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COPD

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Editorial

J Am Heart Assoc

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. 2023 Feb 7;12(3):e028898.

doi: 10.1161/JAHA.122.028898. Epub 2023 Feb 3.

[Balloon Pulmonary Angioplasty for Chronic Thromboembolic Pulmonary Hypertension in Patients With Chronic Obstructive Pulmonary Disease: A Note of Caution](#)

[Richard Cheng](#)¹, [Miles Conrad](#)²

Affiliations expand

- PMID: 36734352
- DOI: [10.1161/JAHA.122.028898](https://doi.org/10.1161/JAHA.122.028898)

Free article

No abstract available

Keywords: Editorials; balloon pulmonary angioplasty; chronic obstructive pulmonary disease; chronic thromboembolic pulmonary hypertension.

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

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[Review](#)

Lancet

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. 2023 Feb 4;401(10374):390-408.

doi: 10.1016/S0140-6736(22)01694-4. Epub 2022 Dec 20.

Lung cancer screening

[Scott J Adams](#)¹, [Emily Stone](#)², [David R Baldwin](#)³, [Rozemarijn Vliegenthart](#)⁴, [Pyng Lee](#)⁵, [Florian J Fintelmann](#)⁶

Affiliations expand

- PMID: 36563698
- DOI: [10.1016/S0140-6736\(22\)01694-4](https://doi.org/10.1016/S0140-6736(22)01694-4)

Abstract

Randomised controlled trials, including the National Lung Screening Trial (NLST) and the NELSON trial, have shown reduced mortality with lung cancer screening with low-dose CT compared with chest radiography or no screening. Although research has provided clarity

on key issues of lung cancer screening, uncertainty remains about aspects that might be critical to optimise clinical effectiveness and cost-effectiveness. This Review brings together current evidence on lung cancer screening, including an overview of clinical trials, considerations regarding the identification of individuals who benefit from lung cancer screening, management of screen-detected findings, smoking cessation interventions, cost-effectiveness, the role of artificial intelligence and biomarkers, and current challenges, solutions, and opportunities surrounding the implementation of lung cancer screening programmes from an international perspective. Further research into risk models for patient selection, personalised screening intervals, novel biomarkers, integrated cardiovascular disease and chronic obstructive pulmonary disease assessments, smoking cessation interventions, and artificial intelligence for lung nodule detection and risk stratification are key opportunities to increase the efficiency of lung cancer screening and ensure equity of access.

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Conflict of interest statement

Declaration of interests ES reports advisory board payment or honoraria from Merck Sharp & Dohme in which she provides expert advice on an ad-hoc basis and speaker honoraria from AstraZeneca. DRB reports speaker honoraria from MSD, Bristol Myers Squibb, AstraZeneca, and Roche. RV reports research grants from Siemens Healthineers, Dutch Heart Foundation, Dutch Cancer Foundation, and the Netherlands Organisation for Health Research and Development, and speaker honoraria from Siemens Healthineers and Bayer. FJF reports research grants from the William M Wood Foundation and the American Roentgen Ray Society, and in-kind research support from Boston Scientific. SJA and PL declare no competing interests.

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Publication types, MeSH termsexpand

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ERJ Open Res

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. 2023 Feb 6;9(1):00301-2022.

doi: 10.1183/23120541.00301-2022. eCollection 2023 Jan.

Biomarker-based clustering of patients with chronic obstructive pulmonary disease

[Lowie E G W Vanfleteren](#)^{1,2}, [Julie Weidner](#)³, [Frits M E Franssen](#)^{4,5,6}, [Swetlana Gaffron](#)⁷, [Niki L Reynaert](#)^{5,6}, [Emiel F M Wouters](#)^{4,5,6,8}, [Martijn A Spruit](#)^{4,5,6}

Affiliations expand

- PMID: 36755966
- PMID: [PMC9900445](#)
- DOI: [10.1183/23120541.00301-2022](#)

Free PMC article

Abstract

Rationale: COPD has been associated repeatedly with single biomarkers of systemic inflammation, ignoring the complexity of inflammatory pathways. This study aimed to cluster patients with COPD based on systemic markers of inflammatory processes and to evaluate differences in their clinical characterisation and examine how these differences may relate to altered biological pathways.

Methods: 213 patients with moderate-to-severe COPD in a clinically stable state were recruited and clinically characterised, which included a venous blood sample for analysis of serum biomarkers. Patients were clustered based on the overall similarity in systemic levels of 57 different biomarkers. To determine interactions among the regulated biomarkers, protein networks and biological pathways were examined for each patient cluster.

Results: Four clusters were identified: two clusters with lower biomarker levels (I and II) and two clusters with higher biomarker levels (III and IV), with only a small number of biomarkers with similar trends in expression. Pathway analysis indicated that three of the four clusters were enriched in RAGE (receptor for advanced glycation end-products) and Oncostatin M pathway components. Although the degree of airflow limitation was similar, the clinical characterisation of clusters ranged from 1) better functional capacity and health

status and fewer comorbidities; 2) more underweight, osteoporosis and static hyperinflation; 3) more metabolically deranged; and 4) older subjects with worse functional capacity and higher comorbidity load.

Conclusions: These new insights may help to understand the functionally relevant inflammatory interactions in the pathophysiology of COPD as a heterogeneous disease.

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Conflict of interest statement

Conflict of interest: L.E.G.W. Vanfleteren has received grants and personal fees from AstraZeneca, and personal fees from Novartis, GSK, Resmed, Boehringer and Verona Pharma; and is an associate editor of this journal. Conflict of interest: J. Weidner is an employee of AstraZeneca. Conflict of interest: F.M.E. Franssen has received grants and personal fees from AstraZeneca, and personal fees from Boehringer Ingelheim, Chiesi, GSK and Novartis. Conflict of interest: S. Gaffron has nothing to disclose. Conflict of interest: N.L. Reynaert has nothing to disclose. Conflict of interest: E.F.M. Wouters has nothing to disclose. Conflict of interest: M.A. Spruit received a grant for the present study from AstraZeneca, paid to Ciro.

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

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J Am Heart Assoc

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. 2023 Feb 7;12(3):e026466.

doi: 10.1161/JAHA.122.026466. Epub 2023 Feb 3.

[Efficacy and Safety of Balloon Pulmonary Angioplasty for Patients With Chronic Thromboembolic](#)

Pulmonary Hypertension and Comorbid Chronic Obstructive Pulmonary Disease

[Hiroyuki Fujii](#)¹, [Yu Taniguchi](#)¹, [Sachiyo Yoneda](#)¹, [Keisuke Miwa](#)¹, [Yoichiro Matsuoka](#)¹, [Kenichi Yanaka](#)¹, [Yasunori Tsuboi](#)¹, [Noriaki Emoto](#)¹, [Kenichi Hirata](#)¹

Affiliations expand

- PMID: 36734336
- DOI: [10.1161/JAHA.122.026466](https://doi.org/10.1161/JAHA.122.026466)

Free article

Abstract

Background Balloon pulmonary angioplasty (BPA) is a promising treatment modality for nonoperable chronic thromboembolic pulmonary hypertension (CTEPH). However, BPA for atypical CTEPH with concurrent chronic obstructive pulmonary disease (COPD) remains controversial owing to the risk of exacerbation of ventilation-perfusion mismatch. We aimed to evaluate the efficacy and safety of BPA for CTEPH with moderate or severe COPD. **Methods and Results** Data from 149 patients with CTEPH, who underwent BPA from March 2011 to June 2021, were retrospectively analyzed. Patients were divided based on COPD comorbidity: the COPD group (n=32, defined as forced expiratory volume in 1 second/forced vital capacity <70% and forced expiratory volume in 1 second <80% predicted) and the non-COPD group (n=101); patients with mild COPD (n=16) were excluded. Hemodynamic and respiratory parameters were compared between the groups. Hemodynamics improved similarly in both groups (reduction in pulmonary vascular resistance): $-55.6\pm 29.0\%$ (COPD group) and $-58.9\pm 21.4\%$ (non-COPD group); P =nonsignificant. Respiratory function and oxygenation improved in the COPD group (forced expiratory volume in 1 second/forced vital capacity [$61.8\pm 7.0\%$ to $66.5\pm 10.2\%$, $P=0.02$] and arterial oxygen partial pressure [60.9 ± 10.6 mm Hg to 69.3 ± 13.6 mm Hg, $P<0.01$]). Higher vital capacity ($P=0.024$) and higher diffusing capacity for lung carbon monoxide ($P=0.028$) at baseline were associated with greater improvement in oxygenation in the multivariable linear analysis. Lung injury per BPA session was 1.6% in the COPD group. **Conclusions** The efficacy and safety of BPA for nonoperable CTEPH in patients with comorbid COPD were similar to those in patients without COPD. Oxygenation and forced expiratory volume in 1 second/forced vital capacity improved in patients with COPD. BPA should be considered in patients with CTEPH with concurrent COPD.

Keywords: balloon pulmonary angioplasty; chronic obstructive pulmonary disease; chronic thromboembolic pulmonary hypertension.

SUPPLEMENTARY INFO

MeSH termsexpand

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Trials

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. 2023 Feb 6;24(1):86.

doi: 10.1186/s13063-023-07099-1.

[Multidimensional individualized nutritional therapy for individuals with severe chronic obstructive pulmonary disease: study protocol for a registry-based randomized controlled trial](#)

[Maria H Hegelund](#)¹, [Christian Ritz](#)², [Thyge L Nielsen](#)³, [Mette F Olsen](#)^{4,5}, [Christian Søbørg](#)³, [Lone Braagaard](#)³, [Christian Mølgaard](#)⁴, [Rikke Krogh-Madsen](#)^{6,7}, [Birgitte Lindegaard](#)³, [Daniel Faurholt-Jepsen](#)⁵

Affiliations expand

- PMID: 36747276
- PMCID: [PMC9900973](#)
- DOI: [10.1186/s13063-023-07099-1](#)

Abstract

Background: Individuals with severe chronic obstructive pulmonary disease (COPD) are often at risk of undernutrition with low health-related quality of life (HRQoL). Undernutrition can worsen COPD and other comorbidities, be an independent predictor of morbidity and functional decline resulting in increased healthcare consumption and increased risk of death. Especially exacerbations and acute infections result in unintentional weight loss. The aim is to investigate the effect of an individualized nutritional intervention among individuals with severe COPD.

Methods: An open-label randomized controlled trial with two parallel groups. Participants are recruited from the pulmonary outpatient clinic at the Department of Pulmonary and Infectious Diseases, Copenhagen University Hospital, North Zealand, Denmark, and randomly allocated to either the intervention (intervention + standard of care) or control group (standard of care). The intervention has a duration of 3 months and combines individual nutritional care with adherence support and practical tools. It contains 4 elements including an individual nutritional plan, regular contacts, adherence support, and weight diary. The primary outcome is a difference in HRQoL (EQ-5D-5L) between the intervention and control group 3 months after baseline. Difference in functional capacity (grip strength, 30-s stand chair test, and physical activity), disease-specific quality of life (COPD Assessment Test), anxiety and depression (Hospital Anxiety and Depression Scale), nutritional parameters (energy and protein intake), anthropometry (weight, body mass index, waist, hip, and upper arm circumference), body composition (total fat-free and fat mass and indices), and prognosis (exacerbations, oxygen therapy, hospital contacts, and mortality) 3 months after baseline will be included as secondary outcomes. Data will be collected through home visits at baseline and 1 and 3 months after baseline.

Discussion: Currently, nutritional care is a neglected area of outpatient care among individuals with severe COPD. If this patient-centered approach can demonstrate a positive impact on HRQoL, mortality, and hospital contacts, it should be recommended as part of end-of-life care for individuals with severe COPD.

Trial registration: ClinicalTrials.gov [NCT04873856](https://clinicaltrials.gov/ct2/show/study/NCT04873856) . Registered on May 3, 2021.

Keywords: Body composition; Chronic obstructive pulmonary disease; Functional capacity; Mental health; Nutritional status; Nutritional therapy; Quality of life.

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Conflict of interest statement

The authors declare that they have no competing interests.

- [52 references](#)
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Publication types, MeSH terms, Associated data, Grant support [expand](#)

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Expert Rev Respir Med

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. 2023 Feb 6;1-9.

doi: [10.1080/17476348.2023.2171990](https://doi.org/10.1080/17476348.2023.2171990). Online ahead of print.

[Efficacy and safety of tiotropium bromide inhalation in symptomatic patients with chronic obstructive pulmonary disease: A multicenter, prospective, and observational study](#)

[Yue Liao](#)¹, [Hao Wang](#)¹, [Ke Wang](#)¹, [Kai Zi](#)¹, [Yongchun Shen](#)¹, [Lei Chen](#)¹, [Tao Wang](#)¹, [Jun Chen](#)¹, [Fuqiang Wen](#)¹

Affiliations [expand](#)

- PMID: [36714923](#)
- DOI: [10.1080/17476348.2023.2171990](https://doi.org/10.1080/17476348.2023.2171990)

Abstract

Objectives: Treatment guidelines have recommended tiotropium bromide inhalation (TBI), a long-acting muscarinic antagonist, for chronic obstructive pulmonary disease (COPD); however, its efficacy in symptomatic Chinese patients with COPD remains uninvestigated.

Methods: This multicenter, prospective, observational study enrolled patients with COPD assessment test (CAT) scores exceeding 10 points from 19 hospitals spread across China. All patients received TBI and underwent follow-up for 3 months. The demographic and clinical information were assessed.

Results: The final analysis included 378 patients. The forced expiratory volume in 1 s (FEV₁) and FEV₁/forced vital capacity (FVC) of all participants improved markedly after 3 months of treatment (FEV₁: mean 1.33 L versus 1.61 L, $P < 0.001$; FEV₁/FVC: mean 0.53 versus 0.62, $P < 0.001$). The mean CAT scores decreased from 26.56 to 16.28 ($P < 0.001$). Patients classified into group D based on the Global Initiative for COPD guidelines showed greater improvement in FEV₁ and FEV₁/FVC than that in patients in group B. The proportion of patients with acute exacerbations also declined from 28.6% in the first month to 4.2% in the third month.

Conclusion: TBI for 3 months could effectively and safely attenuate symptoms and airflow obstruction in symptomatic Chinese patients with COPD.

Keywords: CAT; FEV₁; FEV₁/FVC; Tiotropium bromide inhalation; acute exacerbation; airway limitation; chronic obstructive pulmonary disease; long-acting muscarinic antagonist.

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Intern Emerg Med

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. 2023 Feb 11.

doi: 10.1007/s11739-023-03207-w. Online ahead of print.

[Clinical features and outcomes of elderly hospitalised patients with](#)

chronic obstructive pulmonary disease, heart failure or both

[Ernesto Crisafulli](#)^{1,2}, [Giulia Sartori](#)^{3,4}, [Alice Vianello](#)⁴, [Fabiana Busti](#)⁴, [Alessandro Nobili](#)⁵, [Pier Mannuccio Mannucci](#)⁶, [Domenico Girelli](#)⁴; [REPOSI Investigators](#)

Collaborators, Affiliations expand

- PMID: 36773107
- DOI: [10.1007/s11739-023-03207-w](https://doi.org/10.1007/s11739-023-03207-w)

Abstract

Background and objective: Chronic obstructive pulmonary disease (COPD) and heart failure (HF) mutually increase the risk of being present in the same patient, especially if older. Whether or not this coexistence may be associated with a worse prognosis is debated. Therefore, employing data derived from the REPOSI register, we evaluated the clinical features and outcomes in a population of elderly patients admitted to internal medicine wards and having COPD, HF or COPD + HF.

Methods: We measured socio-demographic and anthropometric characteristics, severity and prevalence of comorbidities, clinical and laboratory features during hospitalization, mood disorders, functional independence, drug prescriptions and discharge destination. The primary study outcome was the risk of death.

Results: We considered 2,343 elderly hospitalized patients (median age 81 years), of whom 1,154 (49%) had COPD, 813 (35%) HF, and 376 (16%) COPD + HF. Patients with COPD + HF had different characteristics than those with COPD or HF, such as a higher prevalence of previous hospitalizations, comorbidities (especially chronic kidney disease), higher respiratory rate at admission and number of prescribed drugs. Patients with COPD + HF (hazard ratio HR 1.74, 95% confidence intervals CI 1.16-2.61) and patients with dementia (HR 1.75, 95% CI 1.06-2.90) had a higher risk of death at one year. The Kaplan-Meier curves showed a higher mortality risk in the group of patients with COPD + HF for all causes ($p = 0.010$), respiratory causes ($p = 0.006$), cardiovascular causes ($p = 0.046$) and respiratory plus cardiovascular causes ($p = 0.009$).

Conclusion: In this real-life cohort of hospitalized elderly patients, the coexistence of COPD and HF significantly worsened prognosis at one year. This finding may help to better define the care needs of this population.

Keywords: Chronic obstructive pulmonary disease; Heart failure; Hospital cure; Mortality; Multimorbidity; Prognosis.

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- [43 references](#)

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BMC Geriatr

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. 2023 Feb 11;23(1):89.

doi: 10.1186/s12877-023-03784-7.

[Sarcopenia index as a predictor of clinical outcomes among older adult patients with acute exacerbation of chronic obstructive pulmonary disease: a cross-sectional study](#)

[Xuanna Zhao](#)^{#1}, [Ruoxin Su](#)^{#1}, [Rongwei Hu](#)¹, [Yujuan Chen](#)¹, [Xiaoyong Xu](#)¹, [Yalian Yuan](#)¹, [Jinhong Zhang](#)¹, [Wenchao Zhang](#)¹, [Yu Yang](#)², [Min Chen](#)¹, [Dongming Li](#)¹, [Bin Wu](#)¹, [Dan Huang](#)³, [Dong Wu](#)⁴

Affiliations [expand](#)

- PMID: 36774462

- DOI: [10.1186/s12877-023-03784-7](#)

Abstract

Background: Sarcopenia is a geriatric syndrome with progressive loss of skeletal muscle mass and function and has a negative impact on clinical outcomes associated with chronic

obstructive pulmonary disease (COPD). Recently, the sarcopenia index (SI) was developed as a surrogate marker of sarcopenia based upon the serum creatinine to cystatin C ratio. We aimed to assess the value of SI for predicting clinically important outcomes among elderly patients with acute exacerbation of COPD (AECOPD).

Methods: This cross-sectional study included elderly patients with AECOPD in China from 2017 to 2021. Clinical data were collected from medical records, and serum creatinine and cystatin C were measured. Outcomes included respiratory failure, heart failure, severe pneumonia, invasive mechanical ventilation, and mortality. Binary logistic regression was used to analyze the association between SI and clinical outcomes.

Results: A total of 306 patients (260 men, 46 women, age range 60-88 years) were enrolled in this study. Among the total patients, the incidence of respiratory failure and severe pneumonia was negatively associated with SI values. After adjusting for potential confounding factors, binary logistic regression analyses showed that a higher SI was still independently associated with a lower risk of respiratory failure (odds ratio [OR]: 0.27, 95% confidence interval [CI]: 0.13-0.56, $P < 0.05$). In subgroup analysis, the incidence of respiratory failure was negatively associated with SI values in groups with both frequent exacerbation and non-frequent exacerbation. After adjustment for potential confounders, binary logistic regression analyses showed that a higher SI was also independently associated with a lower risk of respiratory failure in both groups (OR: 0.19, 95% CI: 0.06-0.64 and OR: 0.31, 95% CI: 0.11-0.85). However, there were no significant differences in the correlations between SI and the risk of heart failure, invasive mechanical ventilation, and mortality in all groups.

Conclusion: The SI based on serum creatinine and cystatin C can predict respiratory failure in patients with AECOPD and either frequent or infrequent exacerbations. This indicator provides a convenient tool for clinicians when managing patients with AECOPD in daily clinical practice.

Keywords: Acute exacerbation of chronic obstructive pulmonary disease; Clinical outcomes; Creatinine; Cystatin C; Elderly patients; Sarcopenia index.

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- [38 references](#)

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Stem Cells

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. 2023 Feb 7;sxad014.

doi: 10.1093/stmcls/sxad014. Online ahead of print.

The role of lung resident mesenchymal stromal cells in the pathogenesis and repair of chronic lung disease

[Declan F Doherty](#)¹, [Lydia Roets](#)¹, [Anna D Krasnodembskaya](#)¹

Affiliations expand

- PMID: 36749355
- DOI: [10.1093/stmcls/sxad014](https://doi.org/10.1093/stmcls/sxad014)

Abstract

Mesenchymal stromal/stem cells are multipotent adult cells that can be extracted from numerous tissues, including the lungs. Lung-resident MSCs (LR-MSCs) are localised to perivascular spaces where they act as important regulators of pulmonary homeostasis, mediating the balance between lung injury/damage and repair processes. LR-MSCs support the integrity of the lung tissue via modulation of the immune response and release of trophic factors. However, in the context of chronic lung diseases, the ability of LR-MSCs to maintain pulmonary homeostasis and facilitate repair is diminished. In this setting, LR-MSC can contribute to the pathogenesis of disease, through their altered secretory and immunomodulatory properties. In addition, they are capable of differentiating into myofibroblasts, thereby contributing to the fibrotic aspects of numerous lung diseases. For example, in idiopathic pulmonary fibrosis, a variety of factors can stimulate their differentiation into myofibroblasts including tumour necrosis factor- α (TNF- α), transforming growth factor- β 1 (TGF- β 1), endoplasmic reticulum (ER) stress, Hedgehog (HH), and Wnt signalling. Here, we review the current literature on the characterisation of LR-MSCs and describe their roles in pulmonary homeostasis/repair and in the pathogenesis of chronic lung disease.

Keywords: Mesenchymal stromal cells; bronchiolitis obliterans; bronchopulmonary dysplasia; chronic lung disease; chronic obstructive pulmonary disease; idiopathic pulmonary fibrosis.

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BMC Pulm Med



. 2023 Feb 4;23(1):54.

doi: 10.1186/s12890-023-02340-8.

[Epidemiology and comorbidities in idiopathic pulmonary fibrosis: a nationwide cohort study](#)

[Jang Ho Lee](#)¹, [Hyung Jun Park](#)¹, [Seonok Kim](#)², [Ye-Jee Kim](#)², [Ho Cheol Kim](#)³

Affiliations [expand](#)

- PMID: 36739401
- PMCID: [PMC9898951](#)
- DOI: [10.1186/s12890-023-02340-8](#)

Free PMC article

Abstract

Background: Idiopathic pulmonary fibrosis (IPF) is frequently accompanied by comorbidities, with the management of these comorbidities crucial for clinical outcomes. This study investigated the prevalence, incidence, changes over time, and clinical impact of comorbidities in IPF patients, based on nationwide claims data in South Korea.

Methods: This retrospective cohort study utilised nationwide health claim data in South Korea between 2011 and 2019. Patients with IPF were defined as those with ICD-10 code J84.1 and Rare Intractable Disease code V236 who made at least one claim per year.

Patients were classified by sex, age, pirfenidone use and burden of comorbidities, and differences among groups were determined.

Results: The yearly prevalence rate of IPF increased from 7.50 to 23.20 per 100,000 people, and the yearly incidence rate increased from 3.56 to 7.91 per 100,000 person-years over time. The most common respiratory comorbidity was chronic obstructive pulmonary disease (37.34%), followed by lung cancer (3.34%), whereas the most common non-respiratory comorbidities were gastro-oesophageal reflux disease (70.83%), dyslipidaemia (62.93%) and hypertension (59.04%). The proportion of some comorbidities differed by sex, age and use of pirfenidone. The proportion of lung cancer was higher in patients treated with pirfenidone, whereas the proportion of anxiety and depression were lower in patients not treated with pirfenidone. Charlson comorbidity index ≥ 4 was associated with increases in hospitalisations and total medical costs.

Conclusions: The yearly prevalence and incidence of IPF and comorbidities in Korea increased over time. These comorbidities affected the use of pirfenidone and medical resources.

Keywords: Comorbidity; Idiopathic pulmonary fibrosis; Incidence; Pirfenidone; Prevalence.

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Conflict of interest statement

The authors declare that they have no competing interests.

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

SUPPLEMENTARY INFO

MeSH terms, Substances, Grant supportexpand

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Eur Respir J

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. 2023 Feb 9;61(2):2200302.

doi: 10.1183/13993003.00302-2022. Print 2023 Feb.

Combination therapy with long-acting bronchodilators and the risk of major adverse cardiovascular events in patients with COPD: a systematic review and meta-analysis

[Mingjin Yang](#)^{1,2}, [Yishi Li](#)^{1,2}, [Youfan Jiang](#)^{3,2}, [Shuliang Guo](#)^{1,4}, [Jian-Qing He](#)^{5,4}, [Don D Sin](#)^{6,7,4}

Affiliations expand

- PMID: 36137586
- DOI: [10.1183/13993003.00302-2022](https://doi.org/10.1183/13993003.00302-2022)

Abstract

Introduction: Accumulated high-quality data from randomised controlled trials (RCTs) indicate that long-acting muscarinic antagonist (LAMA)/long-acting β 2 agonist (LABA) combination therapy significantly improves clinical symptoms and health status in patients with chronic obstructive pulmonary disease (COPD) and reduces exacerbation risk. However, there is a growing concern that LAMA/LABA therapy may increase the risk of cardiovascular disease in patients with COPD. The aim of this paper is to determine whether the use of LAMA/LABA combination therapy modifies the risk of cardiovascular disease in patients with COPD.

