children with respiratory allergies. Molecular allergy allows the understanding of patient sensitization profiles that frequently change the prescription of AIT. There is still a lack of evidence showing that this personalized prescription of AIT is associated with better clinical outcomes. The nasal allergen challenge has extended the indications of AIT for a new group of subjects with local allergic rhinitis. Patient selection of allergens involved in the increasingly personalized composition of extracts to be used in AIT increasingly characterizes it as personalized medicine.

Summary: Despite the numerous studies carried out to identify the best biomarker to evaluate the response to AIT, there is still much disagreement, and clinical assessment (symptoms, quality of life, among others) continues to be the best way to evaluate the therapeutic success of AIT.

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Drugs Real World Outcomes

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. 2024 Feb 13.

doi: 10.1007/s40801-023-00412-z. Online ahead of print.

An Observational Study to Determine the Real-Life Effectiveness of MP-AzeFlu® in Austrian Patients with Persistent Allergic Rhinitis

[Katharina Marth](#)¹, [Andreas Renner](#)², [Georg Langmayr](#)³, [Wolfgang Pohl](#)², [Duc Tung Nguyen](#)⁴, [Hans Christian Kuhl](#)⁴

Affiliations expand

- PMID: 38351402
- DOI: [10.1007/s40801-023-00412-z](https://doi.org/10.1007/s40801-023-00412-z)

Abstract

Background: Many patients with allergic rhinitis (AR) have moderate-to-severe persistent AR. Meda Pharma's AzeFlu (MP-AzeFlu®) is an intranasal AR treatment comprising a novel formulation of azelastine hydrochloride and fluticasone propionate in a single device.

Methods: This prospective observational study of 214 adults and adolescents in Austria with moderate-to-severe persistent AR assessed the effectiveness of MP-AzeFlu (one spray/nostril twice daily; daily doses: azelastine hydrochloride 548 µg; and fluticasone propionate 200 µg) for AR control in clinical practice using the visual analog scale. Symptom severity was reported on days 0, 1, 3, 7, 14, 21, 28, 35, and 42. Patient demographics, AR phenotype, allergen sensitization, symptomatology, AR treatments in the previous year, and the reason for the MP-AzeFlu prescription were recorded.

Results: MP-AzeFlu treatment was associated with a rapid and statistically significant reduction in the visual analog scale score from baseline to each timepoint measured, including day 1 (all $p < 0.0001$). Mean (standard deviation) visual analog scale score was 53.5 mm (26.3) at baseline, 25.3 mm (21.0) on day 28, and 19.6 mm (17.4) on day 42, a mean overall reduction from baseline of 41.4 (23.9) mm for completers. Results were consistent irrespective of patient age, gender, severity, or traditional AR phenotype. Prior to MP-AzeFlu prescription, congestion was considered the most bothersome symptom. The majority of patients reported using at least two AR therapies in the past year, including oral antihistamines, intranasal corticosteroids, and intranasal antihistamines.

Conclusions: Many patients in Austria live with uncontrolled persistent AR despite treatment. MP-AzeFlu provides effective and rapid control of persistent AR in a real-world Austrian setting.

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- [39 references](#)

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Allergol Int

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. 2024 Feb 12:S1323-8930(24)00013-3.

doi: 10.1016/j.alit.2024.01.012. Online ahead of print.

[Factors contributing to the diagnosis and onset prediction of perennial allergic rhinitis in high-risk children: A sub-analysis of the CHIBA study](#)

[Syuji Yonekura](#)¹, [Yoshitaka Okamoto](#)², [Fumiya Yamaide](#)³, [Tajji Nakano](#)⁴, [Kiyomi Hirano](#)⁴, [Urara Funakoshi](#)⁵, [Sawako Hamasaki](#)⁵, [Tomohisa Inuma](#)⁵, [Toyoyuki Hanazawa](#)⁵, [Naoki Shimojo](#)⁶

Affiliations expand

- PMID: 38350815

- DOI: [10.1016/j.alit.2024.01.012](https://doi.org/10.1016/j.alit.2024.01.012)

Abstract

Background: This study aimed to clarify the diagnostic and predictive factors for perennial allergic rhinitis (PAR) onset in children by analyzing the results of the Chiba High-risk Birth Cohort for Allergy study, which examined newborns with a family history of allergies.

Methods: Overall, 306 pregnant women were recruited. Their newborns were examined by otolaryngologists and pediatric allergists at 1, 2, and 5 years of age. Participants with clinical and laboratory data available at all consultation points were considered eligible.

Results: Among 187 eligible participants, the prevalence rates of PAR were 2.1%, 4.3%, and 24.1% at 1, 2, and 5 years of age, respectively. AR-specific nasal local findings and eosinophils in nasal smear were observed in a substantial number of patients with PAR at 1 and 2 years of age. Factors present up to 2 years of age that were associated with PAR onset at 5 years of age, in descending order, were as follows: sensitization to house dust mites (HDM), nasal eosinophilia, and sensitization to cat dander. In 44 cases with HDM sensitization, nasal eosinophilia up to 2 years of age achieved a sensitivity of 76.0% and a specificity of 73.7% for predicting PAR onset at 5 years.

