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COPD

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Respir Med Res

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. 2022 Oct 17;82:100968.

doi: 10.1016/j.resmer.2022.100968. Online ahead of print.

Effects of long-acting bronchodilators on cardiac autonomic control in COPD

[Sarah Elhage](#)¹, [Lucie Laurent](#)¹, [Kadiatou Diallo](#)², [Malika Bouhaddi](#)¹, [Ophélie Ritter](#)¹, [Anne-Laure Clairet](#)³, [Marc Puyraveau](#)², [Thibaud Soumagne](#)⁴, [Bruno Degano](#)⁵

Affiliations expand

- PMID: 36272353
- DOI: [10.1016/j.resmer.2022.100968](https://doi.org/10.1016/j.resmer.2022.100968)

Abstract

Introduction: Several studies in COPD have shown a significant and early increase in the risk of cardiovascular mortality attributable to inhaled bronchodilators including long acting β_2 agonists (LABAs) and muscarinic antagonists (LAMAs). Cardiac autonomic system impairment may be a potential mechanism involved.

Methods: We performed a phase 4, investigator-initiated, prospective, randomized, blinded, cross-over trial (LAB-Card trial - [NCT02872090](#)) to evaluate the effect of two LAMAs and one LABA on the cardiac autonomic system in patients with COPD by using three major assessment approaches: heart rate variability (HRV, a predictor of cardiovascular death), baroreflex sensitivity (BRS) and autonomic function (tilt test).

Results: 34 patients attended four visits to receive either tiotropium 18µg, glycopyrronium 44µg, indacaterol 150 µg or placebo (lactose) in a randomized order followed by the assessment of HRV and BRS in supine position and after passive rising. Neither LAMAs (tiotropium or glycopyrronium) nor LABA (indacaterol) induced a higher LF/HF ratio (reflect of sympathetic/parasympathetic balance) measured in supine position at rest compared to placebo (primary outcome). Solely indacaterol induced an increase in heart rate compared to placebo. No significant differences were observed for HRV and BRS between active drugs and placebo in supine position or after passive rising.

Conclusion: We did not found evidence of a deleterious effect of 2 LAMAs and one LABA on the autonomic cardiovascular control in COPD patients. Further investigations are needed to explore mechanisms by which long-acting bronchodilators may increase cardiovascular events in COPD.

Keywords: Cardiac autonomic control; Chronic obstructive pulmonary disease; Long-acting bronchodilators.

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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](#)

Heart Lung

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. 2022 Oct 19;57:236-242.

doi: 10.1016/j.hrtlng.2022.09.021. Online ahead of print.

Effects of Kinesio Taping® on pulmonary function of individuals with COPD: A systematic review and meta-analysis

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Affiliations expand

- PMID: 36272221
- DOI: [10.1016/j.hrtlng.2022.09.021](https://doi.org/10.1016/j.hrtlng.2022.09.021)

Abstract

Background: Currently, there is no consensus regarding indication and benefits of Kinesio Taping® on pulmonary function of individuals with chronic obstructive pulmonary disease (COPD).

Objectives: To identify the effects of Kinesio Taping® on pulmonary function of individuals with COPD through a systematic review and meta-analysis.

Methods: Systematic review including experimental or quasi-experimental studies in English, Portuguese, or Spanish. Searches were conducted on LILACS, Scielo, Medline, Web of Science, and Scopus databases. Two reviewers independently conducted study selection, data extraction, and analysis. Methodological quality was assessed using PEDro scale, while meta-analyses were conducted using RevMan software. This review was registered (PROSPERO CRD42020223752).

Results: Five studies were included. Forced expiratory volume in the first second (FEV₁), forced vital capacity (FVC), FEV₁/FVC ratio, and peak expiratory flow were not different between Kinesio Taping® group and control group.

Conclusion: Results suggest that Kinesio Taping® does not improve pulmonary function of individuals with COPD.

Keywords: Athletic tape; Chronic obstructive; Pulmonary disease; Respiratory function tests; Respiratory muscles; Spirometry.

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Conflict of interest statement

Declaration of Competing Interest None.

SUPPLEMENTARY INFO

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BMJ Open

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. 2022 Oct 21;12(10):e060247.

doi: 10.1136/bmjopen-2021-060247.

[Community determinants of COPD exacerbations in elderly patients in Lodz province, Poland: a retrospective observational Big Data cohort study](#)

[Anna Kowalczyk](#)¹, [Katarzyna Kosiek](#)², [Maciek Godycki-Cwirko](#)¹, [Izabela Zakowska](#)³

Affiliations expand

- PMID: 36270759
- DOI: [10.1136/bmjopen-2021-060247](https://doi.org/10.1136/bmjopen-2021-060247)

Abstract

Objectives: To evaluate the prevalence and identify demographic, economic and environmental local community determinants of chronic obstructive pulmonary disease (COPD) exacerbations in elderly in primary care using Big Data approach.

Design: Retrospective observational case-control study based on Big Data from the National Health Found, Tax Office and National Statistics Center databases in 2016.

Setting: Primary care clinics in the Lodz province in Poland.

Participants: 472 314 patients aged 65 and older in primary care, including 17 240 patients with COPD and 1784 with exacerbations (including deaths).

Outcome measures: Exacerbations with demographic, economic and environmental local community determinants were retrieved. Conditional logistic regression for matched pairs was used to evaluate the local community determinants of COPD exacerbations among patients with COPD.

Results: The overall prevalence of COPD in the population of elderly patients registered in primary healthcare clinic clinics in Lodz province in 2016 was 3.65%, 95% CI (3.60% to 3.70%) and the prevalence of exacerbations was 10.35%, 95% CI (9.89% to 10.80%). The high number of consultations in primary care clinics was associated with higher risk of COPD exacerbations ($p=0.0687$). High-income patients were less likely to have exacerbations than low-income patients (high vs low OR 0.601, 95% CI (0.385 to 0.939)). The specialisation of the primary care physician did not have an effect on exacerbations (OR 1.076, 95% CI (0.920 to 1.257)). Neither the forest cover per gmina (high vs low OR 0.897, 95% CI (0.605 to 1.331); medium vs low OR 0.925, 95% CI (0.648 to 1.322)), nor location of gmina (urban vs urban-rural OR 1.044; 95% CI (0.673 to 1.620)), (rural vs urban-rural OR 0.897, 95% CI (0.630 to 1.277)) appears to influence COPD exacerbations.

Conclusions: Big Data statistical analysis facilitated the evaluation of the prevalence and determinants of COPD exacerbation in the elderly residents of Lodz province, Poland. Modification of identified local community determinants may potentially decrease the number of exacerbations in elderly patients with COPD.

Keywords: PRIMARY CARE; PUBLIC HEALTH; Respiratory infections.

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Conflict of interest statement

Competing interests: None declared.

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Respirology



. 2022 Oct 21.

doi: 10.1111/resp.14394. Online ahead of print.

Promotion of physical activity after hospitalization for COPD exacerbation: A randomized control trial

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Affiliations expand

- PMID: 36270673
- DOI: [10.1111/resp.14394](https://doi.org/10.1111/resp.14394)

Abstract

Background and objective: Physical activity worsens during exacerbations of chronic obstructive pulmonary disease (COPD) and notably after hospitalizations. Pedometer-based interventions are useful to increase physical activity in stable patients with COPD. However, there is little information concerning the implementation of such programs following severe exacerbation. This study assessed the efficacy of a physical activity program after hospitalization for a COPD exacerbation.

Methods: We performed a prospective, 12-week, parallel group, assessor-blinded, randomized control trial in COPD patients hospitalized for an exacerbation. After discharge, physical activity and other secondary variables were assessed. Patients were allocated (1:1) to a physical activity promotion program (intervention group, IG) or usual care (control group, CG). Based on a motivational interview and accelerometer physical activity assessment, a patient-tailored, pedometer-based, progressive and target-driven

program was designed. Linear mixed effect models were used to analyse between-group differences.

Results: Forty-six out of 61 patients recruited were randomized and 43 (IG = 20, CG = 23) completed the study. In-hospital and baseline characteristics were similar in both groups. After 12 weeks of intervention, the mean steps difference between groups was 2093 steps/day, $p = 0.018$, 95% CI 376-4012, favouring the IG. Only the IG significantly increased the number of steps/day compared to baseline (mean difference [95% CI] 2932 [1069-4795] steps; $p = 0.004$). There were no other between-group differences.

Conclusion: After hospitalization for a COPD exacerbation, a patient-tailored physical activity program based on a motivational interview and the use of pedometers, with progressive and customized targets, improved the number of steps/day.

Keywords: COPD exacerbation; clinical trial; hospitalization; pedometer; physical activity; sedentary behaviour.

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- [44 references](#)

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ERJ Open Res

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. 2022 Oct 17;8(4):00080-2022.

doi: 10.1183/23120541.00080-2022. eCollection 2022 Oct.

Clinical application of oscillometry in respiratory diseases: an impulse oscillometry registry

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Affiliations expand

- PMID: 36267898
- PMCID: [PMC9574560](#)
- DOI: [10.1183/23120541.00080-2022](#)

Abstract

Background: Respiratory oscillometry is a promising complement to the traditional pulmonary function tests for its simplicity. The usefulness of oscillometry in adult clinical practice has not been clarified. This study aimed to analyse the characteristics and diagnostic performance of oscillometry in respiratory diseases, and explore the cut-offs of oscillometric parameters for severity grading.

Methods: In this multicentre registry of impulse oscillometry (IOS), IOS and spirometric data of healthy individuals and patients with respiratory diseases were collected and analysed. Linear mixed model analysis was performed to explore the effects of disease and forced expiratory volume in 1 s (FEV₁) on oscillometric parameters.

Results: The study included 567 healthy subjects, 781 asthmatic patients, 688 patients with chronic obstructive pulmonary disease (COPD), 109 patients with bronchiectasis, 40 patients with upper airway obstruction (UAO) and 274 patients with interstitial lung disease (ILD) in the analysis. Compared at the same FEV₁ level, asthma, COPD, bronchiectasis, UAO and ILD displayed different oscillometric characteristics. The z-score of resistance at 5 Hz (R_5) was the best variable to identify respiratory diseases with a sensitivity of 62.4-66.7% and a specificity of 81.5-90.3%. With reference to the severity grading cut-offs of FEV₁, R_5 z-scores of 2.5 and 4 were defined as the cut-off values of moderately and severely increased R_5 .

Conclusion: Respiratory oscillometry is more appropriate to be a tool of evaluating, rather than of diagnosing, respiratory diseases. A severity grading system of oscillometric parameters was developed to help the interpretation of oscillometry in clinical practice.

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Conflict of interest statement

Conflict of interest: The authors declare that they have no conflicts of interest.

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

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Am J Hosp Palliat Care

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. 2022 Oct 20;10499091221134777.

doi: 10.1177/10499091221134777. Online ahead of print.

Knowledge and Attitudes of Allied Health Professionals Towards End-Of-Life and Advance Care Planning Discussions With People With COPD: A Cross-Sectional Survey Study

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Affiliations expand

- PMID: 36266239

- DOI: [10.1177/10499091221134777](https://doi.org/10.1177/10499091221134777)

Abstract

Chronic obstructive pulmonary disease (COPD) is a progressive, life-limiting condition. End-of-life (EOL) and Advance Care Planning (ACP) discussions are essential, yet access and support remain inadequate. Allied health professionals (AHPs) commonly have ongoing relationships with patients and opportunities to discuss care outside acute crises as is considered best practice. Australian and New Zealand AHPs were invited to complete an anonymous, online, cross-sectional survey that aimed to explore knowledge, attitudes and practices, and associated perceived triggers and barriers to EOL and ACP discussions with patients with COPD. Closed survey responses were summarized descriptively and free-text thematically analysed. One hundred and one AHPs (physiotherapists, social workers and occupational therapists) participated. Many held positive attitudes towards ACP but lacked procedural knowledge. Half (50%) of participants routinely discussed EOL care with patients when perceiving this to be appropriate but only 21% actually discussed ACP with the majority of their patients. Many cited lack of training to engage in sensitive EOL discussions, with barriers including: 1) clinician lack of confidence/fear of distressing patients (75%); 2) perceived patient and family reluctance (51%); 3) organizational challenges (28%); and 4) lack of role clarity (39%). AHPs commonly have ongoing relationships with patients with chronic conditions but lack the confidence and role clarity to utilise this position to engage ongoing EOL and ACP discussions. While AHPs may not traditionally consider EOL and ACP discussions as part of their role, it is crucial that they feel prepared to respond if patients broach the topic.