Methods: Two reviewers independently searched Embase, PubMed and Cochrane Library to identify relevant RCTs of LAMA/LABA or LABA/LAMA/inhaled corticosteroids (ICS) for the management of patients with COPD that reported on cardiovascular end-points. The primary outcome was major adverse cardiovascular events (MACE), which was a composite of cardiovascular death, myocardial infarction or stroke.

Results: A total of 51 RCTs enrolling 91 021 subjects were analysed. Both dual LAMA/LABA (1.6% versus 1.3%; relative risk 1.42, 95% CI 1.11-1.81) and triple therapy (1.6% versus 1.4%; relative risk 1.29, 95% CI 1.03-1.61) significantly increased the risk of MACE compared with ICS/LABA. The excess risk was most evident in RCTs in which the average underlying

baseline risk for MACE was >1% per year. Compared with LAMA only, LABA only or placebo, dual LAMA/LABA therapy did not significantly increase the risk of MACE, though these comparisons may have lacked sufficient statistical power.

Conclusion: Compared with ICS/LABA, dual LAMA/LABA or triple therapy increases cardiovascular risk in patients with COPD. This should be considered in the context of the incremental benefits of these therapies for symptoms and exacerbation rates in patients with COPD, especially in those with a MACE risk of >1% per year.

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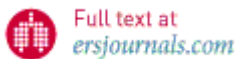
Conflict of interest statement

Conflict of interest: D.D. Sin has received honoraria for speaking engagements from GSK, AstraZeneca and Boehringer Ingelheim. The other authors declare no conflicts of interest.

Comment in

- [Inhaled therapy, cardiovascular risk and benefit-risk considerations in COPD: innocent until proven guilty, or vice versa?](#)
Regard L, Burgel PR, Roche N. *Eur Respir J*. 2023 Feb 9;61(2):2202135. doi: 10.1183/13993003.02135-2022. Print 2023 Feb. PMID: 36758999 No abstract available.

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[Meta-Analysis](#)

BMC Pulm Med

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. 2023 Feb 7;23(1):58.

doi: 10.1186/s12890-023-02343-5.

Bronchoalveolar lavage fluid polymerase chain reaction for invasive pulmonary aspergillosis among high-risk patients: a diagnostic meta-analysis

[Yinling Han](#)¹, [Xiang Wu](#)^{1,2}, [Guangwei Jiang](#)^{1,3}, [Anyi Guo](#)¹, [Zhangchu Jin](#)¹, [Yinghua Ying](#)¹, [Jianxing Lai](#)¹, [Wen Li](#)⁴, [Fugui Yan](#)⁵

Affiliations expand

- PMID: 36750828
- PMCID: [PMC9906844](#)
- DOI: [10.1186/s12890-023-02343-5](#)

Free PMC article

Abstract

Background: Polymerase chain reaction (PCR) assays are perceived to facilitate the diagnosis of fungal infections. However, due to lack of standardization, the value of bronchoalveolar lavage (BAL) fluid PCR in diagnosis of invasive pulmonary aspergillosis (IPA) remains unclear.

Methods: We conducted a systematic meta-analysis to evaluate the accuracy of BAL fluid PCR in IPA diagnosis among high-risk patients. All studies involving patients at risk for IPA were included. The sensitivity, specificity, positive and negative likelihood ratios of BAL fluid PCR were summarized for diagnosis of proven/probable IPA, or proven IPA only. Potential heterogeneity was assessed by subgroup analyses and meta-regression.

Results: Forty-one studies involving 5668 patients were analyzed. The summary sensitivity, specificity, positive and negative likelihood ratios of BAL fluid PCR for proven/probable IPA were 0.75 (95% CI = 0.67-0.81), 0.94 (95% CI = 0.90-0.96), 11.8 (95% CI = 7.7-18.1) and 0.27 (95% CI = 0.20-0.36), respectively. Whereas for proven IPA only, sensitivity and specificity were 0.91 (95% CI = 0.68-0.98) and 0.80 (95% CI = 0.74-0.85) in fourteen studies involving 2061 patients. Significant heterogeneity was present due to the underlying disease,

antifungal treatment and differences in DNA extraction techniques and choice of PCR assay. Compared to patients with hematological malignancies (HM) and hematopoietic stem cell/solid organ transplantation (HSCT/SOT), sensitivity was higher in the population with disease such as chronic obstructive pulmonary disease, solid tumor, autoimmune disease with prolonged use of corticosteroids, etc. (0.88 vs. 0.68, $P < 0.001$), which was related to the concurrent use of antifungal prophylaxis among patients with HM and HSCT/SOT.

Conclusion: BAL fluid PCR is a useful diagnostic tool for IPA in immunocompromised patients and is also effective for diagnosing IPA in patients without HM and HSCT/SOT. Furthermore, standard protocols for DNA extraction and PCR assays should be focused on to improve the diagnostic accuracy. Trial registration PROSPERO, registration number CRD42021239028.

Keywords: BAL fluid PCR; Diagnosis; Invasive pulmonary aspergillosis; Meta-analysis.

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Conflict of interest statement

The authors declare that they have no competing interests.

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

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances, Grant support [expand](#)

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Can J Cardiol

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. 2023 Feb 9;S0828-282X(23)00082-X.

doi: 10.1016/j.cjca.2023.02.004. Online ahead of print.

Incident atrial fibrillation in relation to ventilatory parameters: a prospective cohort study

[Jean Jacques Noubiap](#)¹, [Samuel J Tu](#)¹, [Mehrdad Emami](#)², [Melissa E Middeldorp](#)², [Adrian D Elliott](#)², [Prashanthan Sanders](#)³

Affiliations [expand](#)

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- DOI: [10.1016/j.cjca.2023.02.004](https://doi.org/10.1016/j.cjca.2023.02.004)

Abstract

Background: There is a paucity of data on the association between respiratory function and atrial fibrillation (AF). This study aimed to assess the relationship between forced expiratory volume (FEV1), forced vital capacity (FVC), and FEV1/FVC and incident AF.

Methods: We performed an analysis of prospectively collected data from the UK Biobank. We included all participants with available spirometry and excluded those with a prior AF. Incident AF was ascertained through hospitalization and death records, and dose-response associations were assessed using multivariable Cox regression analysis with adjustment for known AF risk factors.

Results: We studied 348,219 white individuals (54.1% female) with a median age of 58.1 (IQR 50.8-63.5) years. Over a median follow-up time of 11.5 years (IQR: 11.0-12.6 years), a total of 18,188 incident AF events occurred. After standardization to sex, age, and height, the risk of AF consistently increased with decreasing FEV1 percentage predicted, FEV1 z-score, and FVC z-score. The risk of AF linearly increased with decreasing FEV1/FVC ratio, and those that had airway obstruction as defined by an FEV1/FVC ratio < 0.70 had a 23% greater risk of incident AF (aHR 1.23, 95% CI 1.19-1.28) compared to those without airway obstruction. Patients with known chronic obstructive pulmonary disease and asthma were at 40% (aHR 1.40, 95% CI 1.29-1.51) and 17% (aHR 1.17, 95% CI 1.12-1.22) increased risk of incident AF.

Conclusion: These findings indicate that reduced ventilatory function is associated with increased risk of AF independently of age, sex, smoking, and other known AF risk factors.

Keywords: Atrial fibrillation; chronic obstructive pulmonary disease; forced expiratory volume; vital capacity.

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Heart

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. 2023 Feb 9;heartjnl-2022-322076.

doi: 10.1136/heartjnl-2022-322076. Online ahead of print.

[Prediction of short-term atrial fibrillation risk using primary care electronic health records](#)

[Ramesh Nadarajah](#)^{1,2}, [Jianhua Wu](#)^{3,4}, [David Hogg](#)⁵, [Keerthenan Raveendra](#)⁶, [Yoko M Nakao](#)^{3,2}, [Kazuhiro Nakao](#)^{3,2}, [Ronen Arbel](#)^{7,8}, [Moti Haim](#)^{9,10}, [Doron Zahger](#)^{10,11}, [John Parry](#)¹², [Chris Bates](#)¹², [Campbel Cowan](#)¹³, [Chris P Gale](#)^{3,13}

Affiliations expand

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- DOI: [10.1136/heartjnl-2022-322076](https://doi.org/10.1136/heartjnl-2022-322076)

Abstract

Objective: Atrial fibrillation (AF) screening by age achieves a low yield and misses younger individuals. We aimed to develop an algorithm in nationwide routinely collected primary care data to predict the risk of incident AF within 6 months (Future Innovations in Novel Detection of Atrial Fibrillation (FIND-AF)).

Methods: We used primary care electronic health record data from individuals aged ≥ 30 years without known AF in the UK Clinical Practice Research Datalink-GOLD dataset between 2 January 1998 and 30 November 2018, randomly divided into training (80%) and testing (20%) datasets. We trained a random forest classifier using age, sex, ethnicity and comorbidities. Prediction performance was evaluated in the testing dataset with internal bootstrap validation with 200 samples, and compared against the CHA₂DS₂-VASc

(Congestive heart failure, Hypertension, Age >75 (2 points), Stroke/transient ischaemic attack/thromboembolism (2 points), Vascular disease, Age 65-74, Sex category) and C₂HEST (Coronary artery disease/Chronic obstructive pulmonary disease (1 point each), Hypertension, Elderly (age ≥75, 2 points), Systolic heart failure, Thyroid disease (hyperthyroidism)) scores. Cox proportional hazard models with competing risk of death were fit for incident longer-term AF between higher and lower FIND-AF-predicted risk.

Results: Of 2 081 139 individuals in the cohort, 7386 developed AF within 6 months. FIND-AF could be applied to all records. In the testing dataset (n=416 228), discrimination performance was strongest for FIND-AF (area under the receiver operating characteristic curve 0.824, 95% CI 0.814 to 0.834) compared with CHA₂DS₂-VASc (0.784, 0.773 to 0.794) and C₂HEST (0.757, 0.744 to 0.770), and robust by sex and ethnic group. The higher predicted risk cohort, compared with lower predicted risk, had a 20-fold higher 6-month incidence rate for AF and higher long-term hazard for AF (HR 8.75, 95% CI 8.44 to 9.06).

Conclusions: FIND-AF, a machine learning algorithm applicable at scale in routinely collected primary care data, identifies people at higher risk of short-term AF.

Keywords: atrial fibrillation; biostatistics; electronic health records.

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Conflict of interest statement

Competing interests: All authors have completed the ICMJE uniform disclosure form at www.icjme.org/col_disclosure.pdf and declare support from the British Heart Foundation for the submitted work. CPG has received grants for research from the British Heart Foundation, National Institute for Health Research, Horizon 2020, Abbott Diabetes, Bristol Myers Squibb and European Society of Cardiology; consulting fees from AstraZeneca, Bayer, Bristol Myers Squibb, Boehringer-Ingelheim, Boston Scientific, Chiesi, Daiichi Sankyo, Menarini and Organon; honoraria for speaking at meetings and educational events from AstraZeneca, Menarini, Novartis, Raisio Group, Wondr Medical and Zydus; support for attending meetings from Bayer and Bristol Myers Squibb; and has acted as an advisory board member for Amgen, AstraZeneca, Bayer, Bristol Myers Squibb, Boehringer-Ingelheim, Chiesi, Daiichi Sankyo, Menarini, Novartis and iRhythm. YMN has received advisory fees and a research grant from Bayer.

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Respir Care

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doi: 10.4187/respcare.10310. Online ahead of print.

Nocturnal Dyspnea During Severe Exacerbations Is Associated With Mortality Risk in COPD

[Rafael Golpe](#)¹, [Juan M Figueira-Gonçalves](#)², [David Dacal-Rivas](#)³, [Nagore Blanco-Cid](#)³, [Indhira Guzmán-Peralta](#)³, [Olalla Castro-Añón](#)³, [Luis A Pérez-de-Llano](#)³

Affiliations expand

- PMID: 36750261
- DOI: [10.4187/respcare.10310](https://doi.org/10.4187/respcare.10310)

No abstract available

Keywords: chronic obstructive; dyspnea; exacerbation; mortality; nocturnal; pulmonary disease.

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Hum Vaccin Immunother

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doi: 10.1080/21645515.2022.2159731. Online ahead of print.

Immunogenicity and safety of reduced-antigen tetanus, diphtheria and acellular pertussis vaccination in adults treated for obstructive airway diseases

[Peter Van den Steen¹](#), [Brigitte Cheuvar¹](#), [Quentin Deraedt¹](#), [Laura Valdes Verelst¹](#), [Dasha Shamarina¹](#)

Affiliations expand

- PMID: 36746754
- DOI: [10.1080/21645515.2022.2159731](https://doi.org/10.1080/21645515.2022.2159731)

Abstract

Patients with obstructive airway diseases (OAD), like chronic obstructive pulmonary disease (COPD) and asthma, may be at increased risk of pertussis infection. Pertussis may also trigger COPD and asthma exacerbations. Vaccination against pertussis could help protect OAD patients from the additional burden of pertussis, but there may be hesitancy related to vaccine safety and immunogenicity in such patients. We performed a meta-analysis on 5 clinical trials in adults receiving reduced-antigen tetanus-diphtheria-acellular pertussis vaccine (Tdap, *Boostrix*, GSK), from which we selected participants on active OAD treatment. We compared immunogenicity and reactogenicity outcomes of the meta-analysis with data from the overall populations of Tdap-vaccinated adults from 6 Tdap trials (including the 5 in the meta-analysis). The meta-analysis comprised 222 adults on active standard OAD treatment. One month post-Tdap, 89.0% and 97.2% of these adults, respectively, achieved seroprotective anti-diphtheria and anti-tetanus antibody concentrations; 78.3%-96.1% showed booster responses across the 3 pertussis antigens. These rates were consistent with those in the comparator population. The most frequently reported solicited local and systemic adverse events within 4 days post-Tdap were injection site pain (47.7%) and fatigue (19.3%), with low rates of grade 3 intensity (0.9% and 2.8%). This was consistent with Tdap reactogenicity in the comparator population. Evaluation of unsolicited and serious adverse events within 1 month post-Tdap did not identify safety concerns. In conclusion, Tdap was immunogenic and well tolerated in adults under active standard OAD treatment, with immunogenicity and safety profiles consistent with those in a comparator population representing the general adult population.

Keywords: COPD; Tdap; adults; asthma; dTap; immunogenicity; obstructive airway diseases; pertussis; safety; vaccination.

Plain language summary

Whooping cough is a very contagious respiratory disease that is most dangerous for young babies but can affect people of all ages. People with chronic lung diseases like asthma or chronic obstructive pulmonary disease (COPD) may be more likely to get ill and suffer from complications from whooping cough. Vaccination against whooping cough is an important way to help protect these people. However, some doctors may hesitate to vaccinate patients because they may worry that vaccination could worsen asthma or COPD symptoms or that drugs taken by these patients could make vaccines work less well. We therefore looked at the immunogenicity and safety of a whooping cough vaccine (*Boostrix*, GSK) in adults treated for chronic lung diseases like asthma or COPD. We analyzed data from 5 previous clinical studies and specifically selected data from patients taking standard medication for chronic lung diseases in these studies. We found that the immune response to whooping cough vaccination in these patients was comparable to that in a comparator group representative of the general adult population receiving *Boostrix*. The vaccine was as well tolerated in patients with chronic lung diseases as in the general adult population. Our results suggest that the whooping cough vaccine *Boostrix* can be safely given to adults taking standard medication for chronic lung diseases to help prevent severe illness and complications from whooping cough.

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Respir Med

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. 2023 Feb 7;107150.

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[Identification of frequent acute exacerbations phenotype in COPD patients based on imaging and clinical characteristics](#)

[Dan Zhu](#)¹, [Huiling Dai](#)², [Haiyan Zhu](#)³, [Yuang Fang](#)⁴, [Huihui Zhou](#)⁴, [Zhangwei Yang](#)⁴, [Shuguang Chu](#)⁵, [Qian Xi](#)⁶

Affiliations expand

- PMID: 36758904
- DOI: [10.1016/j.rmed.2023.107150](https://doi.org/10.1016/j.rmed.2023.107150)

Abstract

Background: Chronic obstructive pulmonary disease (COPD) is a common disease with high morbidity, with acute exacerbations manifesting as a worsening of respiratory symptoms. This study aimed to identify the frequent acute exacerbation phenotype in patients with COPD based on imaging and clinical characteristics.

Methods: Patients with COPD (n = 201) were monitored for acute exacerbations one year after their initial hospital admission and further divided into frequent and non-frequent exacerbation groups according to the frequency and severity of acute exacerbations. All patients underwent high resolution CT scans and low attenuation area less than -950Hu (LAA-950) in the whole lung was measured. Differences in visual subtypes, LAA-950, and clinical basic characteristics were compared between groups. The clinical factors influencing frequent exacerbation were determined using binary logistic regression. Finally, based on imaging and clinical factors, the receiver operating characteristic curve was used to identify the phenotype of COPD with frequent acute exacerbations.

Results: Patients with frequent exacerbations had a larger LAA-950 than those non-frequent exacerbations patients ($p < 0.001$). Frequent acute exacerbations were associated with worsening visual subtypes. Multivariate binary logistic regression illustrated that age, smoking status, BMI, FEV1 pred, and LAA-950 were associated with frequent exacerbations of COPD. The area under the receiver operating characteristic curve for predicting frequent exacerbations based on age, smoking status, BMI, FEV1 pred, and LAA-950 was 0.907 ($p < 0.001$).

Conclusion: The combination of imaging and clinical characteristics reached high diagnostic efficacy in the identification of frequent acute exacerbations in patients with COPD.

Keywords: Acute exacerbation; Chronic obstructive pulmonary disease; High-resolution computed tomography; Low attenuation area; Pulmonary function test; Visual subtype.

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Conflict of interest statement

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

ASTHMA

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Review

Cochrane Database Syst Rev

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doi: 10.1002/14651858.CD011511.pub3.

Vitamin D for the management of asthma

[Anne Williamson](#)¹, [Adrian R Martineau](#)², [Aziz Sheikh](#)³, [David Jolliffe](#)², [Chris J Griffiths](#)⁴

Affiliations expand

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- PMCID: PMC9899558 (available on 2024-02-06)
- DOI: [10.1002/14651858.CD011511.pub3](https://doi.org/10.1002/14651858.CD011511.pub3)

Abstract

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

Background: Since the previous Cochrane Review on this topic in 2016, debate has continued surrounding a potential role for vitamin D in reducing risk of asthma exacerbation and improving asthma control. We therefore conducted an updated meta-analysis to include data from new trials completed since this date.

Objectives: To evaluate the effectiveness and safety of administration of vitamin D or its hydroxylated metabolites in reducing the risk of severe asthma exacerbations (defined as those requiring treatment with systemic corticosteroids) and improving asthma symptom control.

Search methods: We searched the Cochrane Airways Group Trial Register and reference lists of articles. We contacted the authors of studies in order to identify additional trials. Date of last search: 8 September 2022.

Selection criteria: We included double-blind, randomised, placebo-controlled trials of vitamin D in children and adults with asthma evaluating exacerbation risk or asthma symptom control, or both.

Data collection and analysis: Four review authors independently applied study inclusion criteria, extracted the data, and assessed risk of bias. We obtained missing data from the authors where possible. We reported results with 95% confidence intervals (CIs). The primary outcome was the incidence of severe asthma exacerbations requiring treatment with systemic corticosteroids. Secondary outcomes included the incidence of asthma exacerbations precipitating an emergency department visit or requiring hospital admission, or both, end-study childhood Asthma Control Test (cACT) or Asthma Control Test (ACT) scores, and end-study % predicted forced expiratory volume in one second (FEV1). We performed subgroup analyses to determine whether the effect of vitamin D on risk of asthma exacerbation was modified by baseline vitamin D status, vitamin D dose, frequency of dosing regimen, form of vitamin D given, and age of participants.

Main results: We included 20 studies in this review; 15 trials involving a total of 1155 children and five trials involving a total of 1070 adults contributed data to analyses. Participant ages ranged from 1 to 84 years, with two trials providing data specific to participants under five years ($n = 69$) and eight trials providing data specific to participants aged 5 to 16 ($n = 766$). Across the trials, 1245 participants were male and 1229 were female, with two studies not reporting sex distribution. Fifteen trials contributed to the primary outcome analysis of exacerbations requiring systemic corticosteroids. The duration of trials ranged from three to 40 months; all but two investigated effects of administering cholecalciferol (vitamin D3). As in the previous Cochrane Review, the majority of participants had mild to moderate asthma, and profound vitamin D deficiency (25-hydroxyvitamin D (25(OH)D) < 25 nmol/L) at baseline was rare. Administration of vitamin D or its hydroxylated metabolites did not reduce or increase the proportion of participants experiencing one or more asthma exacerbations treated with systemic corticosteroids (odds ratio (OR) 1.04, 95% CI 0.81 to 1.34; $I^2 = 0\%$; 14 studies, 1778 participants; high-quality evidence). This equates to an absolute risk of 226 per 1000 (95% CI 185 to 273) in the pooled vitamin D group, compared to a baseline risk of 219 participants per 1000 in the pooled placebo group. We also found no effect of vitamin D supplementation on the rate of exacerbations requiring systemic corticosteroids (rate ratio 0.86, 95% CI 0.62 to 1.19; $I^2 = 60\%$; 10 studies, 1599 participants; high-quality evidence), or the time to first exacerbation (hazard ratio 0.82, 95% CI 0.59 to 1.15; $I^2 = 22\%$; 3 studies, 850 participants;

high-quality evidence). Subgroup analysis did not reveal any evidence of effect modification by baseline vitamin D status, vitamin D dose, frequency of dosing regimen, or age. A single trial investigating administration of calcidiol reported a benefit of the intervention for the primary outcome of asthma control. Vitamin D supplementation did not influence any secondary efficacy outcome meta-analysed, which were all based on moderate- or high-quality evidence. We observed no effect on the incidence of serious adverse events (OR 0.89, 95% CI 0.56 to 1.41; $I^2 = 0\%$; 12 studies, 1556 participants; high-quality evidence). The effect of vitamin D on fatal asthma exacerbations was not estimable, as no such events occurred in any trial. Six studies reported adverse reactions potentially attributable to vitamin D. These occurred across treatment and control arms and included hypercalciuria, hypervitaminosis D, kidney stones, gastrointestinal symptoms and mild itch. In one trial, we could not ascertain the total number of participants with hypercalciuria from the trial report. We assessed three trials as being at high risk of bias in at least one domain; none of these contributed data to the analysis of the outcomes reported above. Sensitivity analyses that excluded these trials from each outcome to which they contributed did not change the null findings.

Authors' conclusions: In contrast to findings of our previous Cochrane Review on this topic, this updated review does not find evidence to support a role for vitamin D supplementation or its hydroxylated metabolites to reduce risk of asthma exacerbations or improve asthma control. Participants with severe asthma and those with baseline 25(OH)D concentrations < 25 nmol/L were poorly represented, so further research is warranted here. A single study investigating effects of calcidiol yielded positive results, so further studies investigating effects of this metabolite are needed.

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Conflict of interest statement

Anne Williamson: none known.

Aziz Sheikh: none known.

David Jolliffe: none known.

Adrian R Martineau (ARM) and Christopher J Griffiths (CJG) acted as investigators in one or more clinical trials contributing data to this review. The risk of bias assessment for the study authored by ARM was performed independently by AW and CJG (Camargo 2021). The risk of bias assessment for the study authored by ARM and CJG was performed independently by UN and CJC in the previous systematic review (Martineau 2015). For all other studies, AW and ARM independently assessed the risk of bias for each study. ARM declares receipt of funding in the last 36 months to support vitamin D research from the following companies who manufacture or sell vitamin D supplements: Pharma Nord Ltd, DSM Nutritional Products Ltd, Thornton & Ross Ltd and Hyphens Pharma Ltd. ARM also declares support for attending meetings from the following companies who manufacture or sell vitamin D supplements: Pharma Nord Ltd and Abiogen Pharma Ltd. ARM also declares participation on the Data and Safety Monitoring Boards for the VITALITY trial (Vitamin D for Adolescents with HIV to reduce musculoskeletal morbidity and

immunopathology, NCT01784029) and the Trial of Vitamin D and Zinc Supplementation for Improving Treatment Outcomes Among COVID-19 Patients in India (NCT04641195). ARM also declares unpaid work as a Programme Committee member for the Vitamin D Workshop. ARM also declares receipt of vitamin D capsules for clinical trial use from Pharma Nord Ltd, Synergy Biologics Ltd and Cytoplan Ltd.