Conclusions: Rhinitis findings and nasal eosinophilia are useful auxiliary diagnostic items for pediatric PAR. Sensitization to HDM and nasal eosinophilia were the most influential factors associated with future PAR onset. A combination of these factors may facilitate the prediction of PAR onset.

Keywords: Allergies; House dust mite; Nasal eosinophils; Perennial allergic rhinitis; Sensitization.

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FULL TEXT LINKS



chronic cough

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BMJ Case Rep

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. 2024 Feb 17;17(2):e256764.

doi: 10.1136/bcr-2023-256764.

Retreatment of symptomatic chronic bronchitis with bronchial rheoplasty

[Theresa Klemm](#)¹, [William Krimsky](#)², [Kelly Welz](#)³, [Arschang Valipour](#)³

Affiliations expand

- PMID: 38367996
- DOI: [10.1136/bcr-2023-256764](https://doi.org/10.1136/bcr-2023-256764)

Abstract

A man in his early 70s with a long-standing history of chronic bronchitis presented to our department 3 years ago with debilitating chronic cough and excessive sputum production. He had no previous diagnosis of chronic obstructive pulmonary disease and without evidence of severe respiratory tract infections. Due to his symptom burden and impairments in daily activities, the patient was considered to be an appropriate candidate for bronchial rheoplasty, a novel endoscopic treatment for patients with chronic bronchitis. The patient responded well to bilateral treatment but then experienced symptom recurrence roughly 14 months after completing the initial treatment. In the absence of an alternative explanation for the return of these symptoms, he then underwent uneventful retreatment. The patient, again, reported significant symptom improvement and no adverse effects since retreatment. While further studies are necessary to assess the safety and efficacy of retreatment, the findings from this case are encouraging.

Keywords: Bronchitis; Respiratory medicine; Smoking and tobacco.

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Conflict of interest statement

Competing interests: WK: chief medical officer–Galvanize Therapeutics; AV: personal fees from AstraZeneca, Boehringer Ingelheim, Chiesi, Menarini, Merck, Novartis and Roche for lectures and/or advisory boards outside of the submitted study.

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Medicine (Baltimore)



. 2024 Feb 16;103(7):e37054.

doi: 10.1097/MD.00000000000037054.

[Identifying causal relationships between gastroesophageal reflux and extraesophageal diseases: A Mendelian randomization study](#)

[Peishan Yao](#)¹, [Xiaomin Liao](#)², [Junming Huang](#)³, [Yi Dang](#)⁴, [Haixing Jiang](#)¹

Affiliations [expand](#)

- PMID: 38363933
- PMCID: [PMC10869099](#)
- DOI: [10.1097/MD.00000000000037054](#)

Abstract

Traditional observational and in vivo studies have suggested an etiological link between gastroesophageal reflux disease (GERD) and the development of extraesophageal diseases (EEDs), such as noncardiac chest pain. However, evidence demonstrating potential causal relationships is lacking. This study evaluated the potential causal relationship between GERD and EEDs, including throat and chest pain, asthma, bronchitis, chronic rhinitis, nasopharyngitis and pharyngitis, gingivitis and periodontal disease, cough, using multiple

Mendelian randomization (MR) methods, and sensitivity analysis was performed. The Mendelian randomization Pleiotropy RESidual Sum and Outlier and PhenoScanner tools were used to further check for heterogeneous results and remove outliers. MR with inverse-variance weighted (IVW) showed a significant causal relationship between GERD and EEDs after Bonferroni correction. IVW results indicated that GERD increased the risk of chronic rhinitis, nasopharyngitis and pharyngitis (odds ratio [OR] = 1.482, 95% confidence interval [CI] = 1.267-1.734, $P < .001$), gingivitis and periodontal disease (OR = 1.166, 95% CI = 1.046-1.190, $P = .001$), throat and chest pain (OR = 1.585, 95% CI = 1.455-1.726, $P < .001$), asthma (OR = 1.539, 95% CI = 1.379-1.717, $P < .001$), and bronchitis (OR = 1.249, 95% CI = 1.168-1.335, $P < .001$). Sensitivity analysis did not detect pleiotropy. Leave-one-out analysis shows that MR results were not affected by individual single nucleotide polymorphisms. The funnel plot considers the genetic instrumental variables to be almost symmetrically distributed. This MR supports a causal relationship among GERD and EEDs. Precise moderation based on causality and active promotion of collaboration among multidisciplinary physicians ensure high-quality diagnostic and treatment recommendations and maximize patient benefit.

