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

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Review

Int J Pharm

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. 2023 Aug 25;643:123070.

doi: 10.1016/j.ijpharm.2023.123070. Epub 2023 May 23.

Drug combinations for inhalation: Current products and future development addressing disease control and patient compliance

[Heba Banat](#)¹, [Rita Ambrus](#)¹, [Ildikó Csóka](#)²

Affiliations expand

- PMID: 37230369
- DOI: [10.1016/j.ijpharm.2023.123070](https://doi.org/10.1016/j.ijpharm.2023.123070)

Abstract

Pulmonary delivery is an alternative route of administration with numerous advantages over conventional routes of administration. It provides low enzymatic exposure, fewer systemic side effects, no first-pass metabolism, and concentrated drug amounts at the site of the disease, making it an ideal route for the treatment of pulmonary diseases. Owing to the thin alveolar-capillary barrier, and large surface area that facilitates rapid absorption to the bloodstream in the lung, systemic delivery can be achieved as well. Administration of multiple drugs at one time became urgent to control chronic pulmonary diseases such as asthma and COPD, thus, development of drug combinations was proposed. Administration of medications with variable dosages from different inhalers leads to overburdening the patient and may cause low therapeutic intervention. Therefore, products that contain combined drugs to be delivered via a single inhaler have been developed to improve patient compliance, reduce different dose regimens, achieve higher disease control, and boost therapeutic effectiveness in some cases. This comprehensive review aimed to highlight the growth of drug combinations by inhalation over time, obstacles and challenges, and the possible progress to broaden the current options or to cover new indications in the future. Moreover, various pharmaceutical technologies in terms of formulation and device in correlation with inhaled combinations were discussed in this review. Hence, inhaled combination therapy is driven by the need to maintain and improve the quality of life for patients with chronic respiratory diseases; promoting drug combinations by inhalation to a higher level is a necessity.

Keywords: Combination product; Formulation technique; Inhalation; Particle engineering; Patient compliance; Pulmonary delivery; QbD; Respiratory diseases; Synergism.

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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 terms, Substances expand

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Clin Respir J

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. 2023 Aug 24.

doi: 10.1111/crj.13690. Online ahead of print.

Efficacy of treatment with N-acetylcysteine inhalation for AECOPD: A propensity-score-matched cohort study

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Affiliations expand

- PMID: 37621062
- DOI: [10.1111/crj.13690](https://doi.org/10.1111/crj.13690)

Abstract

Introduction: N-acetylcysteine (NAC) prevents acute exacerbations of chronic obstructive pulmonary disease (AECOPD). However, the value of NAC inhalation in the treatment of patients with AECOPD is still poorly understood. The study was conducted to evaluate the efficacy of NAC inhalation in AECOPD patients requiring hospitalization.

Methods: In this single institutional, retrospective cohort study, all patients with AECOPD requiring hospitalization between January 2021 and January 2022 were included. Patients were divided into NAC group and Non-NAC group according to whether being treated with NAC inhalation and were matched using the propensity score. The primary outcome was a composite of progression to ventilation requirement, in-hospital mortality and readmission for AECOPD within 30 days. The effect on the mean hospitalized days, blood gas indexes and the incidence rate of adverse drug events were compared between the two groups.

Results: Ninety-six patients in the NAC group were matched with 96 patients in the Non-NAC group. The differences in the primary composite end point (NAC group vs Non-NAC group, 5.2% vs 16.7%; $P = 0.011$) were significant. The median time to discharge was shorter in the NAC group (8.3 vs. 9.1 days, $P = 0.030$). The NAC group presented a larger increase in partial pressure of arterial oxygen ($P_a O_2$) and a higher ratio of self-reported symptomatic improvement from admission to day 5. There was no definite difference between the two groups in the frequency of adverse event.

Conclusion: NAC inhalation is associated with an improved clinical outcome. A further study should be conducted to confirm the clinical usefulness of NAC inhalation in AECOPD patients.

Keywords: AECOPD; N-acetylcysteine inhalation; clinical efficacy; hospitalization.

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Eur Respir J

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. 2023 Aug 24;2300432.

doi: 10.1183/13993003.00432-2023. Online ahead of print.

Tailored psychological intervention for anxiety or depression in COPD (TANDEM): a randomised controlled trial

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Affiliations expand

- PMID: 37620042
- DOI: [10.1183/13993003.00432-2023](https://doi.org/10.1183/13993003.00432-2023)

Abstract

This multi-centre, pragmatic, randomised controlled trial evaluated whether a tailored psychological intervention based on a cognitive behavioural approach for people with COPD and symptoms of anxiety and/or depression improved anxiety or depression compared to usual care (UC). People with COPD and moderate to very severe airways obstruction and Hospital Anxiety and Depression Scale subscales scores indicating mild to moderate anxiety (HADS-A) and/or depression (HADS-D), were randomised 1.25:1, intervention (242): UC (181). Respiratory health professionals delivered

the intervention face-to-face over 6-8 weeks. Co-primary outcomes were HADS-A and HADS-D measured six months post-randomisation. Secondary outcomes at six and 12 months included: HADS-A and HADS-D (12 months), Beck Depression Inventory II, Beck Anxiety Inventory, St George's Respiratory Questionnaire, social engagement, the EUROQOL instrument 5-level version, smoking status, completion of pulmonary rehabilitation (PR) and health and social care resource use. The intervention did not improve anxiety (HADS-A mean difference, 95% CI, -0.60, -1.40 to 0.21) or depression (HADS-D -0.66, -1.39 to 0.07) at six months. The intervention did not improve any secondary outcomes at either timepoint, nor did it influence completion of PR or healthcare resource use. Deaths in the intervention arm 13/242 (5%) exceeded those in the control arm 3/181 (2%), but none were associated with the intervention. Health economic analysis found the intervention highly unlikely to be cost-effective. This trial has shown, beyond reasonable doubt, that this cognitive behavioural intervention delivered by trained and supervised respiratory health professionals does not improve psychological comorbidity in people with advanced COPD and depression or anxiety.

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Int Arch Allergy Immunol



. 2023 Aug 24;1-10.

doi: 10.1159/000531980. Online ahead of print.

[Higher Prevalence and Severity of Eosinophilic Otitis Media in Patients with Asthma-COPD Overlap Compared with Asthma Alone](#)

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Affiliations expand

- PMID: 37619543
- DOI: [10.1159/000531980](https://doi.org/10.1159/000531980)

Abstract

Introduction: Eosinophilic otitis media (EOM) is well-known to frequently co-exist with adult-onset asthma. Both diseases are similar type 2 inflammation and are considered to have a "one airway, one disease" relationship. Asthma-chronic obstructive pulmonary disease (ACO) overlap (ACO), characterized by airway obstruction caused by airway wall thickening (AWT), is a severe condition with a higher incidence of mortality compared to asthma alone or COPD alone. Based on the "one airway, one disease" concept, we hypothesized that the inflammatory pathophysiology of EOM differs depending on its comorbidity with ACO or with asthma alone.