Update of

- [Vitamin D for the management of asthma.](#) Martineau AR, Cates CJ, Urashima M, Jensen M, Griffiths AP, Nurmatov U, Sheikh A, Griffiths CJ. *Cochrane Database Syst Rev.* 2016 Sep 5;9(9):CD011511. doi: 10.1002/14651858.CD011511.pub2. PMID: 27595415 **Free PMC article. Updated.** Review.

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Editorial

Respirology

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. 2023 Feb 7.

doi: 10.1111/resp.14468. Online ahead of print.

[Asthma and cardiovascular disease: A bidirectional association?](#)

[Muhammad Adrish](#)¹, [Nicola A Hanania](#)¹

Affiliations expand

- PMID: 36750439
- DOI: [10.1111/resp.14468](https://doi.org/10.1111/resp.14468)

Free article

No abstract available

Keywords: asthma; asthma exacerbation; cardiovascular disease; heart failure; ischemic stroke.

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JAMA

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. 2023 Feb 7;329(5):363.

doi: 10.1001/jama.2022.24493.

[Child Asthma Tied to Specific Urban Air Pollutants](#)

[Howard D Larkin](#)

- PMID: 36652621
- DOI: [10.1001/jama.2022.24493](https://doi.org/10.1001/jama.2022.24493)

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MeSH terms, Substancesexpand

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Review

NPJ Prim Care Respir Med

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. 2023 Feb 8;33(1):7.

doi: 10.1038/s41533-023-00330-1.

[Key recommendations for primary care from the 2022 Global Initiative for Asthma \(GINA\) update](#)

[Mark L Levy](#)¹, [Leonard B Bacharier](#)², [Eric Bateman](#)³, [Louis-Philippe Boulet](#)⁴, [Chris Brightling](#)⁵, [Roland Buhl](#)⁶, [Guy Brusselle](#)^{7,8}, [Alvaro A Cruz](#)⁹, [Jeffrey M Drazen](#)¹⁰, [Liesbeth Duijts](#)¹¹, [Louise](#)

[Fleming](#)¹², [Hiromasa Inoue](#)¹³, [Fanny W S Ko](#)¹⁴, [Jerry A Krishnan](#)¹⁵, [Kevin Mortimer](#)^{16 17 18}, [Paulo M Pitrez](#)¹⁹, [Aziz Sheikh](#)²⁰, [Arzu Yorgancioğlu](#)²¹, [Helen K Reddel](#)²²

Affiliations expand

- PMID: 36754956
- PMCID: [PMC9907191](#)
- DOI: [10.1038/s41533-023-00330-1](#)

Free PMC article

Abstract

The Global Initiative for Asthma (GINA) was established in 1993 by the World Health Organization and the US National Heart Lung and Blood Institute to improve asthma awareness, prevention and management worldwide. GINA develops and publishes evidence-based, annually updated resources for clinicians. GINA guidance is adopted by national asthma guidelines in many countries, adapted to fit local healthcare systems, practices, and resource availability. GINA is independent of industry, funded by the sale and licensing of its materials. This review summarizes key practical guidance for primary care from the 2022 GINA strategy report. It provides guidance on confirming the diagnosis of asthma using spirometry or peak expiratory flow. GINA recommends that all adults, adolescents and most children with asthma should receive inhaled corticosteroid (ICS)-containing therapy to reduce the risk of severe exacerbations, either taken regularly, or (for adults and adolescents with "mild" asthma) as combination ICS-formoterol taken as needed for symptom relief. For patients with moderate-severe asthma, the preferred regimen is maintenance-and-reliever therapy (MART) with ICS-formoterol. Asthma treatment is not "one size fits all"; GINA recommends individualized assessment, adjustment, and review of treatment. As many patients with difficult-to-treat or severe asthma are not referred early for specialist review, we provide updated guidance for primary care on diagnosis, further investigation, optimization and treatment of severe asthma across secondary and tertiary care. While the GINA strategy has global relevance, we recognize that there are special considerations for its adoption in low- and middle-income countries, particularly the current poor access to inhaled medications.

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Conflict of interest statement

J.D. declares no competing interests. The other authors report the following conflicting interests (including financial and non-financial): M.L.L. has received consultancy fees from Clement Clarke International, Boehringer Ingelheim, AstraZeneca, GSK, Orion, TEVA pharmaceuticals, Menarini, NSHI, Chiesi Pharmaceuticals, Novartis, Aspire, Respi Ltd (Australia), and Smart Respiratory Products Ltd, speaker fees from TEVA, Novartis, Orion, AstraZeneca, NAPP, Chiesi, and NSHI, and honoraria from ADMIT Group - Consorzio Ferrara Ricerche. M.L.L. is Editor Emeritus of npj Primary Care Respiratory Medicine, but was not involved in the journal's review of, or decisions related to, this manuscript. L.B.B. has received grants from NIH/NIAID and NHLBI, personal fees from GlaxoSmithKline Genentech/Novartis, DBV Technologies, Teva, Boehringer Ingelheim, AstraZeneca, WebMD/Medscape, Sanofi, Regeneron, Vectura, Circassia, Kinaset, Vertex, and OM Pharma, and royalties from Elsevier outside the submitted work. E.B. has received speaker honoraria from AstraZeneca, Boehringer Ingelheim, Cipla, Chiesi, Hikma pharma, Menarini, Novartis, Sanofi Genzyme, and Regeneron, and consulting fees from AstraZeneca, Sanofi Genzyme, Regeneron, and Novartis. L.-P.B. has received research grants for participation in multicenter studies from Amgen, AstraZeneca, GlaxoSmithKline, Merck, Novartis, Sanofi-Regeneron, and BioHaven, research funding for projects introduced by the investigator from AstraZeneca, GlaxoSmithKline, and Merck, consulting and advisory board fees from AstraZeneca, Novartis, GlaxoSmithKline, Merck, and Sanofi-Regeneron, lecture fees from AstraZeneca, Covis, Cipla, GlaxoSmithKline, Novartis and Merck, and Sanofi, and non-profit grants to produce educational materials from AstraZeneca, Covis, GlaxoSmithKline, Merck, and Novartis. C.B. has received consultancy fees or grants (paid to Institution) from GSK, AZ, BI, Novartis, Chiesi, Genentech, Roche, Sanofi, Regeneron, Mologic, and 4DPharma. G.B. has received speaker fees and advisory board fees from AstraZeneca, Boehringer-Ingelheim, Chiesi, GSK, Merck Sharp & Dohme, Novartis, and Sanofi Regeneron. R.B. has received consulting fees or honoraria for lectures from ALK, AstraZeneca, Berlin-Chemie, Boehringer-Ingelheim, Chiesi, Cipla, GSK, Novartis, Roche, Sanofi, and TEVA, and grants to Mainz University Hospital for research or clinical trials, or both from Boehringer Ingelheim, GSK, Novartis, and Roche. A.A.C. has received consultancy and speaker fees from Abdi-Ibrahim, AstraZeneca, Boehringer-Ingelheim, Chiesi, Eurofarma, Glenmark, GSK, Novartis, and Sanofi. A.C.C. is a member of the Planning Group of the Global Alliance against Chronic Respiratory Diseases (GARD)/WHO, and the Executive Director of ProAR Foundation – Brazil. L.D. has received grants from the European Union Horizon 2020 research and innovation program (LIFECYCLE, grant agreement No 733206, 2016; EUCAN-Connect grant agreement No 824989; ATHLETE, grant agreement No 874583) and Stichting Vrienden van Sophia, and speaker fee (paid to institute) from Hong Kong University. L.D. is Vice chair of the Dutch Pediatric Respiratory Society. L.F. has received personal fees from Novartis, AstraZeneca, and Sanofi, outside the submitted work. H.I. has received speaker and advisory board fees from Astellas, AstraZeneca, Boehringer-Ingelheim, Fukuda-Denshi, GSK, Kracie, Kyorin, Novartis, Omron, Pfizer, and Sanofi, and research grants and support (paid to university) from Asahi-Kasei Pharma, AstraZeneca, Boehringer-Ingelheim, Chugai, GlaxoSmithKline, Kyorin, Otsuka, Teijin, Taiho, and Ono. F.W.S.K. has received funding for conducting multi-center research on asthma from the Hong Kong Thoracic Society (which was supported by AstraZeneca, Boehringer Ingelheim,

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- [8 figures](#)

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Adv Biol (Weinh)



. 2023 Feb 8;e2200296.

doi: 10.1002/adbi.202200296. Online ahead of print.

Catching Our Breath: Updates on the Role of Dendritic Cell Subsets in Asthma

[Jacquelyn D Lajiness](#)¹, [Joan M Cook-Mills](#)²

Affiliations expand

- PMID: 36755197
- DOI: [10.1002/adbi.202200296](https://doi.org/10.1002/adbi.202200296)

Abstract

Dendritic cells (DCs), as potent antigen presenting cells, are known to play a central role in the pathophysiology of asthma. The understanding of DC biology has evolved over the years to include multiple subsets of DCs with distinct functions in the initiation and maintenance of asthma. Furthermore, asthma is increasingly recognized as a heterogeneous disease with potentially diverse underlying mechanisms. The goal of this review is to summarize the role of DCs and the various subsets therein in the pathophysiology of asthma and highlight some of the crucial animal models shaping the field today. Potential future avenues of investigation to address existing gaps in knowledge are discussed.

Keywords: allergic disease; asthma; atopic disease; dendritic cells; dendritic cell subsets.

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- [190 references](#)

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Curr Opin Pediatr

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. 2023 Feb 8.

doi: 10.1097/MOP.0000000000001222. Online ahead of print.

Quality improvement for paediatric asthma care in acute settings

[Carl Kaplan](#)¹, [Ashley L Saint-Fleur](#)¹, [Alexandra M Kranidis](#)², [Alexa H Christophides](#)¹, [Catherine Kier](#)¹

Affiliations expand

- PMID: 36749141
- DOI: [10.1097/MOP.0000000000001222](https://doi.org/10.1097/MOP.0000000000001222)

Abstract

Purpose of review: This is a summative review of recent trends and novel programming integrated into various clinical settings (i.e. emergency departments, urgent care centres and paediatric clinics) to enhance the quality of care received by paediatric asthma patients. Asthma is the most common chronic disease in paediatric patients and despite recognized national management guidelines, implementation and aftercare, especially in the emergency room, remain challenging.

Recent findings: Outcome-based systematic quality improvement initiatives are described as well as evidence-based recommendations to enhance the education of providers, patients and caregivers.

Summary: Many of the care initiatives described in the literature have been integrated into the emergency room. The authors feel some of these process improvements, such as pathway-based care, reducing time to delivery of medications, and personalized asthma education, may also be applicable and add value to clinical practice in additional community-based acute care settings such as urgent care centers and paediatric clinics.

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Kardiol Pol

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. 2023 Feb 5.

doi: 10.33963/KP.a2023.0038. Online ahead of print.

[Cardiovascular disease in asthma patients: from mechanisms to therapeutic implications](#)

[Mario Cazzola](#)¹, [Nicola A Hanania](#)², [Paola Rogliani](#)³, [Maria Griella Matera](#)⁴

Affiliations expand

- PMID: 36739655
- DOI: [10.33963/KP.a2023.0038](https://doi.org/10.33963/KP.a2023.0038)

Abstract

Cardiovascular disease (CVD) is often associated with asthma, and asthma patients have an increased risk of CVD mortality. Our understanding of the bidirectional risk of CVD and asthma has been based on several observational studies. However, the specific pathogenetic mechanisms underlying the development of cardiovascular comorbidities in patients with asthma have not yet been fully determined. Such cardiovascular complications in patients with asthma have been attributed to airway and system inflammation present in both asthma and CVD. Indeed, there is evidence that mast cells, eosinophils, inflammatory cytokines, and immunoglobulin E increase in both lungs of patients with asthma, and in injured heart and vessels of CVD patients. These findings suggest that allergic asthma and CVD may share pathogenic pathways. Understanding these pathways is critical to the choice of pharmacological interventions. Currently, the most appropriate therapeutic approach lies in using the best available evidence to optimize the management of both asthma and CVD. Therapy should be optimized to take advantage of the favorable benefits that each medication may have on both organs while minimizing the likelihood of adverse effects on the lungs and heart. It is noteworthy that inhaled β_2 -agonists induce benefit in patients with acute decompensated heart failure. Furthermore, ICSs may reduce the risk of atherosclerosis. On the other side, asthma is not an absolute contraindication to use cardio-selective β_1 -blockers, but these medications should be prescribed with caution especially if are necessary for acute cardiovascular events and alternative treatment options are unavailable. In addition, when aspirin intake causes the onset of hypersensitivity, P2Y₁₂ inhibitors (e.g., clopidogrel, prasugrel, and ticagrelor) are effective and safe treatment alternatives.

Keywords: asthma; cardiovascular disease; comorbidity; mechanisms; therapeutic approaches.

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J Asthma

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. 2023 Feb 6;1-7.

doi: 10.1080/02770903.2023.2169933. Online ahead of print.

Prevalence and risk factors for self-reported asthma among Sámi in Sweden: a cross-sectional study

[Emil Xabier San Sebastián](#)¹, [Jon Petter Stoor](#)^{1,2}, [Miguel San Sebastian](#)¹

Affiliations expand

- PMID: 36651812
- DOI: [10.1080/02770903.2023.2169933](https://doi.org/10.1080/02770903.2023.2169933)

Abstract

Objective: Literature about asthma among Indigenous communities worldwide is scarce. This study aimed to estimate the prevalence of self-reported asthma and to identify the risk factors associated with it among the Sámi population in Sweden.

Methods: A population-based health study (SámiHET) was conducted among the Sámi population aged 18-84 years in 2021. The asthma outcome was self-reported. Potential risk factors included sociodemographic, socioeconomic, cultural, behavioral and psychosomatic factors. Frequencies and percentages of the independent variables and the outcome were calculated. Then, the magnitude of the association between the independent variables and asthma was summarized with the prevalence ratio (PR) using the 95% confidence interval (95% CI) for inferential purposes.

Results: Overall, 20.6% of participants reported having asthma and 13.9% suffering from asthma with symptoms. Women (PR: 1.19; 95% CI: 1.01-1.42), those living in the Västerbotten region (PR: 1.35; 95% CI: 1.11-1.63) and those suffering financial strain (PR: 1.34; 95% CI: 1.07-1.69) had a higher risk of self-reported asthma. Among the psychosomatic factors, self-reported allergy (PR: 6.45; 95% CI: 5.11-8.17), overweight (PR: 1.46; 95% CI: 1.19-1.78) and obesity (PR: 1.75; 95% CI: 1.41-2.17) were statistically significant associated to asthma symptoms.

Conclusion: A higher prevalence of asthma was found among the Sámi in Sweden compared to the average Swedish population. The associated risk factors were similar to

those described in the literature. To understand the reason behind the higher prevalence of asthma among Sámi, more asthma-specific research, including register data, is needed.

Keywords: Asthma; Sweden; Sámi; prevalence; risk factors.

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Chin Med J (Engl)



. 2023 Feb 9.

doi: 10.1097/CM9.0000000000002556. Online ahead of print.

[Eligibility of C-BIOPRED severe asthma cohort for type-2 biologic therapies](#)

[Zhenan Deng](#)¹, [Meiling Jin](#)², [Changxing Ou](#)³, [Wei Jiang](#)⁴, [Jianping Zhao](#)⁵, [Xiaoxia Liu](#)⁶, [Shenghua Sun](#)⁷, [Huaping Tang](#)⁸, [Bei He](#)⁹, [Shaoxi Cai](#)¹⁰, [Ping Chen](#)¹¹, [Penghui Wu](#)¹, [Yujing Liu](#)⁴, [Jian Kang](#)¹², [Yunhui Zhang](#)¹³, [Mao Huang](#)¹⁴, [Jinfu Xu](#)¹⁵, [Kewu Huang](#)¹⁶, [Qiang Li](#)¹⁷, [Xiangyan Zhang](#)¹⁸, [Xiuhua Fu](#)¹⁹, [Changzheng Wang](#)²⁰, [Huahao Shen](#)²¹, [Lei Zhu](#)², [Guochao Shi](#)²², [Zhongmin Qiu](#)²³, [Zhongguang Wen](#)²⁴, [Xiaoyang Wei](#)²⁵, [Wei Gu](#)²⁶, [Chunhua Wei](#)²⁷, [Guangfa Wang](#)²⁸, [Ping Chen](#)²⁹, [Lixin Xie](#)³⁰, [Jiangtao Lin](#)³¹, [Yuling Tang](#)³², [Zhihai Han](#)³³, [Kian Fan Chung](#)^{34 35}, [Qingling Zhang](#)¹, [Nanshan Zhong](#)¹; [C-BIOPRED Consortium](#)

Affiliations expand

- PMID: 36752798
- DOI: [10.1097/CM9.0000000000002556](https://doi.org/10.1097/CM9.0000000000002556)

No abstract available

- [5 references](#)

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Eur J Nutr

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. 2023 Feb 4.

doi: 10.1007/s00394-023-03091-2. Online ahead of print.

[Diet quality, food intake and incident adult-onset asthma: a Lifelines Cohort Study](#)

[Edith Visser](#)^{1,2}, [Kim de Jong](#)³, [Janneke J S Pepels](#)³, [Huib A M Kerstjens](#)⁴, [Anneke Ten Brinke](#)⁵, [Tim van Zutphen](#)⁶

Affiliations [expand](#)

- PMID: 36739315
- DOI: [10.1007/s00394-023-03091-2](https://doi.org/10.1007/s00394-023-03091-2)

Abstract

Purpose: Dietary factors have been suggested as drivers of the rising prevalence of adult-onset asthma, but evidence is inconclusive, possibly due to the complex interrelation with obesity. We aim to explore the relation of diet quality and food intake with incident adult-

onset asthma in normal weight and overweight adults of the prospective population-based Lifelines Cohort Study.

Methods: Incident adult-onset asthma was defined as self-reported asthma at \pm 4-year follow-up, in adults free of airway disease at baseline. Diet quality scores and food group intake were assessed at baseline. Log-binomial regression analyses were used to estimate adjusted relative risks (RR) between dietary intake (per portion) and incident adult-onset asthma, in categories of BMI (cutoff: 25 kg/m²).

Results: 477 incident asthma cases (75% female, 62% overweight) and 34,698 controls (60% female, 53% overweight) were identified. Diet quality-assessed by the Lifelines Diet Score and Mediterranean Diet Score-was not associated with incident adult-onset asthma in the two BMI groups. Although the dietary intake of several food groups differed between cases and controls, after adjustment for confounders only few remained associated with adult-onset asthma, including red and processed meat (RR: 0.93 per 15 g intake; 95% CI 0.86-0.99) in the normal weight group and intake of cheese (RR 1.09 per 20 g intake; 95% CI 1.00-1.17) and vegetables (RR 1.10 per 50 g intake; 95% CI 1.00-1.21) in the overweight group.

Conclusion: The results of this study question the role of food as a 'simple' predictor of adult-onset asthma and call for an integrative approach, including a range of modifiable lifestyle factors and further asthma phenotyping.

Keywords: Adult-onset asthma; Epidemiology; Food groups; Incidence; Nutrition; Obesity.

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- [58 references](#)

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J Expo Sci Environ Epidemiol

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. 2023 Feb 10.

doi: 10.1038/s41370-023-00524-2. Online ahead of print.

Pesticide exposure and asthma morbidity in children residing in urban, multi-family housing

[Derek W Werthmann](#)¹, [Felicia A Rabito](#)², [Gary Adamkiewicz](#)³, [Tiina Reponen](#)⁴, [Antonia M Calafat](#)⁵, [Maria Ospina](#)⁵, [Ginger L Chew](#)⁶

Affiliations expand

- PMID: 36765101
- DOI: [10.1038/s41370-023-00524-2](https://doi.org/10.1038/s41370-023-00524-2)

Abstract

Background: Children are potentially more susceptible to the adverse effects of pesticides due to more sensitive organ systems and lower capacity to metabolize and eliminate chemicals compared to adults. The health risks are particularly concerning children with asthma, living in low-income neighborhoods in multi-family housing because of their impaired respiratory health, and factors associated with low-income, multi-family environments.

Objective: To assess the association between pesticide exposure and asthma morbidity among children 7-12 years residing in low-income, multi-family housing.

Methods: The concentrations of seven urinary pesticide biomarkers: 3,5,6-trichloro-2-pyridinol (TCPy), 2-isopropyl-4-methyl-6-hydroxypyrimidine, para-nitrophenol (PNP), 3-phenoxybenzoic acid (3-PBA), 4-fluoro-3-phenoxybenzoic acid, trans-3-(2,2-dichlorovinyl)-2,2-dimethyl-cyclopropane-1-carboxylic acid, and 2,4-dichlorophenoxyacetic acid (2,4-D) were measured. Children (n = 162) were followed for one year with three measures of pesticides biomarkers. Associations between individual biomarkers and asthma attack, asthma related health care utilization, and fraction of exhaled nitric oxide (FeNO), adjusting for demographic and household factors were examined with Generalized Estimating Equations (GEE). Weighted Quantile Sum (WQS) regression was used to examine the effect of pesticide mixture on asthma attacks and asthma-related health care utilization (HCU).

Results: In adjusted GEE models, positive non-significant associations were found between PNP and HCU (adjusted Odds Ratio(aOR):2.05 95% CI:0.76-5.52) and null associations for

3-PBA and HCU (aOR:1.07 95% CI: 0.88-1.29). Higher concentrations of PNP and 2,4-D were associated with significantly lower FeNO levels (PNP: -17.4%; 2,4-D:-19.74%). The mixture was positively associated with HCU in unadjusted (OR: 1.56 97.5% CI: 1.08-2.27) but not significant in adjusted models (aOR: 1.40 97.5% CI: .86-2.29). The non-specific pyrethroid biomarker 3-PBA at baseline contributed the greatest weight to the index (45%).

Significance: There were non-significant associations between pesticide biomarkers and respiratory outcomes in children with asthma. There was a suggestive association between urinary pesticide biomarkers and HCU. Further studies with larger sample sizes could help to confirm these findings.

Impact statement: Pesticide exposure among children in the urban environment is ubiquitous and there is a dearth of information on the impact of low-level chronic exposure in vulnerable populations. This study suggested that pesticide exposure at concentrations below the national average may not affect asthma morbidity in children. However, different biomarkers of pesticides showed different effects, but the mixture suggested increasing pesticide exposure results in asthma related HCU. The results may show that children with asthma may be at risk for negative health outcomes due to pesticides and the need to further examine this relationship.

Keywords: 2; 4-D; Asthma; Organophosphorous; Pesticides; Pyrethroids.

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Sci Total Environ

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. 2023 Feb 10;859(Pt 1):160204.

doi: 10.1016/j.scitotenv.2022.160204. Epub 2022 Nov 17.

Long-term effect of intermediate particulate matter (PM_{1-2.5}) on incident asthma among middle-aged and elderly adults: A national population-based longitudinal study

[Shuting Li](#)¹, [Jing Wei](#)², [Yaoyu Hu](#)³, [Yuhong Liu](#)³, [Meiling Hu](#)⁴, [Yadi Shi](#)³, [Yongxi Xue](#)⁵, [Mengmeng Liu](#)⁶, [Wenhan Xie](#)³, [Xiuhua Guo](#)⁷, [Xiangtong Liu](#)⁸

Affiliations expand

- PMID: 36403826
- DOI: [10.1016/j.scitotenv.2022.160204](https://doi.org/10.1016/j.scitotenv.2022.160204)

Abstract

Background: There is insufficient evidence about the long-term effects of intermediate particulate matter (PM_{1-2.5}) on asthma development in adults aged 45 years and above. This study aimed to investigate the relationship between long-term exposure to PM_{1-2.5} and the incidence of asthma in adults aged 45 years and above.

Methods: A cohort study based on the China Health and Retirement Longitudinal Study (CHARLS) database was conducted to investigate the long-term effects of PM_{1-2.5} on self-reported asthma incidence in adults aged 45 years and above in China from 2011 to 2018. The PM concentrations were estimated using a high-resolution (1 km²) satellite-based spatiotemporal model. A covariate-adjusted generalized linear mixed model was used to analyze the relationship between long-term exposure to PM_{1-2.5} and the incidence of asthma. Effect modifications and sensitivity analysis were conducted.

Results: After a 7-year follow-up, 103 (1.61 %) of the 6400 participants developed asthma. Each 10 µg/m³ increment in the 1-, 2-, 3-, and 4-year moving average concentrations of PM_{1-2.5} corresponded to a 1.82 [95 % confidence interval (CI):1.11-2.98], 1.95 (95 % CI: 1.24-3.07), 1.95 (95 % CI: 1.26-3.03) and 1.88 (95 % CI: 1.26-2.81) fold risk for incident asthma, respectively. A significant multiplicative interaction was observed between socioeconomic level and long-term exposure to PM_{1-2.5}. Stratified analysis showed that smokers and those with lower socioeconomic levels were at higher risk of incident asthma related to PM_{1-2.5}. Restricted cubic splines showed an increasing trend in asthma incidence with increasing PM_{1-2.5}. Sensitivity analyses showed that our model was robust.