Keywords: advance care planning; allied health; chronic obstructive pulmonary disease; end of life; palliative care; survey.

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Eval Health Prof

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. 2022 Oct 20;1632787221134712.

doi: 10.1177/01632787221134712. Online ahead of print.

Validity and Reliability of Caregiver Contribution to Self-Care of Chronic Obstructive Pulmonary Disease Inventory and Caregiver Self-Efficacy in Contributing to Self-Care Scale

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Affiliations expand

- PMID: 36266087
- DOI: [10.1177/01632787221134712](https://doi.org/10.1177/01632787221134712)

Abstract

The study tested the construct validity and reliability of the Caregiver Contribution to Self-Care of Chronic Obstructive Pulmonary Disease (COPD) Inventory and the Caregiver Self-Efficacy in Contributing to Self-Care of COPD Scale. The two instruments were developed by modifying the Self-Care of COPD Inventory and Self-Care Self-Efficacy Scale in COPD into caregiver versions. The psychometric properties were tested in a convenience sample of 261 informal caregivers of COPD patients recruited in Italy in two cross-sectional studies. Structural validity was tested by confirmatory factor analysis, construct validity by posing several hypotheses, and internal consistency through factor score determinacy and global reliability index for multidimensional scales. In confirmatory factor analysis, the caregiver contribution to self-care maintenance, monitoring and management scales, composing the Caregiver Contribution to Self-Care of COPD Inventory, presented good fit indices. Global reliability indices ranged 0.75-0.88. The caregiver self-efficacy scale presented a comparative fit index of 0.96 and a global reliability index of 0.82. The caregiver contribution to self-care and the caregiver self-efficacy scales correlated moderately among themselves and with the patient versions of the scales, and scores were higher with caregiver-oriented dyadic care types and female caregivers. Our study provides evidence of the two instruments' construct validity and internal consistency.

Keywords: caregiver contribution; chronic obstructive pulmonary disease; informal caregiver; psychometric measurement; self-care; self-efficacy.

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Review

Toxicology

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. 2022 Oct 17;153355.

doi: 10.1016/j.tox.2022.153355. Online ahead of print.

[A hypoxia-driven occurrence of chronic kidney disease and osteoporosis in COPD individuals: new insights into environmental cadmium exposure](#)

[Aleksandar Cirovic](#)¹, [Aleksandar Denic](#)², [Bart L Clarke](#)³, [Robert Vassallo](#)⁴, [Ana Cirovic](#)¹, [Greg M Landry](#)⁵

Affiliations expand

- PMID: 36265524
- DOI: [10.1016/j.tox.2022.153355](https://doi.org/10.1016/j.tox.2022.153355)

Abstract

Humans are exposed to cadmium via a variety of anthropogenic and natural pathways. Hypoxia, a key pathophysiological consequence of chronic obstructive pulmonary disease (COPD), as well as anemia, induce expression of many genes, including divalent metal transporter- (DMT-) 1, to induce cell adaptation to decreased pO₂. DMT-1 then becomes increasingly expressed in a majority of organs, specifically the duodenum and the kidney. DMT-1 serves as an iron transporter; however, it can transport other physiologically important elements, including manganese (Mn²⁺) and zinc (Zn²⁺), as well as highly toxic divalent cations such as cadmium (Cd²⁺). Chronic obstructive pulmonary disease (COPD) is

a highly prevalent, non-communicable disease in populations >40 years of age, and is a leading cause of death worldwide. Occurrence of comorbidities accompanying COPD, such as chronic kidney disease (CKD) and osteoporosis increase the mortality rate and costs of treatment. As cadmium has been shown to be significantly osteo- and nephrotoxic, its hazardous effects could deteriorate bone microarchitecture and decrease kidney function positioning it as a likely environmental contributor to comorbidity development. In this review, we highlight the important contribution of hypoxia-induced DMT-1 expression mediating a cadmium (Cd²⁺) overload-induced CKD and osteoporosis axes. Furthermore, individuals who suffer from chronic lung disease with hypoxic respiratory failure, such as severe COPD appear to be significantly more sensitive to cadmium toxicity than healthy individuals.

Keywords: Cadmium; Chronic kidney disease; Chronic obstructive pulmonary disease; Divalent metal transporter 1; Hypoxia; Osteoporosis.

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Conflict of interest statement

Declaration of Competing Interests 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. **Declaration of Interest** The authors declare to have no conflict of interest. The institutions with which the authors are affiliated with are academic institutions. None of the authors have been involved in any legal or regulatory matters related to the contents of the paper. This article was not funded by any project as well.

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J Interprof Care

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. 2022 Oct 20;1-12.

Analysis of shared cognitive tasks in the application of non-invasive ventilation to patients with COPD exacerbation

[Ashley M Hughes](#)^{1,2}, [Karen Riska](#)³, [Mary Jo S Farmer](#)^{4,5}, [Divya Krishnakumar](#)⁶, [Christopher M Shea](#)⁷, [Dean R Hess](#)^{8,9}, [Peter K Lindenauer](#)^{3,4,10}, [Mihaela S Stefan](#)^{3,4}

Affiliations expand

- PMID: 36264072
- DOI: [10.1080/13561820.2022.2118681](https://doi.org/10.1080/13561820.2022.2118681)

Abstract

Interprofessional teamwork plays a key role in the uptake of evidence-based interventions, such as noninvasive ventilation (NIV) for patients with exacerbated Chronic Obstructive Pulmonary Disease (COPD). We aimed to identify the shared cognitive tasks in interprofessional teams using NIV for patients with COPD exacerbation. We used a cognitive task analysis approach (CTA) to engage nurses, rapid response team members, respiratory therapists, and physicians involved in the use of NIV to treat patients with COPD exacerbation. Clinicians participated in a semi-structured interview ($n = 21$) that elicited cognitions needed to treat COPD exacerbation. Three shared cognitive tasks were identified: Complete a thorough assessment, Formulate a care plan, and Continuously monitor patient status. Findings attest to the importance of having access to up-to-date information and expertise necessary to make accurate clinical inferences for patient assessment. Shared understanding of the formulated care plan among all members of the care team was important to its execution. Continuous monitoring was crucial; however, this cognitive task relied on patient assessment skills and ongoing collaboration within the clinical care team. Application of NIV for patients with COPD exacerbation may require enhancing collaboration through nontechnical skills and interprofessional training.

Keywords: COPD; Noninvasive ventilation; cognitive task analysis.

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Medication use by US patients with pulmonary hypertension associated with chronic obstructive pulmonary disease: a retrospective study of administrative data

[Tracey J Weiss](#)¹, [Dena Rosen Ramey](#)², [Lingfeng Yang](#)², [Xinyue Liu](#)², [Mahesh J Patel](#)², [Swapnil Rajpathak](#)², [Ednan K Bajwa](#)², [Dominik Lautsch](#)²

Affiliations expand

- PMID: 36258171
- PMCID: [PMC9578250](#)
- DOI: [10.1186/s12890-022-02167-9](#)

Free PMC article

Abstract

Background: Pulmonary hypertension (PH) is a serious complication of chronic obstructive pulmonary disease (COPD). While clinical guidelines recommend specific drug therapies for pulmonary arterial hypertension (PAH), these drug therapies are not recommended for PH due to lung disease.

Methods: This was a retrospective cohort study using the Optum® Clinformatics® Data Mart from January 2009–September 2019. An algorithm was designed to identify adults

with ≥ 2 ICD-9-CM or ICD-10-CM diagnosis codes for PH and with ≥ 2 diagnosis codes for COPD. Sensitivity analyses were conducted among subgroups of patients with evidence of a right heart catheterization (RHC) or pulmonary function test (PFT). Patient characteristics, medications used, and durations of use of PAH and COPD medications were analyzed.

Results: A total of 25,975 patients met the study inclusion criteria. Their mean age was 73.5 (SD 10.0) years and 63.8% were female. Medications targeting PAH were prescribed to 643 (2.5%) patients, most frequently a phosphodiesterase-5 inhibitor (2.1%) or an endothelin receptor antagonist (0.75%). Medications for COPD were prescribed to 17,765 (68.4%) patients, most frequently an inhaled corticosteroid (57.4%) or short-acting beta agonist (50.4%). The median durations of use ranged from 4.9 to 12.8 months for PAH medications, and from 0.4 to 5.9 months for COPD medications. Of the subgroup of patients with RHC (N = 2325), 257 (11.1%) were prescribed a PAH medication and 1670 (71.8%) used a COPD medication. Of the subgroup with a PFT (N = 2995), 58 (1.9%) were prescribed a PAH medication and 2100 (70.1%) a COPD medication.

Conclusions: Patients with PH associated with COPD were identified in a US administrative claims database. Very few of these patients received any of the medications recommended for PAH, and only about two thirds received medications for COPD.

Keywords: Algorithms; Chronic obstructive pulmonary disease; Drug therapy; Hypertension; Pulmonary hypertension; Retrospective study.

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Conflict of interest statement

All authors are employees of Merck Sharp & Dohme LLC, a subsidiary of Merck & Co., Inc., Rahway, NJ USA and may own stock in Merck & Co., Inc., Rahway, NJ USA.

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

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Editorial

Am J Physiol Lung Cell Mol Physiol

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. 2022 Oct 18.

doi: 10.1152/ajplung.00342.2022. Online ahead of print.

World health day observances in November 2022: pneumonia, chronic obstructive pulmonary disease, preterm birth and antimicrobial resistance in focus

[Miša Gunjak](#)^{1,2}, [Rory E Morty](#)^{1,2}

Affiliations expand

- PMID: 36255076
- DOI: [10.1152/ajplung.00342.2022](https://doi.org/10.1152/ajplung.00342.2022)

No abstract available

Keywords: Mildred Stahlman; World Antimicrobial Awareness Week; World COPD Day; World Pneumonia Day; World Prematurity Day.

SUPPLEMENTARY INFO

Publication types, Grant support expand

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Semin Respir Crit Care Med



. 2022 Oct 17.

doi: 10.1055/s-0042-1755567. Online ahead of print.

[Chronic Obstructive Pulmonary Disease and Small Airways Diseases](#)

[Brett M Elicker](#)¹

Affiliations expand

- PMID: 36252610
- DOI: [10.1055/s-0042-1755567](https://doi.org/10.1055/s-0042-1755567)

Abstract

The small airways are a common target of injury within the lungs and may be affected by a wide variety of inhaled, systemic, and other disorders. Imaging is critical in the detection and diagnosis of small airways disease since significant injury may occur prior to pulmonary function tests showing abnormalities. The goal of this article is to describe the typical imaging findings and patterns of small airways diseases. An approach which divides the imaging appearances into four categories (tree-in-bud opacities, poorly defined centrilobular nodules, mosaic attenuation, and emphysema) will provide a framework in which to formulate appropriate and focused differential diagnoses.

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Conflict of interest statement

Disclosure The authors report no conflicts of interest in this work.

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Environ Sci Pollut Res Int



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doi: 10.1007/s11356-022-23631-3. Online ahead of print.