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Conflict of interest statement

The authors have no conflicts of interest to disclose.

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

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[Published Erratum](#)

Respir Med

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. 2024 Feb 13:223:107556.

doi: 10.1016/j.rmed.2024.107556. Online ahead of print.

Corrigendum to "Burden of chronic cough on social participation, healthcare resource utilisation and activities of daily living in the Canadian Longitudinal Study on Aging (CLSA)" [Respir. Med. 219 (2013) 107431]

[Imran Satia](#)¹, [Alexandra J Mayhew](#)², [Nazmul Sohel](#)², [Om Kurmi](#)³, [Kieran J Killian](#)⁴, [Paul M O'Byrne](#)⁵, [Parminder Raina](#)⁶

Affiliations expand

- PMID: 38354487
- DOI: [10.1016/j.rmed.2024.107556](https://doi.org/10.1016/j.rmed.2024.107556)

No abstract available

Erratum for

- [Burden of chronic cough on social participation, healthcare resource utilisation and activities of daily living in the Canadian Longitudinal Study on Aging \(CLSA\)](#). Satia I, Mayhew AJ, Sohel N, Kurmi O, Killian KJ, O'Byrne PM, Raina P. *Respir Med*. 2023 Nov-Dec;219:107431. doi: 10.1016/j.rmed.2023.107431. Epub 2023 Oct 24. PMID: 37879447

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Publication types expand

FULL TEXT LINKS



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Eur J Med Res

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. 2024 Feb 13;29(1):120.

doi: 10.1186/s40001-024-01701-1.

[Bronchiectasis in renal transplant patients: a cross-sectional study](#)

[Pauline Mulette](#)¹, [Jeanne-Marie Perotin](#)^{2,3}, [Anaëlle Muggeo](#)^{3,4}, [Thomas Guillard](#)^{3,4}, [Audrey Brisebarre](#)³, [Hélène Meyer](#)⁵, [Jean Hagenburg](#)², [Julien Ancel](#)², [Valérian Dormoy](#)³, [Vincent Vuiblet](#)⁶, [Claire Launois](#)^{2,3}, [François Lebargy](#)², [Gaëtan Deslee](#)^{2,3}, [Sandra Dury](#)^{2,7}

Affiliations expand

- PMID: 38350996
- PMCID: [PMC10863148](#)
- DOI: [10.1186/s40001-024-01701-1](#)

Free PMC article

Abstract

Background: Bronchiectasis is a chronic airway disease characterized by permanent and irreversible abnormal dilatation of bronchi. Several studies have reported the development of bronchiectasis after renal transplantation (RT), but no prospective study specifically assessed bronchiectasis in this population. This study aimed to compare features of patients with bronchiectasis associated with RT to those with idiopathic bronchiectasis.

Methods: Nineteen patients with bronchiectasis associated with RT (RT-B group) and 23 patients with idiopathic bronchiectasis (IB group) were prospectively included in this monocentric cross-sectional study. All patients underwent clinical, functional, laboratory, and CT scan assessments. Sputum was collected from 25 patients (n = 11 with RT-B and n = 14 with IB) and airway microbiota was analyzed using an extended microbiological culture.

Results: Dyspnea (≥ 2 on mMRC scale), number of exacerbations, pulmonary function tests, total bronchiectasis score, severity and prognosis scores (FACED and E-FACED), and quality of life scores (SGRQ and MOS SF-36) were similar in the RT-B and IB groups. By contrast, chronic cough was less frequent in the RT-B group than in the IB group (68% vs. 96%, $p = 0.03$). The prevalence and diversity of the airway microbiota in sputum were similar in the two groups.

Conclusion: Clinical, functional, thoracic CT scan, and microbiological characteristics of bronchiectasis are overall similar in patients with IB and RT-B. These results highlight that in RT patients, chronic respiratory symptoms and/or airway infections should lead to consider the diagnosis of bronchiectasis. Further studies are required to better characterize the pathophysiology of RT-B including airway microbiota, its incidence, and impact on therapeutic management.

Keywords: Bronchiectasis; CT scan; Extended culture; Quality of life; Renal transplantation.

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Conflict of interest statement

All authors declare that they have no competing interests.

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

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JAMA

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. 2024 Feb 13;331(6):529.

doi: 10.1001/jama.2023.26032.

Gefapixant for Chronic Cough

[Richard D Turner](#)¹, [Jaclyn A Smith](#)², [Surinder S Biring](#)³

Affiliations expand

- PMID: 38349378
- DOI: [10.1001/jama.2023.26032](https://doi.org/10.1001/jama.2023.26032)

No abstract available

SUPPLEMENTARY INFO

MeSH terms, Substances expand

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JAMA

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. 2024 Feb 13;331(6):530.

doi: 10.1001/jama.2023.26029.