Conclusion: Long-term exposure to PM_{1-2.5} was positively associated with incident asthma in middle-aged and elderly individuals. Participants with a history of smoking and lower socioeconomic levels had a higher risk. More studies are warranted to establish an accurate reference value of PM_{1-2.5} to mitigate the growing asthma burden.

Keywords: Asthma; Longitudinal study; Middle-aged and elderly; PM(1–2.5).

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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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SUPPLEMENTARY INFO

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J Asthma

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. 2023 Feb 7;1-14.

doi: 10.1080/02770903.2023.2174029. Online ahead of print.

Clinical, functional, and inflammatory characteristics of asthma among adults

aged over 60 years old: A case-control study

[Maria Amélia Carvalho da Silva Santos¹](#), [Maria Marta Ferreira Amorim¹](#), [Lilian Ballini Caetano¹](#), [Michael Dracoulakis¹](#), [Ana Luisa Godoy Fernandes¹](#)

Affiliations expand

- PMID: 36749190
- DOI: [10.1080/02770903.2023.2174029](https://doi.org/10.1080/02770903.2023.2174029)

Abstract

This observational case-control study analyzed the clinical, functional, inflammatory profile, and treatment data of a cohort of patients with asthma who were followed up at the outpatient clinic of a teaching hospital. Patients who visited the clinic between January 2008 and February 2020 and diagnosed with asthma according to the Global Initiative for Asthma (GINA) criteria were included in the study. Patients were broadly classified into two groups: age <60 or age ≥60 years. The patients were evaluated for asthma control and severity, medications used, comorbidities, smoking status, occurrence of exacerbation, spirometry at the first and last visits, sputum cytology, allergic prick test, and inflammatory cytokine levels. Patients over 60 years of age had lower asthma control test (ACT) scores, required higher doses of inhaled corticosteroids to achieve asthma control and had worse lung function with fixed airway obstruction, higher number of comorbidities, greater exposure to tobacco, and longer outpatient follow-up than younger patients with asthma. Furthermore, older patients presented with neutrophilia and higher levels of TNF α in the induced sputum as compared to younger patients. These findings suggest that patients aged ≥60 years of age had a more severe asthma profile and poorer lung function than younger patients with asthma. Furthermore, aging, long-term asthma, comorbidities, and tobacco exposure contributed to an accelerated decline in lung function.

Keywords: Asthma; Functional characteristics; Immunosenescence; Inflammatory characteristics; Older adults; Phenotypes.

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Curr Med Res Opin

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. 2023 Feb 5;1-35.

doi: 10.1080/03007995.2023.2174328. Online ahead of print.

Towards a better understanding of severe asthma phenotypes in Latin America: results from the PREPARE study

[Jorge Maspero](#)¹, [Juana Pavie](#)², [Carlos A Torres-Duque](#)³, [Felicia Montero-Arias](#)⁴, [Ruth Cerino-Javier](#)⁵, [Francisco Rovira](#)⁶, [Maarten J H I Beekman](#)⁷

Affiliations expand

- PMID: 36740960
- DOI: [10.1080/03007995.2023.2174328](https://doi.org/10.1080/03007995.2023.2174328)

Abstract

Objective: Data on severe asthma phenotypes in Latin America are lacking. The PREPARE study describes the prevalence of certain determinants of severe asthma among patients in 5 Latin American countries with blood eosinophil counts (BEC) ≥ 300 cells/mm³ and serum immunoglobulin E (IgE) concentrations > 100 IU/mL.

Methods: In this cross-sectional study, information on demographics, disease characteristics, and asthma treatments were extracted from the existing medical records of patients aged ≥ 12 years attending centers specialized in severe asthma management. Medical record data were transcribed onto electronic case report forms. Blood eosinophil counts and IgE concentrations were assayed from specimens obtained at study visit. Data were analyzed with descriptive statistics.

Results: Data from 461 patients with severe asthma (mean age, 50.5 years) were analyzed. Most patients were female (73%), had a body mass index of ≥ 25 kg/m² (77%), and received full healthcare reimbursement (63%). In the previous 12 months, 52% of patients experienced ≥ 1 severe exacerbation and 44% received oral corticosteroid burst therapy. Blood eosinophil counts ≥ 300 cells/mm³ and ≥ 150 cells/mm³ were reported in 44% and 76% of patients, respectively. In 58% of patients, serum IgE concentrations exceeded 100 IU/mL. Uncontrolled asthma was documented in 50% (n = 230) of patients.

Conclusions: The PREPARE study provides useful insights about the prevalence of eosinophilic and atopic phenotypes in patients with severe asthma in Latin America, thereby paving the way for a more personalized approach to managing severe asthma. Notwithstanding the treatment at specialized medical centers, disease burden remained high in this study population.

Keywords: Clinicaltrials.gov Identifier [NCT03931954](https://clinicaltrials.gov/ct2/show/study/NCT03931954); Severe asthma; asthma control; eosinophils; exacerbations; immunoglobulin E; treatment.

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Expert Opin Ther Targets

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. 2023 Feb 6.

doi: 10.1080/14728222.2023.2177533. Online ahead of print.

[Airway Smooth Muscle in Contractility and Remodeling of Asthma: Potential Drug Target Mechanisms](#)

[Latifa Khalfaoui](#)¹, [Christina M Pabelick](#)^{1,2}

Affiliations expand

- PMID: 36744401
- DOI: [10.1080/14728222.2023.2177533](https://doi.org/10.1080/14728222.2023.2177533)

Abstract

Introduction: Asthma is characterized by enhanced airway contractility and remodeling where airway smooth muscle (ASM) plays a key role, modulated by inflammation. Understanding the mechanisms by which ASM contributes to these features of asthma is essential for the development of novel asthma therapies.

Areas covered: Inflammation in asthma contributes to a multitude of changes within ASM including enhanced airway contractility, proliferation, and fibrosis. Altered intracellular calcium ($[Ca^{2+}]_i$) regulation or Ca^{2+} sensitization contributes to airway hyperreactivity. Increased airway wall thickness from ASM proliferation and fibrosis contributes to structural changes seen with asthma.

Expert opinion: ASM plays a significant role in multiple features of asthma. Increased ASM contractility contributes to hyperresponsiveness, while altered ASM proliferation and extracellular matrix production promote airway remodeling both influenced by inflammation of asthma and conversely even influencing the local inflammatory milieu. While standard therapies such as corticosteroids or biologics target inflammation, cytokines, or their receptors to alleviate asthma symptoms, these approaches do not address the underlying contribution of ASM to hyperresponsiveness and particularly remodeling. Therefore, novel therapies for asthma need to target abnormal contractility mechanisms in ASM and/or the contribution of ASM to remodeling, particularly in asthmatics resistant to current therapies.

Keywords: Airway; Airway Hyperreactivity; Airway Smooth Muscle; Calcium; Drug Targets; Fibrosis; Lung; Proliferation.

FULL TEXT LINKS



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Assessing the prognostic value of respiratory oscillometry in patients with difficult-to-treat asthma

[Yi-Luen Shen](#)¹, [Yi-An Hsieh](#)¹, [Yu-Ming Huang](#)², [Yi-Hao Peng](#)², [Ling-I Chen](#)¹, [Fang-Chuan Dai](#)¹, [Yu-Sheng Lin](#)¹, [Chien-Wen Huang](#)^{3,4}

Affiliations expand

- PMID: 36774404
- DOI: [10.1038/s41598-023-29672-z](https://doi.org/10.1038/s41598-023-29672-z)

Abstract

Respiratory oscillometry is widely explored in asthma management; however, there is currently no consensus on its routine work-up in patients with difficult-to-treat asthma. We conducted a retrospective, cross-sectional study involving patients with difficult-to-treat asthma at Asia University Hospital between January 2017 and October 2020. We aimed to correlate clinical significance of respiratory oscillometry and asthma treatment outcomes including symptoms control and exacerbation in patients with difficult-to-treat asthma. Among the 69 patients enrolled in the study, a total of 26.1% of the patients experienced at least one severe or two moderate exacerbations. Patients with ACT < 20 presented a higher prevalence of higher frequency-dependent resistance (FDR; the difference in resistance at 5 Hz and 20 Hz) and frequency of resonance (Fres) than those with ACT ≥ 20. In the multivariable analysis, comorbidities, COPD or allergic rhinitis, and FDR were independent factors in increasing the odds ratio in poorly controlled asthma. (FDR ≥ 0.10 vs. < 0.10, adjusted ORR = 5.05, P = 0.037) There was a higher proportion of frequent exacerbations in patients with higher FDR (FDR ≥ 0.10 vs. < 0.10 = 30.0%:20.7%), but IOS parameters failed to predict frequent exacerbations on further analysis. FDR may be a

potential clinical parameter for predicting symptom control in patients with difficult-to-treat asthma.

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- [41 references](#)

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ERJ Open Res

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. 2023 Feb 6;9(1):00451-2022.

doi: 10.1183/23120541.00451-2022. eCollection 2023 Jan.

[Development and validation of a predictive model combining patient-reported outcome measures, spirometry and exhaled nitric oxide fraction for asthma diagnosis](#)

[Gilles Louis](#)¹, [Florence Schleich](#)², [Michèle Guillaume](#)¹, [Delphine Kirkove](#)¹, [Halehsadat Nekoe Zahrei](#)³, [Anne-Françoise Donneau](#)³, [Monique Henket](#)², [Virginie Paulus](#)², [Françoise Guissard](#)², [Renaud Louis](#)², [Benoit Pétré](#)¹

Affiliations expand

- PMID: 36755965

- PMID: [PMC9900444](#)
- DOI: [10.1183/23120541.00451-2022](#)

Free PMC article

Abstract

Introduction: Although asthma is a common disease, its diagnosis remains a challenge in clinical practice with both over- and underdiagnosis. Here, we performed a prospective observational study investigating the value of symptom intensity scales alone or combined with spirometry and exhaled nitric oxide fraction (F_{ENO}) to aid in asthma diagnosis.

Methods: Over a 38-month period we recruited 303 untreated patients complaining of symptoms suggestive of asthma (wheezing, dyspnoea, cough, sputum production and chest tightness). The whole cohort was split into a training cohort (n=166) for patients recruited during odd months and a validation cohort (n=137) for patients recruited during even months. Asthma was diagnosed either by a positive reversibility test ($\geq 12\%$ and ≥ 200 mL in forced expiratory volume in 1 s (FEV_1)) and/or a positive bronchial challenge test (provocative concentration of methacholine causing a 20% fall in $FEV_1 \leq 8$ mg·mL⁻¹). In order to assess the diagnostic performance of symptoms, spirometric indices and F_{ENO} , we performed receiver operating characteristic curve analysis and multivariable logistic regression to identify the independent factors associated with asthma in the training cohort. Then, the derived predictive models were applied to the validation cohort.

Results: 63% of patients in the derivation cohort and 58% of patients in the validation cohort were diagnosed as being asthmatic. After logistic regression, wheezing was the only symptom to be significantly associated with asthma. Similarly, FEV_1 (% pred), FEV_1 /forced vital capacity (%) and F_{ENO} were significantly associated with asthma. A predictive model combining these four parameters yielded an area under the curve of 0.76 (95% CI 0.66-0.84) in the training cohort and 0.73 (95% CI 0.65-0.82) when applied to the validation cohort.

Conclusion: Combining a wheezing intensity scale with spirometry and F_{ENO} may help in improving asthma diagnosis accuracy in clinical practice.

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Conflict of interest statement

Conflict of interest: Outside of this submitted work, R. Louis received unrestricted research grants from GSK, AstraZeneca and Chiesi, and lecture or advisory board fees from GSK, AstraZeneca, Novartis and Sanofi. Outside of this submitted work, F. Schleich received

lecture or advisory board fees from Chiesi, AstraZeneca, GSK and Novartis. The rest of the authors declare that they have no relevant conflicts of interest.

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

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Eur Respir J

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. 2023 Feb 9;2201793.

doi: 10.1183/13993003.01793-2022. Online ahead of print.

[Minimal Clinically Important Difference for Impulse Oscillometry in Adults with Asthma](#)

[Mustafa Abdo](#)¹, [Anne-Marie Kirsten](#)², [Erika von Mutius](#)^{3,4}, [Matthias Kopp](#)^{5,6}, [Gesine Hansen](#)⁷, [Klaus F Rabe](#)⁸, [Henrik Watz](#)², [Frederik Trinkmann](#)^{3,4,5,9}, [Thomas Bahmer](#)^{8,10,9}, [ALLIANCE study group](#)

Affiliations expand

- PMID: 36758985
- DOI: [10.1183/13993003.01793-2022](https://doi.org/10.1183/13993003.01793-2022)

Abstract

Background: Impulse oscillometry (IOS) allows an effort-independent evaluation of small airway function in asthma. Unfortunately, well-determined minimal clinically important

differences (MCID) for IOS-measures are lacking. Here, we provide MCIDs for frequently used IOS-measures, namely frequency dependence of resistance (FDR) and area of reactance (AX) in patients with asthma.

Methods: We performed IOS at baseline and 1 year later in adult patients with mild to severe asthma (n=235). In a two-step approach, we first applied a distribution-based method to statistically determine the MCID. Next, we validated the proposed MCID according to patient-reported outcome measures (PROMs) of Asthma Quality of Life Questionnaire (AQLQ), Asthma Control Questionnaire (ACQ) and Asthma Control Test (ACT). We used multivariable analyses to investigate the proposed MCIDs as predictors for improvements in PROMs in comparison to the established MCID of FEV1.

Results: The proposed MCID was a decline of ≥ 0.06 kPa·L⁻¹·s⁻¹ and ≥ 0.65 kPa·L⁻¹ for FDR and AX, respectively. Patients who had changes beyond the MCID for both FDR and AX showed greater improvements in all PROMs than those who had not. The mean improvements in PROMs were beyond the established MCID for ACQ and AQLQ and approximated the MCID for ACT score. Multivariable analyses demonstrated the MCID for both FDR and AX as independent predictors for the MCID of all PROMs. The MCID for FDR was a stronger predictor of all PROMs than the MCID for FEV1.

Conclusion: This study provides MCIDs for IOS-derived measures in adult patients with asthma and emphasizes that small airway function is a distinguished endpoint beyond the conventional measure of FEV1.

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Occup Environ Med

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. 2023 Feb 6;oemed-2022-108513.

doi: 10.1136/oemed-2022-108513. Online ahead of print.

Longitudinal associations of household use of cleaning agents and asthma symptoms in women: the EGEA study

[Emilie Pacheco Da Silva](#)^{#1}, [Mélanie Ngutuka](#)^{#2}, [Orianne Dumas](#)², [Laurent Orsi](#)², [Wassila Ait-Hadad](#)², [Pierre Lemire](#)², [Joane Quentin](#)³, [Isabelle Pin](#)³, [Raphaëlle Varraso](#)², [Valérie Siroux](#)³, [Nicole Le Moual](#)²; [Epidemiological Study on the Genetics and Environment of Asthma](#)

Collaborators, Affiliations expand

- PMID: 36746618
- DOI: [10.1136/oemed-2022-108513](https://doi.org/10.1136/oemed-2022-108513)

Abstract

Objective: To evaluate the associations between the evolution of household use of cleaning products with the asthma symptom score and its evolution over 8 years.

Methods: Our study is based on 509 women participating in the last two surveys of the Epidemiological study on the Genetics and Environment of Asthma (EGEA) study (EGEA2: 2003-2007 (44 years, 19% current smokers) and EGEA3: 2011-2013). We assessed an asthma symptom score and the use of household cleaning products through standardised questionnaires. We studied longitudinal associations of the evolution of weekly use of irritant or sprayed cleaning products with (1) the asthma symptom score at EGEA3 and a stable symptom score between EGEA2-EGEA3 (negative binomial models) and (2) the incidence/evolution of asthma symptoms between EGEA2-EGEA3 (logistic/polytomous logistic regressions). Models accounted for familial dependence and were adjusted for age, smoking status, body mass index and occupational exposure to asthmagens.

Results: Persistent and increased (40% and 16%, respectively) weekly use of irritants or sprays were associated with a higher risk of asthma symptoms at EGEA3 (Mean Score Ratio (MSR)=1.51 (95% CI 1.06 to 2.14) and 1.33 (95% CI 0.85 to 2.08), respectively). A decreased use (19%) was associated with a lower risk of symptoms at EGEA3, compared with a persistent use (MSR=0.59 (95% CI 0.39 to 0.88)). We also observed an association between an increased use of sprays and the incidence of asthma symptoms (OR=2.30 (95% CI 1.08 to 4.91)), compared with no weekly use of irritants/sprays.

Conclusions: This longitudinal study, with repeated assessment of exposure and respiratory health, supports the hypothesis that a persistent or increased weekly use of sprayed cleaning products over time may have an adverse effect on the evolution of asthma symptoms.

Keywords: Air Pollution, Indoor; Asthma; Environment; Epidemiology.

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Conflict of interest statement

Competing interests: None declared.

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Clin Exp Allergy

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. 2023 Feb 9.

doi: 10.1111/cea.14291. Online ahead of print.

[Defining cases of asthma, eczema and allergic rhinitis using electronic health records in the Born in Bradford birth cohort](#)

[Sergio Souza da Cunha](#)¹, [Gillian Santorelli](#)¹, [Lucy Pembrey](#)²

Affiliations expand

- PMID: 36756903

- DOI: [10.1111/cea.14291](https://doi.org/10.1111/cea.14291)

No abstract available

Keywords: allergic diseases; allergic rhinitis; asthma; children; eczema; electronic health records.

- [9 references](#)

SUPPLEMENTARY INFO

Publication types, Grant supportexpand

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. 2023 Feb 6.

doi: 10.1007/s00408-023-00601-1. Online ahead of print.

[Early Exacerbation Relapse is Increased in Patients with Asthma and Bronchiectasis \(a Post hoc Analysis\)](#)

[Andrew R Hill](#)¹, [Pallavi Bedi](#)², [Manjit K Cartlidge](#)³, [Kim Turnbull](#)³, [Samantha Donaldson](#)², [Andrea Clarke](#)³, [Jane Crowe](#)², [Kadiga Campbell](#)³, [Ruzanna Franguylan](#)³, [Adriano G Rossi](#)², [Adam T Hill](#)^{2,3}

Affiliations expand

- PMID: 36746812

- DOI: [10.1007/s00408-023-00601-1](https://doi.org/10.1007/s00408-023-00601-1)

Abstract

Purpose: Asthma is a common comorbidity in patients with bronchiectasis and has been shown to increase the risk of bronchiectasis exacerbations. This paper explores the impact of comorbid asthma on patients receiving intravenous antibiotic treatment for bronchiectasis exacerbations.

Methods: This was a post hoc analysis of the Meropenem randomised controlled trial of 90 patients that had intravenous antibiotic treatment for bronchiectasis exacerbations. The participants were split into two groups: group 1 (asthma and bronchiectasis) and group 2 (bronchiectasis). The authors assessed response to treatment and time to next exacerbation.

Results: There were 38 participants in group 1 and 34 participants in group 2. The groups were found to be comparable in terms of age, sex, and bronchiectasis severity (median (95% CI) group 1 and then group 2 data): age 64.0(59.3, 68.6) and 63.6(57.9, 69.4) years old, $p = 0.8$; 57.9% and 64.7% female, $p = 0.6$; Bronchiectasis Severity Index 11.1(9.8, 12.4) and 10.1(8.2, 12.0), $p = 0.3$. There was a similar response to treatment between the groups, but group 1 were found to relapse early by day 14, 31.6% in group 1 and 11.8% in group 2, $p = 0.03$. In the Cox proportional hazards model, asthma was the only independent risk factor for early relapse by day 14 (odds ratio (95% CI) 3.16 (1.02-9.79), $p = 0.047$).

Conclusion: The clinical response to treatment was similar but patients with coexisting asthma were at increased risk of early relapse within 14 days of stopping intravenous antibiotic therapy.

Clinical trial registration: [NCT02047773](https://www.clinicaltrials.gov/ct2/show/study/NCT02047773).

Keywords: Asthma; Bronchiectasis; Exacerbations; Intravenous antibiotics.

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- [16 references](#)

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Allergy



. 2023 Feb 5.

doi: 10.1111/all.15667. Online ahead of print.

[EAACI Guidelines on environmental science in allergic diseases and asthma – leveraging artificial intelligence and machine learning to develop a causality model in exposomics](#)

[Mohamed H Shamji](#)^{1,2}, [Markus Ollert](#)^{3,4}, [Ian M Adcock](#)^{1,2}, [Oscar Bennett](#)⁵, [Alberto Favaro](#)⁵, [Roudin Sarama](#)^{1,2}, [Carmen Riggioni](#)⁶, [Isabella Annesi-Maesano](#)⁷, [Adnan Custovic](#)^{1,2}, [Sara Fontanella](#)^{1,2}, [Claudia Traidl-Hoffmann](#)^{8,9}, [Kari Nadeau](#)¹⁰, [Lorenzo Cecchi](#)¹¹, [Magdalena Zemelka-Wiacek](#)¹², [Cezmi A Akdis](#)¹³, [Marek Jutel](#)^{12,14}, [Ioana Agache](#)¹⁵

Affiliations expand

- PMID: 36740916
- DOI: [10.1111/all.15667](https://doi.org/10.1111/all.15667)

Abstract

Allergic diseases and asthma are intrinsically linked to the environment we live in and to patterns of exposure. The integrated approach to understanding the effects of exposures on the immune system includes the ongoing collection of large scale and complex data. This requires sophisticated methods to take full advantage of what this data can offer. Here we discuss the progress and further promise of applying artificial intelligence and machine learning approaches to help unlock the power of complex environmental datasets towards

providing causality models of exposure and intervention. We discuss a range of relevant machine learning paradigms and models including the way such models are trained and validated together with examples of machine learning applied to allergic disease in the context of specific environmental exposures as well as attempts to tie these environmental data streams to the fully representative exposome. We also discuss the promise of artificial intelligence in the personalized medicine and the methodological approaches to healthcare with the final ai to improve the public health.

Keywords: allergy; artificial intelligence; asthma; environment; exposome; machine learning.

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Am J Respir Crit Care Med

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. 2023 Feb 6.

doi: 10.1164/rccm.202206-1200IM. Online ahead of print.

[Airway Collapse Mimicking Bronchial Tumor](#)

[Jorrit B A Welling](#)^{1,2}, [Dirk-Jan Slebos](#)^{1,3}

Affiliations expand

- PMID: 36746188

- DOI: [10.1164/rccm.202206-1200IM](https://doi.org/10.1164/rccm.202206-1200IM)

No abstract available

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Eur Respir J

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. 2023 Feb 9;61(2):2200943.

doi: 10.1183/13993003.00943-2022. Print 2023 Feb.

[Rhinitis phenotypes and multimorbidities in the general population: the CONSTANCES cohort](#)

[Marine Savouré](#)^{1,2}, [Jean Bousquet](#)^{3,4,5,6,7}, [Bénédicte Leynaert](#)³, [Adeline Renuy](#)⁸, [Valérie Siroux](#)⁹, [Marcel Goldberg](#)⁸, [Marie Zins](#)⁸, [Bénédicte Jacquemin](#)^{10,11}, [Rachel Nadif](#)^{3,11}

Affiliations expand

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- PMCID: [PMC9909208](#)
- DOI: [10.1183/13993003.00943-2022](https://doi.org/10.1183/13993003.00943-2022)

Free PMC article

Abstract

Background: Scarce epidemiological studies have characterised allergic rhinitis (AR) and non-allergic rhinitis (NAR) in adults. In a population-based cohort, our aims were to 1) describe rhinitis, AR and NAR, and 2) explore how asthma and conjunctivitis may lead to the identification of novel rhinitis phenotypes.

Methods: In this cross-sectional analysis, current rhinitis was defined as present in the last 12 months using a questionnaire from the French CONSTANCES cohort. Participants with current rhinitis reporting nasal allergies were considered as AR, otherwise as NAR. We described AR and NAR phenotypes, and their phenotypes including co-occurrence with ever-asthma and ever-conjunctivitis.

Results: Among the 20 772 participants included in this analysis (mean±sd age 52.6±12.6 years; 55.2% female), crude prevalences of AR and NAR were 28.0% and 10.9%. AR participants more frequently reported persistent rhinitis (31.6% *versus* 25.1%) and moderate-to-severe rhinitis (40.1% *versus* 24.2%) than NAR participants. Among AR or NAR participants, those with ever-asthma reported more moderate-to-severe rhinitis. Participants with AR, ever-asthma and ever-conjunctivitis had an earlier age of rhinitis onset, more severe rhinitis and higher eosinophil counts than participants in other groups. Results were replicated in another cohort.