Association between asthma, chronic bronchitis, emphysema, chronic obstructive pulmonary disease, and lung cancer in the US population

[Humairat H Rahman](#)¹, [Danielle Niemann](#)², [Stuart H Munson-McGee](#)³

Affiliations expand

- PMID: 36251191
- DOI: [10.1007/s11356-022-23631-3](https://doi.org/10.1007/s11356-022-23631-3)

Abstract

Lung cancer is one of the primary causes of death with poor life expectancy after diagnosis. History of past respiratory diseases such as asthma, chronic obstructive lung disease (COPD), emphysema, and chronic bronchitis can increase the risk of lung cancer. Very few studies are available to simultaneously assess multiple respiratory diseases and lung cancer. The objective of this study was to investigate correlations between asthma, emphysema, chronic bronchitis, and chronic obstructive lung disease with lung cancer in the US adult population. This was a cross-sectional study using data from a total of 23,523 adult participants from the National Health Examination and Nutrition Survey (NHANES) datasets for seven cycles ranging from 2003-2004 to 2015-2016. To analyze the data, specialized weighted complex survey logit regressions were conducted. Linear logit regression models using only main-effects were constructed first to assess the correlation between the selected demographic and lifestyle variables and asthma, emphysema, chronic bronchitis, and COPD. A second set of linear, main-effects logit regression models were constructed to examine the correlation between lung cancer and asthma, emphysema, chronic bronchitis, COPD when corrected for the selected covariates. The study identified positive correlations between emphysema, chronic bronchitis, COPD, and lung cancer. No correlation between asthma and lung cancer was established. Of the covariates studied, race/ethnicity, marital status, highest educational level, age, family income to poverty ratio, and lifetime smoking were also found to be correlated with the presence of lung cancer. Correlations between the covariates gender, body mass index, alcohol consumption, and country of birth and lung cancer were not found. The study established statistically significant correlations between lung cancer and the lung diseases emphysema, chronic bronchitis, and COPD. The lack of association between asthma and lung cancer may arise from the timeline of diagnosis asthma or type of lung cancer. The study also established significant correlations between lung cancer and several of the covariates included in the analysis. It also established correlations between the covariates and the lung diseases asthma, emphysema, chronic bronchitis, and COPD.

Keywords: Asthma; Chronic bronchitis; Emphysema; Lung cancer; NHANES.

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[Establishment and effect evaluation of nomogram model for diagnosis and prediction of pulmonary hypertension in patients with chronic obstructive pulmonary disease]

[Article in Chinese]

[D S Zhou](#)¹, [L Xu](#)², [Y Zhang](#)³, [T T Zhang](#)⁴, [Y Q Chen](#)¹, [J Y Chen](#)¹, [J Zhang](#)⁵, [C L Liu](#)¹, [J Wang](#)¹

Affiliations expand

- PMID: 36229203
- DOI: [10.3760/cma.j.cn112137-20220512-01045](https://doi.org/10.3760/cma.j.cn112137-20220512-01045)

Abstract

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

Objective: To construct a diagnostic and predictive model for chronic obstructive pulmonary disease complicated with pulmonary hypertension (COPD-PH) and evaluate its effect. **Methods:** A total of 1 514 COPD patients treated in 5 hospitals from January 1, 2014 to December 31, 2019 were retrospectively collected and divided into training cohort (1 072 cases) and validation cohort (442 cases) according to the ratio of 7:3 according to the inclusion time. Data including demographic data, smoking status, history of disease, and clinical examination were collected through patient medical records and electronic medical record systems. Multivariate logistic regression models were used to explore the related factors of COPD-PH, and the nomogram model was constructed using the "rms" program package. The calibration curve was used to evaluate the consistency between the

prediction probability of the model and the actual results. The C index and the area under the receiver operating characteristic curve (ROC) were used to evaluate the discrimination of the model. The decision curve analysis (DCA) was used to evaluate the clinical practicability of the model. **Results:** In the training cohort, 3.7%, 15.2% and 81.1% were aged 50-59, 60-69 and ≥ 70 years, respectively, which were significantly different from the age composition of the validation cohort (7.9%, 27.8% and 64.3%, respectively) ($P=0.041$). There was no significant difference between the training cohort (79.4%) and the validation cohort (84.6%) ($P=0.243$). Multivariate logistic regression analysis of the training cohort showed that age ≥ 70 years [OR (95% CI): 3.32 (1.49-7.36)] and smoking status [former (current) smoking, OR (95% CI)] were 3.67 (2.51-5.37) and 2.04 (1.44-2.90), respectively], NT-proBNP ≥ 1400 ng/L [OR (95% CI): 9.88 (6.23-15.66)], right atrial diameter [OR (95% CI): 1.11 (1.07-1.15)] was COPD-related factors of PH, based on the above factors-PH nomogram COPD model was set up and develop for online tools (<https://ph-666.shinyapps.io/zhonghua-PH/>). The calibrated C index (95% CI) of the training cohort and the validation cohort were 0.82 (0.77-0.87) and 0.77 (0.68-0.86), respectively. The calibration curve was close to the diagonal in both the training cohort and the validation cohort. The AUC (95% CI) of the nomogram model was 0.82 (0.80-0.85) in the training cohort and 0.77 (0.73-0.82) in the validation cohort. ROC curve showed that the optimal threshold in the training cohort was 0.60, and the sensitivity and specificity under this value were 0.74 and 0.78, respectively; the optimal threshold for the validation cohort was 0.70, and the sensitivity and specificity under this value were 0.76 and 0.65, respectively. DCA analysis showed that the nomogram model provided better net benefits than the all-variable selection and no-variable selection strategies with threshold probabilities greater than 15.0% and 13.0% in the training and validation cohorts, respectively. **Conclusions:** The nomogram model for the diagnosis and prediction of COPD-PH is simple and accurate, which has a good clinical application prospect.

SUPPLEMENTARY INFO

MeSH terms, Grant supportexpand

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[Review](#)

Postgrad Med

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. 2022 Oct 19;1-7.

doi: 10.1080/00325481.2022.2135893. Online ahead of print.

Global initiative for chronic obstructive lung disease (GOLD) recommendations: strengths and concerns for future needs

[Kostantinos Bartziokas](#)¹, [Anastasia Papaporfyriou](#)², [Georgios Hillas](#)³, [Andriana I Papaioannou](#)², [Stelios Loukides](#)²

Affiliations expand

- PMID: 36226501
- DOI: [10.1080/00325481.2022.2135893](https://doi.org/10.1080/00325481.2022.2135893)

Abstract

Chronic obstructive pulmonary disease (COPD) is already the third leading cause of death worldwide and simultaneously a major cause of morbidity and mortality. Global initiative for Chronic Obstructive Lung Disease (also known as GOLD) committee, has been created in 1997 to increase the awareness regarding the burden of COPD. GOLD recommendations have been contributing to diagnosis, management, and therapy of COPD since 2001. Through these years, by reviewing published articles, GOLD aimed to provide state-of-the-art information not only for pulmonologists, but also for non-respiratory physicians, and to encourage research on COPD. From 2011, GOLD annual reports have changed the way of COPD evaluation from based entirely on spirometric parameters to more clinical indices, such as the assessment of symptoms and dyspnea alongside with exacerbations. Moreover, according to recent developments in pathophysiology of COPD, there is a trend in identifying new preclinical stages, contributing to prevention and early COPD treatment. In the field of therapeutic algorithms, changes turn to a more personalized approach. However, it is not clear in what extent this personalized disease management would be feasible and the real challenge for current recommendations is to include more patient characteristics such as comorbidities and multidimensional scores in disease evaluation.

Keywords: COPD; GOLD; comorbidities; personalized medicine.

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS



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Med J Aust



. 2022 Oct 17;217(8):415-423.

doi: 10.5694/mja2.51708. Epub 2022 Sep 18.

[COPD-X Australian guidelines for the diagnosis and management of chronic obstructive pulmonary disease: 2022 update](#)

[Eli Dabscheck](#)¹, [Johnson George](#)², [Kelcie Hermann](#)³, [Christine F McDonald](#)⁴, [Vanessa M McDonald](#)⁵, [Renaë McNamara](#)⁶, [Mearon O'Brien](#)³, [Brian Smith](#)⁷, [Nicholas A Zwar](#)⁸, [Ian A Yang](#)^{9,10}

Affiliations expand

- PMID: 36116098
- DOI: [10.5694/mja2.51708](https://doi.org/10.5694/mja2.51708)

Abstract

Introduction: Chronic obstructive pulmonary disease (COPD) is a treatable and preventable disease characterised by persistent respiratory symptoms and chronic airflow

limitation on spirometry. COPD is highly prevalent and is associated with exacerbations and comorbid conditions. "COPD-X" provides quarterly updates in COPD care and is published by the Lung Foundation Australia and the Thoracic Society of Australia and New Zealand.

Main recommendations: The COPD-X guidelines (version 2.65) encompass 26 recommendations addressing: case finding and confirming diagnosis; optimising function; preventing deterioration; developing a plan of care; and managing an exacerbation.

Changes in management as a result of these guidelines: Both non-pharmacological and pharmacological strategies are included within these recommendations, reflecting the importance of a holistic approach to clinical care for people living with COPD to delay disease progression, optimise quality of life and ensure best practice care in the community and hospital settings when managing exacerbations. Several of the new recommendations, if put into practice in the appropriate circumstances, and notwithstanding known variations in the social determinants of health, could improve quality of life and reduce exacerbations, hospitalisations and mortality for people living with COPD.

Keywords: Chronic obstructive pulmonary disease; Guidelines as topic.

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- [90 references](#)

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MeSH termsexpand

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Nihon Hoshasen Gijutsu Gakkai Zasshi

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. 2022 Oct 20;78(10):1167-1175.

doi: 10.6009/jjrt.2022-1271. Epub 2022 Aug 22.

[Quantitative Evaluation of Airway Lesions in Chronic Obstructive Pulmonary Disease by Applying Deep Learning Reconstruction to Ultra-high-resolution CT Images: Correlation between Wall Area Percentage and Forced Expiratory Volume in One Second Percentage]

[Article in Japanese]

[Shun Muramatsu](#)¹, [Kazuhiro Sato](#)²

Affiliations expand

- PMID: 35989253
- DOI: [10.6009/jjrt.2022-1271](https://doi.org/10.6009/jjrt.2022-1271)

Free article

Abstract

Purpose: Using ultra-high-resolution images reconstructed with the Advanced intelligent Clear-IQ Engine (AiCE) lung to measure wall area percentage (WA%), we demonstrated that WA% measured in more distal bronchus has a stronger correlation with respiratory function (FEV₁%). Furthermore, we also demonstrated that WA% measured from images with the higher spatial resolution has a stronger correlation with FEV₁%.

Methods: The modulation transfer function (MTF) and noise power spectrum (NPS) of the ultra-high-resolution images reconstructed by the AiCE body and the AiCE lung were compared. In addition, WA% from the first- to seventh-generation bronchus was measured for B1 and B10 in the right lung from clinical images obtained with the two reconstruction methods, and the correlation coefficients with FEV₁% were evaluated.

Results: The MTF was more superior for the AiCE lung than for the AiCE body, and the NPS was lower for the AiCE lung than for the AiCE body in the low-frequency region. The correlation between WA% and FEV₁% was slightly stronger in the AiCE lung than in the AiCE body.

Conclusion: This study showed that WA% measured from the 7th-generation bronchus using ultra-high-resolution images reconstructed with the AiCE lung strengthens the correlation with FEV₁%. Furthermore, the higher the spatial resolution of the measurement images, the stronger the correlation between WA% and FEV₁%.

Keywords: chronic obstructive pulmonary disease; deep learning reconstruction; forced expiratory volume in one second percentage; high-resolution image; wall area percentage.

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS



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Meta-Analysis

Gene

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. 2022 Oct 20;841:146763.

doi: 10.1016/j.gene.2022.146763. Epub 2022 Jul 28.

[Association of transforming growth factor- \$\beta\$ gene polymorphisms and](#)

chronic obstructive pulmonary disease risk

[Yizhen Liu](#)¹, [Shuaikun Liu](#)¹, [Xing Jia](#)¹, [Ruiping Liu](#)²

Affiliations expand

- PMID: 35907564
- DOI: [10.1016/j.gene.2022.146763](https://doi.org/10.1016/j.gene.2022.146763)

Abstract

Recently, He et al. performed a meta-analysis to interpret the association between transforming growth factor- β (TGF- β) gene polymorphisms and chronic obstructive pulmonary disease (COPD) risk. However, we would like to comment on some debatable points shown in this meta-analysis.

Keywords: Chronic obstructive pulmonary disease; Meta-analysis; Polymorphism; TGF- β .

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SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances expand

FULL TEXT LINKS



ASTHMA

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BMC Pregnancy Childbirth

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. 2022 Oct 22;22(1):787.

doi: 10.1186/s12884-022-05047-6.