Methods: A total of 77 chronic rhinosinusitis (CRS) patients with asthma were enrolled in this study. The subjects were divided into 2 groups: a group with comorbid asthma alone (asthma group; 46 patients), and a group with comorbid ACO (ACO group; 31 patients). The 2 groups were compared and assessed with regard to various factors, including the patients' clinical characteristics, prevalence rate of EOM, EOM severity, EOMs relationships with smoking and AWT, and the eosinophil and neutrophil cell counts in the middle ear effusion (MEE).

Results: The ACO group included significantly more males ($p < 0.05$), was significantly older ($p < 0.05$), and showed significantly lower lung function values (FEV1 [L], FEV1 [%pred]) ($p < 0.01$) compared with the asthma group. The ACO group also had a significant history of smoking as shown by the Brinkman index ($p < 0.01$) and greater AWT as assessed by high-resolution computed tomography ($p < 0.05$). The EOM prevalence rate was significantly higher in the ACO group ($p < 0.05$), especially with increased ACO severity ($p < 0.05$). The EOM severity was also significantly higher in the ACO group ($p < 0.05$) and also correlated with the ACO severity ($p < 0.05$). The pretreatment ear clinical characteristics score and the average air conduction hearing level were significantly higher in the ACO group ($p < 0.05$). The eosinophil percentage in the MEE/otorrhea was significantly lower in the ACO group (25.3%) than in the asthma group (54.7%) ($p < 0.05$). Conversely, the neutrophil percentage was significantly higher in the ACO group (75.7% vs. 41.9%) ($p < 0.05$).

Conclusions: Our findings suggest that, in CRS patients with asthma, comorbidity with ACO may be a clinical factor leading to increased EOM prevalence and severity, as well as a higher neutrophil infiltration percentage in the middle ear. Cessation of smoking and early therapeutic intervention for ACO may mitigate progression of bronchial remodeling (i.e., reduce AWT) and help reduce the prevalence and severity of EOM.

Keywords: Airway wall thickening; Asthma; Asthma-chronic obstructive pulmonary disease overlap; Chronic obstructive pulmonary disease; Eosinophilic otitis media; One airway; One disease; Phenotype.

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Value of Information Analysis of a Web-Based Self-Management Intervention for Chronic Obstructive Pulmonary Disease

[Stephanie A Robinson](#)^{1,2}, [Marilyn L Moy](#)^{3,4}, [John P Ney](#)^{5,6}

Affiliations expand

- PMID: 37615601
- DOI: [10.1089/tmj.2023.0010](https://doi.org/10.1089/tmj.2023.0010)

Abstract

Objective: Technology-based programs can be cost-effective in the management of chronic obstructive pulmonary disease (COPD). However, cost-effectiveness estimates always contain some uncertainty, and decisions based upon them carry some risk. We conducted a value of information (VOI) analysis to estimate the value of additional research of a web-based self-management intervention for COPD to reduce the costs associated with uncertainty. **Methods:** We used a 10,000-iteration cost-effectiveness model from the health care payer perspective to calculate the expected value of perfect information (EVPI) at the patient- and population-level. An opportunity loss was incurred when the web-based intervention did not produce a greater net monetary benefit than usual care in an iteration. We calculated the probability of opportunity loss and magnitude of opportunity costs as a function of baseline health utility. We aggregated opportunity costs over the projected incident population of inpatient COPD patients over 10 years and estimated it as a function of the willingness-to-pay (WTP) threshold. Costs are in 2022 U.S.

Dollars. **Results:** Opportunity losses were found in 22.7% of the iterations. The $EVPI_{\text{patient}}$ was \$78 per patient (95% confidence interval: \$75-\$82). The probability that the intervention was the optimal strategy varied across baseline health utilities. The $EVPI_{\text{population}}$ was \$506,666,882 over 10 years for a WTP of \$50,000. **Conclusions:** Research estimated to cost up to \$500 million would be warranted to reduce uncertainty. Future research could focus on identifying the impact of baseline health utilities to maximize the cost savings of the intervention. Other considerations for future research priorities include implementation efforts for technology-based interventions.

Keywords: activity monitors; chronic obstructive pulmonary disease (COPD); cost-effectiveness; economic evaluation; pulmonary rehabilitation; telemedicine; value of information.

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[Complement Ther Med](#)



. 2023 Aug 23;102977.

doi: 10.1016/j.ctim.2023.102977. Online ahead of print.

[Tai Chi as a complementary exercise for pulmonary rehabilitation in chronic obstructive pulmonary disease: A randomised controlled trial](#)

[Wei Liu](#)¹, [Xue-Mei Liu](#)², [Ya-Ling Huang](#)³, [Peng-Ming Yu](#)⁴, [Xia-Wei Zhang](#)⁵, [Chen Zhao](#)⁶, [Bing Mao](#)⁷, [Jie Min](#)⁸, [Hong-Li Jiang](#)⁹

[Affiliations expand](#)

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- DOI: [10.1016/j.ctim.2023.102977](https://doi.org/10.1016/j.ctim.2023.102977)

Abstract

Objectives: With the characteristics of mindfulness and breathing techniques, Tai Chi has been recommended with therapeutic values in chronic obstructive pulmonary disease (COPD). However, its strengths as a complementary exercise for conventional pulmonary rehabilitation (PR) remain unclear.

Design and setting: This single-blinded randomised controlled trial recruited patients with mild to severe stable COPD. Eligible participants were randomly assigned to the group with usual care (control), total body recumbent stepper (TBRS) exercise, Tai Chi (TC), or combined TBRS exercise and Tai Chi (TBRS-TC). Patients received a two-month hospital-based supervised exercise, followed by a ten-month community- or home-based rehabilitation program.

Results: A total of 120 participants were recruited, and 102 were included in the per-protocol analysis. The mean changes in St George's Respiratory Questionnaire (SGRQ) total score from

baseline to the post-hospital exercise in the control group, TBRS group, TC group, and TBRS-TC group was 2.62 (95% CI -8.99 to 8.99), -9.28 (95% CI -13.96 to -4.60), -10.19 (95% CI -13.72 to -6.67), and -16.75 (95% CI -20.25 to -13.24), respectively, with a statistically significant difference between groups in favor of the TBRS-TC exercise ($P < 0.001$). The remarkable effect of TBRS-TC exercise in improving the quality of life maintained until the end of the community- or home-based rehabilitation training ($P < 0.001$). Besides, a statistically better effect with the TBRS-TC exercise was also observed in the outcomes regarding exercise capacity, pulmonary function, symptom burden, and systemic inflammation after the whole process of 12-month integrative PR exercise programme.