Conclusions: In this large population-based cohort, 40% reported current rhinitis, with a lower prevalence of moderate-to-severe rhinitis than in clinical practice. For the first time in a general adult population, we showed that AR and NAR alone or in combination with asthma or in combination with asthma and conjunctivitis are different phenotypes. These results provide new insights on how best to manage rhinitis and its multimorbidities.

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Conflict of interest statement

Conflict of interest: M. Savouré reports that this work is a part of a thesis supported by the French Environment and Energy Management Agency (ADEME) and the Université Paris-Saclay. J. Bousquet reports lecture honoraria from Cipla, Menarini, Mylan, Novartis, Purina, Sanofi-Aventis, Teva and Uriach, outside the submitted work, and is a shareholder of KYomed Innov and MASK-air-SAS. All other authors have nothing to disclose.

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

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Observational Study

Scand J Trauma Resusc Emerg Med

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. 2023 Feb 5;31(1):6.

doi: 10.1186/s13049-023-01070-4.

[Prehospital Ultrasound in Undifferentiated Dyspnea \(PreLUDE\): a prospective, clinical, observational study](#)

[Elise Arem Gundersen](#)^{1,2}, [Peter Juhl-Olsen](#)^{1,3}, [Allan Bach](#)^{1,4}, [Martin Rostgaard-Knudsen](#)⁵, [Bent Roni Ranghøj Nielsen](#)⁶, [Søren Helbo Skaarup](#)⁷, [Henrik Ømark Petersen](#)⁸, [Jesper Fjølner](#)^{2,4}, [Morten Gustav Gerstrøm Poulsen](#)⁴, [Morten Thingemann Bøtker](#)^{9,10}

Affiliations expand

- PMID: 36740691
- PMCID: [PMC9899351](#)
- DOI: [10.1186/s13049-023-01070-4](#)

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Abstract

Background: Diagnostic uncertainty in patients with dyspnea is associated with worse outcomes. We hypothesized that prehospital point-of-care ultrasound (POCUS) can improve diagnostic accuracy.

Methods: Prospective observational study of adult patients suffering dyspnea. Prehospital critical care physicians registered a suspected diagnosis based on clinical examination alone, performed POCUS of the heart and lungs, and finally registered suspected diagnoses based on their clinical examination supplemented with POCUS. Pre- and post-POCUS diagnoses were compared to endpoint committee adjudicated diagnoses. The primary outcome was improved sensitivity for diagnosing acute heart failure. Secondary outcomes included other diagnostic accuracy measures in relation to acute heart failure and other causes of dyspnea.

Results: In total, 214 patients were included. The diagnosis of acute heart failure was suspected in 64/214 (30%) of patients before POCUS and 64/214 (30%) patients after POCUS, but POCUS led to reclassification in 53/214 (25%) patients. The endpoint committee adjudicated the diagnosis of acute heart failure in 87/214 (41%) patients. The sensitivity for the diagnosis of acute heart failure was 58% (95% CI 46%-69%) before POCUS compared to 65% (95% CI 53%-75%) after POCUS ($p = 0.12$). ROC AUC for the diagnosis acute heart failure was 0.72 (95% CI 0.66-0.78) before POCUS compared to 0.79 (0.73-0.84) after POCUS ($p < 0.001$). ROC AUC for the diagnosis acute exacerbation (AE) of chronic obstructive pulmonary disease (COPD) or asthma was 0.87 (0.82-0.91) before POCUS and 0.93 (0.88-0.97) after POCUS ($p < 0.001$). A POCUS finding of any of severely reduced left ventricular function, bilateral B-lines or bilateral pleural effusion demonstrated the highest sensitivity for acute heart failure at 88% (95% CI 79%-94%), whereas the combination of all of these three findings yielded the highest specificity at 99% (95% CI 95%-100%).

Conclusion: Supplementary prehospital POCUS leads to an improvement of diagnostic accuracy of both heart failure and AE-COPD/-asthma overall described by ROC AUC, but the increase in sensitivity for the diagnoses of acute heart failure did not reach statistical significance. Tailored use of POCUS findings optimizes diagnostic accuracy for rule-out and rule-in of acute heart failure.

Trial registration: Registered in Clinical Trials, 05.04.2019 (identifier: [NCT03905460](https://clinicaltrials.gov/ct2/show/study/NCT03905460)) <https://clinicaltrials.gov/ct2/show/study/NCT03905460?term=NCT03905460&cond=Dyspnea&cntry=DK&draw=2&rank=1> .

Keywords: Dyspnea; Heart failure; Point-of-care ultrasound; Prehospital.

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Conflict of interest statement

MTB authors e-learning on point-of-care ultrasound for USabcd.org, for which he receives royalties. The other authors declare that they have no competing interests.

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

SUPPLEMENTARY INFO

Publication types, MeSH terms, Associated dataexpand

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Can J Cardiol

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. 2023 Feb 9;S0828-282X(23)00082-X.

doi: 10.1016/j.cjca.2023.02.004. Online ahead of print.

[Incident atrial fibrillation in relation to ventilatory parameters: a prospective cohort study](#)

[Jean Jacques Noubiap](#)¹, [Samuel J Tu](#)¹, [Mehrdad Emami](#)², [Melissa E Middeldorp](#)², [Adrian D Elliott](#)², [Prashanthan Sanders](#)³

Affiliations expand

- PMID: 36773703
- DOI: [10.1016/j.cjca.2023.02.004](https://doi.org/10.1016/j.cjca.2023.02.004)

Abstract

Background: There is a paucity of data on the association between respiratory function and atrial fibrillation (AF). This study aimed to assess the relationship between forced expiratory volume (FEV1), forced vital capacity (FVC), and FEV1/FVC and incident AF.

Methods: We performed an analysis of prospectively collected data from the UK Biobank. We included all participants with available spirometry and excluded those with a prior AF. Incident AF was ascertained through hospitalization and death records, and dose-response associations were assessed using multivariable Cox regression analysis with adjustment for known AF risk factors.

Results: We studied 348,219 white individuals (54.1% female) with a median age of 58.1 (IQR 50.8-63.5) years. Over a median follow-up time of 11.5 years (IQR: 11.0-12.6 years), a total of 18,188 incident AF events occurred. After standardization to sex, age, and height, the risk of AF consistently increased with decreasing FEV1 percentage predicted, FEV1 z-score, and FVC z-score. The risk of AF linearly increased with decreasing FEV1/FVC ratio, and those that had airway obstruction as defined by an FEV1/FVC ratio < 0.70 had a 23% greater risk of incident AF (aHR 1.23, 95% CI 1.19-1.28) compared to those without airway obstruction. Patients with known chronic obstructive pulmonary disease and asthma were at 40% (aHR 1.40, 95% CI 1.29-1.51) and 17% (aHR 1.17, 95% CI 1.12-1.22) increased risk of incident AF.

Conclusion: These findings indicate that reduced ventilatory function is associated with increased risk of AF independently of age, sex, smoking, and other known AF risk factors.

Keywords: Atrial fibrillation; chronic obstructive pulmonary disease; forced expiratory volume; vital capacity.

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Int J Occup Med Environ Health

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. 2023 Feb 8;152680.

Evaluation of selected aspects of the hygiene hypothesis and their effect on the incidence of allergy

[Edyta Krzych-Fałta](#)¹, [Oksana Wojas](#)², [Konrad Furmańczyk](#)^{2,3}, [Diana Dziewa-Dawidczyk](#)³, [Barbara Piekarska](#)², [Bolesław Samoliński](#)², [Adam Sybilski](#)⁴

Affiliations expand

- PMID: 36756848
- DOI: [10.13075/ijomeh.1896.01880](https://doi.org/10.13075/ijomeh.1896.01880)

Free article

Abstract

Objectives: The development of allergic conditions is largely dependent on the interactions between genetic (individual genetic predisposition) and environmental factors (exposure to risk factors). The aim of this study was an attempt to assess the influence of selected elements of the hygiene theory in the development of allergic diseases such as allergic rhinitis and asthma.

Material and methods: The study group consisted of 5518 women and 3868 men. The method that was used was the European Community Respiratory Health Survey II and International Study of Asthma and Allergies in Childhood questionnaire validated and adapted to Central and Eastern European conditions. The project was conducted in 8 urban areas (Gdańsk, Wrocław, Poznań, Katowice, Kraków, Lublin, Białystok, Warsaw) and 1 rural area (Krasnystaw county). This study had 2 stages; the first stage involved grouping the 22 500 respondents based on their questionnaire responses with the use of a Personal Digital Assistant (PDA); the second stage involved 7000 subjects, who underwent additional assessments: skin prick tests (birch, grasses/cereals, *Dermatophagoides pteronyssinus* and *Dermatophagoides farinae*, molds [set I: *Botrytis cinerea*, *Cladosporium herbarum*, *Alternaria tenuis*, *Curvularia lunata*, *Fusarium moniliforme*, *Helminthosporium*], molds [set II: *Aspergillus fumigatus*, *Mucor mucedo*, *Penicillium notatum*, *Pullularia pullulans*, *Rhizopus nigricans*, *Serpula lacrymans*], cat, dog, molds *Cladosporium herbarum*, *Alternaria tenuis*) and spirometry tests.

Results: The age at which children attend the nursery school is critical to the development of allergic diseases; in allergic rhinitis, the risk of an IgE-dependent reaction is 2 times higher in the second than in the first year of life ($p = 0.00147$, $p < 0.05$), while in asthma, having a large number of siblings increases the risk of developing obstructive disease by almost 6 times ($p = 0.00316$, $p < 0.05$). The age at which children attend the nursery school is critical to the development of allergic diseases; in allergic rhinitis, the risk of an IgE-dependent reaction is 2 times higher in the second than in the first year of life ($p = 0.00147$, $p < 0.05$), while in asthma, having a large number of siblings increases the risk of developing obstructive disease by almost 6 times ($p = 0.00316$, $p < 0.05$).

Conclusions: The hygiene theory is particularly applicable and can explain the relationship of selected habits in the development of allergic diseases.

Keywords: European Community Respiratory Health Survey II; International Study of Asthma and Allergies in Childhood; allergic rhinitis; allergy; asthma; hygiene hypothesis.

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Clin Infect Dis

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. 2023 Feb 8;76(3):e1040-e1046.

doi: 10.1093/cid/ciac606.

[Guideline-Concordant Antiviral Treatment in Children at High Risk for Influenza Complications](#)

[James W Antoon](#)^{1,2}, [Matt Hall](#)³, [James A Feinstein](#)⁴, [Kathryn E Kyler](#)⁵, [Samir S Shah](#)⁶, [Sonya Tang Girdwood](#)⁷, [Jennifer L Goldman](#)^{8,9}, [Carlos G Grijalva](#)¹⁰, [Derek J Williams](#)^{1,2}

Affiliations expand

- PMID: 35867691
- DOI: [10.1093/cid/ciac606](https://doi.org/10.1093/cid/ciac606)

Abstract

Background: National guidelines recommend antiviral treatment for children with influenza at high risk for complications regardless of symptom duration. Little is known about concordance of clinical practice with this recommendation.

Methods: We performed a cross-sectional study of outpatient children (aged 1-18 years) at high risk for complications who were diagnosed with influenza during the 2016-2019 influenza seasons. High-risk status was determined using an existing definition that includes age, comorbidities, and residence in a long-term care facility. The primary outcome was influenza antiviral dispensing within 2 days of influenza diagnosis. We determined patient- and provider-level factors associated with guideline-concordant treatment using multivariable logistic regression.

Results: Of the 274 213 children with influenza at high risk for influenza complications, 159 350 (58.1%) received antiviral treatment. Antiviral treatment was associated with the presence of asthma (aOR, 1.13; 95% confidence interval [CI], 1.11-1.16), immunosuppression (aOR, 1.10; 95% CI, 1.05-1.16), complex chronic conditions (aOR, 1.04; 95% CI, 1.01-1.07), and index encounter in the urgent care setting (aOR, 1.3; 95% CI, 1.26-1.34). Factors associated with decreased odds of antiviral treatment include age 2-5 years compared with 6-17 years (aOR, 0.95; 95% CI, .93-.97), residing in a chronic care facility (aOR, .61; 95% CI, .46-.81), and index encounter in an emergency department (aOR, 0.66; 95% CI, .63-.71).

Conclusions: Among children with influenza at high risk for complications, 42% did not receive guideline-concordant antiviral treatment. Further study is needed to elucidate barriers to appropriate use of antivirals in this vulnerable population.

Keywords: antiviral; influenza; oseltamivir; pediatrics.

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Conflict of interest statement

Potential conflicts of interest . C. G. G. has received consulting fees from Pfizer, Sanofi, and Merck and grants or contracts paid to their institution from Campbell Alliance/Syneos Health, Sanofi, the Centers for Disease Control and Prevention (CDC), Agency for Healthcare Research and Quality (AHRQ), NIH, and US Food and Drug Administration. D. J. W. has received in-kind research support from bioMérieux and reports grants or contracts paid to their institution from NIAID, CDC, Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), and National Heart, Lung, and Blood Institute (NHLBI); served as division chief of the Division of Hospital Medicine, Vanderbilt University Medical Center; and served on the Executive Committee–Pediatric Research in Inpatient Setting. J. W. A. reports grants or contracts unrelated to this work from a Turner Hazinski Research Award–Vanderbilt University Medical Center, Young Investigator Award–Academic Pediatric Association, Maternal and Pediatric Precision in Therapeutics (MPRINT) Hub Pilot Funding–NIH NICHD, and an NIH NHLBI K12 award, all paid to their institution; and payment to author for expert testimony from Lewis Rice, LLC, unrelated to this work. J. L. G. reports grants or contracts from the NICDH and the National Institute of General Medical Sciences unrelated to this work and paid to their institution and payment or honoraria paid to author from the American Academy of Pediatrics (presentation) and the Missouri Association of School Nurses (honoraria). S. T. G. reports a Gerber Foundation Novice Research Award and Eunice Kennedy Shriver National Institute of Child Health and Human Development award unrelated to this work; participation on a University of Cincinnati data and safety monitoring board for an NICHD R01-funded protocol; and serving as a member of the American Society of Clinical Pharmacology & Therapeutics (ASCPT) By Laws Committee, ASCPT Scientific Programming Committee, and ASCPT Career Development. S. S. S. reports grant funding from the Children’s Hospital Association to their institution to develop a quality dashboard and grant funding to institution from Patient-Centered Outcomes Research Institute and AHRQ. All remaining authors: No reported conflicts of interest. All authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

SUPPLEMENTARY INFO

MeSH terms, Substances, Grant supportexpand

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. 2023 Feb 9.

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Simvastatin as a topical anti-inflammatory: effect on airway epithelial cell homeostasis

[Nyssa Fox Farrell](#)¹, [Jiehong Pan](#)², [Tao Huang](#)², [Jay F Piccirillo](#)³, [Bradley J Goldstein](#)⁴, [Steven L Brody](#)²

Affiliations expand

- PMID: 36757028
- DOI: [10.1002/alr.23137](https://doi.org/10.1002/alr.23137)

Abstract

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

Background: Despite the significant morbidity associated with chronic rhinosinusitis in individuals with asthma (CRSwA) there is a paucity of codified, evidence-based management strategies for CRS in this population.

Methods: Using PubMed, EMBASE, and Cochrane Review Databases, a systematic review was performed covering management strategies for CRSwA. 5,903 articles were screened; 70 were included for full-text analysis. After application of exclusion criteria, 53 articles comprised the qualitative synthesis. The level of evidence was graded, and benefit-harm assessments, as well as value judgment and recommendations were provided RESULTS: : Strong evidence confirms the benefit of oral and topical medications on sinonasal-specific outcomes in individuals with CRSwA; there is low-grade evidence demonstrating that these agents improve lung function and/or asthma control. Moderate-to-strong evidence suggests that endoscopic sinus surgery (ESS) improves both sinonasal- and asthma-specific quality of life. Although there is insufficient-to-low evidence to indicate that ESS improves pulmonary function in this population, data indicate a positive impact of this

intervention on asthma control. Biologic medications strongly improve both subjective and objective sinonasal- and asthma-specific outcomes.

Conclusion: Evidence supports managing CRS in individuals with CRSwA in a stepwise fashion, starting with traditional non-biologic oral and topical medication, and escalating to second-line treatments, such as ESS and biologics. Optimal treatment of individuals who suffer from CRSwA often requires concurrent, directed management of asthma, as not all CRS interventions impact asthma status. This article is protected by copyright. All rights reserved.

Keywords: Medical therapy of chronic rhinosinusitis; Therapeutics; Topical therapy for chronic rhinosinusitis.

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Respir Med



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[Oscillometry to support clinical assessment in asthmatic preschoolers: Real-life impact](#)

[Bennet Desormeau](#)¹, [Anna Smyrnova](#)², [Olivier Drouin](#)³, [Francine Monique Ducharme](#)³

Affiliations expand

- PMID: 36754219
- DOI: [10.1016/j.rmed.2023.107148](https://doi.org/10.1016/j.rmed.2023.107148)

Abstract

In preschoolers, asthma control is assessed clinically using history and physical examination. In certain centres, oscillometry is used to support clinical assessment; yet its clinical utility for asthma management remains to be quantified. The objectives were to determine if oscillometry, as adjunct to clinical assessment, influences asthma assessment, management and control, compared to clinical assessment alone in preschoolers. We conducted a cross-sectional study in children aged 3-5 years with a confirmed asthma diagnosis. Oscillometry-tested preschoolers were matched by propensity score to untested children. The co-primary outcomes, the likelihood of a persistent asthma phenotype and a maintenance therapy prescription at the index visit, were examined by multivariable logistic regression. Asthma control over the next year was examined by cumulative logistic regression in the nested retrospective cohort with available drug claim data. The cohort comprised 726 (249 oscillometry-tested; 477 untested) children with 57.4% male (median age: 4.6 years). Propensity score matching resulted in comparable groups. Compared to controls, oscillometry-tested children were more frequently labelled with a persistent phenotype (67% vs. 50%; adjusted OR [95% CI]: 2.34 [1.66-3.34]) with no significant difference in maintenance therapy prescription (65% vs. 58%; 1.37 [0.98-1.92]); but experienced a lower likelihood of poor control over the next year (adjusted OR [95% CI]: 0.24 [0.08-0.74]). The association between the addition of oscillometry to clinical assessment with more persistent phenotype labelling and better asthma control supports its clinical utility; no significant impact on maintenance therapy prescription was observed at the index visit.

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Conflict of interest statement

Declaration of competing interest Bennet Desormeau and Anna Smyrnova declare no conflicts of interest. Francine Monique Ducharme has received unrestricted research funds from Astra Zeneca, Covis Pharma, GlaxoSmithKline, Merck Canada, Novartis, Teva, Trudell Medical; research funds from Covis Pharma, GlaxoSmithKline, and MEDteq in partnership with Thorasys Inc.; honorarium for consultancy work from Astra Zeneca, Covis Pharma, Teva, and Thorasys Inc.; and honorarium as an invited speaker from Covis Pharma, Jean Jean-Coutu Pharmacy and Brunet Pharmacy. Olivier Drouin has received funding from Fonds de la Recherche du Québec en Santé and research funds from Covis Pharma.

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Int Forum Allergy Rhinol

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. 2023 Feb 9.

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[Risk of new onset and prevalent disease in chronic rhinosinusitis: a prospective cohort study](#)

[Annemarie G Hirsch](#)¹, [Brian S Schwartz](#)^{1,2}, [Cara Nordberg](#)¹, [Bruce K Tan](#)^{3,4}, [Robert P Schleimer](#)^{3,4}, [Robert C Kern](#)³, [Anju T Peters](#)⁴, [Karen Bandeen-Roche](#)⁵, [Ashton E Lehmann](#)⁶

Affiliations expand

- PMID: 36756720
- DOI: [10.1002/alr.23136](https://doi.org/10.1002/alr.23136)

Abstract

Background: Chronic rhinosinusitis (CRS) is accompanied by burdensome co-morbid conditions. Understanding the relative timing of these conditions' onset could inform disease prevention, detection, and management.

Objective: To evaluate the association between CRS and new onset and prevalent asthma, non-cystic fibrosis bronchiectasis (NCFBE), chronic obstructive pulmonary disease (COPD), gastroesophageal reflux disease (GERD), and obstructive sleep apnea (OSA).

Methods: We conducted a prospective cohort study among primary care patients using a detailed medical and symptom questionnaire in 2014 and again in 2020. We used questionnaire and electronic health record (EHR) data to determine CRS status: CRS_{SE} (moderate to severe symptoms with EHR evidence), CRS_E (limited symptoms with EHR evidence), CRS_S (moderate to severe symptoms without EHR evidence), CRS_{neg} (limited symptoms and no EHR evidence; reference). We evaluated the association between CRS status and new onset and prevalent disease using logistic regression to estimate odds ratios (OR) and 95% confidence intervals (CI).

Results: There were 7,847 and 4,445 respondents to the 2014 and 2020 questionnaires, respectively. CRS_{SE} (versus CRS_{neg}) was associated with increased odds of new onset asthma (OR:1.74; CI:1.09, 2.77), NCFBE (OR:1.87, CI:1.12, 3.13), COPD (OR:1.73; CI:1.14, 2.68), GERD (OR:1.95, CI:1.61, 2.35), and OSA (OR:1.91; CI:1.39, 2.62). Similarly increased odds were observed for associations with the prevalence of these conditions.

Conclusion: The findings from the study support further exploration of CRS as a target for the prevention and detection of asthma, NCFBE, COPD, GERD, and OSA. This article is protected by copyright. All rights reserved.

Keywords: asthma; bronchiectasis; chronic obstructive pulmonary disease; chronic rhinosinusitis; gastroesophageal reflux disease; obstructive sleep apnea.

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Arch Environ Occup Health

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World Trade Center Health Program best practices for the diagnosis and treatment of gastroesophageal reflux disease

[Ruth A Lin](#)¹, [Geoffrey M Calvert](#)², [Iris G Udasin](#)¹

Affiliations expand

- PMID: 36744643
- DOI: [10.1080/19338244.2023.2171958](https://doi.org/10.1080/19338244.2023.2171958)

Abstract

Gastroesophageal reflux disease (GERD) is one of the most common health conditions reported among persons exposed to the dust, debris and chemicals after the September 11, 2001 attacks in the United States. In the 9/11-exposed population, GERD is often found to be co-morbid with other conditions, such as asthma, post-traumatic stress disorder, and obesity. High-quality clinical practice guidelines for GERD are available from the American College of Gastroenterology. GERD diagnostic services and medically necessary treatment are covered by the WTC Health Program for persons who meet eligibility criteria.

Keywords: 9/11; Gastroesophageal Reflux Disease; PPI; September 11; WTC; World Trade Center; proton pump inhibitor.

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Hum Vaccin Immunother

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. 2023 Feb 6;2159731.

doi: 10.1080/21645515.2022.2159731. Online ahead of print.

Immunogenicity and safety of reduced-antigen tetanus, diphtheria and acellular pertussis vaccination in adults treated for obstructive airway diseases

[Peter Van den Steen](#)¹, [Brigitte Cheuvar](#)¹, [Quentin Deraedt](#)¹, [Laura Valdes Verelst](#)¹, [Dasha Shamarina](#)¹

Affiliations expand

- PMID: 36746754
- DOI: [10.1080/21645515.2022.2159731](https://doi.org/10.1080/21645515.2022.2159731)

Abstract

Patients with obstructive airway diseases (OAD), like chronic obstructive pulmonary disease (COPD) and asthma, may be at increased risk of pertussis infection. Pertussis may also trigger COPD and asthma exacerbations. Vaccination against pertussis could help protect OAD patients from the additional burden of pertussis, but there may be hesitancy related to vaccine safety and immunogenicity in such patients. We performed a meta-analysis on 5 clinical trials in adults receiving reduced-antigen tetanus-diphtheria-acellular pertussis vaccine (Tdap, *Boostrix*, GSK), from which we selected participants on active OAD treatment. We compared immunogenicity and reactogenicity outcomes of the meta-analysis with data from the overall populations of Tdap-vaccinated adults from 6 Tdap trials (including the 5 in the meta-analysis). The meta-analysis comprised 222 adults on active standard OAD treatment. One month post-Tdap, 89.0% and 97.2% of these adults, respectively, achieved seroprotective anti-diphtheria and anti-tetanus antibody concentrations; 78.3%-96.1% showed booster responses across the 3 pertussis antigens. These rates were consistent with those in the comparator population. The most frequently reported solicited local and systemic adverse events within 4 days post-Tdap were injection site pain (47.7%) and fatigue (19.3%), with low rates of grade 3 intensity (0.9% and 2.8%). This was consistent with Tdap reactogenicity in the comparator population. Evaluation of unsolicited and serious adverse events within 1 month post-Tdap did not identify safety concerns. In conclusion, Tdap was immunogenic and well tolerated in adults under active

standard OAD treatment, with immunogenicity and safety profiles consistent with those in a comparator population representing the general adult population.

Keywords: COPD; Tdap; adults; asthma; dTap; immunogenicity; obstructive airway diseases; pertussis; safety; vaccination.