Non-communicable diseases and maternal health: a scoping review

[Tabassum Firoz](#)¹, [Beth Pineles](#)², [Nishika Navrange](#)³, [Alyssa Grimshaw](#)⁴, [Olufemi Oladapo](#)⁵, [Doris Chou](#)⁶

Affiliations expand

- PMID: 36273124
- DOI: [10.1186/s12884-022-05047-6](https://doi.org/10.1186/s12884-022-05047-6)

Abstract

Background: Non-communicable diseases [NCDs] are leading causes of ill health among women of reproductive age and an increasingly important cause of maternal morbidity and mortality worldwide. Reliable data on NCDs is necessary for accurate measurement and response. However, inconsistent definitions of NCDs make reliable data collection challenging. We aimed to map the current global literature to understand how NCDs are defined, operationalized and discussed during pregnancy, childbirth and the postnatal period. **METHODS:** For this scoping review, we conducted a comprehensive global literature search for NCDs and maternal health covering the years 2000 to 2020 in eleven electronic databases, five regional WHO databases and an exhaustive grey literature search without language restrictions. We used a charting approach to synthesize and interpret the data. **RESULTS:** Only seven of the 172 included sources defined NCDs. NCDs are often defined as chronic but with varying temporality. There is a broad spectrum of conditions that is included under NCDs including pregnancy-specific conditions and infectious diseases. The most commonly included conditions are hypertension, diabetes, epilepsy, asthma, mental health conditions and malignancy. Most publications are from academic institutions in high-income countries [HICs] and focus on the pre-conception period and pregnancy. Publications from HICs discuss NCDs in the context of pre-conception care, medications, contraception, health disparities and quality of care. In contrast, publications focused on low- and middle-income countries discuss NCDs in the context of NCD prevention. They take a life cycle approach and advocate for integration of NCD and maternal health services.

Conclusion: Standardising the definition and improving the articulation of care for NCDs in the maternal health setting would help to improve data collection and facilitate monitoring. It would inform the development of improved care for NCDs at the intersection with maternal health as well as through a woman's life course. Such an approach could lead to significant policy and programmatic changes with the potential corresponding impact on resource allocation.

Keywords: Childbirth; Maternal health; Non-communicable diseases; Pregnancy.

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- [186 references](#)

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Aten Primaria

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. 2022 Oct 19;54(12):102492.

doi: 10.1016/j.aprim.2022.102492. Online ahead of print.

[Current expert opinion and attitudes to optimize telemedicine and achieve control in patients with asthma in post-pandemic era: The COMETA consensus](#)

[Jesús Molina Paris](#)¹, [Carlos Almonacid Sánchez](#)², [Marina Blanco-Aparicio](#)³, [Javier Domínguez-Ortega](#)⁴, [Jordi Giner Donaire](#)⁵, [Navidad Sánchez Marcos](#)⁶, [Vicente Plaza](#)⁵

Affiliations expand

- PMID: 36272223
- DOI: [10.1016/j.aprim.2022.102492](https://doi.org/10.1016/j.aprim.2022.102492)

Abstract

Objective: To collect perspectives and explore consensus for expert recommendations related to asthma control and the use of telemedicine among professionals who manage patients with asthma.

Design: A Delphi-like questionnaire was designed to analyse the level of agreement about several recommendations formulated by an expert scientific committee about asthma control and the use of telemedicine with this purpose. A dedicated scientific committee validated the questionnaire, which included questions about the participants' profile and the use of technological tools at a personal level or in clinical practice. The experts expressed their agreement with a Likert-scale of 9 values: 1-3 was considered no agreement, 4-6 neutral, and 7-9 agreement. A rate $\geq 70\%$ with the same answer was considered consensus. SITE: The questionnaire was programmed and distributed as an internet-based survey.

Participants: A pre-selected sample of 75 experts with experience in telemedicine (pulmonology, allergology, family medicine, nursing and community pharmacy) responded to a Delphi-like questionnaire composed by six questions and 52 items.

Interventions: Consultation was performed in two consecutive waves: the first wave was carried out from 12th of July to 8th of September of 2021; the second wave, from 25th of October to 12th of November of 2021.

Main measurements: Three questions about asthma control (actions for achieving or maintaining control of asthma at every visit, current problems that affect asthma control, and potential solutions to offset such problems), and three questions about the impact of telemedicine in asthma control (potential benefits of telemedicine, and potential reticence about telemedicine among both patients and healthcare professionals) were included.

Results: From the 52 items inquired, 35 were agreed by consensus. The actions for achieving or maintaining control of asthma, the problems that affect asthma control, and their potential solutions were agreed by consensus. The potential benefits of telemedicine were validated by consensus. None of the potential reservations of patients about telemedicine were validated, while five out of 14 potential reservations of healthcare professionals were agreed by consensus.

Conclusions: The COMETA consensus provides a current picture of the main problems for achieving asthma control, the benefits and the reservations about the use of telemedicine in the Spanish setting, and offers solutions. A wide interest in implementing telemedicine has been observed, although current limitations need to be overcome.

Keywords: Asma; Asthma; Consenso; Consensus; Delphi methodology; Metodología Delphi; Telemedicina; Telemedicine.

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Handb Exp Pharmacol

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. 2022 Oct 22.

doi: 10.1007/164_2022_615. Online ahead of print.

[Pharmacometabolomics of Asthma as a Road Map to Precision Medicine](#)

[Rachel S Kelly](#)¹, [Margaret F Cote](#)², [Sofina Begum](#)², [Jessica Lasky-Su](#)²

Affiliations expand

- PMID: 36271166
- DOI: [10.1007/164_2022_615](https://doi.org/10.1007/164_2022_615)

Abstract

Pharmacometabolomics applies the principles of metabolomics to therapeutics in order to elucidate the biological mechanisms underlying the variation in responses to drugs between groups and individuals. Asthma is associated with broad systemic effects and heterogeneity in treatment response and as such is ideally suited to pharmacometabolomics. In this chapter, we discuss the state of the emerging field of asthma pharmacometabolomics, with a particular focus on studies of steroids, bronchodilators, and leukotriene inhibitors. We also consider those studies concerned with subtyping cases to better understand the pharmacology of those groups and those looking to leverage pharmacometabolomics for asthma prevention. We finish with a discussion of the challenges and opportunities of asthma pharmacometabolomics and reflect upon where this field must go next in order to realize its precision medicine potential.

Keywords: Asthma; Endotyping; Pharmacometabolomics; Steroids; Treatment response.

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- [102 references](#)

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NPJ Prim Care Respir Med

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. 2022 Oct 21;32(1):43.

doi: 10.1038/s41533-022-00310-x.

[Understanding relationships between asthma medication use and outcomes in a SABINA primary care database study](#)

[Marcia Vervloet](#)¹, [Liset van Dijk](#)^{2,3}, [Yvette M Weesie](#)², [Janwillem W H Kocks](#)^{4,5}, [Alexandra L Dima](#)⁶, [Joke C Korevaar](#)²

Affiliations [expand](#)

- PMID: 36270999
- DOI: [10.1038/s41533-022-00310-x](https://doi.org/10.1038/s41533-022-00310-x)

Abstract

Adherence to inhaled corticosteroids (ICS) in asthma is suboptimal. Patients may rely more on their short-acting beta-agonist (SABA) to control symptoms, which may increase their risk of exacerbations and uncontrolled asthma. Our objective is to describe ICS adherence

and SABA use among Dutch primary care patients with asthma, and how these are related to exacerbations and self-reported asthma control. Patients aged ≥ 12 years diagnosed with asthma who received ≥ 2 inhalation medication prescriptions in 2016 were selected from the Nivel Primary Care Database. ICS adherence (continuous measure of medication availability), SABA use (number of prescriptions), exacerbations (short courses of oral corticosteroids with daily dose ≥ 20 mg), and asthma control (self-reported with the Asthma Control Questionnaire; ACQ) were computed. Multilevel logistic regression analyses, to account for clustering of patients within practices, were used to model associations between ICS adherence, SABA use, and asthma outcomes. Prescription data of 13,756 patients were included. ICS adherence averaged 62% (SD: 32.7), 14% of patients received ≥ 3 SABA prescriptions, and 13% of patients experienced ≥ 1 exacerbation. Self-reported asthma control was available for 2183 patients of whom 51% reported controlled asthma (ACQ-5 score < 0.75). A higher number of SABA prescriptions was associated with a higher risk of exacerbations and uncontrolled asthma, even with high ICS adherence ($> 90\%$). ICS adherence was not associated with exacerbations, whilst poor ICS adherence ($\leq 50\%$) was associated with uncontrolled asthma. In conclusion, increased SABA use is an important and easily identifiable signal for general practitioners to discuss asthma self-management behavior with their patients.

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[Review](#)

Annu Rev Pathol

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. 2022 Oct 21.

doi: 10.1146/annurev-pathol-042220-015902. Online ahead of print.

The Pathology of Asthma: What Is Obstructing Our View?

[Helena Aegerter](#)^{1,2}, [Bart N Lambrecht](#)^{1,2,3}

Affiliations expand

- PMID: 36270294
- DOI: [10.1146/annurev-pathol-042220-015902](https://doi.org/10.1146/annurev-pathol-042220-015902)

Abstract

Despite the advent of sophisticated and efficient new biologics to treat inflammation in asthma, the disease persists. Even following treatment, many patients still experience the well-known symptoms of wheezing, shortness of breath, and coughing. What are we missing? Here we examine the evidence that mucus plugs contribute to a substantial portion of disease, not only by physically obstructing the airways but also by perpetuating inflammation. In this way, mucus plugs may act as an immunogenic stimulus even in the absence of allergen or with the use of current therapeutics. The alterations of several parameters of mucus biology, driven by type 2 inflammation, result in sticky and tenacious sputum, which represents a potent threat, first due to the difficulties in expectoration and second by acting as a platform for viral, bacterial, or fungal colonization that allows exacerbations. Therefore, in this way, mucus plugs are an overlooked but critical feature of asthmatic airway disease. Expected final online publication date for the *Annual Review of Pathology: Mechanisms of Disease*, Volume 18 is January 2023. Please see <http://www.annualreviews.org/page/journal/pubdates> for revised estimates.

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Review



Unified Airway Disease: Examining Prevalence and Treatment of Upper Airway Eosinophilic Disease with Comorbid Asthma

[Mitesh P Mehta](#)¹, [Sarah K Wise](#)²

Affiliations expand

- PMID: 36266106
- DOI: [10.1016/j.otc.2022.09.005](https://doi.org/10.1016/j.otc.2022.09.005)

Abstract

The "unified airway" describes the concept that inflammation affects upper and lower airways by similar mechanisms; this often manifests as rhinitis, rhinosinusitis, and/or nasal polyposis in the upper airway with associated asthma or bronchial inflammation in the lower airways. The relationships between eosinophilic diseases of the upper and lower airways are highlighted by examining their prevalence and treatment regimens along with the synergistic effects of treatment on upper and lower airway symptoms. It is important to recognize the interrelatedness of upper and lower airway eosinophilic disease to assess and manage patients accurately and holistically.

Keywords: Asthma; Eosinophilia; Nasal polyp; Rhinitis; Rhinosinusitis; Type 2 inflammation; Unified airway.

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Eur Respir J

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. 2022 Oct 20;2001316.

doi: 10.1183/13993003.01316-2020. Online ahead of print.

Early-life and health behaviour influences on lung function in early-adulthood

[Osama Mahmoud](#)^{1,2,3}, [Raquel Granel](#)^{2,4}, [Gabriela P Peralta](#)⁵, [Judith Garcia-Aymerich](#)^{6,7,8}, [Deborah Jarvis](#)^{9,10}, [John Henderson](#)^{2,4,11}, [Jonathan Sterne](#)^{2,4}

Affiliations expand

- PMID: 36265880
- DOI: [10.1183/13993003.01316-2020](https://doi.org/10.1183/13993003.01316-2020)

Abstract

Rationale: Early-life exposures may influence lung function at different stages of the life course. However, relative importance of characteristics at different stages of infancy and childhood are unclear.

Objectives: To examine the associations and relative importance of early-life events on lung function at age 24-years.