Gefapixant for Chronic Cough-Reply

[Elena Kum](#)¹, [Gordon H Guyatt](#)¹, [Imran Satia](#)²

Affiliations expand

- PMID: 38349375
- DOI: [10.1001/jama.2023.26029](https://doi.org/10.1001/jama.2023.26029)

No abstract available

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Publication types, MeSH terms, Substances expand

FULL TEXT LINKS



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[Review](#)

Respir Med

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. 2024 Feb 11:224:107553.

doi: 10.1016/j.rmed.2024.107553. Online ahead of print.

Beyond breathing: Systematic review of global chronic obstructive pulmonary disease guidelines for pain management

[Kaelee Brockway](#)¹, [Shakeel Ahmed](#)²

Affiliations expand

- PMID: 38350512
- DOI: [10.1016/j.rmed.2024.107553](https://doi.org/10.1016/j.rmed.2024.107553)

Abstract

Context: Patients with chronic obstructive pulmonary disease (COPD) experience pain as both symptom and comorbidity. There has been no evaluation of the recommendations for pain management in updated clinical practice guidelines (CPGs).

Objectives: Update the evidence on pain management, determine alignment of pain management recommendations with best-practice, and advocate for optimal pain management in patients with COPD.

Methods: PubMed, Guideline International Network, Guideline Portal, Agency for Healthcare Research and Quality, National Institute for Healthcare Excellence, Scottish International Guidelines Network, Institute of Medicine, grey literature, national websites, and bibliographies were searched. CPGs available online for stable COPD produced by organizations representing reputable knowledge of COPD management were included. CPGs unavailable online, not translatable into English, or not including techniques within the defined scope were excluded. Researchers performed frequency counts for the verbatim terms "pain," "physical activity," "exercise," "rehabilitation," "physical therap(ist)/(y)," "physiotherap(ist)/(y)," recorded context, and collected recommendations for pain management/treatment when present.

Results: Of 32 CPGs, 24 included "pain" verbatim. Of these, 13 included recommendations for pain treatment/management. Common recommendations included opioids, pharmacological management, further medical assessment, and surgical intervention. Two CPGs referred to palliative care, one CPG discussed treating cough, and one discussed massage, relaxation, and breathing.

Conclusions: Pain management recommendations vary and are not aligned with evidence. Pain should be addressed in patients with COPD, whether directly or indirectly related to the disease. Reduction of variability in pain management and the disease burden is necessary. Pain management should include referrals to providers who can maximize benefit of their services.

Keywords: Chronic disease; Chronic obstructive pulmonary disease; Pain management; Systematic review.

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Conflict of interest statement

Declaration of competing interest There is no conflict of interest.

SUPPLEMENTARY INFO

Publication types [expand](#)

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

1

Editorial

Am J Respir Crit Care Med

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. 2024 Feb 15;209(4):347-349.

doi: 10.1164/rccm.202312-2275ED.

[Small Airways in Non-Cystic Fibrosis Bronchiectasis](#)

[John D Dickinson](#)¹, [Christopher M Evans](#)², [Burton F Dickey](#)³

Affiliations expand

- PMID: 38190706
- DOI: [10.1164/rccm.202312-2275ED](https://doi.org/10.1164/rccm.202312-2275ED)

No abstract available

Comment on

- [Proximal and Distal Bronchioles Contribute to the Pathogenesis of Non-Cystic Fibrosis Bronchiectasis.](#)
Asakura T, Okuda K, Chen G, Dang H, Kato T, Mikami Y, Schworer SA, Gilmore RC, Radicioni G, Hawkins P, Barbosa Cardenas SM, Saito M, Cawley AM, De la Cruz G, Chua M, Alexis NE, Masugi Y, Noone PG, Ribeiro CMP, Kesimer M, Olivier KN, Hasegawa N, Randell SH, O'Neal WK, Boucher RC. *Am J Respir Crit Care Med.* 2024 Feb 15;209(4):374-389. doi: [10.1164/rccm.202306-1093OC](https://doi.org/10.1164/rccm.202306-1093OC). PMID: 38016030

SUPPLEMENTARY INFO

Publication types, MeSH terms, Grants and funding expand

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Am J Respir Crit Care Med

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. 2024 Feb 15;209(4):374-389.

doi: [10.1164/rccm.202306-1093OC](https://doi.org/10.1164/rccm.202306-1093OC).