Plain language summary

Whooping cough is a very contagious respiratory disease that is most dangerous for young babies but can affect people of all ages. People with chronic lung diseases like asthma or chronic obstructive pulmonary disease (COPD) may be more likely to get ill and suffer from complications from whooping cough. Vaccination against whooping cough is an important way to help protect these people. However, some doctors may hesitate to vaccinate patients because they may worry that vaccination could worsen asthma or COPD symptoms or that drugs taken by these patients could make vaccines work less well. We therefore looked at the immunogenicity and safety of a whooping cough vaccine (*Boostrix*, GSK) in adults treated for chronic lung diseases like asthma or COPD. We analyzed data from 5 previous clinical studies and specifically selected data from patients taking standard medication for chronic lung diseases in these studies. We found that the immune response to whooping cough vaccination in these patients was comparable to that in a comparator group representative of the general adult population receiving *Boostrix*. The vaccine was as well tolerated in patients with chronic lung diseases as in the general adult population. Our results suggest that the whooping cough vaccine *Boostrix* can be safely given to adults taking standard medication for chronic lung diseases to help prevent severe illness and complications from whooping cough.

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Acad Emerg Med

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. 2023 Feb 10.

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Hospital-level variation in risk-standardized admission rates for emergency care-sensitive conditions among older and younger Veterans

[Christina M Cutter](#)^{1,2,3}, [Linda D Tran](#)^{4,5}, [Siqi Wu](#)^{6,7}, [Tracy H Urech](#)⁷, [Justine Seidenfeld](#)^{8,9}, [Keith E Kocher](#)^{1,2,3,10,11}, [Anita A Vashi](#)^{7,12,13}

Affiliations expand

- PMID: 36762877
- DOI: [10.1111/acem.14691](https://doi.org/10.1111/acem.14691)

Abstract

Objectives: Research examining emergency department (ED) admission practices within the Department of Veterans Affairs (VA) is limited. This study investigates facility-level variation in risk-standardized admission rates (RSARs) for emergency care-sensitive conditions (ECSCs) among older (≥ 65 years) and younger (< 65 years) Veterans across VA EDs.

Methods: Veterans presenting to a VA ED for an ECSC between October 1, 2016 and September 30, 2019 were identified and the ten most common ECSCs established. ECSC-specific RSARs were calculated using hierarchical generalized linear models, adjusting for Veteran and encounter characteristics. The interquartile range ratio (IQR ratio) and coefficient of variation were measures of dispersion for each condition and were stratified by age group. Associations with facility characteristics were also examined in condition-specific multivariable models.

Results: The overall cohort included 651,336 ED visits across 110 VA facilities for the ten most common ECSCs—chronic obstructive pulmonary disease (COPD), heart failure, pneumonia, volume depletion, tachyarrhythmias, acute diabetes mellitus, gastrointestinal tract (GI) bleeding/perforation, asthma, sepsis, and myocardial infarction (MI). After adjusting for case-mix, the ECSCs with the greatest variation (IQR ratio, coefficient of variation) in RSARs were asthma (1.43, 32.12), COPD (1.39, 24.64), volume depletion (1.38, 23.67), and acute diabetes mellitus (1.28, 17.52), whereas those with the least variation were MI (1.01, 0.87) and sepsis (1.02, 2.41). Condition-specific RSARs were not qualitatively different between age subgroups. Association with facility characteristics varied across ECSCs and within condition-specific age subgroups.

Conclusions: We identified unexplained facility-level variation in RSARs for Veterans presenting with the ten most common ECSCs to VA EDs. The magnitude of variation did not appear to be qualitatively different between older and younger Veteran subgroups. Variation in RSAR for ECSCs may be an important target for systems-based levers to improve value in VA emergency care.

Keywords: Department of Veterans Affairs; Veterans; efficiency measurement; emergency department; healthcare quality; hospital admission; value-based care.

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RHINITIS

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. 2023 Feb 9;61(2):2200943.

doi: 10.1183/13993003.00943-2022. Print 2023 Feb.

[Rhinitis phenotypes and multimorbidities in the general population: the CONSTANCES cohort](#)

[Marine Savouré](#)^{1,2}, [Jean Bousquet](#)^{3,4,5,6,7}, [Bénédicte Leynaert](#)³, [Adeline Renuy](#)⁸, [Valérie Siroux](#)⁹, [Marcel Goldberg](#)⁸, [Marie Zins](#)⁸, [Bénédicte Jacquemin](#)^{10,11}, [Rachel Nadif](#)^{3,11}

Affiliations expand

- PMID: 36202419

- PMID: [PMC9909208](#)
- DOI: [10.1183/13993003.00943-2022](#)

Free PMC article

Abstract

Background: Scarce epidemiological studies have characterised allergic rhinitis (AR) and non-allergic rhinitis (NAR) in adults. In a population-based cohort, our aims were to 1) describe rhinitis, AR and NAR, and 2) explore how asthma and conjunctivitis may lead to the identification of novel rhinitis phenotypes.

Methods: In this cross-sectional analysis, current rhinitis was defined as present in the last 12 months using a questionnaire from the French CONSTANCES cohort. Participants with current rhinitis reporting nasal allergies were considered as AR, otherwise as NAR. We described AR and NAR phenotypes, and their phenotypes including co-occurrence with ever-asthma and ever-conjunctivitis.

Results: Among the 20 772 participants included in this analysis (mean±sd age 52.6±12.6 years; 55.2% female), crude prevalences of AR and NAR were 28.0% and 10.9%. AR participants more frequently reported persistent rhinitis (31.6% *versus* 25.1%) and moderate-to-severe rhinitis (40.1% *versus* 24.2%) than NAR participants. Among AR or NAR participants, those with ever-asthma reported more moderate-to-severe rhinitis. Participants with AR, ever-asthma and ever-conjunctivitis had an earlier age of rhinitis onset, more severe rhinitis and higher eosinophil counts than participants in other groups. Results were replicated in another cohort.

Conclusions: In this large population-based cohort, 40% reported current rhinitis, with a lower prevalence of moderate-to-severe rhinitis than in clinical practice. For the first time in a general adult population, we showed that AR and NAR alone or in combination with asthma or in combination with asthma and conjunctivitis are different phenotypes. These results provide new insights on how best to manage rhinitis and its multimorbidities.

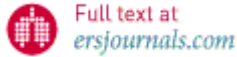
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Conflict of interest statement

Conflict of interest: M. Savouré reports that this work is a part of a thesis supported by the French Environment and Energy Management Agency (ADEME) and the Université Paris-Saclay. J. Bousquet reports lecture honoraria from Cipla, Menarini, Mylan, Novartis, Purina, Sanofi-Aventis, Teva and Uriach, outside the submitted work, and is a shareholder of KYomed Innov and MASK-air-SAS. All other authors have nothing to disclose.

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- [1 figure](#)

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Review

Am J Rhinol Allergy

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. 2023 Feb 5;19458924221149267.

doi: 10.1177/19458924221149267. Online ahead of print.

[Allergic Rhinitis in Preschoolers: A Systematic Review of Diagnostics](#)

[Alana F Diniz](#)¹, [Juliana Ap Ribeiro](#)¹, [Georgia Vag Lira](#)¹, [Emanuel Sc Sarinho](#)¹

Affiliations expand

- PMID: 36740859
- DOI: [10.1177/19458924221149267](https://doi.org/10.1177/19458924221149267)

Abstract

Background: Most studies that seek to analyze the prevalence of allergic rhinitis do not include preschool children and the diagnosis in this age group is difficult.

Objective: Identify complementary tests to the diagnosis of allergic rhinitis in preschool children and verify if there is scientific robustness to propose a diagnostic algorithm for this condition in this age group.

Methods: Systematic review of the literature in four databases: SCIELO, PubMed/MEDLINE, LILACS and SCOPUS. Each article was initially chosen by title, abstract and by the keywords "allergic rhinitis," "diagnosis" and "preschool." Those articles selected entered the complete reading and data extraction phase. The study was registered in the International Prospective Register of Systematic Reviews under number CRD42020207053.

Results: Fourteen articles were suitable for analysis. In the assessment using *Quality Assessment of Diagnostic Accuracy Studies - 2*, all studies had at least one domain considered "high risk" or "undetermined risk." Seven reports of nasal cytology, seven of specific IgE, four of immediate hypersensitivity skin test, one of nasal nitric oxide, three of total IgE and one of urinary leukotriene E4 were found. Eight articles evaluated more than one diagnostic test.

Conclusion: There are no defined criteria for the diagnosis of allergic rhinitis in preschool children. Nasal cytology, serum specific IgE and immediate hypersensitivity skin test were the most used tests. A reliable diagnostic criterion in this age group is necessary so that in the future it is possible to propose a diagnostic algorithm for allergic rhinitis in preschool children.

Keywords: allergic rhinitis; complementary tests; diagnosis; diagnostic algorithm; immediate hypersensitivity skin test; nasal cytology; nasal nitric oxide; specific IgE; total IgE and preschool.

SUPPLEMENTARY INFO

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[Review](#)



The effect of greenness on allergic rhinitis outcomes in children and adolescents: A systematic review and meta-analysis

[Nv-Wei Cao](#)¹, [Hao-Yue Zhou](#)², [Yu-Jie Du](#)¹, [Xian-Bao Li](#)¹, [Xiu-Jie Chu](#)¹, [Bao-Zhu Li](#)³

Affiliations expand

- PMID: 36402344
- DOI: [10.1016/j.scitotenv.2022.160244](https://doi.org/10.1016/j.scitotenv.2022.160244)

Abstract

Background: The relationship between greenness and health emerges as new public health concern. More published studies from multiple areas have explored the relationship between greenness and allergic rhinitis (AR) in children and adolescents. This study aims to determine the association between greenness and allergic rhinitis by systematic review and meta-analysis, in order to provide a more comprehensive assessment of the impact of greenness on AR in children and adolescents.

Methods: The relative literature was systematically searched in PubMed, Embase, and Web of science lastly on September 25, 2022. Terms related to greenness and allergic rhinitis were used for searching. Summary effect estimates of greenness on AR in children and adolescents were calculated for per 10 % increase of greenness exposure with different buffer sizes by random-effects model.

Results: A total of 579 studies were screened, and fourteen studies from Europe, Asia and North America were finally included. Most greenness exposure were measured by normalized difference vegetation index (NDVI). Enhanced vegetation index, outdoor-green environmental score and existed to measuring different greenness types. Greenness

surrounding residences and schools were assessed. The overall effect of greenness on primary outcome was 1.00 (95%CI = 0.99-1.00). Most effect estimates of greenness were included in the NDVI-500 m group, and the pooled OR was 0.99 (95%CI = 0.97-1.01). No significant pooled estimates were found in analyses with study locations.

Conclusion: This study indicates no significant association between greenness exposure and AR in children and adolescents. Various exposure measures and conversion of data may affect the results of this meta-analysis. More precise assessment of personal greenness exposure in well-designed prospective studies are vital for drawing a definite association in future. Furthermore, greenness exposure surrounding schools should be paid considerable attention for its effect on AR in school-aged children and adolescents.

Keywords: Allergic rhinitis; Greenness; Normalized difference vegetation index; Systematic review.

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Conflict of interest statement

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

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

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J Proteomics

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. 2023 Feb 10;272:104787.

doi: 10.1016/j.jprot.2022.104787. Epub 2022 Dec 5.

Bilirubin level is decreased in patients with allergic rhinitis

[Na Liu](#)¹, [Jitu Wang](#)¹, [Xueyan Wang](#)², [Sainan Qiu](#)¹, [Man Zhang](#)³

Affiliations expand

- PMID: 36470582
- DOI: [10.1016/j.jprot.2022.104787](https://doi.org/10.1016/j.jprot.2022.104787)

Abstract

Background: There are limitations in detecting methods for early diagnosis and screening of allergic rhinitis. Considering the anti-inflammatory and anti-oxidative effects of bilirubin, this study aims to explore the relationship between bilirubin and allergic rhinitis and to identify bilirubin-related candidate urinary protein biomarkers associated with allergic rhinitis.

Methods: 63 allergic rhinitis patients (AR group) and 86 healthy controls (NC group) were enrolled. Venous blood was obtained to measure serum total IgE levels and bilirubin parameters. Patients in the AR group were then classified into the AR1 group (IgE > 125 IU/mL) and the AR2 group (IgE ≤ 125 IU/mL). After randomly selecting ten urine samples from the AR1 group, ten samples were chosen from the AR2 and the NC groups, respectively, according to age and gender matching. We employed a Tandem Mass Tag-Based liquid chromatography coupled to tandem mass spectrometry (LC-MS/MS) proteomics approach and targeted parallel-reaction monitoring (PRM) to identify and validate urinary biomarkers for allergic rhinitis.

Results: Compared with the NC group, the bilirubin levels of the AR group, AR1 group, and AR2 group were significantly lower. Although the bilirubin level of the AR1 group was lower than that of the AR2 group, the difference was not significant. Further urinary proteomics analysis found that the expression levels of proteins related to bilirubin metabolism and transportation in the AR1 and AR2 groups, including ABCC1, GSTA1, GSTO1, GSTM3, GSTM5, and BLVRB, were significantly higher than those in the NC group. By PRM-based quantification, GSTA1 and GSTO1 showed significant differences in different degrees of Allergic Rhinitis groups and healthy controls. The AUC of the combined diagnosis of GSTA1 and GSTO1 was 0.79 (95% CI 0.583-0.997, P = 0.007), and the sensitivity and specificity were 100% and 60.0%, respectively.

Conclusions: Bilirubin levels are associated with allergic rhinitis. Our study revealed that urine proteomics has a specific value for exploring the pathophysiological mechanism of bilirubin changes in AR patients and screening possible biomarkers.

Keywords: Allergic rhinitis; Bilirubin; Mass spectrometry; Urine protein.

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Conflict of interest statement

Declaration of Competing Interest All authors declare that they have no competing interests.

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Int Immunopharmacol

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. 2023 Feb 8;116:109832.

doi: 10.1016/j.intimp.2023.109832. Online ahead of print.

[Blocking Notch signalling reverses miR-155-mediated inflammation in allergic rhinitis](#)

[Ziling Zhong](#)¹, [Xueying Huang](#)², [Shaojie Zhang](#)², [Shaochuan Zheng](#)³, [Xiqiao Cheng](#)¹, [Rongrong Li](#)², [Di Wu](#)³, [Liping Mo](#)², [Shenhong Qu](#)⁴

Affiliations expand

- PMID: 36764280
- DOI: [10.1016/j.intimp.2023.109832](https://doi.org/10.1016/j.intimp.2023.109832)

Abstract

Although recent studies have shown that the Notch signalling pathway induces the production of Th2-related immune factors, the exact mechanism through which Notch signalling exacerbates allergic rhinitis (AR) remains unknown. To investigate the roles of Notch in AR, serum, nasal mucosa and spleen samples were isolated from BALB/c mice. Paraffin sections were stained with haematoxylin and eosin (H&E) or periodic acid-Schiff (PAS) to assess inflammation. Flow cytometry was performed to detect group 2 innate lymphoid cells (ILC2s) in the serum samples, and cytokine levels were measured by enzyme-linked immunosorbent assays (ELISAs). The mRNA expression levels of the Notch signalling pathway components and miR-155 were measured by quantitative real-time PCR (qRT-PCR). In addition, human nasal epithelial cells (HNEpCs) were cultured to investigate the functional consequences of Notch pathway inhibition. The findings demonstrated that symptomatology and pathology were substantially altered, and AR model mice were established. In vivo stimulation with ovalbumin (OVA) significantly increased the Th2-type immune responses and the expression of OVA-sIgE, IL-4, GATA3, NF- κ B and miR-155. However, the Notch signalling pathway was significantly deteriorated in AR, and this effect was accompanied by reduced Notch1, Notch2, RBPj and Hes1 levels. These effects were abrogated by gamma-secretase inhibitor IX (DAPT) treatment, and DAPT inhibited the wound healing and proliferation of HNEpCs in a dose-dependent manner. Therefore, our results suggest that blocking the Notch pathway may alleviate miR-155-mediated inflammation via the regulation of immune homeostasis in AR.

Keywords: Allergic rhinitis; Animal model; Homeostasis; Mir-155-mediated regulation; Notch signalling pathway.

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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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Clin Exp Allergy



. 2023 Feb 9.

doi: 10.1111/cea.14291. Online ahead of print.

[Defining cases of asthma, eczema and allergic rhinitis using electronic health records in the Born in Bradford birth cohort](#)

[Sergio Souza da Cunha](#)¹, [Gillian Santorelli](#)¹, [Lucy Pembrey](#)²

Affiliations expand

- PMID: 36756903
- DOI: [10.1111/cea.14291](https://doi.org/10.1111/cea.14291)

No abstract available

Keywords: allergic diseases; allergic rhinitis; asthma; children; eczema; electronic health records.

- [9 references](#)

SUPPLEMENTARY INFO

Publication types, Grant support expand

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Asian Pac J Allergy Immunol



. 2023 Feb 11.

doi: 10.12932/AP-010822-1422. Online ahead of print.

[Skin prick test and serum specific IgE in predicting dust mite-induced allergic rhinitis diagnosed from nasal provocation test in chronic rhinitis children](#)

[Natchanun Klangkalya](#)¹, [Watcharoot Kanchongkittiphon](#)¹, [Adithep Sawatchai](#)¹, [Potjanee Kiewngam](#)¹, [Wanlapa Jotikasthira](#)¹, [Wiparat Manuyakorn](#)¹

Affiliations expand

- PMID: 36773277
- DOI: [10.12932/AP-010822-1422](https://doi.org/10.12932/AP-010822-1422)

Abstract

Background: Allergen skin prick test (SPT) and serum specific immunoglobulin E (sIgE) are effective diagnostic tests in allergic rhinitis (AR), however, positive results may not always correlate with clinical allergies. A nasal provocation test (NPT) can identify the causative allergen for immunotherapy, but it's not routinely performed.

Objective: To establish the cutoff value for the house dust mite (HDM) SPT mean wheal diameter (MWD) and HDM sIgE level for identifying children with HDM-induced AR diagnosed from NPT.

Methods: Children aged 5 to 18 years old with chronic rhinitis were evaluated by HDM SPT, sIgE, and NPT. Children with positive NPT results indicated HDM-induced AR. The cutoff values of the HDM SPT and sIgE level for predicting positive NPT were determined using a receiver operating characteristic curve.

Results: A total of 245 children with a mean age of 9.53 ± 3 years were enrolled. HDM SPT results were positive (≥ 3 mm) in 160 (65.3%) children. HDM NPT results were positive in 176 (71.8%) children. Among children with positive HDM SPT ($n = 160$), 153 children (95.6%) were confirmed as having AR on NPT findings. The cutoff values for positive NPT responses were 6.6 mm for HDM SPT (yielding 100% specificity and 100% positive predictive value) and 17.0 kUA/L for sIgE (98.6% specificity and 99.2% positive predictive value).

Conclusions: This study proposes HDM SPT and sIgE cutoff values for use in the diagnosis of HDM-induced AR based on NPT. These cutoff values can be used to identify HDM-induced AR children who might benefit from immunotherapy.

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Am J Rhinol Allergy

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. 2023 Feb 5;19458924231155012.

doi: 10.1177/19458924231155012. Online ahead of print.

[CCAD or eCRS: Defining Eosinophilic Subpopulations in Chronic Rhinosinusitis](#)

[Andrea Sit](#)^{1,2}, [Raquel Alvarado](#)¹, [Peter Earls](#)^{1,3}, [Janet Rimmer](#)^{1,4,5}, [Larry Kalish](#)^{1,6,7}, [Raewyn Campbell](#)^{1,8,9}, [William Sewell](#)^{2,10}, [Richard J Harvey](#)^{1,9}

Affiliations [expand](#)

- PMID: 36740860

- DOI: [10.1177/19458924231155012](https://doi.org/10.1177/19458924231155012)

Free article

Abstract

Background: Central compartment atopic disease (CCAD) and eosinophilic chronic rhinosinusitis (eCRS) are two clinical phenotypes of primary diffuse type 2 chronic rhinosinusitis (CRS) defined in the European Position Paper on Rhinosinusitis 2020 classification. Currently, the distinction between these subtypes relies on phenotypic features alone.

Objective: This study aimed to investigate whether eosinophil activation differed between CCAD and eCRS.

Methods: A cross-sectional study was conducted of adult patients presenting with CCAD and eCRS who had undergone functional endoscopic sinus surgery. Routine pathology results were obtained from clinical records. Eosinophils were counted on haematoxylin and eosin-stained formalin-fixed paraffin-embedded sinonasal tissue. Eotaxin-3, eosinophil peroxidase and immunoglobulin E levels were assessed using immunohistochemistry.

Results: 38 participants were included (51.7 ± 15.6 years, 47.4% female), of whom 36.8% were diagnosed with CCAD and 63.2% with eCRS. The eCRS group was characterised by older age (55.8 ± 16.3 vs 44.5 ± 11.8 years, $p = 0.029$), and on histology exhibited a higher degree of tissue inflammation ($\tau_b = 0.409$, $p = 0.011$), greater proportion of patients with >100 eosinophils/high power field (87.5% vs 50%, $p = 0.011$), and higher absolute tissue eosinophil count (2141 ± 1947 vs 746 ± 519 cells/mm², $p = 0.013$). Eotaxin-3 scores were higher in the eCRS group (5.00[5.00-6.00] vs 6.00[6.00-6.75], $p = 0.015$). Other outcomes were similar.

Conclusions: Eosinophil and eotaxin-3 levels were elevated in eCRS compared with CCAD, suggesting a greater degree of eosinophil stimulation and chemotaxis. Patients with CCAD were younger. Future investigation and biomarkers may better distinguish CRS subpopulations.

Keywords: CCAD; Th2; allergic rhinitis; allergy; central compartment; chronic rhinosinusitis; endotype; eosinophils; inhalant allergy; middle turbinate oedema; phenotype; polyps; type 2.

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Int J Occup Med Environ Health

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. 2023 Feb 8;152680.

doi: 10.13075/ijomeh.1896.01880. Online ahead of print.

[Evaluation of selected aspects of the hygiene hypothesis and their effect on the incidence of allergy](#)

[Edyta Krzych-Fałta](#)¹, [Oksana Wojas](#)², [Konrad Furmańczyk](#)^{2,3}, [Diana Dziewa-Dawidczyk](#)³, [Barbara Piekarska](#)², [Bolesław Samoliński](#)², [Adam Sybilski](#)⁴

Affiliations expand

- PMID: 36756848
- DOI: [10.13075/ijomeh.1896.01880](https://doi.org/10.13075/ijomeh.1896.01880)

Free article

Abstract

Objectives: The development of allergic conditions is largely dependent on the interactions between genetic (individual genetic predisposition) and environmental factors (exposure to risk factors). The aim of this study was an attempt to assess the influence of selected elements of the hygiene theory in the development of allergic diseases such as allergic rhinitis and asthma.

Material and methods: The study group consisted of 5518 women and 3868 men. The method that was used was the European Community Respiratory Health Survey II and

International Study of Asthma and Allergies in Childhood questionnaire validated and adapted to Central and Eastern European conditions. The project was conducted in 8 urban areas (Gdańsk, Wrocław, Poznań, Katowice, Kraków, Lublin, Białystok, Warsaw) and 1 rural area (Krasnystaw county). This study had 2 stages; the first stage involved grouping the 22 500 respondents based on their questionnaire responses with the use of a Personal Digital Assistant (PDA); the second stage involved 7000 subjects, who underwent additional assessments: skin prick tests (birch, grasses/cereals, *Dermatophagoides pteronyssinus* and *Dermatophagoides farinae*, molds [set I: *Botrytis cinerea*, *Cladosporium herbarum*, *Alternaria tenuis*, *Curvularia lunata*, *Fusarium moniliforme*, *Helminthosporium*], molds [set II: *Aspergillus fumigatus*, *Mucor mucedo*, *Penicillium notatum*, *Pullularia pullulans*, *Rhizopus nigricans*, *Serpula lacrymans*], cat, dog, molds *Cladosporium herbarum*, *Alternaria tenuis*) and spirometry tests.

Results: The age at which children attend the nursery school is critical to the development of allergic diseases; in allergic rhinitis, the risk of an IgE-dependent reaction is 2 times higher in the second than in the first year of life ($p = 0.00147$, $p < 0.05$), while in asthma, having a large number of siblings increases the risk of developing obstructive disease by almost 6 times ($p = 0.00316$, $p < 0.05$). The age at which children attend the nursery school is critical to the development of allergic diseases; in allergic rhinitis, the risk of an IgE-dependent reaction is 2 times higher in the second than in the first year of life ($p = 0.00147$, $p < 0.05$), while in asthma, having a large number of siblings increases the risk of developing obstructive disease by almost 6 times ($p = 0.00316$, $p < 0.05$).

Conclusions: The hygiene theory is particularly applicable and can explain the relationship of selected habits in the development of allergic diseases.