Methods: We followed 7545 children from the Avon Longitudinal Study of Parents and Children from birth to 24-years. Using previous knowledge, we classified an extensive list of putative risk factors for low lung function, covering sociodemographic, environmental,

lifestyle and physiological characteristics, according to timing of exposure: 1) demographic, maternal & child; 2) perinatal; 3) postnatal; 4) early-childhood; 5) adolescence characteristics. Lung function measurements (FVC, FEV₁, FEV₁/FVC, and FEF₂₅₋₇₅) were standardised for sex, age, and height. The proportion of the remaining variance explained by each characteristic was calculated. The association and relative importance (**RI**) of each characteristic for each lung function measure was estimated using linear regression, adjusted for other characteristics in the same and previous categories.

Results: Lower maternal perinatal body mass index (BMI), lower birthweight, lower lean mass, and higher fat mass in childhood had the largest **RI (0.5% - 7.7%)** for decreased FVC. Having no-siblings, lower birthweight, lower lean mass, and higher fat mass were associated with decreased FEV₁ (**RI: 0.5% - 4.6%**). Higher lean mass and childhood-asthma were associated with decreased FEV₁/FVC (**RI: 0.6% - 0.8%**).

Conclusions: Maternal perinatal BMI, birthweight, childhood lean and fat mass and early-onset asthma are the factors in infancy and childhood that have the greatest influence on early-adult lung function.

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Allergy Asthma Clin Immunol

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. 2022 Oct 19;18(1):92.

doi: 10.1186/s13223-022-00731-w.

[Effect of diagnosis delay on pulmonary function in children with asthma](#)

[Xiaoling Wei](#)^{1,2,3}, [Min Xue](#)^{1,2,3}, [Jinyan Yan](#)¹, [Yuling Han](#)¹, [Yanqin Liu](#)^{1,3}, [Miao Liu](#)^{1,3}, [Jing Sun](#)^{1,3}, [Yun Zhang](#)^{1,3}, [Lu Cheng](#)^{1,3}, [Xiang Ma](#)^{#4,5,6}, [Zhongtao Gai](#)^{#7}

Affiliations expand

- PMID: 36261858
- PMCID: [PMC9583478](#)
- DOI: [10.1186/s13223-022-00731-w](#)

Abstract

Background: The effects of a delayed diagnosis of asthma on lung function in children have not been well investigated. Therefore, a retrospective cohort study was conducted in a children's hospital to analyse the effect of delayed diagnosis time on lung function in children with asthma.

Methods: We conducted a retrospective cohort study in Jinan Children's Hospital from January 1, 2010, to December 31, 2020. All children were divided into different groups according to the presence or absence of rhinitis, age at first onset (first coughing and wheezing attack) and delayed diagnosis duration (≤ 3 months, 3-12 months, 1-3 years, 3-5 years and > 5 years).

Results: A total of 1,014 children with asthma were included in this study. The median (quartile) delay in asthma diagnosis among all participants was 11 (2, 26) months. The shortest delay in diagnosis time was on the same day of onset, and the longest delay in diagnosis time was 10 years. The median (quartile) duration of delayed diagnosis was 10 (2, 26) months in 307 asthmatic children without rhinitis and 11 (2, 26) months in 707 children with asthma and rhinitis ($P < 0.05$). The delayed diagnosis time was shorter among female children than among male children ($P < 0.05$), and the first %predicted forced volume capacity (FVC%pred) results for females were higher than those for males ($P = 0.036$). The children whose age at first asthma onset was ≤ 3 years had a longer delayed diagnosis duration than those whose age at first onset was > 3 years ($P < 0.05$). The FVC%pred and %predicted forced expiratory volume in 1 s (FEV1%pred) in the first and second pulmonary function tests were significantly lower in the five delayed diagnosis groups (all $P < 0.05$). After standardised treatment for 3-6 months, FVC%pred showed a significant difference in the third test among the 5 groups ($P < 0.05$), but the other pulmonary function indices showed no significant difference. Logistic regression analysis showed that longer delay and young age of onset were associated with lower lung function ($P < 0.05$), whereas sex, rhinitis and eczema had no significant effects (all $P > 0.05$) on FVC%pred and FEV1%pred.

Conclusion: Although delayed asthma diagnosis can lead to lung function impairment in children with asthma, lung function can be improved quickly after standardised treatment. Therefore, early asthma diagnosis and standardised treatment are very important.

Keywords: Asthma; Children; Delayed diagnosis; Pulmonary function.

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Conflict of interest statement

The authors declare that they have no competing interests.

- [21 references](#)

SUPPLEMENTARY INFO

Grant supportexpand

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Drug Ther Bull

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. 2022 Oct 19;dtb-2022-000059.

doi: 10.1136/dtb.2022.000059. Online ahead of print.

[Safety update on home use of nebulisers for acute asthma treatment in children](#)

No authors listed

- PMID: 36261275

- DOI: [10.1136/dtb.2022.000059](https://doi.org/10.1136/dtb.2022.000059)

Abstract

Overview of: Medicines and Healthcare products Regulatory Agency. Nebulised asthma rescue therapy in children: home use of nebulisers in paediatric asthma should be initiated and managed only by specialists. *Drug Safety Update* 2022;16:1.

Keywords: Drug-Related Side Effects and Adverse Reactions; Health Care Quality, Access, and Evaluation.

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Review

Eur Respir Rev

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. 2022 Oct 19;31(166):220051.

doi: 10.1183/16000617.0051-2022. Print 2022 Dec 31.

Respiratory viruses: their importance and lessons learned from COVID-19

[Catia Cilloniz](#)^{1,2,3}, [Carlos M Luna](#)⁴, [Juan Carlos Hurtado](#)⁵, [María Ángeles Marcos](#)⁵, [Antoni Torres](#)^{6,2}

Affiliations expand

- PMID: 36261158

- DOI: [10.1183/16000617.0051-2022](https://doi.org/10.1183/16000617.0051-2022)

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Abstract

Respiratory virus infection can cause severe illnesses capable of inducing acute respiratory failure that can progress rapidly to acute respiratory distress syndrome (ARDS). ARDS is related to poor outcomes, especially in individuals with a higher risk of infection, such as the elderly and those with comorbidities, *i.e.* obesity, asthma, diabetes mellitus and chronic respiratory or cardiovascular disease. Despite this, effective antiviral treatments available for severe viral lung infections are scarce. The coronavirus disease 2019 (COVID-19) pandemic demonstrated that there is also a need to understand the role of airborne transmission of respiratory viruses. Robust evidence supporting this exists, but better comprehension could help implement adequate measures to mitigate respiratory viral infections. In severe viral lung infections, early diagnosis, risk stratification and prognosis are essential in managing patients. Biomarkers can provide reliable, timely and accessible information possibly helpful for clinicians in managing severe lung viral infections. Although respiratory viruses highly impact global health, more research is needed to improve care and prognosis of severe lung viral infections. In this review, we discuss the epidemiology, diagnosis, clinical characteristics, management and prognosis of patients with severe infections due to respiratory viruses.

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Conflict of interest statement

Conflicts of interest: A. Torres reports he is a current Editorial board member for the European Respiratory Review, and reports participation on Advisory Boards or lectures for Pfizer, MSD, Biomerieux, Biotest and Jansen. The remaining authors have nothing to disclose.

Comment in

- [Respiratory infections.](#) Niederman MS, Torres A. *Eur Respir Rev.* 2022 Oct 19;31(166):220150. doi: [10.1183/16000617.0150-2022](https://doi.org/10.1183/16000617.0150-2022). Print 2022 Dec 31. PMID: 36261160 No abstract available.

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Publication types, MeSH terms, Substances expand

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Am J Respir Crit Care Med

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. 2022 Oct 19.

doi: 10.1164/rccm.202209-1828LE. Online ahead of print.

[Impact of Insulin Resistance on Asthma: Is There Truly No Role of "Obesity"?](#)

[Dharini M Bhammar](#)¹, [Tony G Babb](#)², [Menglin L Xu](#)³, [Jason H T Bates](#)⁴

Affiliations expand

- PMID: 36260829
- DOI: [10.1164/rccm.202209-1828LE](https://doi.org/10.1164/rccm.202209-1828LE)

No abstract available

Keywords: asthma; chest wall mechanics; functional residual capacity; lung function; obesity.

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Review

Postgrad Med



. 2022 Oct 19.

doi: 10.1080/00325481.2022.2134624. Online ahead of print.

Eosinophilic Granulomatosis with Polyangiitis

[Alexandra Villa-Forte](#)¹

Affiliations expand

- PMID: 36259957
- DOI: [10.1080/00325481.2022.2134624](https://doi.org/10.1080/00325481.2022.2134624)

Abstract

This review aims to describe the epidemiology, pathogenesis, clinical manifestations, diagnosis, treatment, and prognosis of eosinophilic granulomatosis with polyangiitis (EGPA). Eosinophilic granulomatosis with polyangiitis is a small to medium vessel necrotizing vasculitis, typically classified with granulomatosis with polyangiitis (GPA) and microscopic polyangiitis (MPA) as antineutrophil cytoplasmic antibody (ANCA)-associated vasculitis (AAV). However, less than 50% of patients with EGPA have a positive ANCA test. Among all the vasculitides, asthma and eosinophilia are unique features of EGPA. Eosinophilic granulomatosis with polyangiitis is very rare and the diagnosis may be missed as the disease evolves over time. Polyneuropathies are common and may be severe, requiring aggressive immunosuppressive therapy. Heart involvement is the most common cause of death in EGPA. Biopsy of involved tissue supports a clinically suspected diagnosis but is not always feasible. Treatment of EGPA is primarily dictated by the severity of disease and prognostic factors. More severe disease frequently requires the use of

aggressive therapy such as cyclophosphamide. Once treatment is initiated, patients can achieve good control of symptoms; unfortunately, disease relapses are common and prolonged treatment with corticosteroids is often necessary for asthma management. A better understanding of the disease heterogeneity is needed for the development of better therapies.

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Review

Asthma Res Pract

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. 2022 Oct 17;8(1):6.

doi: 10.1186/s40733-022-00088-2.

[Monoclonal antibodies targeting small airways: a new perspective for biological therapies in severe asthma](#)

[Carlo Lombardi](#)^{1,2}, [Marcello Cottini](#)³, [Alvise Berti](#)^{4,5}, [Pasquale Comberiati](#)⁶

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- PMID: 36253809

- PMID: [PMC9575249](#)
- DOI: [10.1186/s40733-022-00088-2](#)

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Abstract

Small airway dysfunction (SAD) in asthma is characterized by the inflammation and narrowing of airways with less of 2 mm in diameter between generations 8 and 23 of the bronchial tree. It is now widely accepted that small airways are involved in the pathogenesis of asthma and are a major determinant of airflow obstruction in this disease. In recent years, specialized tests have been developed, such as Impulse Oscillometry (IOS) and Multiple Breath Nitrogen Washout (MBNW) tests, which have been deemed more accurate in detecting SAD than conventional spirometry. Clinical studies show that SAD is associated with more severe bronchial hyperresponsiveness, worse asthma control, and a higher risk of exacerbations. Recent data from a large cohort study showed that the prevalence of SAD in asthma patients increases with asthma severity. Overall, SAD seems to represent a treatable trait, which makes it appealing for asthma control optimization and exacerbation rate reduction, especially in moderate-to-severe asthma. Biologic agents are now available for the treatment of different severe asthma phenotypes and endotypes. However, the effect of these therapies on SAD remains poorly characterized. Literature showing that biologic agents can also favorably improve small airway function is accumulating. In particular, anti-IL5 agents (mepolizumab and benralizumab) seems to have a greater impact on SAD as compared to other biological agents, but direct comparisons in prospective randomized controlled trials are lacking. In this mini-review article, we address the latest evidence on the effect of biological therapies on SAD in patients with severe asthma.

Keywords: Benralizumab; Biological agents; Dupilumab; Mepolizumab; Omalizumab; Severe asthma; Small airways disease; Tezepelumab.

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Conflict of interest statement

None declared.

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

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Commun Biol

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. 2022 Oct 17;5(1):1098.

doi: [10.1038/s42003-022-04070-9](https://doi.org/10.1038/s42003-022-04070-9).