Conclusions: Based on the results, a novel integrated exercise modality combining Tai Chi and conventional pulmonary rehabilitation was developed. It might contribute to more positive effects in patients with stable COPD.

Keywords: Chronic Obstructive Pulmonary Disease; Integrated Rehabilitation Exercise Modality; Pulmonary Rehabilitation; Randomised Controlled Trial; Tai Chi.

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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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Respir Med Res

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. 2023 Aug 23;84:101045.

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Functional status following pulmonary rehabilitation in people with ECOPD: A systematic review and meta-analysis

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Affiliations expand

- PMID: 37625373
- DOI: [10.1016/j.resmer.2023.101045](https://doi.org/10.1016/j.resmer.2023.101045)

No abstract available

Keywords: Chronic obstructive pulmonary disease; Functional status; Pulmonary rehabilitation.

Conflict of interest statement

Declarations of Competing Interest None.

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Respir Res



. 2023 Aug 23;24(1):208.

doi: [10.1186/s12931-023-02507-1](https://doi.org/10.1186/s12931-023-02507-1).

[Clinical practice of non-invasive ventilation for acute exacerbations of chronic obstructive pulmonary disease](#)

[Judith Elshof](#)^{1,2}, [Judith M Vonk](#)^{3,4}, [Anouschka van der Pouw](#)⁵, [Cella van Dijk](#)⁵, [Petra Vos](#)⁵, [Huib A M Kerstjens](#)^{6,3}, [Peter J Wijkstra](#)^{6,3}, [Marieke L Duiverman](#)^{6,3}

[Affiliations expand](#)

- PMID: 37612749
- DOI: [10.1186/s12931-023-02507-1](https://doi.org/10.1186/s12931-023-02507-1)

Free article

Abstract

Background: Non-invasive ventilation (NIV) is an evidence-based treatment for acute respiratory failure in chronic obstructive pulmonary disease (COPD). However, suboptimal application of NIV in clinical practice, possibly due to poor guideline adherence, can impact patient outcomes. This study aims to evaluate guideline adherence to NIV for acute COPD exacerbations and explore its impact on mortality.

Methods: This retrospective study was performed in two Dutch medical centers from 2019 to 2021. All patients admitted to the pulmonary ward or intensive care unit with a COPD exacerbation were included. An indication for NIV was considered in the event of a respiratory acidosis.

Results: A total of 1162 admissions (668 unique patients) were included. NIV was started in 154 of the 204 admissions (76%) where NIV was indicated upon admission. Among 78 admissions where patients deteriorated later on, NIV was started in 51 admissions (65%). Considering patients not receiving NIV due to contra-indications or patient refusal, the overall guideline adherence rate was 82%. Common reasons for not starting NIV when indicated included no perceived signs of respiratory distress, opting for comfort care only, and choosing a watchful waiting approach. Better survival was observed in patients who received NIV when indicated compared to those who did not.

Conclusions: The adherence to guidelines regarding NIV initiation is good. Nevertheless, further improving NIV treatment in clinical practice could be achieved through training healthcare professionals to increase awareness and reduce reluctance in utilizing NIV. By addressing these factors, patient outcomes may be further enhanced.

Keywords: Acute respiratory failure; COPD; Exacerbation; Non-invasive ventilation.

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Respir Res

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. 2023 Aug 23;24(1):207.

doi: 10.1186/s12931-023-02511-5.

Acute cigarette smoke exposure leads to higher viral infection in human bronchial epithelial cultures by altering interferon, glycolysis and GDF15-related pathways

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Affiliations expand

- PMID: 37612597
- DOI: [10.1186/s12931-023-02511-5](https://doi.org/10.1186/s12931-023-02511-5)

Free article

Abstract

Background: Acute exacerbations of chronic inflammatory lung diseases, such as chronic obstructive pulmonary disease (COPD), are frequently associated with rhinovirus (RV) infections. Despite these associations, the pathogenesis of virus-induced exacerbations is incompletely understood. We aimed to investigate effects of cigarette smoke (CS), a primary risk factor for COPD, on RV infection in airway epithelium and identify novel mechanisms related to these effects.

Methods: Primary bronchial epithelial cells (PBEC) from COPD patients and controls were differentiated by culture at the air-liquid interface (ALI) and exposed to CS and RV-A16. Bulk RNA sequencing was performed using samples collected at 6 and 24 h post infection (hpi), and viral load, mediator and L-lactate levels were measured at 6, 24 and 48hpi. To further delineate the effect of CS on RV-A16 infection, we performed growth differentiation factor 15 (GDF15) knockdown, L-lactate and interferon pre-treatment in ALI-PBEC. We performed deconvolution analysis to predict changes in the cell composition of ALI-PBEC after the various exposures. Finally, we compared transcriptional responses of ALI-PBEC to those in nasal epithelium after human RV-A16 challenge.

Results: CS exposure impaired antiviral responses at 6hpi and increased viral replication at 24 and 48hpi in ALI-PBEC. At 24hpi, CS exposure enhanced expression of RV-A16-induced epithelial interferons, inflammation-related genes and CXCL8. CS exposure increased expression of oxidative stress-related genes, of GDF15, and decreased mitochondrial membrane potential. GDF15 knockdown experiments suggested involvement of this pathway in the CS-induced increase in viral replication. Expression of glycolysis-related genes and L-lactate production were increased by CS exposure, and was demonstrated to contribute to higher viral replication. No major differences were demonstrated between COPD and non-COPD-derived cultures. However, cellular deconvolution analysis predicted higher secretory cells in COPD-derived cultures at baseline.

Conclusion: Altogether, our findings demonstrate that CS exposure leads to higher viral infection in human bronchial epithelium by altering not only interferon responses, but likely also through a switch to glycolysis, and via GDF15-related pathways.

Keywords: Bronchial epithelium; Chronic obstructive pulmonary disease (COPD); Cigarette smoke; RNA-Seq; Rhinovirus infection.

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Am J Respir Crit Care Med

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. 2023 Aug 23.

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[Early Evidence of COPD Obscured by Race-Specific Prediction Equations](#)

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- PMID: 37611073

- DOI: [10.1164/rccm.202303-0444OC](https://doi.org/10.1164/rccm.202303-0444OC)

Abstract

Rationale: Identification of early COPD is essential to appropriately counsel patients regarding smoking cessation, provide symptomatic treatment and eventually develop disease-modifying treatments. Disease severity in COPD is defined with race-specific spirometry equations. These may disadvantage non-white individuals in diagnosis and care.