Proximal and Distal Bronchioles Contribute to the Pathogenesis of Non-Cystic Fibrosis Bronchiectasis

[Takanori Asakura](#)^{1,2,3,4}, [Kenichi Okuda](#)¹, [Gang Chen](#)¹, [Hong Dang](#)¹, [Takafumi Kato](#)¹, [Yu Mikami](#)¹, [Stephen A Schworer](#)¹, [Rodney C Gilmore](#)¹, [Giorgia Radicioni](#)¹, [Padraig Hawkins](#)¹, [Selene Margarita Barbosa Cardenas](#)¹, [Minako Saito](#)¹, [Anne Marie Cawley](#)¹, [Gabriela De la Cruz](#)⁵, [Michael Chua](#)¹, [Neil E Alexis](#)⁶, [Yohei Masugi](#)⁷, [Peadar G Noone](#)¹, [Carla M P Ribeiro](#)¹, [Mehmet Kesimer](#)¹, [Kenneth N Olivier](#)^{1,8}, [Naoki Hasegawa](#)⁹, [Scott H Randell](#)¹, [Wanda K O'Neal](#)¹, [Richard C Boucher](#)¹

Affiliations expand

- PMID: 38016030
- DOI: [10.1164/rccm.202306-1093OC](https://doi.org/10.1164/rccm.202306-1093OC)

Abstract

Rationale: Non-cystic fibrosis bronchiectasis (NCFB) may originate in bronchiolar regions of the lung. Accordingly, there is a need to characterize the morphology and molecular characteristics of NCFB bronchioles. **Objectives:** Test the hypothesis that NCFB exhibits a major component of bronchiolar disease manifest by mucus plugging and ectasia. **Methods:** Morphologic criteria and region-specific epithelial gene expression, measured histologically and by RNA *in situ* hybridization and immunohistochemistry, identified proximal and distal bronchioles in excised NCFB lungs. RNA *in situ* hybridization and immunohistochemistry assessed bronchiolar mucus accumulation and mucin gene expression. CRISPR-Cas9-mediated IL-1R1 knockout in human bronchial epithelial cultures tested IL-1 α and IL-1 β contributions to mucin production. Spatial transcriptional profiling characterized NCFB distal bronchiolar gene expression. **Measurements and Main Results:** Bronchiolar perimeters and lumen areas per section area were increased in proximal, but not distal, bronchioles in NCFB versus control lungs, suggesting proximal bronchiolectasis. In NCFB, mucus plugging was observed in ectatic proximal bronchioles and associated nonectatic distal bronchioles in sections with disease. MUC5AC and MUC5B mucins were upregulated in NCFB proximal bronchioles, whereas MUC5B was selectively upregulated in distal bronchioles. Bronchiolar mucus plugs were populated by IL-1 β -expressing macrophages. NCFB sterile sputum supernatants induced human bronchial epithelial MUC5B and MUC5AC expression that was >80% blocked by IL-1R1 ablation. Spatial transcriptional profiling identified upregulation of genes associated with secretory cells, hypoxia, interleukin pathways, and IL-1 β -producing macrophages in mucus plugs and downregulation of epithelial ciliogenesis genes. **Conclusions:** NCFB exhibits distinctive

proximal and distal bronchiolar disease. Both bronchiolar regions exhibit bronchiolar secretory cell features and mucus plugging but differ in mucin gene regulation and ectasia.

Keywords: alveolar type cells; mucus; nontuberculous mycobacteria; secretoglobin family 3A member 2; surfactant protein B.

Comment in

- [Small Airways in Non-Cystic Fibrosis Bronchiectasis.](#)
Dickinson JD, Evans CM, Dickey BF. *Am J Respir Crit Care Med.* 2024 Feb 15;209(4):347-349. doi: 10.1164/rccm.202312-2275ED. PMID: 38190706 No abstract available.

SUPPLEMENTARY INFO

MeSH terms, Substances, Grants and funding [expand](#)

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Sci Data

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. 2024 Feb 14;11(1):203.

doi: 10.1038/s41597-024-03052-2.

[A Clinical Breathomics Dataset](#)

[Ping-Hung Kuo](#)¹, [Yue-Chen Jhong](#)², [Tien-Chueh Kuo](#)^{2,3}, [Yu-Ting Hsu](#)², [Ching-Hua Kuo](#)^{3,4,5}, [Yufeng Jane Tseng](#)^{6,7}

Affiliations [expand](#)

- PMID: 38355591

- PMID: [PMC10866892](#)
- DOI: [10.1038/s41597-024-03052-2](#)

Free PMC article

Abstract

This study entailed a comprehensive GC–MS analysis conducted on 121 patient samples to generate a clinical breathomics dataset. Breath molecules, indicative of diverse conditions such as psychological and pathological states and the microbiome, were of particular interest due to their non-invasive nature. The highlighted noninvasive approach for detecting these breath molecules significantly enhances diagnostic and monitoring capacities. This dataset cataloged volatile organic compounds (VOCs) from the breath of individuals with asthma, bronchiectasis, and chronic obstructive pulmonary disease. Uniform and consistent sample collection protocols were strictly adhered to during the accumulation of this extensive dataset, ensuring its reliability. It encapsulates extensive human clinical breath molecule data pertinent to three specific diseases. This consequential clinical breathomics dataset is a crucial resource for researchers and clinicians in identifying and exploring important compounds within the patient's breath, thereby augmenting future diagnostic and therapeutic initiatives.