[Obesity-related biomarkers underlie a shared genetic architecture between childhood body mass index and childhood asthma](#)

[Xikun Han](#)^{1,2}, [Zhaozhong Zhu](#)³, [Qian Xiao](#)⁴, [Jun Li](#)⁵, [Xiumei Hong](#)⁶, [Xiaobin Wang](#)⁶, [Kohei Hasegawa](#)³, [Carlos A Camargo Jr](#)^{7,3}, [Liming Liang](#)^{8,9,10}

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- PMID: [36253437](https://pubmed.ncbi.nlm.nih.gov/36253437/)
- PMCID: [PMC9576683](https://pubmed.ncbi.nlm.nih.gov/PMC9576683/)
- DOI: [10.1038/s42003-022-04070-9](https://doi.org/10.1038/s42003-022-04070-9)

Abstract

Obesity and asthma are both common diseases with high population burden worldwide. Recent genetic association studies have shown that obesity is associated with asthma in adults. The relationship between childhood obesity and childhood asthma, and the underlying mechanisms linking obesity to asthma remain to be clarified. In the present study, leveraging large-scale genetic data from UK biobank and several other data sources, we investigated the shared genetic components between body mass index (BMI, $n = 39620$) in children and childhood asthma ($n_{\text{case}} = 10524$, $n_{\text{control}} = 373393$). We included GWAS summary statistics for nine obesity-related biomarkers to evaluate potential biological mediators underlying obesity and asthma. We found a genetic correlation ($R_g = 0.10$, $P = 0.02$) between childhood BMI and childhood asthma, whereas the genetic correlation between adult BMI ($n = 371541$) and childhood asthma was null ($R_g = -0.03$, $P = 0.21$). Genomic structural equation modeling analysis further provided evidence that the genetic effect of childhood BMI on childhood asthma (standardized effect size 0.17 , $P = 0.009$) was not driven by the genetic component of adult BMI. Bayesian colocalization analysis identified a shared causal variant rs12436181 that was mapped to gene AMN using gene expression data in lung tissue. Mendelian randomization showed that the odds ratio of childhood asthma for one standard deviation higher of childhood BMI was 1.13 (95% confidence interval: 0.96-1.34). A systematic survey of obesity-related biomarkers showed that IL-6 and adiponectin are potential biological mediators linking obesity and asthma in children. This large-scale genetic study provides evidence that unique childhood obesity pathways could lead to childhood asthma. The findings shed light on childhood asthma pathogenic mechanisms and prevention.

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Conflict of interest statement

The authors declare no competing interests.

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

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Environ Sci Pollut Res Int



. 2022 Oct 17.

doi: 10.1007/s11356-022-23631-3. Online ahead of print.

Association between asthma, chronic bronchitis, emphysema, chronic obstructive pulmonary disease, and lung cancer in the US population

[Humairat H Rahman](#)¹, [Danielle Niemann](#)², [Stuart H Munson-McGee](#)³

Affiliations expand

- PMID: 36251191
- DOI: [10.1007/s11356-022-23631-3](https://doi.org/10.1007/s11356-022-23631-3)

Abstract

Lung cancer is one of the primary causes of death with poor life expectancy after diagnosis. History of past respiratory diseases such as asthma, chronic obstructive lung disease (COPD), emphysema, and chronic bronchitis can increase the risk of lung cancer. Very few studies are available to simultaneously assess multiple respiratory diseases and lung cancer. The objective of this study was to investigate correlations between asthma, emphysema, chronic bronchitis, and chronic obstructive lung disease with lung cancer in the US adult population. This was a cross-sectional study using data from a total of 23,523 adult participants from the National Health Examination and Nutrition Survey (NHANES) datasets for seven cycles ranging from 2003-2004 to 2015-2016. To analyze the data, specialized weighted complex survey logit regressions were conducted. Linear logit regression models using only main-effects were constructed first to assess the correlation

between the selected demographic and lifestyle variables and asthma, emphysema, chronic bronchitis, and COPD. A second set of linear, main-effects logit regression models were constructed to examine the correlation between lung cancer and asthma, emphysema, chronic bronchitis, COPD when corrected for the selected covariates. The study identified positive correlations between emphysema, chronic bronchitis, COPD, and lung cancer. No correlation between asthma and lung cancer was established. Of the covariates studied, race/ethnicity, marital status, highest educational level, age, family income to poverty ratio, and lifetime smoking were also found to be correlated with the presence of lung cancer. Correlations between the covariates gender, body mass index, alcohol consumption, and country of birth and lung cancer were not found. The study established statistically significant correlations between lung cancer and the lung diseases emphysema, chronic bronchitis, and COPD. The lack of association between asthma and lung cancer may arise from the timeline of diagnosis asthma or type of lung cancer. The study also established significant correlations between lung cancer and several of the covariates included in the analysis. It also established correlations between the covariates and the lung diseases asthma, emphysema, chronic bronchitis, and COPD.

Keywords: Asthma; Chronic bronchitis; Emphysema; Lung cancer; NHANES.

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Adv Ther

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. 2022 Oct 17;1-20.

doi: 10.1007/s12325-022-02340-w. Online ahead of print.

[A Renewed Charter: Key Principles to Improve Patient Care in Severe Asthma](#)

[Andrew Menzies-Gow](#)^{1,2}, [David J Jackson](#)³, [Mona Al-Ahmad](#)⁴, [Eugene R Bleecker](#)⁵, [Francisco de Borja G Cosio Piqueras](#)⁶, [Stephen Brunton](#)⁷, [Giorgio Walter Canonica](#)^{8,9}, [Charles K N Chan](#)¹⁰, [John Haughney](#)¹¹, [Steve Holmes](#)¹², [Janwillem Kocks](#)^{13,14,15}, [Tonya Winders](#)^{16,17}

Affiliations expand

- PMID: 36251167
- PMCID: [PMC9573814](#)
- DOI: [10.1007/s12325-022-02340-w](#)

Free PMC article

Abstract

Asthma is a heterogenous respiratory disease, usually associated with chronic airway inflammation and hyper-responsiveness, which affects an estimated 339 million people worldwide. Severe asthma affects approximately 5-10% of patients with asthma, approximately 17-34 million people globally, more than half of whom have uncontrolled disease. Severe asthma carries a substantial burden of disease, including unpredictable symptoms and potentially life-threatening flare-ups. Furthermore, severe asthma has a substantial burden on health care systems and economies worldwide. In 2018, a group of experts from the clinical community, patient support groups, and professional organisations joined together to develop the Severe Asthma Patient Charter, which set out six principles to define what patients should expect for the management of their severe asthma and what should constitute a basic standard of care. Since the publication of that original Charter in 2018, several important changes have occurred, including an improved understanding of asthma and effective asthma management; several new therapies have become available; and finally, the COVID-19 pandemic has placed a spotlight on respiratory conditions, the workforces that treat them, and the fundamental importance of health care system resilience. With those developments in mind, we, representatives of the academic, clinical, and patient advocacy group communities, have updated the Charter to Improve Patient Care in Severe Asthma with a focus on six principles: (1) I deserve a timely, comprehensive assessment of my asthma and its severity; (2) I deserve a timely, straightforward referral to an appropriate specialist for my asthma when it is not well controlled; (3) I deserve to understand what makes my asthma worse; (4) I deserve access

to treatment and care that reduces the impact of asthma on my daily life; (5) I deserve not to be reliant on systemic corticosteroids; (6) I deserve to be involved in decisions about my treatment and care.

Keywords: Health care; Patient advocacy; Severe asthma.

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- [2 figures](#)

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J Asthma

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. 2022 Oct 17;1-6.

doi: 10.1080/02770903.2022.2137036. Online ahead of print.

[Achieving Zero Asthma-Related Hospitalisations in the World's First SABA-Free Asthma Centre in Argentina](#)

[Luis J Nannini](#)^{1,2}, [Nadia Brandan](#)¹, [Octavio M Fernandez](#)¹

Affiliations expand

- PMID: 36250947
- DOI: [10.1080/02770903.2022.2137036](https://doi.org/10.1080/02770903.2022.2137036)

No abstract available

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J Asthma



. 2022 Oct 20;1-8.

doi: 10.1080/02770903.2022.2130800. Online ahead of print.

[Impact of exacerbations on lung function, resource utilization, and productivity: results from an observational, prospective study in adults with uncontrolled asthma](#)

[Juan Wisnivesky](#)^{1,2}, [Emily Federmann](#)¹, [Laurent Eckert](#)³, [Erin West](#)⁴, [Caroline Amand](#)³, [Driss Kamar](#)⁵, [Ariel Teper](#)⁶, [Asif H Khan](#)³

Affiliations expand

- PMID: 36218309
- DOI: [10.1080/02770903.2022.2130800](https://doi.org/10.1080/02770903.2022.2130800)

Abstract

Background: Exacerbations have a major impact on the well-being of patients with uncontrolled asthma. This study evaluated lung function, healthcare resource utilization (HCRU), and productivity loss following asthma exacerbations. **Methods:** This single-center, observational, prospective cohort study recruited US patients presenting clinically with an acute asthma exacerbation; a reference group without exacerbations was included for comparison. Lung function (forced expiratory volume in 1 second [FEV₁]) was collected at baseline, daily during Month 1, and monthly for Months 2-5, and reported as FEV₁ percent predicted (FEV₁pp). HCRU (outpatient visits to a healthcare practitioner, emergency room [ER] visits, and hospitalizations for asthma), oral corticosteroid (OCS) use, and asthma-related work/school absence were collected monthly for 6 months. **Results:** Overall, 150 patients were recruited (exacerbation: *n*=102; reference: *n*=48; mean [SD] age: 42.7 [15.2] and 49.6 [12.4] years; female: 73% and 71%). In both groups, similar trends were observed in FEV₁, with significant improvement from baseline to Week 1 (*p*<0.05), followed by a continuous decline. FEV₁p was 7.7% lower at baseline and 8.6% lower at Month 5 in the exacerbation group versus the reference group. The exacerbation group had significantly higher rates of OCS prescription during follow-up versus reference group (*p*=0.04). Over half (52.9%) of patients in the exacerbation group had a recurrent exacerbation during follow-up, increased HCRU (outpatient visits, ER visits, and hospitalizations), and impaired productivity. **Conclusion:** Although patients with exacerbations had rapid recovery of lung function, this was not maintained and declined faster than in patients without exacerbations. Additionally, patients experienced increased HCRU after exacerbations.

Keywords: Forced expiratory volume; airway disease; asthma exacerbations; healthcare resource utilization; symptom exacerbation.

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J Asthma

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. 2022 Oct 20;1-8.

doi: 10.1080/02770903.2022.2132959. Online ahead of print.

Association between asthma and work absence in working adults in the United States

[Louis Jacob](#)^{1,2,3}, [Jae Il Shin](#)⁴, [Guillermo F López-Sánchez](#)⁵, [Josep Maria Haro](#)^{1,2}, [Ai Koyanagi](#)^{1,2,6}, [Karel Kostev](#)⁷, [Laurie Butler](#)⁸, [Yvonne Barnett](#)⁸, [Hans Oh](#)⁹, [Lee Smith](#)¹⁰

Affiliations expand

- PMID: 36214492
- DOI: [10.1080/02770903.2022.2132959](https://doi.org/10.1080/02770903.2022.2132959)

Abstract

Objectives: The present study aimed to investigate the association between asthma and work absence in a large sample of US working adults, while controlling for several sociodemographic and health characteristics. **Methods:** This study used data from the 2019 Health and Functional Capacity Survey of the RAND American Life Panel (ALP). Work absence corresponded to the number of days of absence from work for health-related reasons in the past 12 months. Current asthma was self-reported and was included in the analyses as a dichotomous variable. Control variables included sex, age, ethnicity, marital status, education, occupation, annual family income, health insurance, and number of chronic physical or psychiatric conditions. Finally, the association between asthma and work absence was analyzed using logistic regression models. **Results:** This study included 1,323 adults aged 22-65 years (53.1% males; mean [SD] age 43.1 [11.7] years). Individuals with asthma were more likely to report at least one (81.5% versus 56.8%, p -value<0.001) or three days of absence (56.9% versus 31.3%, p -value=0.003) from work in the past 12 months than those without asthma. These findings were corroborated in the regression analyses, as asthma was positively and significantly associated with work absence after adjusting for all control variables (at least one day of absence: OR=3.24, 95% CI=1.44-7.29; at least three days of absence: OR=2.61, 95% CI=1.26-5.40). **Conclusions:** This US study of working adults showed that asthma was a risk factor for work absence. Further research is warranted to better understand the factors predisposing to work absence in the asthma population.