Objectives: Determine impact of race-specific equations on African-American (AA) versus non-Hispanic White (NHW) individuals.

Methods: Cross-sectional analyses of the COPDGene cohort comparing NHW (N=6766) and AA (N=3366) participants for COPD manifestations.

Measurements: Spirometric classifications using race-specific, multi-ethnic and race-reversed prediction equations [National Health and Nutrition Examination Survey (NHANES) and Global Lung Function Initiative (GLI) "Other and Global"] were compared, as were respiratory symptoms, six-minute walk distance (6MWD), CT imaging, respiratory exacerbations, and St. George's Respiratory Questionnaire (SGRQ).

Main results: Application of different prediction equations to the cohort resulted in different classifications by stage, with NHANES and GLI race-specific equations being minimally different, but "race-reversed" equations moving AA to more severe stages and especially between the GOLD 0 and preserved ratio impaired spirometry (PRISm) groups. Classification using the established NHANES race-specific equations demonstrated that for each GOLD stage 1-4, AA participants were younger, had fewer pack years and more current smoking, but had more exacerbations, lower 6MWD, greater dyspnea and worse BODE scores and SGRQ scores. Differences were greatest in GOLD 1 and 2 stages. Race-reversed equations reclassified 774 AA (43%) from GOLD 0 to PRISm.

Conclusions: Race-specific equations underestimate disease severity among AAs. These effects are particularly evident in early disease and may result in late detection of COPD.

Keywords: COPD; dyspnea; early disease; health inequities; race-specific spirometry prediction equations.

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Am J Respir Crit Care Med

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Genetic and Epigenetic Associations with Pre-COPD Lung Function Trajectories

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Affiliations expand

- PMID: 37610423
- DOI: [10.1164/rccm.202306-1025LE](https://doi.org/10.1164/rccm.202306-1025LE)

Abstract

Rationale: Understanding the pathobiology of life-course lung function trajectories that progress to COPD, especially with a rapidly declining phenotype, can inform preventive interventions. Genetic and environmental interactions may contribute to these high-risk trajectories through epigenetic variation. Objectives: A pilot to broadly characterise genetic and epigenetic contributions to high-risk trajectories in middle-aged people.

Methods: Blood genome-wide genetic and epigenetic markers were profiled in 160 donors at 45 years of age from the Tasmanian Longitudinal Health Study (TAHS). High-risk subjects were selected from three previously published lifetime FEV1 trajectories that together accounted for 75% of COPD prevalence at age 53 years, and were matched to persistently high trajectory controls. Differentially methylated regions and epigenetic age acceleration differences between the groups were examined. The impact of co-morbidities and genetic variants on the observed epigenetic associations were investigated.

Results: Subjects from the high risk FEV1 trajectories exhibited 55 novel regions of epigenetic divergence (FDR < 0.05) at genes related to cellular adhesion and epithelial biology. Current asthma or COPD co-morbidities partially explained these changes. Allelic variation at Major Histocompatibility Complex (MHC) and other loci was associated with epigenetic changes and linked to lung specific gene expression signatures and COPD/lung function traits in GWAS. Epigenetic age acceleration was independently associated with high-risk trajectories, which was most pronounced in the rapid decline one.

Conclusions: High risk trajectories that progress to COPD exhibited genetic and epigenetic associations at epithelial and histocompatibility genes as well as accelerated epigenetic ageing.

Keywords: COPD; epigenetics; lung function; trajectories.

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Expert Opin Drug Saf

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. 2023 Aug 23.

doi: 10.1080/14740338.2023.2251382. Online ahead of print.

[Post-marketing safety of anti-IL-5 monoclonal antibodies \(mAbs\): an analysis of the FDA adverse Event Reporting System \(FAERS\)](#)

[Shu-Peng Zou](#)¹, [Hai-Yun Yang](#)², [Mengling Ouyang](#)¹, [Qian Cheng](#)¹, [Xuan Shi](#)¹, [Ming-Hui Sun](#)¹

Affiliations expand

- PMID: 37610085
- DOI: [10.1080/14740338.2023.2251382](https://doi.org/10.1080/14740338.2023.2251382)

Abstract

Background: Anti-IL-5 monoclonal antibodies (mAbs) targeting IL-5 or IL-5 R α (including mepolizumab, benralizumab, and reslizumab) are widely used for inflammatory diseases such as asthma, eosinophilia, and polyangiitis. However, real-world data regarding its safety in a large sample population are incomplete. So, we evaluated the safety of the drugs by pharmacovigilance analyzes based on related adverse events (AEs) from the FDA Adverse Event Reporting System (FAERS).

Methods: In disproportionality analysis, four algorithms were employed to detect the signals of anti-IL-5 mAbs from the FAERS between 2016 and 2022. In addition, we also used MYSQL 8.0, Navicat Premium 15, and Microsoft EXCEL 2019 to analyze the signals of anti-IL-5 mAbs systematically.

Results: There are 9,476,351 reports collected from the FAERS database, of which 22,174 reports listed anti-IL-5 mAbs as the 'primary suspected (PS)' drug. A total of 60 (20 new signals,

mepolizumab) and 62 (19 new signals, benralizumab) significant disproportionality preferred terms (PTs) conforming to the four algorithms were retained synchronously. Finally, we detected that the anti-IL-5 mAbs-induced AEs occurred in 31 organ systems (mepolizumab) and 30 organ systems (benralizumab). For mepolizumab and reslizumab, unexpected and new significant PTs of AEs were found, such as asthmatic crisis, chronic obstructive pulmonary disease (COPD), pneumonia, COVID-19, pneumothorax, adrenal insufficiency and so on. Notably, the risk signal of asthmatic crisis for mepolizumab was stronger than benralizumab (108.04 [95%CI, 96.09-121.47] vs 26.83 [95%CI, 18.91-38.06]). Comparing with mepolizumab and benralizumab, we found the proportion of serious adverse events in mepolizumab was both greater than benralizumab in each age group (≤ 20 , 20-65, and ≥ 65). The median onset time of mepolizumab was 280 days (interquartile range [IQR] 1-367 days).

Conclusion: Analysis of FAERS data identified anti-IL-5 mAbs-associated AEs, and our findings supported continuous clinical monitoring, pharmacovigilance, and further studies of anti-IL-5 mAbs. In addition, clinicians may be more aware of the limitations of use in package inserts of anti-IL-5 mAbs: Not for relief of acute bronchospasm or status asthmaticus. Because of some limitations in the FAERS such as self-reports from patients and other confounding factors, the safety of anti-IL-5 mAbs needed more studies in different dimensions, especially the risk of cancer.