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Conflict of interest statement

The authors declare no competing interests.

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

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MeSH terms, Substances, Grants and funding [expand](#)

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Am J Respir Crit Care Med

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. 2024 Feb 14.

doi: 10.1164/rccm.202311-2199LE. Online ahead of print.

[Reply to: Hierarchical CT Scoring Systems Cannot Discriminate Between Reversible Bronchiectasis and Mucus Plugs](#)

[Paul McNally](#)^{1,2}, [Jane Davies](#)^{3,4}, [Pierluigi Ciet](#)^{5,6}, [Harm Tiddens](#)^{7,8}

Affiliations expand

- PMID: 38354409
- DOI: [10.1164/rccm.202311-2199LE](https://doi.org/10.1164/rccm.202311-2199LE)

No abstract available

Keywords: computerised tomography; cystic fibrosis; elexacaftor/tezacaftor/ivacaftor.

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Am J Respir Crit Care Med



. 2024 Feb 14.

doi: 10.1164/rccm.202311-2124LE. Online ahead of print.

Hierarchical CT Scoring Systems Cannot Discriminate Between Reversible Bronchiectasis and Mucus Plugs

[Gaël Dournes](#)¹, [Ilyes Benlala](#)²

Affiliations expand

- PMID: 38354402
- DOI: [10.1164/rccm.202311-2124LE](https://doi.org/10.1164/rccm.202311-2124LE)

No abstract available

Keywords: CT; Cystic fibrosis; Lung.

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Eur J Med Res



. 2024 Feb 13;29(1):120.

doi: 10.1186/s40001-024-01701-1.

Bronchiectasis in renal transplant patients: a cross-sectional study

[Pauline Mulette](#)¹, [Jeanne-Marie Perotin](#)^{2,3}, [Anaëlle Muggeo](#)^{3,4}, [Thomas Guillard](#)^{3,4}, [Audrey Brisebarre](#)³, [Hélène Meyer](#)⁵, [Jean Hagenburg](#)², [Julien Ancel](#)², [Valérian Dormoy](#)³, [Vincent Vuiblet](#)⁶, [Claire Launois](#)^{2,3}, [François Lebargy](#)², [Gaëtan Deslee](#)^{2,3}, [Sandra Dury](#)^{2,7}

Affiliations expand

- PMID: 38350996
- PMCID: [PMC10863148](#)
- DOI: [10.1186/s40001-024-01701-1](#)

Free PMC article

Abstract

Background: Bronchiectasis is a chronic airway disease characterized by permanent and irreversible abnormal dilatation of bronchi. Several studies have reported the development of bronchiectasis after renal transplantation (RT), but no prospective study specifically assessed bronchiectasis in this population. This study aimed to compare features of patients with bronchiectasis associated with RT to those with idiopathic bronchiectasis.

Methods: Nineteen patients with bronchiectasis associated with RT (RT-B group) and 23 patients with idiopathic bronchiectasis (IB group) were prospectively included in this monocentric cross-sectional study. All patients underwent clinical, functional, laboratory, and CT scan assessments. Sputum was collected from 25 patients (n = 11 with RT-B and n = 14 with IB) and airway microbiota was analyzed using an extended microbiological culture.

Results: Dyspnea (≥ 2 on mMRC scale), number of exacerbations, pulmonary function tests, total bronchiectasis score, severity and prognosis scores (FACED and E-FACED), and quality of life scores (SGRQ and MOS SF-36) were similar in the RT-B and IB groups. By contrast, chronic cough was less frequent in the RT-B group than in the IB group (68% vs.

96%, $p = 0.03$). The prevalence and diversity of the airway microbiota in sputum were similar in the two groups.

Conclusion: Clinical, functional, thoracic CT scan, and microbiological characteristics of bronchiectasis are overall similar in patients with IB and RT-B. These results highlight that in RT patients, chronic respiratory symptoms and/or airway infections should lead to consider the diagnosis of bronchiectasis. Further studies are required to better characterize the pathophysiology of RT-B including airway microbiota, its incidence, and impact on therapeutic management.

Keywords: Bronchiectasis; CT scan; Extended culture; Quality of life; Renal transplantation.

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Conflict of interest statement

All authors declare that they have no competing interests.

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MeSH termsexpand

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Ann Clin Microbiol Antimicrob

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. 2024 Feb 13;23(1):15.

doi: 10.1186/s12941-024-00675-6.