Keywords: Asthma; United States; cross-sectional study; epidemiology; work absence.

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J Asthma

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. 2022 Oct 17;1-10.

doi: 10.1080/02770903.2022.2115927. Online ahead of print.

[Dupilumab efficacy and safety in Latin American patients with uncontrolled, moderate-to-severe asthma: phase 3 LIBERTY ASTHMA QUEST study](#)

[Jorge F Maspero](#)¹, [Guido Cardona](#)², [Patricia Schonfeldt](#)³, [Alberto Tolcachier](#)⁴, [Sandra N González-Díaz](#)⁵, [Anahi Yañez](#)⁶, [Clovis E Galvao](#)⁷, [Jerome Msihid](#)⁸, [Rebecca Gall](#)⁹, [Shahid Siddiqui](#)⁹, [Paul J Rowe](#)¹⁰, [Yamo Deniz](#)⁹, [Juby A Jacob-Nara](#)¹⁰, [Michel Djandji](#)¹¹

Affiliations expand

- PMID: 36066123
- DOI: [10.1080/02770903.2022.2115927](https://doi.org/10.1080/02770903.2022.2115927)

Abstract

Objective: While advances in asthma care have been made in Latin America, there is still a large unmet need in patients with uncontrolled asthma. This *post hoc* analysis of the QUEST study assessed safety and efficacy of dupilumab in the subgroup of patients enrolled in Latin American countries with a type 2 inflammatory asthma phenotype (blood eosinophils ≥ 150 cells/ μ L or FeNO ≥ 25 ppb).

Methods: LIBERTY ASTHMA QUEST ([NCT02414854](https://clinicaltrials.gov/ct2/show/study/NCT02414854)) was a phase 3, multinational, randomized, double-blind, placebo-controlled study in patients with uncontrolled, moderate-to-severe asthma. Eligible patients ≥ 12 years of age were randomized in a 2:2:1:1 ratio to receive 52 weeks of add-on subcutaneous dupilumab 200 or 300 mg every 2 weeks or matched-volume placebos. Pre-specified co-primary efficacy endpoints were the annualized rate of severe exacerbations during the treatment period and the change from baseline in pre-bronchodilator FEV₁ at treatment week 12. Asthma control, changes in asthma biomarker levels, and dupilumab safety were also evaluated.

Results: 530 (27.9% of the overall QUEST population; dupilumab: 353, placebo: 177) Latin-American patients were recruited; 420 (79.2%) had a type 2 inflammatory asthma phenotype. Dupilumab vs placebo reduced the annualized rate of severe exacerbations by 52.7% ($P < 0.001$) and increased pre-bronchodilator FEV₁ at week 12 by 0.15 L ($P < 0.001$), in the type 2 population. Safety was consistent with the known dupilumab safety profile.

Conclusions: Consistent with the results in the overall population, dupilumab reduced the risk of severe asthma exacerbations and improved lung function in Latin American patients with uncontrolled, moderate-to-severe asthma and a type 2 phenotype.

Keywords: Biomarkers; mechanisms; phenotypes; quality of life; treatment.

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Clin Exp Immunol

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. 2022 Oct 21;210(1):39-52.

doi: 10.1093/cei/uxac074.

[Upregulated expression of substance P and NK1R in blood monocytes and B](#)

cells of patients with allergic rhinitis and asthma

[Peixuan Han](#)¹, [Liping Chen](#)², [Dong Chen](#)³, [Ruiming Yang](#)³, [Wei Wang](#)³, [Jingyu Liu](#)³, [Shaoheng He](#)^{1,3}, [Huiyun Zhang](#)¹

Affiliations expand

- PMID: 36001730
- DOI: [10.1093/cei/uxac074](https://doi.org/10.1093/cei/uxac074)

Abstract

Increased expression of substance P (SP) and neurokinin-1 receptor (NK1R) has been noticed in patients with allergic rhinitis (AR) and allergic asthma (AA). However, little is known of the expression of SP and NK1R in monocytes and B cells of AR and AA. In the present study, the expression levels of SP and NK1R were determined by flow cytometry and mouse AR and AA models. The results showed that both percentages of SP+ monocytes and SP+ B cells, and mean fluorescence intensity (MFI) of SP in monocytes were elevated in the blood of AA and AR combined with AA (ARA) patients. Similarly, the percentages of NK1R+ monocytes were elevated in the blood of AR, AA, and ARA patients. Allergens *Artemisia sieversiana* wild allergen extract (ASWE), house dust mite extract (HDME), and *Platanus* pollen allergen extract (PPE) increased the expression density of SP molecules (determined by MFI) in an individual monocyte of AR patients. HDME and PPE appeared to enhance SP and NK1R expression in the B cells of ARA and AR patients. In the mouse AR and AA models, the percentages of NK1R+ monocytes and B cells were elevated in blood following OVA (ovalbumin) sensitization and challenge. Knocking out the FcεRI molecule completely abolished the OVA-induced upregulation of expression of NK1R in monocytes and B cells of AA mice. In conclusion, upregulated expressions of SP and NK1R may contribute to the pathogenesis of airway allergy.

Keywords: B cell; NK1R; allergic asthma; allergic rhinitis; monocyte; substance P.

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SUPPLEMENTARY INFO

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RHINITIS

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Eur Arch Otorhinolaryngol

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. 2022 Oct 22.

doi: 10.1007/s00405-022-07704-0. Online ahead of print.

Nasal eosinophilia as a preliminary discriminative biomarker of non-allergic rhinitis in every day clinical pediatric practice

[Athina Papadopoulou](#)^{1,2}, [Stavroula Lambidi](#)³, [Theano Lagousi](#)⁴, [Maria Syrrou](#)⁵, [Fani Giannoula](#)⁴, [Efstathia Staikou](#)⁵, [Stavroula Kostaridou](#)⁶, [Despoina-Zoe T Mermiri](#)⁴

Affiliations expand

- PMID: 36271956
- DOI: [10.1007/s00405-022-07704-0](https://doi.org/10.1007/s00405-022-07704-0)

Abstract

Background: Non-allergic rhinitis (NAR) in children, named local allergic rhinitis (LAR) and non-allergic rhinitis with eosinophilia syndrome (NARES), are recently termed entities in childhood characterized by symptoms suggestive of allergic rhinitis in the absence of systemic atopy. Nasal eosinophils (nEo) are the principal cells involved in the allergy inflammation and nasal allergen provocation test is the gold standard method for the diagnosis, albeit with several limitations. The aim of this study was to validate the presence of nEo in combination with the therapeutic response to nasal steroids, as a preliminary discriminator of NAR in real life data.

Methods: In a prospective cohort study, 128 children (63.3% male, aged 72 ± 42 m) with history of NAR were enrolled and followed up for 52 ± 32 m. Nasal cytology was performed and nasal steroids trial was recommended initially in all and repeatedly in relapsing cases. Response to therapy was clinically evaluated using 10-VAS.

Results: Significant nEo was found in 59.3% of the cases and was related to reported dyspnea episodes. 23.4% had no response to therapy, whereas 51.5% were constantly good responders. Response to therapy was related to nEo and a cutoff point of 20% was defined as the most reliable biological marker with 94% sensitivity and 77% specificity.

Conclusions: In children with symptoms of NAR, the presence of nEo > 20% constantly responding to nasal steroid therapy, is a clear indicator of atopy. In an everyday clinical setting, it emerged as an easy, preliminary, cell biomarker suggestive of further investigation such as NAPT, to discriminate LAR from NARES.

Keywords: Biomarker; Children; Nasal eosinophils; Nasal steroids; Non-allergic rhinitis.

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. 2022 Oct 21;12(10):e062435.

doi: 10.1136/bmjopen-2022-062435.

[Is mesenchymal stem cell effective for allergic rhinitis? A protocol for a systematic review and meta-analysis](#)

[Le Yan](#)^{#1}, [Hanxue Zheng](#)^{#2}, [Huiping Zhang](#)³, [Lintong Dai](#)⁴, [Qinxu Zhang](#)⁵

Affiliations expand

- PMID: 36270760
- DOI: [10.1136/bmjopen-2022-062435](https://doi.org/10.1136/bmjopen-2022-062435)

Abstract

Introduction: Allergic rhinitis (AR) is a kind of widespread but unrecognised inflammatory disorder of nasal mucosa, characterised by itching, sneezing, runny nose and nasal congestion. The efficacy of mesenchymal stem cells (MSCs) in the treatment of AR remains controversial. This protocol describes a systematic review and meta-analysis approach to assess the efficacy and safety of MSCs in the treatment of AR.

Methods and analysis: Eight databases (PubMed, Embase, Cochrane Library, Web of Science, China National Knowledge Infrastructure, Chinese Biomedical Literature Database, VIP and Wanfang) will be searched from the database inception to 1 December 2023. All randomised controlled trials related to MSCs for AR will be included. The primary outcomes will be therapeutic effect, serum IgE index and Visual Analogue Scale score for nasal symptoms. Risk of bias will be assessed using the Cochrane Collaboration's tool for assessing risk of bias. Article selection, data extraction and risk of bias assessment will be performed in duplicate by two independent reviewers.

Ethics and dissemination: Ethics approval is not required because individual patient data are not included. This protocol was registered in the international Prospective Register of Systematic Reviews on 22 January 2022. The systematic review and meta-analysis will be submitted for publication in a peer-reviewed journal. The findings will also be disseminated through conference presentations.

Prospero registration number: CRD42022303146.

Keywords: adult otolaryngology; cell biology; otolaryngology.

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Conflict of interest statement

Competing interests: None declared.

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Effects of Combined Visible and Infrared Light Rhinophototherapy in Patients With Allergic Rhinitis

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Affiliations expand

- PMID: 36266929
- DOI: [10.1177/19458924221133898](https://doi.org/10.1177/19458924221133898)

Abstract

Background: Intranasal phototherapy offers an alternative treatment method for patients with allergic rhinitis who cannot benefit from intranasal corticosteroids and oral antihistamines. Different wavelengths have been tried with promising results.

Objective: In this present study, we aimed to investigate the effects of visible light-infrared light phototherapy on clinical improvements together with its cytologic effects in patients with allergic rhinitis.

Methods: Patients with confirmed allergic rhinitis were given a 4-week course of intranasal phototherapy treatment. Weekly symptom questionnaires were applied to monitor clinical effects. Nasal lavage specimens were obtained before the start and at the completion of the 4-week therapy. Fluorescence-activated cell sorting analyses of CD16⁺, CD24⁺, and CD45⁺ cells were performed. Statistical analyses are performed of weekly changes in symptoms and cell counts.

Results: CD45⁺CD16^{high}CD24⁺ neutrophil count in nasal lavages decreased significantly whereas CD45⁺CD16^{dim/-}CD24⁺ eosinophil counts significantly increased and CD45⁺ granulocyte counts remained unchanged. Symptom scores including nasal itching, nasal discharge, nasal obstruction, sneezing, eye itching, throat itching, and ear itching all statistically decreased compared to baseline at the end of 4 weeks.

Conclusion: Four-week course of intranasal phototherapy with visible and infrared light leads to clinical improvement in allergic rhinitis patients.

Keywords: allergic rhinitis; allergy; device; flowcytometry; infrared; intranasal; light; phototherapy; red; reliever; visible.

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Review

Otolaryngol Clin North Am

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. 2022 Oct 17;S0030-6665(22)00127-X.

doi: 10.1016/j.otc.2022.09.005. Online ahead of print.