Keywords: COVID-19; FAERS; IL-5; adverse events; mepolizumab; pharmacovigilance.

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J Pain Symptom Manage



. 2023 Aug 22;S0885-3924(23)00654-1.

doi: 10.1016/j.jpainsymman.2023.08.017. Online ahead of print.

[Palliative care among lung cancer patients with and without COPD: A population-based cohort study](#)

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Affiliations expand

- PMID: 37619760

- DOI: [10.1016/j.jpainsymman.2023.08.017](https://doi.org/10.1016/j.jpainsymman.2023.08.017)

Abstract

Context: Lung cancer patients with chronic obstructive pulmonary disease (COPD) may have greater palliative care needs due to poor prognosis and symptom burden.

Objectives: We sought to compare the provision of timely palliative care and symptom burden by COPD status.

Methods: We performed a retrospective, population-based cohort study of individuals diagnosed with lung cancer in Ontario, Canada (2009 - 2019) using health administrative databases and cancer registries. The impact of COPD on the probability of receiving palliative care was determined accounting for dying as a competing event, overall and stratified by stage. The provision of palliative care for patients with severe symptoms (Edmonton Symptom Assessment Scale score \geq 7), location of the first palliative care visit and symptom severity were compared by COPD status.

Results: 74,993 patients were included in the study (48% of patients had available symptom data). At the time of lung cancer diagnosis, 50% of patients had COPD. Stage I-III patients with COPD were more likely to receive palliative care (adjusted Hazard Ratio (HR)s: 1.05 to 1.31) with no difference for stage IV (1.02, 95% CI: 1.00 to 1.04). Despite having severe symptoms, very few patients with early-stage disease received palliative care (Stage I: COPD-23% vs. no COPD-18%, SMD=0.12). Most patients (84%) reported severe symptoms and COPD worsened symptom burden, especially among early-stage patients.

Conclusion: COPD impacts the receipt of palliative care and symptom burden for patients with early-stage lung cancer. Many patients with severe symptoms did not receive palliative care, suggesting unmet needs among this vulnerable population.

Keywords: COPD; Lung cancer; palliative care; symptoms.

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Conflict of interest statement

Declaration of Conflicts of Interest The authors declare that there is no conflict of interest.

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J Intellect Disabil Res

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doi: 10.1111/jir.13078. Online ahead of print.

Sarcopenia predicts 5-year mortality in older adults with intellectual disabilities

[B Valentin](#)^{1,2}, [D Maes-Festen](#)¹, [J Schoufour](#)², [A Oppewal](#)¹

Affiliations expand

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Abstract

Background: People with intellectual disabilities (ID) have a lower life expectancy than their peers without ID. A contributing factor to the lower life expectancy and early mortality could be sarcopenia: low muscle mass and low muscle function. In the general population, sarcopenia strongly predicts early mortality, but this association is unknown in people with ID. Therefore, this study aims to explore the association between sarcopenia and 5-year mortality in older adults with ID.

Methods: In the Healthy Ageing and Intellectual Disabilities (HA-ID) study, the prevalence of sarcopenia was measured at baseline among 884 older adults (≥ 50 years) with ID. All-cause mortality was measured over a 5-year follow-up period. Univariable and multivariable Cox proportional hazard models were applied to determine the association between sarcopenia (no sarcopenia, pre-sarcopenia, sarcopenia, severe sarcopenia) and early mortality, adjusted for age, sex, level of ID, presence of Down syndrome, and co-morbidity (chronic obstructive pulmonary disease, diabetes type 2 and metabolic syndrome).

Results: The unadjusted hazard ratio (HR) for sarcopenia was 2.28 [95% confidence interval (CI) 1.48-3.42], $P < 0.001$, and 2.40 (95% CI 1.40-4.10, $P = 0.001$) for severe sarcopenia. When adjusted for age, sex, level of ID, and Down syndrome, sarcopenia (HR = 1.72, 95% CI 1.08-2.75, $P = 0.022$) and severe sarcopenia (HR = 1.86, 95% CI 1.07-3.23, $P = 0.028$) were significantly associated with early mortality. When additionally adjusted for co-morbidity, the adjusted HR decreased to 1.62 (95% CI 1.02-2.59, $P = 0.043$) and 1.81 (95% CI 1.04-3.15, $P = 0.035$) for sarcopenia and severe sarcopenia, respectively.

Conclusion: Sarcopenia is an independent risk factor for early mortality in older adults with ID over a 5-year follow-up period. Our results stress the need to delay the incidence and development of sarcopenia in older adults with ID.

Keywords: intellectual disabilities; mortality; older adults; sarcopenia.

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Respir Care

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. 2023 Aug 22;respcare.11139.

doi: 10.4187/respcare.11139. Online ahead of print.

[Bronchodilator Efficacy of High-Flow Nasal Cannula in COPD: Vibrating Mesh Nebulizer Versus Jet Nebulizer](#)

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Affiliations expand

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- DOI: [10.4187/respcare.11139](https://doi.org/10.4187/respcare.11139)

Abstract

BACKGROUND: Jet nebulizers are commonly used for bronchodilator therapy in chronic obstructive pulmonary disease (COPD). High-flow nasal cannula with vibrating mesh nebulizer (HFNC-VMN) is a recently developed system; however, few studies have compared the efficacy of bronchodilator administration via HFNC-VMN to jet nebulizer in stable COPD. This study aimed

to compare the effect of salbutamol administered via HFNC-VMN *versus* jet nebulizer, on airway and lung function in patients with stable COPD. **METHODS:** This randomized non-inferiority crossover physiologic study enrolled patients with stable COPD. Salbutamol was nebulized via HFNC-VMN or jet nebulizer in random order with a 4-hour washout period between crossover sequences. Spirometry, lung volume, and impulse oscillometry were performed at baseline and after each intervention. The primary outcome was change in forced expiratory volume at 1 second (FEV₁) from baseline. Secondary outcomes included changes in other respiratory related parameters and nebulization time compared between the two devices. **RESULTS:** Seventeen subjects were enrolled. HFNC-VMN and jet nebulizer both significantly improved FEV₁ from baseline ($P = .005$ and $P = .002$, respectively). The difference between respiratory resistance at 5 Hz and 20 Hz significantly decreased after HFNC-VMN compared to baseline ($P = .02$), while no significant change was observed after jet nebulizer ($P = .056$). Area of reactance and resonant frequency of reactance were both significantly decreased ($P = .035$ and $P = .03$, respectively), and respiratory reactance at 5 Hz significantly increased ($P = .02$) in the HFNC-VMN group compared to baseline indicating improved lung mechanics, with no significant changes with the jet nebulizer. HFNC-VMN had a shorter nebulization time (6 [5-9] *versus* 20 [16-22] minutes, respectively; $P < .001$). **CONCLUSIONS:** Bronchodilator therapy via HFNC-VMN is not inferior to jet nebulizer for patients with stable COPD, and can significantly improve airway oscillometry mechanics, and decrease nebulization time compared to jet nebulizer.