Epidemiology and outcomes of multidrug-resistant bacterial infection in non-cystic fibrosis bronchiectasis

[Chih-Hao Chang](#)^{1,2,3}, [Chiung-Hsin Chang](#)^{2,3}, [Shih-Hao Huang](#)^{1,2,3}, [Chung-Shu Lee](#)^{1,2,3}, [Po-Chuan Ko](#)⁴, [Chun-Yu Lin](#)^{2,3}, [Meng-Heng Hsieh](#)^{2,3}, [Yu-Tung Huang](#)⁴, [Horng-Chyuan Lin](#)^{2,3}, [Li-Fu Li](#)^{2,3,5}, [Fu-Tsai Chung](#)^{1,2,3}, [Chun-Hua Wang](#)^{2,3}, [Hung-Yu Huang](#)^{6,7,8}

Affiliations expand

- PMID: 38350983
- PMCID: [PMC10865664](#)
- DOI: [10.1186/s12941-024-00675-6](#)

Free PMC article

Abstract

Purpose: Multidrug-resistant (MDR) bacteria impose a considerable health-care burden and are associated with bronchiectasis exacerbation. This study investigated the clinical outcomes of adult patients with bronchiectasis following MDR bacterial infection.

Methods: From the Chang Gung Research Database, we identified patients with bronchiectasis and MDR bacterial infection from 2008 to 2017. The control group comprised patients with bronchiectasis who did not have MDR bacterial infection and were propensity-score matched at a 1:2 ratio. The main outcomes were in-hospital and 3-year mortality.

Results: In total, 554 patients with both bronchiectasis and MDR bacterial infection were identified. The types of MDR bacteria that most commonly affected the patients were MDR- *Acinetobacter baumannii* (38.6%) and methicillin-resistant *Staphylococcus aureus* (18.4%), Extended-spectrum-beta-lactamases (ESBL)- *Klebsiella pneumoniae* (17.8%), MDR- *Pseudomonas* (14.8%), and ESBL-*E. coli* (7.5%). Compared with the control group, the MDR group exhibited lower body mass index scores, higher rate of chronic bacterial colonization, a higher rate of previous exacerbations, and an increased use of antibiotics. Furthermore, the MDR group exhibited a higher rate of respiratory failure during hospitalization (MDR vs. control, 41.3% vs. 12.4%; $p < 0.001$). The MDR and control groups exhibited in-hospital mortality rates of 26.7% and 7.6%, respectively ($p < 0.001$); 3-year

respiratory failure rates of 33.5% and 13.5%, respectively ($p < 0.001$); and 3-year mortality rates of 73.3% and 41.5%, respectively ($p < 0.001$). After adjustments were made for confounding factors, the infection with MDR and MDR bacteria species were determined to be independent risk factors affecting in-hospital and 3-year mortality.

Conclusions: MDR bacteria were discovered in patients with more severe bronchiectasis and were independently associated with an increased risk of in-hospital and 3-year mortality. Given our findings, we recommend that clinicians identify patients at risk of MDR bacterial infection and follow the principle of antimicrobial stewardship to prevent the emergence of resistant bacteria among patients with bronchiectasis.

Keywords: Bronchiectasis; Mortality; Multidrug-resistant bacteria; Respiratory failure.

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Conflict of interest statement

The authors declare no competing interests.

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

SUPPLEMENTARY INFO

MeSH terms, Substances, Grants and funding [expand](#)

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[Published Erratum](#)

BMC Pulm Med

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. 2024 Feb 13;24(1):81.

doi: 10.1186/s12890-024-02881-6.

Correction: Understanding the effects of Haemophilus influenzae colonization on bronchiectasis: a retrospective cohort study

[Seo-Hee Yang](#)^{1,2,3}, [Myung Jin Song](#)^{1,2}, [Yeon Wook Kim](#)^{1,2}, [Byoung Soo Kwon](#)^{1,2}, [Sung Yoon Lim](#)^{1,2}, [Yeon-Joo Lee](#)^{1,2}, [Jong Sun Park](#)^{1,2}, [Young-Jae Cho](#)^{1,2}, [Jae Ho Lee](#)^{1,2}, [Choon-Taek Lee](#)^{1,2}, [Hyung-Jun Kim](#)^{4,5}

Affiliations expand

- PMID: 38350927
- PMCID: [PMC10865670](#)
- DOI: [10.1186/s12890-024-02881-6](#)

Free PMC article

No abstract available

Erratum for

- [Understanding the effects of Haemophilus influenzae colonization on bronchiectasis: a retrospective cohort study.](#)
Yang SH, Song MJ, Kim YW, Kwon BS, Lim SY, Lee YJ, Park JS, Cho YJ, Lee JH, Lee CT, Kim HJ. BMC Pulm Med. 2024 Jan 2;24(1):7. doi: 10.1186/s12890-023-02823-8. PMID: 38166950 **Free PMC article.**

SUPPLEMENTARY INFO

Publication types expand

FULL TEXT LINKS



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BMC Pulm Med



. 2024 Feb 13;24(1):80.

doi: [10.1186/s12890-024-02888-z](https://doi.org/10.1186/s12890-024-02888-z).