Keywords: European Community Respiratory Health Survey II; International Study of Asthma and Allergies in Childhood; allergic rhinitis; allergy; asthma; hygiene hypothesis.

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Allergy

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. 2023 Feb 8.

doi: 10.1111/all.15669. Online ahead of print.

Switching from subcutaneous to sublingual immunotherapy during the maintenance phase in patients with house dust mite allergy

[Ploykarn Kiatiwat](#)^{1,2}, [Atik Sangasapaviliya](#)¹, [Panitan Pradubpongsa](#)¹, [Sasipa Sangkanjanavanich](#)^{1,3}, [Chirawat Chiewchalernsri](#)^{1,4}, [Alain Jacquet](#)⁵, [Nattapol Jaisupa](#)⁶, [Sarawut Jindarat](#)⁶, [Tadech Boonpiyathad](#)^{#1}, [Wat Mitthamsiri](#)^{#1}

Affiliations expand

- PMID: 36754574
- DOI: [10.1111/all.15669](https://doi.org/10.1111/all.15669)

No abstract available

Keywords: Allergen immunotherapy; Allergic rhinitis; Asthma; COVID-19; Der p 2-specific IgE; Der p 2-specific IgE IgG4; HDM; SCIT; SLIT tablets; Symptom-medication score; T cell subsets.

SUPPLEMENTARY INFO

Publication types expand

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Sleep Breath

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. 2023 Feb 10;1-9.

doi: 10.1007/s11325-023-02788-2. Online ahead of print.

Impact of antiallergy agents on CPAP therapy and sleep quality with spring pollinosis in Japanese

[Akihisa Yoshikawa](#)^{1,2}, [Ayako Inoshita](#)^{3,4}, [Naoko Sata](#)^{1,2}, [Masahiro Nakamura](#)^{1,2}, [Yo Suzuki](#)^{1,2}, [Erina Ishimizu](#)^{1,2}, [Shoko Suda](#)^{2,5}, [Ryo Naito](#)^{2,6,5}, [Takatoshi Kasai](#)^{2,6,5}, [Fumihiko Matsumoto](#)¹

Affiliations expand

- PMID: 36763255
- PMCID: [PMC9911947](#)
- DOI: [10.1007/s11325-023-02788-2](#)

Abstract

Purpose: Allergic rhinitis (AR) is associated with obstructive sleep apnea (OSA) and nasal obstruction causes decreased adherence to continuous positive airway pressure (CPAP). The purpose is to evaluate the effects of antiallergic agents on CPAP adherence and sleep quality.

Methods: A longitudinal study was made of patients who use CPAP for OSA and treated with antiallergy agents for spring pollinosis. We compared the Pittsburgh Sleep Quality Index (PSQI), Epworth Sleepiness Scale (ESS), nasal symptoms scores (NSS), and data from CPAP before and after treatment. Then, we classified the subjects into two groups based on the baseline PSQI score: one group without a decreased sleep quality (PSQI < 6) and the other group with decreased sleep quality (PSQI ≥ 6).

Results: Of 28 subjects enrolled, 13 had good sleep quality and 15 had poor sleep quality. PSQI showed significant improvements after medication ($p = 0.046$). ESS showed no significant differences after AR medication ($p = 0.565$). Significant improvement was observed after the prescription of antiallergy agents in all items of NSS (sneezing, $p < 0.05$; rhinorrhea, $p < 0.01$; nasal obstruction, $p < 0.01$; QOL, $p < 0.01$). The percentage of days with CPAP use more than 4 h increased significantly after the administration of rhinitis medication ($p = 0.022$). In the intragroup comparisons of PSQI ≥ 6 group, PSQI decreased significantly ($p < 0.05$). For the NSS in intragroup comparisons of PSQI ≥ 6 group, all parameters showed significant improvement (sneezing, $p = 0.016$; rhinorrhea, $p = 0.005$; nasal obstruction, $p < 0.005$; QOL, $p < 0.005$).

Conclusion: The use of antiallergy agents can improve CPAP adherence and sleep quality in patients with OSA on CPAP.

Keywords: Allergic rhinitis; Antiallergic agents; CPAP adherence; Obstructive sleep apnea; Sleep quality.

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Conflict of interest statement

The authors declare no competing interests.

CHRONIC COUGH

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Eur Respir J

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. 2023 Feb 9;61(2):2200943.

doi: 10.1183/13993003.00943-2022. Print 2023 Feb.

[Rhinitis phenotypes and multimorbidities in the general population: the CONSTANCES cohort](#)

[Marine Savouré](#)^{1,2}, [Jean Bousquet](#)^{3,4,5,6,7}, [Bénédicte Leynaert](#)³, [Adeline Renuy](#)⁸, [Valérie Siroux](#)⁹, [Marcel Goldberg](#)⁸, [Marie Zins](#)⁸, [Bénédicte Jacquemin](#)^{10,11}, [Rachel Nadif](#)^{3,11}

Affiliations expand

- PMID: 36202419
- PMCID: [PMC9909208](#)
- DOI: [10.1183/13993003.00943-2022](#)

Free PMC article

Abstract

Background: Scarce epidemiological studies have characterised allergic rhinitis (AR) and non-allergic rhinitis (NAR) in adults. In a population-based cohort, our aims were to 1) describe rhinitis, AR and NAR, and 2) explore how asthma and conjunctivitis may lead to the identification of novel rhinitis phenotypes.

Methods: In this cross-sectional analysis, current rhinitis was defined as present in the last 12 months using a questionnaire from the French CONSTANCES cohort. Participants with current rhinitis reporting nasal allergies were considered as AR, otherwise as NAR. We described AR and NAR phenotypes, and their phenotypes including co-occurrence with ever-asthma and ever-conjunctivitis.

Results: Among the 20 772 participants included in this analysis (mean±sd age 52.6±12.6 years; 55.2% female), crude prevalences of AR and NAR were 28.0% and 10.9%. AR participants more frequently reported persistent rhinitis (31.6% *versus* 25.1%) and moderate-to-severe rhinitis (40.1% *versus* 24.2%) than NAR participants. Among AR or NAR participants, those with ever-asthma reported more moderate-to-severe rhinitis. Participants with AR, ever-asthma and ever-conjunctivitis had an earlier age of rhinitis onset, more severe rhinitis and higher eosinophil counts than participants in other groups. Results were replicated in another cohort.

Conclusions: In this large population-based cohort, 40% reported current rhinitis, with a lower prevalence of moderate-to-severe rhinitis than in clinical practice. For the first time in a general adult population, we showed that AR and NAR alone or in combination with asthma or in combination with asthma and conjunctivitis are different phenotypes. These results provide new insights on how best to manage rhinitis and its multimorbidities.

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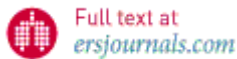
Conflict of interest statement

Conflict of interest: M. Savouré reports that this work is a part of a thesis supported by the French Environment and Energy Management Agency (ADEME) and the Université Paris-

Saclay. J. Bousquet reports lecture honoraria from Cipla, Menarini, Mylan, Novartis, Purina, Sanofi-Aventis, Teva and Uriach, outside the submitted work, and is a shareholder of KYomed Innov and MASK-air-SAS. All other authors have nothing to disclose.

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

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Review

Am J Rhinol Allergy

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. 2023 Feb 5;19458924221149267.

doi: 10.1177/19458924221149267. Online ahead of print.

[Allergic Rhinitis in Preschoolers: A Systematic Review of Diagnostics](#)

[Alana F Diniz](#)¹, [Juliana Ap Ribeiro](#)¹, [Georgia Vag Lira](#)¹, [Emanuel Sc Sarinho](#)¹

Affiliations expand

- PMID: 36740859
- DOI: [10.1177/19458924221149267](https://doi.org/10.1177/19458924221149267)

Abstract

Background: Most studies that seek to analyze the prevalence of allergic rhinitis do not include preschool children and the diagnosis in this age group is difficult.

Objective: Identify complementary tests to the diagnosis of allergic rhinitis in preschool children and verify if there is scientific robustness to propose a diagnostic algorithm for this condition in this age group.

Methods: Systematic review of the literature in four databases: SCIELO, PubMed/MEDLINE, LILACS and SCOPUS. Each article was initially chosen by title, abstract and by the keywords "allergic rhinitis," "diagnosis" and "preschool." Those articles selected entered the complete reading and data extraction phase. The study was registered in the International Prospective Register of Systematic Reviews under number CRD42020207053.

Results: Fourteen articles were suitable for analysis. In the assessment using *Quality Assessment of Diagnostic Accuracy Studies - 2*, all studies had at least one domain considered "high risk" or "undetermined risk." Seven reports of nasal cytology, seven of specific IgE, four of immediate hypersensitivity skin test, one of nasal nitric oxide, three of total IgE and one of urinary leukotriene E4 were found. Eight articles evaluated more than one diagnostic test.

Conclusion: There are no defined criteria for the diagnosis of allergic rhinitis in preschool children. Nasal cytology, serum specific IgE and immediate hypersensitivity skin test were the most used tests. A reliable diagnostic criterion in this age group is necessary so that in the future it is possible to propose a diagnostic algorithm for allergic rhinitis in preschool children.

Keywords: allergic rhinitis; complementary tests; diagnosis; diagnostic algorithm; immediate hypersensitivity skin test; nasal cytology; nasal nitric oxide; specific IgE; total IgE and preschool.

SUPPLEMENTARY INFO

Publication typesexpand

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Sci Total Environ



. 2023 Feb 10;859(Pt 1):160244.

doi: 10.1016/j.scitotenv.2022.160244. Epub 2022 Nov 17.

The effect of greenness on allergic rhinitis outcomes in children and adolescents: A systematic review and meta-analysis

[Nv-Wei Cao](#)¹, [Hao-Yue Zhou](#)², [Yu-Jie Du](#)¹, [Xian-Bao Li](#)¹, [Xiu-Jie Chu](#)¹, [Bao-Zhu Li](#)³

Affiliations expand

- PMID: 36402344
- DOI: [10.1016/j.scitotenv.2022.160244](https://doi.org/10.1016/j.scitotenv.2022.160244)

Abstract

Background: The relationship between greenness and health emerges as new public health concern. More published studies from multiple areas have explored the relationship between greenness and allergic rhinitis (AR) in children and adolescents. This study aims to determine the association between greenness and allergic rhinitis by systematic review and meta-analysis, in order to provide a more comprehensive assessment of the impact of greenness on AR in children and adolescents.

Methods: The relative literature was systematically searched in PubMed, Embase, and Web of science lastly on September 25, 2022. Terms related to greenness and allergic rhinitis were used for searching. Summary effect estimates of greenness on AR in children and adolescents were calculated for per 10 % increase of greenness exposure with different buffer sizes by random-effects model.

Results: A total of 579 studies were screened, and fourteen studies from Europe, Asia and North America were finally included. Most greenness exposure were measured by normalized difference vegetation index (NDVI). Enhanced vegetation index, outdoor-green environmental score and existed to measuring different greenness types. Greenness surrounding residences and schools were assessed. The overall effect of greenness on primary outcome was 1.00 (95%CI = 0.99-1.00). Most effect estimates of greenness were included in the NDVI-500 m group, and the pooled OR was 0.99 (95%CI = 0.97-1.01). No significant pooled estimates were found in analyses with study locations.

Conclusion: This study indicates no significant association between greenness exposure and AR in children and adolescents. Various exposure measures and conversion of data may affect the results of this meta-analysis. More precise assessment of personal greenness exposure in well-designed prospective studies are vital for drawing a definite association in future. Furthermore, greenness exposure surrounding schools should be paid considerable attention for its effect on AR in school-aged children and adolescents.

Keywords: Allergic rhinitis; Greenness; Normalized difference vegetation index; Systematic review.

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Conflict of interest statement

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

SUPPLEMENTARY INFO

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J Proteomics

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. 2023 Feb 10;272:104787.

doi: 10.1016/j.jprot.2022.104787. Epub 2022 Dec 5.

Bilirubin level is decreased in patients with allergic rhinitis

Na Liu¹, Jitu Wang¹, Xueyan Wang², Sainan Qiu¹, Man Zhang³

Affiliations expand

- PMID: 36470582
- DOI: [10.1016/j.jprot.2022.104787](https://doi.org/10.1016/j.jprot.2022.104787)

Abstract

Background: There are limitations in detecting methods for early diagnosis and screening of allergic rhinitis. Considering the anti-inflammatory and anti-oxidative effects of bilirubin, this study aims to explore the relationship between bilirubin and allergic rhinitis and to identify bilirubin-related candidate urinary protein biomarkers associated with allergic rhinitis.

Methods: 63 allergic rhinitis patients (AR group) and 86 healthy controls (NC group) were enrolled. Venous blood was obtained to measure serum total IgE levels and bilirubin parameters. Patients in the AR group were then classified into the AR1 group (IgE > 125 IU/mL) and the AR2 group (IgE ≤ 125 IU/mL). After randomly selecting ten urine samples from the AR1 group, ten samples were chosen from the AR2 and the NC groups, respectively, according to age and gender matching. We employed a Tandem Mass Tag-Based liquid chromatography coupled to tandem mass spectrometry (LC-MS/MS) proteomics approach and targeted parallel-reaction monitoring (PRM) to identify and validate urinary biomarkers for allergic rhinitis.

Results: Compared with the NC group, the bilirubin levels of the AR group, AR1 group, and AR2 group were significantly lower. Although the bilirubin level of the AR1 group was lower than that of the AR2 group, the difference was not significant. Further urinary proteomics analysis found that the expression levels of proteins related to bilirubin metabolism and transportation in the AR1 and AR2 groups, including ABCC1, GSTA1, GSTO1, GSTM3, GSTM5, and BLVRB, were significantly higher than those in the NC group. By PRM-based quantification, GSTA1 and GSTO1 showed significant differences in different degrees of Allergic Rhinitis groups and healthy controls. The AUC of the combined

diagnosis of GSTA1 and GSTO1 was 0.79 (95% CI 0.583-0.997, P = 0.007), and the sensitivity and specificity were 100% and 60.0%, respectively.

Conclusions: Bilirubin levels are associated with allergic rhinitis. Our study revealed that urine proteomics has a specific value for exploring the pathophysiological mechanism of bilirubin changes in AR patients and screening possible biomarkers.

Keywords: Allergic rhinitis; Bilirubin; Mass spectrometry; Urine protein.

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Conflict of interest statement

Declaration of Competing Interest All authors declare that they have no competing interests.

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. 2023 Feb 8;116:109832.

doi: 10.1016/j.intimp.2023.109832. Online ahead of print.

[Blocking Notch signalling reverses miR-155-mediated inflammation in allergic rhinitis](#)

[Ziling Zhong](#)¹, [Xueying Huang](#)², [Shaojie Zhang](#)², [Shaochuan Zheng](#)³, [Xiqiao Cheng](#)¹, [Rongrong Li](#)², [Di Wu](#)³, [Liping Mo](#)², [Shenhong Qu](#)⁴

Affiliations expand

- PMID: 36764280
- DOI: [10.1016/j.intimp.2023.109832](https://doi.org/10.1016/j.intimp.2023.109832)

Abstract

Although recent studies have shown that the Notch signalling pathway induces the production of Th2-related immune factors, the exact mechanism through which Notch signalling exacerbates allergic rhinitis (AR) remains unknown. To investigate the roles of Notch in AR, serum, nasal mucosa and spleen samples were isolated from BALB/c mice. Paraffin sections were stained with haematoxylin and eosin (H&E) or periodic acid-Schiff (PAS) to assess inflammation. Flow cytometry was performed to detect group 2 innate lymphoid cells (ILC2s) in the serum samples, and cytokine levels were measured by enzyme-linked immunosorbent assays (ELISAs). The mRNA expression levels of the Notch signalling pathway components and miR-155 were measured by quantitative real-time PCR (qRT-PCR). In addition, human nasal epithelial cells (HNEpCs) were cultured to investigate the functional consequences of Notch pathway inhibition. The findings demonstrated that symptomatology and pathology were substantially altered, and AR model mice were established. In vivo stimulation with ovalbumin (OVA) significantly increased the Th2-type immune responses and the expression of OVA-sIgE, IL-4, GATA3, NF- κ B and miR-155. However, the Notch signalling pathway was significantly deteriorated in AR, and this effect was accompanied by reduced Notch1, Notch2, RBPj and Hes1 levels. These effects were abrogated by gamma-secretase inhibitor IX (DAPT) treatment, and DAPT inhibited the wound healing and proliferation of HNEpCs in a dose-dependent manner. Therefore, our results suggest that blocking the Notch pathway may alleviate miR-155-mediated inflammation via the regulation of immune homeostasis in AR.

Keywords: Allergic rhinitis; Animal model; Homeostasis; Mir-155-mediated regulation; Notch signalling pathway.

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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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Clin Exp Allergy



. 2023 Feb 9.

doi: 10.1111/cea.14291. Online ahead of print.

Defining cases of asthma, eczema and allergic rhinitis using electronic health records in the Born in Bradford birth cohort

[Sergio Souza da Cunha](#)¹, [Gillian Santorelli](#)¹, [Lucy Pembrey](#)²

Affiliations expand

- PMID: 36756903
- DOI: [10.1111/cea.14291](https://doi.org/10.1111/cea.14291)

No abstract available

Keywords: allergic diseases; allergic rhinitis; asthma; children; eczema; electronic health records.

- [9 references](#)

SUPPLEMENTARY INFO

Publication types, Grant support expand

FULL TEXT LINKS

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Asian Pac J Allergy Immunol

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. 2023 Feb 11.

doi: 10.12932/AP-010822-1422. Online ahead of print.

[Skin prick test and serum specific IgE in predicting dust mite-induced allergic rhinitis diagnosed from nasal provocation test in chronic rhinitis children](#)

[Natchanun Klangkalya](#)¹, [Watcharoot Kanchongkittiphon](#)¹, [Adithep Sawatchai](#)¹, [Potjane Kiewngam](#)¹, [Wanlapa Jotikasthira](#)¹, [Wiparat Manuyakorn](#)¹

Affiliations expand

- PMID: 36773277
- DOI: [10.12932/AP-010822-1422](https://doi.org/10.12932/AP-010822-1422)

Abstract

Background: Allergen skin prick test (SPT) and serum specific immunoglobulin E (sIgE) are effective diagnostic tests in allergic rhinitis (AR), however, positive results may not always correlate with clinical allergies. A nasal provocation test (NPT) can identify the causative allergen for immunotherapy, but it's not routinely performed.

Objective: To establish the cutoff value for the house dust mite (HDM) SPT mean wheal diameter (MWD) and HDM sIgE level for identifying children with HDM-induced AR diagnosed from NPT.

Methods: Children aged 5 to 18 years old with chronic rhinitis were evaluated by HDM SPT, sIgE, and NPT. Children with positive NPT results indicated HDM-induced AR. The cutoff values of the HDM SPT and sIgE level for predicting positive NPT were determined using a receiver operating characteristic curve.

Results: A total of 245 children with a mean age of 9.53 ± 3 years were enrolled. HDM SPT results were positive (≥ 3 mm) in 160 (65.3%) children. HDM NPT results were positive in 176 (71.8%) children. Among children with positive HDM SPT ($n = 160$), 153 children (95.6%) were confirmed as having AR on NPT findings. The cutoff values for positive NPT responses were 6.6 mm for HDM SPT (yielding 100% specificity and 100% positive predictive value) and 17.0 kUA/L for sIgE (98.6% specificity and 99.2% positive predictive value).

Conclusions: This study proposes HDM SPT and sIgE cutoff values for use in the diagnosis of HDM-induced AR based on NPT. These cutoff values can be used to identify HDM-induced AR children who might benefit from immunotherapy.

[Proceed to details](#)

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Am J Rhinol Allergy

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. 2023 Feb 5;19458924231155012.

doi: 10.1177/19458924231155012. Online ahead of print.

[CCAD or eCRS: Defining Eosinophilic Subpopulations in Chronic Rhinosinusitis](#)

[Andrea Sit](#)^{1,2}, [Raquel Alvarado](#)¹, [Peter Earls](#)^{1,3}, [Janet Rimmer](#)^{1,4,5}, [Larry Kalish](#)^{1,6,7}, [Raewyn Campbell](#)^{1,8,9}, [William Sewell](#)^{2,10}, [Richard J Harvey](#)^{1,9}

Affiliations expand

- PMID: 36740860
- DOI: [10.1177/19458924231155012](https://doi.org/10.1177/19458924231155012)

Free article

Abstract

Background: Central compartment atopic disease (CCAD) and eosinophilic chronic rhinosinusitis (eCRS) are two clinical phenotypes of primary diffuse type 2 chronic rhinosinusitis (CRS) defined in the European Position Paper on Rhinosinusitis 2020 classification. Currently, the distinction between these subtypes relies on phenotypic features alone.

Objective: This study aimed to investigate whether eosinophil activation differed between CCAD and eCRS.

Methods: A cross-sectional study was conducted of adult patients presenting with CCAD and eCRS who had undergone functional endoscopic sinus surgery. Routine pathology results were obtained from clinical records. Eosinophils were counted on haematoxylin and eosin-stained formalin-fixed paraffin-embedded sinonasal tissue. Eotaxin-3, eosinophil peroxidase and immunoglobulin E levels were assessed using immunohistochemistry.

Results: 38 participants were included (51.7 ± 15.6 years, 47.4% female), of whom 36.8% were diagnosed with CCAD and 63.2% with eCRS. The eCRS group was characterised by older age (55.8 ± 16.3 vs 44.5 ± 11.8 years, $p = 0.029$), and on histology exhibited a higher degree of tissue inflammation ($\tau_b = 0.409$, $p = 0.011$), greater proportion of patients with >100 eosinophils/high power field (87.5% vs 50%, $p = 0.011$), and higher absolute tissue eosinophil count (2141 ± 1947 vs 746 ± 519 cells/mm², $p = 0.013$). Eotaxin-3 scores were higher in the eCRS group (5.00[5.00-6.00] vs 6.00[6.00-6.75], $p = 0.015$). Other outcomes were similar.

Conclusions: Eosinophil and eotaxin-3 levels were elevated in eCRS compared with CCAD, suggesting a greater degree of eosinophil stimulation and chemotaxis. Patients with CCAD were younger. Future investigation and biomarkers may better distinguish CRS subpopulations.

Keywords: CCAD; Th2; allergic rhinitis; allergy; central compartment; chronic rhinosinusitis; endotype; eosinophils; inhalant allergy; middle turbinate oedema; phenotype; polyps; type 2.

FULL TEXT LINKS

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Int J Occup Med Environ Health

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. 2023 Feb 8;152680.

doi: 10.13075/ijomeh.1896.01880. Online ahead of print.

[Evaluation of selected aspects of the hygiene hypothesis and their effect on the incidence of allergy](#)

[Edyta Krzych-Fałta](#)¹, [Oksana Wojas](#)², [Konrad Furmańczyk](#)^{2,3}, [Diana Dziewa-Dawidczyk](#)³, [Barbara Piekarska](#)², [Bolesław Samoliński](#)², [Adam Sybilski](#)⁴

Affiliations expand

- PMID: 36756848
- DOI: [10.13075/ijomeh.1896.01880](https://doi.org/10.13075/ijomeh.1896.01880)

Free article

Abstract

Objectives: The development of allergic conditions is largely dependent on the interactions between genetic (individual genetic predisposition) and environmental factors (exposure to risk factors). The aim of this study was an attempt to assess the influence of selected elements of the hygiene theory in the development of allergic diseases such as allergic rhinitis and asthma.

Material and methods: The study group consisted of 5518 women and 3868 men. The method that was used was the European Community Respiratory Health Survey II and International Study of Asthma and Allergies in Childhood questionnaire validated and adapted to Central and Eastern European conditions. The project was conducted in 8 urban areas (Gdańsk, Wrocław, Poznań, Katowice, Kraków, Lublin, Białystok, Warsaw) and 1 rural area (Krasnystaw county). This study had 2 stages; the first stage involved grouping the 22 500 respondents based on their questionnaire responses with the use of a Personal Digital Assistant (PDA); the second stage involved 7000 subjects, who underwent additional assessments: skin prick tests (birch, grasses/cereals, *Dermatophagoides pteronyssinus* and *Dermatophagoides farinae*, molds [set I: *Botrytis cinerea*, *Cladosporium herbarum*, *Alternaria tenuis*, *Curvularia lunata*, *Fusarium moniliforme*, *Helminthosporium*], molds [set II: *Aspergillus fumigatus*, *Mucor mucedo*, *Penicillium notatum*, *Pullularia pullulans*, *Rhizopus nigricans*, *Serpula lacrymans*], cat, dog, molds *Cladosporium herbarum*, *Alternaria tenuis*) and spirometry tests.