Keywords: aerosol therapy; chronic obstructive pulmonary disease; high-flow nasal cannula; pulmonary function test; vibrating mesh nebulizer.

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J Med Internet Res

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. 2023 Aug 22;25:e45955.
doi: 10.2196/45955.

[Exploring the Perspectives and Experiences of Older Adults With Asthma and Chronic Obstructive Pulmonary Disease Toward Mobile Health: Qualitative Study](#)

- PMID: 37606961
- DOI: [10.2196/45955](https://doi.org/10.2196/45955)

Free article

Abstract

Background: The use of mobile health (mHealth) in asthma and chronic obstructive pulmonary disease (COPD) is growing, and as the population ages, a greater number of older adults stand to benefit from mHealth-enhanced airway disease care. Though older adults are a heterogeneous population of health technology users, older age represents a potential barrier to health technology adoption, and there is currently a lack of knowledge on how older age influences mHealth use in asthma and COPD.

Objective: In this qualitative study, we sought to explore the experiences and perspectives of adults who were aged 65 years and older with asthma and COPD toward mHealth use.

Methods: Semistructured individual interviews were conducted with adults who were aged 65 years and older with asthma or COPD and owned a smartphone. Applying phenomenological methodology, we analyzed interview transcripts in order to develop themes and propose an essential experience of mHealth use among older adults with airway disease. We then summarized our qualitative findings and proposed strategies to leverage our results in order to guide future research and implementation efforts targeting older adults' use of airway mHealth.

Results: Twenty participants (mean age 79.8, SD 4.4 years) were interviewed. Participants described a central tension between (1) the perception that mHealth could help maintain independence throughout aging and (2) an apprehension toward the ways in which mHealth could negatively affect established health care experiences. Several elements of these 2 themes are absent from previous research focusing on younger adults with asthma and COPD. The individual elements of these 2 themes informed potential strategies to optimize future older adults' use of asthma and COPD mHealth tools.

Conclusions: Focusing on the perspectives and experiences of older adults with asthma and COPD in their use of mHealth identified novel understandings of health technology use in this important demographic in need of greater care. These lessons were translated into potential strategies that will need to be objectively evaluated in future airway mHealth research, development, and implementation efforts.

Keywords: airway; airway disease; asthma; barrier; chronic obstructive pulmonary disease; digital health; health technology; implementation; interview; mHealth; mobile phone; older adults; qualitative research; qualitative study; smartphone.

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MeSH termsexpand

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Acta Derm Venereol

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. 2023 Aug 22;103:adv5238.

doi: 10.2340/actadv.v103.5238.

Chronic Obstructive Pulmonary Disease and Risk of Cutaneous T-cell Lymphoma: A Danish Population-based Cohort Study

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Affiliations expand

- PMID: 37606154
- DOI: [10.2340/actadv.v103.5238](https://doi.org/10.2340/actadv.v103.5238)

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ERJ Open Res

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. 2023 Aug 21;9(4):00203-2023.

doi: 10.1183/23120541.00203-2023. eCollection 2023 Jul.

Measuring spirometry in a lung cancer screening cohort highlights possible underdiagnosis and misdiagnosis of COPD

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Affiliations expand

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- PMCID: [PMC10440649](#)
- DOI: [10.1183/23120541.00203-2023](#)

Free PMC article

Abstract

Introduction: COPD is underdiagnosed, and measurement of spirometry alongside low-dose computed tomography (LDCT) screening for lung cancer is one strategy to increase earlier diagnosis of this disease.

Methods: Ever-smokers at high risk of lung cancer were invited to the Yorkshire Lung Screening Trial for a lung health check (LHC) comprising LDCT screening, pre-bronchodilator spirometry and a smoking cessation service. In this cross-sectional study we present data on participant demographics, respiratory symptoms, lung function, emphysema on imaging and both self-reported and primary care diagnoses of COPD. Multivariable logistic regression analysis identified factors

associated with possible underdiagnosis and misdiagnosis of COPD in this population, with airflow obstruction defined as forced expiratory volume in 1 s/forced vital capacity ratio <0.70.

Results: Out of 3920 LHC attendees undergoing spirometry, 17% had undiagnosed airflow obstruction with respiratory symptoms, representing potentially undiagnosed COPD. Compared to those with a primary care COPD code, this population had milder symptoms, better lung function and were more likely to be current smokers ($p \leq 0.001$ for all comparisons). Out of 836 attendees with a primary care COPD code who underwent spirometry, 19% did not have airflow obstruction, potentially representing misdiagnosed COPD, although symptom burden was high.

Discussion: Spirometry offered alongside LDCT screening can potentially identify cases of undiagnosed and misdiagnosed COPD. Future research should assess the downstream impact of these findings to determine whether any meaningful changes to treatment and outcomes occur, and to assess the impact on co-delivering spirometry on other parameters of LDCT screening performance such as participation and adherence. Additionally, work is needed to better understand the aetiology of respiratory symptoms in those with misdiagnosed COPD, to ensure that this highly symptomatic group receive evidence-based interventions.

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Conflict of interest statement

Conflicts of interest: C. Bradley reports that the European Respiratory Society funded their attendance at the ERS International Congress in 2021 as they won a Best Abstract prize. Conflicts of interest: P. Alexandris has nothing to disclose. Conflicts of interest: D.R. Baldwin reports honoraria for presenting from MSD, Roche, BMS and AstraZeneca. Conflicts of interest: R. Booton has nothing to disclose. Conflicts of interest: M. Darby has nothing to disclose. Conflicts of interest: C.J. Eckert has nothing to disclose. Conflicts of interest: R. Gabe has nothing to disclose. Conflicts of interest: N. Hancock has nothing to disclose. Conflicts of interest: S. Janes reports consulting fees from AstraZeneca, Johnson and Johnson, Bard1 (consultancy) and Optellum (advisory board), honoraria from Chiesi for a lecture, and Takeda funded their attendance at conference. Conflicts of interest: M. Kennedy has nothing to disclose. Conflicts of interest: J. Lindop has nothing to disclose. Conflicts of interest: R.D. Neal has nothing to disclose. Conflicts of interest: S. Rogerson has nothing to disclose. Conflicts of interest: B. Shinkins is a member of the the UK National Screening Committee (unpaid). Conflicts of interest: I. Simmonds has nothing to disclose. Conflicts of interest: S. Upperton has nothing to disclose. Conflicts of interest: J. Vestbo reports payment from Boehringer Ingelheim to their hospital for an investigator-initiated clinical trial; consulting fees from AstraZeneca, ALK Abello, Boehringer Ingelheim, GSK, Novartis and TEVA; honoraria for presenting from AstraZeneca, Boehringer Ingelheim, Chiesi, GSK and Novartis; and participant on data safety monitoring board or advisory board for Astra Zeneca and GSK. Conflicts of interest: P.A.J. Crosbie reports consulting fees and stock options from Everest Detection, and honoraria from AstraZeneca, Novartis and North West eHealth. Conflicts of interest: M.E.J. Callister has nothing to disclose.