[Unified Airway Disease: Examining Prevalence and Treatment of Upper Airway Eosinophilic Disease with Comorbid Asthma](#)

[Mitesh P Mehta](#)¹, [Sarah K Wise](#)²

Affiliations expand

- PMID: 36266106

- DOI: [10.1016/j.otc.2022.09.005](https://doi.org/10.1016/j.otc.2022.09.005)

Abstract

The "unified airway" describes the concept that inflammation affects upper and lower airways by similar mechanisms; this often manifests as rhinitis, rhinosinusitis, and/or nasal polyposis in the upper airway with associated asthma or bronchial inflammation in the lower airways. The relationships between eosinophilic diseases of the upper and lower airways are highlighted by examining their prevalence and treatment regimens along with the synergistic effects of treatment on upper and lower airway symptoms. It is important to recognize the interrelatedness of upper and lower airway eosinophilic disease to assess and manage patients accurately and holistically.

Keywords: Asthma; Eosinophilia; Nasal polyp; Rhinitis; Rhinosinusitis; Type 2 inflammation; Unified airway.

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. 2022 Oct 17;S0030-6665(22)00123-2.

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Unified Airway Disease: A Contemporary Review and Introduction

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Affiliations expand

- PMID: 36266105
- DOI: [10.1016/j.otc.2022.09.001](https://doi.org/10.1016/j.otc.2022.09.001)

Abstract

Upper and lower airways diseases are very common, with population prevalence of 10% to 40%. The conditions are usually interlinked and referred to as "unified airway disease" or "the united airways." Especially in phenotypes with more severe disease, type 2 immunologic endotype is often noted. Comorbid upper and lower airway diseases are usually caused by similar underlying immunologic response. Any patient with rhinitis or rhinosinusitis should have their lower respiratory tract evaluated. A multidisciplinary approach in the diagnosis and treatment of airway disease is advised, especially, for more severe phenotypes.

Keywords: Allergic rhinitis; Asthma; Care-pathways; Chronic rhinosinusitis; United airways.

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Conflict of interest statement

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Clin Exp Immunol

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. 2022 Oct 21;210(1):39-52.

doi: 10.1093/cei/uxac074.

Upregulated expression of substance P and NK1R in blood monocytes and B cells of patients with allergic rhinitis and asthma

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Affiliations expand

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Abstract

Increased expression of substance P (SP) and neurokinin-1 receptor (NK1R) has been noticed in patients with allergic rhinitis (AR) and allergic asthma (AA). However, little is known of the expression of SP and NK1R in monocytes and B cells of AR and AA. In the present study, the expression levels of SP and NK1R were determined by flow cytometry and mouse AR and AA models. The results showed that both percentages of SP⁺ monocytes and SP⁺ B cells, and mean fluorescence intensity (MFI) of SP in monocytes were elevated in the blood of AA and AR combined with AA (ARA) patients. Similarly, the percentages of NK1R⁺ monocytes were elevated in the blood of AR, AA, and ARA patients. Allergens *Artemisia sieversiana* wild allergen extract (ASWE), house dust mite extract (HDME), and *Platanus* pollen allergen extract (PPE) increased the expression density of SP molecules (determined by MFI) in an individual monocyte of AR patients. HDME and PPE appeared to enhance SP and NK1R expression in the B cells of ARA and AR patients. In the mouse AR and AA models, the percentages of NK1R⁺ monocytes and B cells were elevated in blood following OVA (ovalbumin) sensitization and challenge. Knocking out the FcεRI molecule completely abolished the OVA-induced upregulation of expression of NK1R in monocytes and B cells of AA mice. In conclusion, upregulated expressions of SP and NK1R may contribute to the pathogenesis of airway allergy.

Keywords: B cell; NK1R; allergic asthma; allergic rhinitis; monocyte; substance P.

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. 2022 Oct 20;844:157177.

doi: 10.1016/j.scitotenv.2022.157177. Epub 2022 Jul 6.

[Impact of environmental factors and bacterial interactions on dust mite allergens in different indoor dust](#)

[Zimeng Li](#)¹, [Na Zheng](#)², [Qirui An](#)¹, [Xiaoqian Li](#)¹, [Siyu Sun](#)¹, [Wenhui Zhang](#)¹, [Yining Ji](#)¹, [Sujing Wang](#)¹, [Pengyang Li](#)¹

Affiliations expand

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- DOI: [10.1016/j.scitotenv.2022.157177](https://doi.org/10.1016/j.scitotenv.2022.157177)

Abstract

Indoor dust is the main carrier of indoor pollutants, especially dust mite allergens and bacteria, they can trigger asthma, rhinitis, eczema and other allergic diseases. However, the interactions between dust mite allergens and bacterial communities in different types of indoor dust are not clear. The study focused on particulate and flocculent fibrous dust, explored the concentrations of Der p 1 (*Dermatophagoides pteronyssinus*) and Der f 1 (*D. farinae*) in 46 households in Changchun and their environmental influences, characterized the bacterial communities by high-throughput sequencing, and the interactions between Der p 1, Der f 1 and bacterial communities were explored. The results showed that Der p 1 and Der f 1 tended to accumulate more in flocculent fibrous dust, and Der p 1 predominated in the indoor dust samples. The floor height, years of housing occupancy and the living areas all affected the concentrations of dust mite allergens. In bacterial community, Proteobacteria, Firmicutes and Actinobacteria were leading phyla in the two types of dust. *Kocuria*, *Blastococcus* and *Massilia* were dominating genera in particulate dust and *Acinetobacter*, *Lactobacillus*, *Corynebacterium_1* were dominating genera in flocculent fibrous dust. The overall diversity and species richness of bacteria in particulate dust were significantly higher than those in flocculent dust ($p < 0.001$). The living area was an important environmental factor affecting the bacterial community in flocculent fibrous dust ($p < 0.01$). The interaction between the relative abundance of Proteobacteria, Firmicutes and Actinobacteria and dust mite allergen concentrations significantly differed between the two dust types, indicating that bacteria could be used both as food and to establish symbiotic relationships with household dust mites (HDMs) hosts and provide nutrition.

Keywords: Bacteria community; Building characteristics; Dust mite allergens; Indoor dust; Interaction.

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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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CHRONIC COUGH

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PLoS One



. 2022 Oct 20;17(10):e0276560.

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[Respiratory symptoms and cardiovascular causes of deaths: A population-based study with 45 years of follow-up](#)

[Knut Stavem](#)^{1,2,3}, [Henrik Schirmer](#)^{2,4}, [Amund Gulsvik](#)⁵

Affiliations [expand](#)

- PMID: 36264870
- PMCID: [PMC9584444](#)
- DOI: [10.1371/journal.pone.0276560](#)

Abstract

This study determined the association between respiratory symptoms and death from cardiovascular (CV) diseases during 45 years in a pooled sample of four cohorts of random samples of the Norwegian population with 95,704 participants. Respiratory symptoms were assessed using a modification of the MRC questionnaire on chronic bronchitis. We analyzed the association between respiratory symptoms and specific cardiovascular deaths by using Cox regression analysis with age as the time variable, accounting for cluster-specific random effects using shared frailty for study cohort. Hazard ratios (HR) for death were adjusted for sex, highest attained education, smoking habits, occupational air pollution, and birth cohort. Overall, 12,491 (13%) of participants died from CV diseases: 4,123 (33%) acute myocardial infarction, 2,326 (18%) other ischemic heart disease, 2,246

(18%) other heart diseases, 2,553 (20%) cerebrovascular diseases, and 1,120 (9%) other vascular diseases. The adjusted HR (95% confidence interval) for CV deaths was 1.9 (1.7-2.1) in men and 1.5 (1.2-1.9) in women for "yes" to the question "Are you breathless when you walk on level ground at an ordinary pace?". The same item response showed an adjusted HR for death from acute myocardial infarction of 1.8 (1.5-2.1), other ischemic heart disease 2.2 (1.8-2.7), other heart diseases 1.5 (1.1-1.9), cerebrovascular disease 1.8 (1.5-2.3), and other circulatory diseases 1.7 (1.2-2.4). The adjusted HR for CV death was 1.3 (1.2-1.4) when answering positive to the question "Are you more breathless than people of your own age when walking uphill?". However, positive answers to questions on cough, phlegm, wheezing and attacks of breathlessness were after adjustments not associated with early CV deaths. The associations between CV deaths and breathlessness were also present in never smokers. Self-reported breathlessness was associated with CV deaths and could be an early marker of CV deaths.

Conflict of interest statement

The authors have declared that no competing interests exist.

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Nicotine Tob Res

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. 2022 Oct 17;24(10):1607-1618.

doi: 10.1093/ntr/ntac080.

[Tobacco Use and Respiratory Symptoms Among Adults: Findings From the Longitudinal Population](#)

Assessment of Tobacco and Health (PATH) Study 2014-2016

[James D Sargent](#)¹, [Michael J Halenar](#)², [Kathryn C Edwards](#)², [Steven Woloshin](#)³, [Lisa Schwartz](#)³, [Jennifer Emond](#)¹, [Susanne Tanski](#)¹, [Kristie A Taylor](#)², [John P Pierce](#)⁴, [Jason Liu](#)², [Maciej L Goniewicz](#)⁵, [Raymond Niaura](#)⁶, [Gabiella Anic](#)⁷, [Yanling Chen](#)⁷, [Priscilla Callahan-Lyon](#)⁷, [Lisa D Gardner](#)⁷, [Theresa Thekkudan](#)⁷, [Nicolette Borek](#)⁷, [Heather L Kimmel](#)⁸, [K Michael Cummings](#)⁹, [Andrew Hyland](#)⁵, [Mary Brunette](#)¹

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- PMID: 35366322
- PMCID: [PMC9575972](#)
- DOI: [10.1093/ntr/ntac080](#)

Free PMC article

Abstract

Introduction: We examined the relationship between current tobacco use and functionally important respiratory symptoms.

Methods: Longitudinal cohort study of 16 295 US adults without COPD in Waves 2-3 (W2-3, 2014-2016) of the Population Assessment of Tobacco and Health Study. Exposure-Ten mutually exclusive categories of tobacco use including single product, multiple product, former, and never use (reference). Outcome-Seven questions assessing wheezing/cough were summed to create a respiratory symptom index; cutoffs of ≥ 2 and ≥ 3 were associated with functional limitations and poorer health. Multivariable regressions examined both cutoffs cross-sectionally and change over approximately 12 months, adjusting for confounders.

Results: All tobacco use categories featuring cigarettes ($>2/3$'s of users) were associated with higher risk (vs. never users) for functionally important respiratory symptoms at W2, for example, at symptom severity ≥ 3 , risk ratio for exclusive cigarette use was 2.34 [95% CI, 1.92, 2.85] and for worsening symptoms at W3 was 2.80 [2.08, 3.76]. There was largely no increased symptom risk for exclusive use of cigars, smokeless tobacco, hookah, or e-cigarettes (adjustment for pack-years and marijuana attenuated the cross-sectional e-cigarette association from 1.53(95% CI 0.98, 2.40) to 1.05 (0.67, 1.63); RRs for these products were also significantly lower compared to exclusive use of cigarettes. The

longitudinal e-cigarette-respiratory symptom association was sensitive to the respiratory index cutoff level; exclusive e-cigarette use was associated with worsening symptoms at an index cutoff ≥ 2 (RR = 1.63 [1.02, 2.59]) and with symptom improvement at an index cutoff of ≥ 3 (RR = 1.64 [1.04, 2.58]).

Conclusions: Past and current cigarette smoking drove functionally important respiratory symptoms, while exclusive use of other tobacco products was largely not associated. However, the relationship between e-cigarette use and symptoms was sensitive to adjustment for pack-years and symptom severity.

Implications: How noncigarette tobacco products affect respiratory symptoms is not clear; some studies implicate e-cigarettes. We examined functionally important respiratory symptoms (wheezing/nighttime cough) among US adults without COPD. The majority of adult tobacco users smoke cigarettes and have higher risk of respiratory symptoms and worsening of symptoms, regardless of other products used with them. Exclusive use of other tobacco products (e-cigarettes, cigars, smokeless, hookah) was largely not associated with functionally important respiratory symptoms and risks associated with their use was significantly lower than for cigarettes. The association for e-cigarettes was greatly attenuated by adjustment for cigarette pack-years and sensitive to how symptoms were defined.

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