Results: The age at which children attend the nursery school is critical to the development of allergic diseases; in allergic rhinitis, the risk of an IgE-dependent reaction is 2 times higher in the second than in the first year of life ($p = 0.00147$, $p < 0.05$), while in asthma, having a large number of siblings increases the risk of developing obstructive disease by almost 6 times ($p = 0.00316$, $p < 0.05$). The age at which children attend the nursery school is critical to the development of allergic diseases; in allergic rhinitis, the risk of an IgE-dependent reaction is 2 times higher in the second than in the first year of life ($p = 0.00147$, $p < 0.05$), while in asthma, having a large number of siblings increases the risk of developing obstructive disease by almost 6 times ($p = 0.00316$, $p < 0.05$).

Conclusions: The hygiene theory is particularly applicable and can explain the relationship of selected habits in the development of allergic diseases.

Keywords: European Community Respiratory Health Survey II; International Study of Asthma and Allergies in Childhood; allergic rhinitis; allergy; asthma; hygiene hypothesis.

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Allergy

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. 2023 Feb 8.

doi: 10.1111/all.15669. Online ahead of print.

Switching from subcutaneous to sublingual immunotherapy during the maintenance phase in patients with house dust mite allergy

[Ploykarn Kiatiwat](#)^{1,2}, [Atik Sangasapaviliya](#)¹, [Panitan Pradubpongsa](#)¹, [Sasipa Sangkanjanavanich](#)^{1,3}, [Chirawat Chiewchalernsri](#)^{1,4}, [Alain Jacquet](#)⁵, [Nattapol Jaisupa](#)⁶, [Sarawut Jindarat](#)⁶, [Tadech Boonpiyathad](#)^{#1}, [Wat Mitthamsiri](#)^{#1}

Affiliations expand

- PMID: 36754574
- DOI: [10.1111/all.15669](https://doi.org/10.1111/all.15669)

No abstract available

Keywords: Allergen immunotherapy; Allergic rhinitis; Asthma; COVID-19; Der p 2-specific IgE; Der p 2-specific IgE IgG4; HDM; SCIT; SLIT tablets; Symptom-medication score; T cell subsets.

SUPPLEMENTARY INFO

Publication types expand

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Sleep Breath



. 2023 Feb 10;1-9.

doi: 10.1007/s11325-023-02788-2. Online ahead of print.

Impact of antiallergy agents on CPAP therapy and sleep quality with spring pollinosis in Japanese

[Akihisa Yoshikawa](#)^{1,2}, [Ayako Inoshita](#)^{3,4}, [Naoko Sata](#)^{1,2}, [Masahiro Nakamura](#)^{1,2}, [Yo Suzuki](#)^{1,2}, [Erina Ishimizu](#)^{1,2}, [Shoko Suda](#)^{2,5}, [Ryo Naito](#)^{2,6,5}, [Takatoshi Kasai](#)^{2,6,5}, [Fumihiko Matsumoto](#)¹

Affiliations expand

- PMID: 36763255
- PMCID: [PMC9911947](#)
- DOI: [10.1007/s11325-023-02788-2](#)

Abstract

Purpose: Allergic rhinitis (AR) is associated with obstructive sleep apnea (OSA) and nasal obstruction causes decreased adherence to continuous positive airway pressure (CPAP). The purpose is to evaluate the effects of antiallergic agents on CPAP adherence and sleep quality.

Methods: A longitudinal study was made of patients who use CPAP for OSA and treated with antiallergy agents for spring pollinosis. We compared the Pittsburgh Sleep Quality Index (PSQI), Epworth Sleepiness Scale (ESS), nasal symptoms scores (NSS), and data from CPAP before and after treatment. Then, we classified the subjects into two groups based on the baseline PSQI score: one group without a decreased sleep quality (PSQI < 6) and the other group with decreased sleep quality (PSQI ≥ 6).

Results: Of 28 subjects enrolled, 13 had good sleep quality and 15 had poor sleep quality. PSQI showed significant improvements after medication ($p = 0.046$). ESS showed no significant differences after AR medication ($p = 0.565$). Significant improvement was observed after the prescription of antiallergy agents in all items of NSS (sneezing, $p < 0.05$; rhinorrhea, $p < 0.01$; nasal obstruction, $p < 0.01$; QOL, $p < 0.01$). The percentage of days with CPAP use more than 4 h increased significantly after the administration of rhinitis medication ($p = 0.022$). In the intragroup comparisons of PSQI ≥ 6 group, PSQI decreased significantly ($p < 0.05$). For the NSS in intragroup comparisons of PSQI ≥ 6 group, all parameters showed significant improvement (sneezing, $p = 0.016$; rhinorrhea, $p = 0.005$; nasal obstruction, $p < 0.005$; QOL, $p < 0.005$).

Conclusion: The use of antiallergy agents can improve CPAP adherence and sleep quality in patients with OSA on CPAP.

Keywords: Allergic rhinitis; Antiallergic agents; CPAP adherence; Obstructive sleep apnea; Sleep quality.

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Conflict of interest statement

The authors declare no competing interests.

BRONCHIECTASIS

1

Editorial

Lung



. 2023 Feb 7.

doi: 10.1007/s00408-023-00600-2. Online ahead of print.

[Bronchodilators in bronchiectasis: we urgently need more trials](#)

[Miguel Ángel Martínez-García](#)^{1 2 3}

Affiliations [expand](#)

- PMID: 36746814
- DOI: [10.1007/s00408-023-00600-2](https://doi.org/10.1007/s00408-023-00600-2)

No abstract available

Keywords: Airflow obstruction; Bronchiectasis; Bronchodilators; Exacerbations; Long-acting antimuscarinics; Long-acting beta dos; Tiotropium.

- [28 references](#)

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Observational Study

BMC Pulm Med

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. 2023 Feb 6;23(1):55.

doi: [10.1186/s12890-023-02346-2](https://doi.org/10.1186/s12890-023-02346-2).

[Risk factors and prognostic value of osteoporosis in hospitalized patients with bronchiectasis](#)

[Xin Zou](#)¹, [Zhiyi Ma](#)², [Xiaohong Liu](#)³, [Kaijun Zhang](#)³, [Chenchen Qiu](#)⁴, [Rongzhang Liang](#)³, [Duanli Weng](#)³, [Lingyan Xie](#)³, [Xiaoming Cao](#)³, [Yongquan Wu](#)³, [Liwen Wen](#)⁵

Affiliations expand

- PMID: 36747237
- PMCID: [PMC9903403](#)
- DOI: [10.1186/s12890-023-02346-2](#)

Free PMC article

Abstract

Background: The risk factors for osteoporosis and its prognostic value in patients with bronchiectasis is not well characterized. We explored the risk factors for osteoporosis and its prognostic impact in hospitalized non-cystic fibrosis bronchiectasis (NCFB) patients in Southeast China.

Methods: This observational cohort study consecutively enrolled 179 hospitalized patients with NCFB bronchiectasis between 2017 and 2021. The risk factors and the impact of osteoporosis on all-cause mortality were assessed.

Results: 21.2% (38/179) of hospitalized NCFB patients were diagnosed with osteoporosis. Patients with osteoporosis had more severe symptoms (assessed by chronic airway assessment test, CAT, median 22 vs. 17, $P = 0.017$), poorer quality of life (assessed by St. George Respiratory Questionnaires, SQRC, median 42 vs. 27, $P = 0.007$), more severe disease stage (assessed by bronchiectasis severity index, BSI, median 14 vs. 11, $P = 0.02$), more comorbidities (assessed by Bronchiectasis Aetiology Comorbidity Index, BACI, median 5 vs. 4, $P = 0.021$) than patients without. Age, female sex, anemia, post-infection, and history of regular inhaled corticosteroid treatment were independent risk factors for osteoporosis in those patients. 21 patients (11.7%) died over a median follow-up period of 32 months. The all-cause mortality in NCFB patients with osteoporosis [28.94% (11/38)] was significantly higher than those without osteoporosis [7.09% (10/141)] [hazard ratio (HR) 5.34, 95% confidence interval (CI) 2.26-12.67, $P < 0.001$]. After adjusting for BSI and other confounding factors, osteoporosis was still independently associated with all-cause mortality in hospitalized NCFB patients (HR 4.29, 95% CI 1.75-10.49, $P < 0.001$).

Conclusions: Osteoporosis had an independent effect on all-cause mortality in hospitalized NCFB patients. Management of comorbidities, including bone health, is a critical aspect of treating NCFB patients.

Keywords: Bronchiectasis; Comorbidity; Fragility fracture; Infections; Mortality; Osteoporosis; Vitamin D.

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Conflict of interest statement

The authors declare that they have no competing interests.

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

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Publication types, MeSH terms, Grant support [expand](#)

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Lung

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. 2023 Feb 7.

doi: 10.1007/s00408-023-00597-8. Online ahead of print.

[Tiotropium in Patients with Bronchiectasis: A Prospective Cohort Study](#)

[Zu-Liang Shi](#) ^{#1}, [Hong-Ying Zhang](#) ^{#2}, [Hai-Bo Peng](#) ¹, [Zhong-Ming Zhu](#) ³

Affiliations [expand](#)

- PMID: 36746813
- DOI: [10.1007/s00408-023-00597-8](https://doi.org/10.1007/s00408-023-00597-8)

Abstract

Purpose: There are limited studies on the use of bronchodilators for the treatment of bronchiectasis. This study investigated the efficacy of tiotropium in patients with bronchiectasis and airflow limitation.

Methods: This study was a prospective cohort study, including 169 patients with bronchiectasis and airflow limitation from 2015 to 2019. The clinical outcomes observed in our study were the effect of tiotropium on the frequency of moderate exacerbations, the time to the first severe exacerbation, and the annual decline in FEV₁.

Results: After 12 months, the annual decline in the FEV₁ after bronchodilator use was 27.08 ml or 42.9 ml per year in the group with or without tiotropium, respectively. Treatment with tiotropium was associated with a decreased risk of moderate exacerbation of bronchiectasis (Adjusted RR 0.618 95% CI 0.493-0.774; P < 0.005). The time to the first severe acute exacerbation of bronchiectasis in the tiotropium group was longer than the non-tiotropium group (Adjusted HR 0.333 95% CI 0.219-0.506; P < 0.001).

Conclusion: In conclusion, prospective cohort study showed that tiotropium effectively ameliorated the annual decline in the FEV₁, with a lower-risk rate of moderate exacerbations and prolonging the time to the first-time severe exacerbation in patients with bronchiectasis and airflow limitation.

Keywords: Bronchiectasis; Bronchodilators; Cohort study; Tiotropium.

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Gender differences in clinical characteristics of patients with non-cystic fibrosis bronchiectasis in different age groups in northern China

[Yu-Yan Zhou](#)¹, [Yu-Hong Wang](#)², [Si-Qi He](#)³, [Wan-Ying Wang](#)¹, [Xiao-Yue Wang](#)¹, [De-Shuai Li](#)¹, [Xiao-Ting Chen](#)¹, [Xiao-Kai Feng](#)¹, [Xiao-Ning Bu](#)³

Affiliations expand

- PMID: 36772864
- DOI: [10.1111/crj.13596](https://doi.org/10.1111/crj.13596)

Abstract

Introduction: Patient gender has clinical and prognostic implications in non-cystic fibrosis bronchiectasis, yet the potential effect of gender on clinical characteristics of patients with non-cystic fibrosis bronchiectasis is still unclear.

Objectives: This study aimed to investigate the gender differences in clinical characteristics of patients with bronchiectasis in different age groups in northern China.

Methods: A total of 777 patients diagnosed with bronchiectasis were retrospectively included in Beijing Chaoyang Hospital and divided into two groups by gender: the male group and the female group. Each group was then subdivided into two according to their age (≤ 65 and > 65 years). Gender differences in clinical characteristics were compared in all patients with bronchiectasis in the two age groups, respectively.

Results: A total of 777 bronchiectasis patients were included. Of these patients, the prevalence of female non-smokers was substantially higher than that of male non-smokers

(94.0% vs. 36.8%). There were gender differences in etiology of bronchiectasis, with more post-measles and connective tissue disease in females ($p = 0.006$ and 0.002 separately) and more chronic obstructive pulmonary disease (COPD) in males ($p < 0.001$). The male group had a significantly higher C-reactive protein (CRP) on admission ($p = 0.03$). Female patients showed a higher forced expiratory volume in 1 s as percentage of predicted volume (FEV1%pred) and forced vital capacity rate of 1 s (FEV1/FVC) ($p < 0.001$), lower partial pressure of carbon dioxide (PaCO_2) ($p = 0.04$) and hospital costs ($p = 0.02$) than males, and a higher prevalence of infection with *Pseudomonas aeruginosa* in >65-year-old group ($p = 0.019$).

Conclusions: There were many differences between male and female patients in smoking status, etiology, lung function, blood gas analysis, and hospital costs in all patients or different age groups.

Keywords: bronchiectasis; gender differences; non-cystic fibrosis; sex.

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- [24 references](#)

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Lung

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. 2023 Feb 6.

doi: 10.1007/s00408-023-00601-1. Online ahead of print.

[Early Exacerbation Relapse is Increased in Patients with Asthma and Bronchiectasis \(a Post hoc Analysis\)](#)

[Andrew R Hill](#)¹, [Pallavi Bedi](#)², [Manjit K Cartlidge](#)³, [Kim Turnbull](#)³, [Samantha Donaldson](#)², [Andrea Clarke](#)³, [Jane Crowe](#)², [Kadiga Campbell](#)³, [Ruzanna Franguylan](#)³, [Adriano G Rossi](#)², [Adam T Hill](#)^{2,3}

Affiliations expand

- PMID: 36746812
- DOI: [10.1007/s00408-023-00601-1](https://doi.org/10.1007/s00408-023-00601-1)

Abstract

Purpose: Asthma is a common comorbidity in patients with bronchiectasis and has been shown to increase the risk of bronchiectasis exacerbations. This paper explores the impact of comorbid asthma on patients receiving intravenous antibiotic treatment for bronchiectasis exacerbations.

Methods: This was a post hoc analysis of the Meropenem randomised controlled trial of 90 patients that had intravenous antibiotic treatment for bronchiectasis exacerbations. The participants were split into two groups: group 1 (asthma and bronchiectasis) and group 2 (bronchiectasis). The authors assessed response to treatment and time to next exacerbation.

Results: There were 38 participants in group 1 and 34 participants in group 2. The groups were found to be comparable in terms of age, sex, and bronchiectasis severity (median (95% CI) group 1 and then group 2 data): age 64.0(59.3, 68.6) and 63.6(57.9, 69.4) years old, $p = 0.8$; 57.9% and 64.7% female, $p = 0.6$; Bronchiectasis Severity Index 11.1(9.8, 12.4) and 10.1(8.2, 12.0), $p = 0.3$. There was a similar response to treatment between the groups, but group 1 were found to relapse early by day 14, 31.6% in group 1 and 11.8% in group 2, $p = 0.03$. In the Cox proportional hazards model, asthma was the only independent risk factor for early relapse by day 14 (odds ratio (95% CI) 3.16 (1.02-9.79), $p = 0.047$).

Conclusion: The clinical response to treatment was similar but patients with coexisting asthma were at increased risk of early relapse within 14 days of stopping intravenous antibiotic therapy.

Clinical trial registration: [NCT02047773](https://www.clinicaltrials.gov/ct2/show/study/NCT02047773).

Keywords: Asthma; Bronchiectasis; Exacerbations; Intravenous antibiotics.

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- [16 references](#)

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Review

Br J Radiol



. 2023 Feb 8;20220630.

doi: 10.1259/bjr.20220630. Online ahead of print.

MR imaging of the airways

[Juergen Biederer](#)^{1 2 3 4}

Affiliations expand

- PMID: 36752590
- DOI: [10.1259/bjr.20220630](https://doi.org/10.1259/bjr.20220630)

Abstract

The need for airway imaging is defined by the limited sensitivity of common clinical tests like spirometry, lung diffusion (DLCO) and blood gas analysis to early changes of peripheral airways and to inhomogeneous regional distribution of lung function deficits. Therefore, X-ray and computed tomography (CT) are frequently used to complement the standard tests. As an alternative, magnetic resonance imaging (MRI) offers radiation free lung imaging, but at lower spatial resolution. Non-contrast enhanced MRI shows healthy airways down to the first sub segmental level/4th order (CT: eighth). Bronchiectasis can be identified by wall thickening and fluid accumulation. Smaller airways become visible, when

altered by peribronchiolar inflammation or mucus retention (tree-in-bud sign). The strength of MRI is functional imaging. Dynamic, time-resolved MRI directly visualizes expiratory airway collapse down to the lobar level (CT: segmental level). Obstruction of even smaller airways becomes visible as air trapping on the expiratory scans. MRI with hyperpolarized noble gases (^3He , ^{129}Xe) directly shows the large airways and peripheral lung ventilation. Dynamic contrast enhanced MRI (DCE MRI) indirectly shows airway dysfunction as perfusion deficits resulting from hypoxic vasoconstriction of the dependent lung volumes. Further promising scientific approaches such as non-contrast enhanced, ventilation-/perfusion-weighted MRI from periodic signal changes of respiration and blood flow are in development. In summary, MRI of the lungs and airways excels with its unique combination of morphologic and functional imaging capacities for research (e.g., in chronic obstructive lung disease or asthma) as well as for clinical imaging (e.g., in cystic fibrosis).

SUPPLEMENTARY INFO

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JCI Insight

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. 2023 Feb 8;8(3):e161961.

doi: 10.1172/jci.insight.161961.

[Targeting HuR–Vav3 mRNA interaction prevents *Pseudomonas aeruginosa* adhesion to the cystic fibrosis airway epithelium](#)

[Mehdi Badaoui](#)¹, [Cyril Sobolewski](#)¹, [Alexandre Luscher](#)², [Marc Bacchetta](#)¹, [Thilo Köhler](#)², [Christian van Delden](#)², [Michelangelo Foti](#)¹, [Marc Chanson](#)¹

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- PMID: 36602863
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Abstract

Cystic fibrosis (CF) is characterized by chronic bacterial infections leading to progressive bronchiectasis and respiratory failure. *Pseudomonas aeruginosa* (Pa) is the predominant opportunistic pathogen infecting the CF airways. The guanine nucleotide exchange factor Vav3 plays a critical role in Pa adhesion to the CF airways by inducing luminal fibronectin deposition that favors bacteria trapping. Here we report that Vav3 overexpression in CF is caused by upregulation of the mRNA-stabilizing protein HuR. We found that HuR accumulates in the cytoplasm of CF airway epithelial cells and that it binds to and stabilizes Vav3 mRNA. Interestingly, disruption of the HuR-Vav3 mRNA interaction improved the CF epithelial integrity, inhibited the formation of the fibronectin-made bacterial docking platforms, and prevented Pa adhesion to the CF airway epithelium. These findings indicate that targeting HuR represents a promising antiadhesive approach in CF that can prevent initial stages of Pa infection in a context of emergence of multidrug-resistant pathogens.

Keywords: Cell Biology; Extracellular matrix; Fibronectin; Infectious disease; Transcription.

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Evaluation of Mycobacterium Avium Complex Pulmonary Disease Treatment Completion and Adherence to ATS/IDSA Guidelines

[Jennifer H Ku](#)^{1,2}, [Emily Henkle](#)¹, [Kathleen F Carlson](#)^{1,3}, [Miguel Marino](#)¹, [Sarah K Brode](#)^{4,5}, [Theodore K Marras](#)⁴, [Kevin L Winthrop](#)¹

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Abstract

Background: Nontuberculous mycobacteria are environmental organisms that cause infections leading to chronic, debilitating pulmonary disease, among which Mycobacterium avium complex (MAC) is the most common species.

Methods: We described patterns of macrolide-based multidrug antibiotic therapies for MAC pulmonary disease (MAC-PD) in US Medicare beneficiaries with bronchiectasis between January 2006 and December 2014. MAC therapy was defined as a multidrug regimen containing a macrolide plus ≥ 1 other drug targeting MAC-PD (rifamycin, ethambutol, fluoroquinolone, or amikacin) prescribed concomitantly for >28 days.

Results: We identified 9189 new MAC therapy users, with a mean age (standard deviation) of 74 (6 years) at the start of therapy; 75% female and 87% non-Hispanic white. A guideline-based regimen (a macrolide, ethambutol, and rifamycin, with or without amikacin) was prescribed for 51% of new MAC therapy users at treatment start, of whom 41% were continuing guideline-based therapy at 6 months, and only 18% at 12 months. Of all new MAC therapy users, by 18 months only 11% were still receiving MAC treatment,

55% had discontinued therapy, and 34% were censored owing to death or the end of the study period.

Conclusions: Overall, nearly half of new MAC therapy users were prescribed a non-guideline-recommended macrolide-based therapy, including regimens commonly associated with promoting macrolide resistance. Treatment discontinuation was common, and once discontinued, only a few beneficiaries resumed therapy at a later time. Our study adds important data to the current literature on treatment patterns for MAC-PD among older US populations. Future research should examine treatment patterns using more contemporary data sources.

Keywords: Mycobacterium avium complex; US Medicare; antibiotic therapy; nontuberculous mycobacteria.

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Conflict of interest statement

Potential conflicts of interest. J. H. K. has received research grants from Moderna and GlaxoSmithKline, paid to the institution. E. H. has served on advisory board for AN2 Pharmaceuticals and received consulting fees. S. K. B. reports grants or contracts from Insmmed, outside the submitted work and paid to the institution, as site subinvestigator for a clinical trial in nontuberculous mycobacteria (NTM) lung disease; payment or honoraria paid to institution from Boehringer Ingelheim; and membership on the executive committee for The Union–North American Region. T. K. M. has received grants or contracts from the Ontario Thoracic Society/Lung Foundation for a study on preventing the recurrence of Mycobacterium avium (MAC) lung disease, from Insmmed as site investigator for a clinical trial on MAC lung disease, and from the Oregon Health & Science University/Patient Centered Outcomes Research Institute as site investigator for clinical trial of MAC lung disease, all paid to the institution, and from the Lung Health Foundation. T. K. M. has received consulting fees from Insmmed, RedHill Biopharma, and Spero, including for MAC lung disease study design, paid to the institution; payment or honoraria from Astra Zeneca and Novartis for CME in NTM lung disease, paid to the institution; and support for attending meetings and/or travel from NTM Info & Research (NTMir) and hotel accommodation for presentation at the NTMir annual meeting for patients and providers associated with the American Thoracic Society Annual Conference in May 2019. T. K. M. has also served as chair of the data safety monitoring board for clofazimine monotherapy in MAC lung disease and has a leadership/fiduciary role as an advisor to the Toronto NTM lung disease patient support group. K. L. W. has grants or contracts and consulting fees from Paratek, AN2 Pharmaceuticals, Insmmed, and Red Hill Biopharma and consulting fees from Spero Therapeutics. All other authors report no potential conflicts. All authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

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[Risk of new onset and prevalent disease in chronic rhinosinusitis: a prospective cohort study](#)

[Annemarie G Hirsch](#)¹, [Brian S Schwartz](#)^{1,2}, [Cara Nordberg](#)¹, [Bruce K Tan](#)^{3,4}, [Robert P Schleimer](#)^{3,4}, [Robert C Kern](#)³, [Anju T Peters](#)⁴, [Karen Bandeen-Roche](#)⁵, [Ashton E Lehmann](#)⁶

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Abstract

Background: Chronic rhinosinusitis (CRS) is accompanied by burdensome co-morbid conditions. Understanding the relative timing of these conditions' onset could inform disease prevention, detection, and management.

Objective: To evaluate the association between CRS and new onset and prevalent asthma, non-cystic fibrosis bronchiectasis (NCFBE), chronic obstructive pulmonary disease (COPD), gastroesophageal reflux disease (GERD), and obstructive sleep apnea (OSA).

Methods: We conducted a prospective cohort study among primary care patients using a detailed medical and symptom questionnaire in 2014 and again in 2020. We used questionnaire and electronic health record (EHR) data to determine CRS status: CRS_{SE} (moderate to severe symptoms with EHR evidence), CRS_E (limited symptoms with EHR evidence), CRS_S (moderate to severe symptoms without EHR evidence), CRS_{neg} (limited symptoms and no EHR evidence; reference). We evaluated the association between CRS status and new onset and prevalent disease using logistic regression to estimate odds ratios (OR) and 95% confidence intervals (CI).

Results: There were 7,847 and 4,445 respondents to the 2014 and 2020 questionnaires, respectively. CRS_{SE} (versus CRS_{neg}) was associated with increased odds of new onset asthma (OR:1.74; CI:1.09, 2.77), NCFBE (OR:1.87, CI:1.12, 3.13), COPD (OR:1.73; CI:1.14, 2.68), GERD (OR:1.95, CI:1.61, 2.35), and OSA (OR:1.91; CI:1.39, 2.62). Similarly increased odds were observed for associations with the prevalence of these conditions.

Conclusion: The findings from the study support further exploration of CRS as a target for the prevention and detection of asthma, NCFBE, COPD, GERD, and OSA. This article is protected by copyright. All rights reserved.

Keywords: asthma; bronchiectasis; chronic obstructive pulmonary disease; chronic rhinosinusitis; gastroesophageal reflux disease; obstructive sleep apnea.

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