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

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Clinical characteristics of adults with self-reported diagnosed asthma and/or COPD: data from the BOLD Australia Study

[Yijun Zhou](#)¹, [Maria R Ampon](#)², [Michael J Abramson](#)³, [Alan L James](#)⁴, [Graeme P Maguire](#)⁵, [Richard Wood-Baker](#)⁶, [David P Johns](#)⁶, [Guy B Marks](#)^{1,7}, [Helen K Reddel](#)², [Brett G Toelle](#)^{1,8}

Affiliations expand

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Abstract

Background: Diagnosis of asthma and chronic obstructive pulmonary disease (COPD) in the community is variable, often without spirometry. Some studies report that adults with both diagnostic labels (asthma+COPD) have worse health outcomes than those with asthma or COPD only, but data for Australian adults are limited. We investigated the relationship between clinical characteristics and self-reported diagnoses of asthma, COPD and both.

Method: We used data from the BOLD Australia study, which included randomly selected adults aged ≥ 40 years from six study sites. The BOLD questionnaires and spirometry test were used in all sites. Participants were grouped by self-reported diagnosis. Demographic and clinical characteristics and lung function were compared between groups.

Results: Of the study sample (n=3522), 336 reported asthma only, 172 reported COPD only, 77 reported asthma+COPD and 2937 reported neither. Fewer than half of participants with a COPD diagnosis (with or without asthma) had airflow limitation. Participants with asthma+COPD had more respiratory symptoms and greater airflow limitation than those with either diagnosis alone. Having asthma+COPD was independently associated with a higher probability of having clinically important breathlessness (modified Medical Research Council score ≥ 2) than asthma only (adjusted OR 3.44, 95% CI 1.86-6.33) or COPD only (adjusted OR 3.28, 95% CI 1.69-6.39). Airflow limitation (Global Initiative for Chronic Obstructive Lung Disease 2 or higher, using post-bronchodilator forced expiratory volume in 1 s/forced vital capacity ratio < 0.7) was similar between asthma only and COPD only, but twice as prevalent in asthma+COPD (adjusted OR 2.18 and 2.58, respectively).

Conclusions: Adults with diagnoses of asthma+COPD have a higher symptom and disease burden than those with diagnoses of asthma only or COPD only. These patients should receive regular comprehensive reviews because of the substantially increased burden of having both diagnoses.

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Conflict of interest statement

Conflict of interest: M.J. Abramson holds investigator-initiated grants from Pfizer, Boehringer Ingelheim, Sanofi and GSK. He has conducted an unrelated consultancy for Sanofi. He has also received a speaker's fee from GSK. R. Wood-Baker reports cohort grants from the National Health and Medical Research Council. G.B. Marks has received funding for advisory boards with AstraZeneca. H.K. Reddel holds investigator-initiated grants from AstraZeneca, GlaxoSmithKline, Novartis and Perpetual Philanthropy. She has received consulting fees from AstraZeneca and GlaxoSmithKline, and honoraria for advisory boards and independent medical education from AstraZeneca, GlaxoSmithKline, TEVA, Boehringer Ingelheim, Sanofi, Getz and Chiesi. She holds non-funded leadership roles in the Global Initiative for Asthma (GINA) and National Asthma Council (NAC). All other authors declare no competing interests.

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- [1 figure](#)

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. 2023 Aug 21;9(4):00190-2023.

doi: 10.1183/23120541.00190-2023. eCollection 2023 Jul.

Assessment of efficacy and safety of endoscopic lung volume reduction with one-way valves in patients with a very low FEV₁

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Affiliations expand

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- PMCID: [PMC10440652](#)
- DOI: [10.1183/23120541.00190-2023](#)

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Abstract

Introduction: Endoscopic lung volume reduction (ELVR) with one-way valves produces beneficial outcomes in patients with severe emphysema. Evidence on the efficacy remains unclear in patients with a very low forced expiratory volume in 1 s (FEV₁) ($\leq 20\%$ predicted). We aim to compare clinical outcomes of ELVR, in relation to the FEV₁ restriction.

Methods: All data originated from the German Lung Emphysema Registry (Lungenemphysem Register), which is a prospective multicentric observational study for patients with severe emphysema after lung volume reduction. Two groups were formed at baseline: FEV₁ $\leq 20\%$ pred and FEV₁ 21–45% pred. Pulmonary function tests (FEV₁, residual volume, partial pressure of carbon dioxide), training capacity (6-min walk distance (6MWD)), quality of life (modified Medical Research Council dyspnoea scale (mMRC), COPD Assessment Test (CAT), St George's Respiratory Questionnaire (SGRQ)) and adverse events were assessed and compared at baseline and after 3 and 6 months.

Results: 33 patients with FEV₁ $\leq 20\%$ pred and 265 patients with FEV₁ 21–45% pred were analysed. After ELVR, an increase in FEV₁ was observed in both groups (both $p < 0.001$). The mMRC and CAT scores, and 6MWD improved in both groups (all $p < 0.05$). The SGRQ score improved significantly in the FEV₁ 21–45% pred group, and by trend in the FEV₁ $\leq 20\%$ pred group. Pneumothorax was the most frequent complication within the first 90 days in both groups (FEV₁ $\leq 20\%$ pred: 7.7% versus FEV₁ 21–45% pred: 22.1%; $p = 0.624$). No deaths occurred in the FEV₁ $\leq 20\%$ pred group up to 6 months.

Conclusion: Our study highlights the potential efficacy of one-way valves, even in patients with very low FEV₁, as these patients experienced significant improvements in FEV₁, 6MWD and quality of life. No death was reported, suggesting a good safety profile, even in these high-risk patients.