[High-sensitivity C-reactive protein level in stable-state bronchiectasis predicts exacerbation risk](#)

[Wang Chun Kwok](#)¹, [Kay Cheong Teo](#)¹, [Kui Kai Lau](#)¹, [James Chung-Man Ho](#)²

Affiliations [expand](#)

- PMID: 38350918
- PMCID: [PMC10863114](#)
- DOI: [10.1186/s12890-024-02888-z](https://doi.org/10.1186/s12890-024-02888-z)

Abstract

Background: Elevation of systemic inflammatory markers were found to correlate with increased disease extent, reduced lung function and higher risk of future severe exacerbations in patients with bronchiectasis. Although a significant correlation of circulating hs-CRP levels with HRCT scores and resting oxygen saturation in patients with stable-state non-cystic fibrosis (CF) bronchiectasis was suggested, there is little data on the

relationship between hs-CRP and the prognosis of bronchiectasis and a lack of data on the role of hs-CRP in predicting bronchiectasis exacerbation.

Methods: A prospective study was conducted on Chinese patients with non- CF bronchiectasis from 1st October to 31st December 2021. Baseline serum hs-CRP were obtained at stable-state. The follow-up period lasted for one year. Co-primary endpoints were the development of any bronchiectasis exacerbation and hospitalized bronchiectasis exacerbation.

Results: Totally 123 patients were included. Higher hs-CRP was associated with increased risk to develop any bronchiectasis exacerbation, adjusted odds ratio (aOR) of 2.254 (95% CI = 1.040-4.885, $p = 0.039$), and borderline significantly increased hospitalized bronchiectasis exacerbation with aOR of 1.985 (95% CI = 0.922-4.277, $p = 0.080$).

Conclusion: Baseline serum hs-CRP level at stable-state can predict risk of bronchiectasis exacerbation, which is reflecting chronic low-grade inflammation in bronchiectasis.

Keywords: Bronchiectasis; Bronchiectasis exacerbation; CRP; Phenotype; hs-CRP.

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Conflict of interest statement

The authors declare no competing interests.

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Curr Opin Pulm Med



. 2024 Feb 13.

doi: 10.1097/MCP.0000000000001050. Online ahead of print.

Bacteriophages for bronchiectasis: treatment of the future?

[Catherine Dominic](#)^{1,2}, [Hannah V Pye](#)³, [Eleanor K Mishra](#)^{1,2}, [Evelien M Adriaenssens](#)³

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- PMID: 38345396
- DOI: [10.1097/MCP.0000000000001050](https://doi.org/10.1097/MCP.0000000000001050)

Abstract

Purpose of review: Bronchiectasis is a chronic respiratory disease characterized by dilated airways, persistent sputum production and recurrent infective exacerbations. The microbiology of bronchiectasis includes various potentially pathogenic microorganisms including *Pseudomonas aeruginosa* which is commonly cultured from patients' sputum. *P. aeruginosa* is difficult to eradicate and frequently exhibits antimicrobial resistance. Bacteriophage therapy offers a novel and alternative method to treating bronchiectasis and can be used in conjunction with antibiotics to improve patient outcome.

Recent findings: Thirteen case reports/series to date have successfully used phages to treat infections in bronchiectasis patients, however these studies were constrained to few patients (n = 32) and utilized personalized phage preparations and adjunct antibiotics. In these studies, phage therapy was delivered by inhalation, intravenously or orally and was well tolerated in most patients without any unfavourable effects. Favourable clinical or microbiological outcomes were seen following phage therapy in many patients. Longitudinal patient follow-up reported regrowth of bacteria and phage neutralization in some studies. There are five randomized clinical controlled trials ongoing aiming to use phage therapy to treat *P. aeruginosa* associated respiratory conditions, with limited results available to date.

Summary: More research, particularly robust clinical trials, into how phages can clear respiratory infections, interact with resident microbiota, and how bacteria might develop resistance will be important to establish to ensure the success of this promising therapeutic alternative.

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Eur Radiol

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doi: 10.1007/s00330-024-10610-0. Online ahead of print.

[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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- [45 references](#)

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Review

Zhonghua Jie He He Hu Xi Za Zhi

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. 2024 Feb 12;47(2):152-156.

doi: 10.3760/cmaj.cn112147-20231122-00328.

[\[Annual review of bronchiectasis research in 2023\]](#)

[Article in Chinese]

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Affiliations expand

- PMID: 38309966
- DOI: [10.3760/cmaj.cn112147-20231122-00328](https://doi.org/10.3760/cmaj.cn112147-20231122-00328)

Abstract

in [English](#), [Chinese](#)

This review focuses on the latest advances in bronchiectasis from October 1st, 2022 to September 30th, 2023, including the etiology, diagnosis, treatment, comorbidities, and management of bronchiectasis in order to provide a reference in clinical diagnosis and treatment, and future research of bronchiectasis for domestic peers.

SUPPLEMENTARY INFO

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