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Conflict of interest statement

Conflict of interest: S. Eisenmann reports receiving grants or contracts from DFG, outside the submitted work; consulting fees from Acceleron, AstraZeneca and Sanofi Genzyme, outside the submitted work; payment for expert testimony for Nanovation, outside the submitted work; support for attending meetings and/or travel from Boehringer Ingelheim and Sanofi Genzyme, outside the submitted work. Conflict of interest: M. Witzenrath reports grants or contracts from Deutsche Forschungsgemeinschaft, Bundesministerium für Bildung und Forschung, Deutsche Gesellschaft für Pneumologie, European Respiratory Society, Marie Curie Foundation, Else Kröner Fresenius Stiftung, Capnetz Stiftung, Bayer Health Care, Biotest and Pantherna, outside the submitted work; consulting fees from Insmmed, Pantherna, Pherecydes, Aptarion, GlaxoSmithKline, Inlarx and Biotest, outside the submitted work; payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing or educational events from AstraZeneca, Insmmed, Chiesi, Novartis, Teva, Actelion, Boehringer Ingelheim, GlaxoSmithKline, Biotest and Bayer Health Care, outside the submitted work; patents issued EPO 12181535.1 (IL-27 for modulation of immune response in acute lung injury), WO/2010/094491 (Means for inhibiting the expression of Ang-2), DE 102020116249.9 (Camostat/Niclosamide cotreatment in SARS-CoV-2 infected human lung cells) and PCT/EP2021/075627 (New medical use of cystic fibrosis transmembrane conductance regulator (CFTR) modulators), outside the submitted work. Conflict of interest: A. Holland reports being a board member of Lungenemphysemregister e.V., outside the submitted work. Conflict of interest: W. Gesierich reports lectures fees from PulmonX GmbH, outside the submitted work. Conflict of interest: R-H. Hübner reports payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing or educational events from Pulmonx, Olympus and AstraZeneca, outside the submitted work; participation on a data safety monitoring board or advisory board for Bento Study (sponsor: IHF GmbH – Institut für Herzinfarktforschung), outside the submitted work; leadership or fiduciary role in other board, society, committee or advocacy group for Head of Lungenemphysem Register e.V., outside the submitted work. Conflict of interest: The remaining authors have nothing to disclose.

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[Review](#)

Geriatr Gerontol Int

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. 2023 Aug 21.
doi: 10.1111/ggi.14653. Online ahead of print.

Targeting cellular senescence: A promising approach in respiratory diseases

[Masataka Sugimoto](#)¹

Affiliations expand

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- DOI: [10.1111/ggi.14653](https://doi.org/10.1111/ggi.14653)

Abstract

Cellular senescence serves as a significant tumor suppression mechanism in mammals. Cellular senescence is induced in response to various stressors and acts as a safeguard against the uncontrolled proliferation of damaged cells that could lead to malignant transformation. Senescent cells also exhibit a distinctive feature known as the senescence-associated secretory phenotype (SASP), wherein they secrete a range of bioactive molecules, including pro-inflammatory cytokines, growth factors, and proteases. These SASP components have both local and systemic effects, influencing the surrounding microenvironment and distant tissues, and have been implicated in the processes of tissue aging and the development of chronic diseases. Recent studies utilizing senolysis models have shed light on the potential therapeutic implications of targeting senescent cells. The targeting of senescent cell may alleviate the detrimental effects associated with cellular senescence and its SASP components. Senolytics have shown promise in preclinical studies for treating age-related pathologies and chronic diseases, including cancer, cardiovascular disorders, and neurodegenerative conditions. Respiratory diseases have emerged as a significant global health concern, responsible for a considerable number of deaths worldwide. Extensive research conducted in both human subjects and animal models has demonstrated the involvement of cellular senescence in the pathogenesis of respiratory diseases. Chronic pulmonary conditions such as chronic obstructive pulmonary disease and idiopathic pulmonary fibrosis have been linked to the accumulation of senescent cells. This review aims to present the findings from research on respiratory diseases that have utilized systems targeting senescent cells and to identify potential therapeutic strategies for the clinical management of these conditions. *Geriatr Gerontol Int* ••; ••: ••-•• *Geriatr Gerontol Int* 2023; ••: ••-••.

Keywords: COPD; COVID-19; IPF; cancer; cellular senescence.

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Chin Med J (Engl)

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. 2023 Aug 20;136(16):2008-2010.

doi: 10.1097/CM9.0000000000002751. Epub 2023 Jul 19.

High-flow nasal cannula versus noninvasive ventilation after extubation in hypercapnic patients with COPD: A retrospective analysis

[Yuanshui Liu](#)^{1,2}, [Yan Zhang](#)¹, [Yanjun Zeng](#)¹, [Rongli Lu](#)¹, [Hang Yang](#)¹, [Xiaofang Chen](#)³, [Pinhua Pan](#)¹

[Affiliations expand](#)

- PMID: 37468967
- PMCID: [PMC10431328](#)
- DOI: [10.1097/CM9.0000000000002751](#)

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No abstract available

Conflict of interest statement

None.

- [5 references](#)

SUPPLEMENTARY INFO

MeSH termsexpand

FULL TEXT LINKS



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Review

Chin Med J (Engl)

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. 2023 Aug 20;136(16):1923-1928.

doi: 10.1097/CM9.0000000000002771. Epub 2023 Jul 14.

Post-tuberculosis lung disease and chronic obstructive pulmonary disease

[Xiaoyan Gai](#)¹, [Brian Allwood](#)², [Yongchang Sun](#)¹

Affiliations expand

- PMID: 37455331
- PMCID: [PMC10431356](#)
- DOI: [10.1097/CM9.0000000000002771](#)

Free PMC article

Abstract

The burden of chronic airway diseases, including chronic obstructive pulmonary disease (COPD), continues to increase, especially in low- and middle-income countries. Post-tuberculosis lung disease (PTLD) is characterized by chronic lung changes after the "cure" of pulmonary tuberculosis (TB), which may be associated with the pathogenesis of COPD. However, data on its prevalence,

clinical manifestations, computed tomography features, patterns of lung function impairment, and influencing factors are limited. The pathogenic mechanisms underlying PTLD remain to be elucidated. This review summarizes the recent advances in PTLD and TB-associated COPD. Research is urgently needed both for the prevention and management of PTLD.

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Conflict of interest statement

None.

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

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS



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

1

BMC Geriatr

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. 2023 Aug 26;23(1):519.

doi: 10.1186/s12877-023-04232-2.

[Effect of interprofessional and intraprofessional clinical collaboration on patient related outcomes in multimorbid older patients – a](#)

retrospective cohort study on the Intensive Collaboration Ward

[Simon T de Gans](#)¹, [Gerdinique C Maessen](#)², [Marjolein H J van de Pol](#)³, [Marjan J van Apeldoorn](#)⁴, [Margot A L van Ingen-Stokbroekx](#)⁵, [Niels van der Sloot](#)⁶, [Carolina J P W Keijsers](#)⁷, [Babette C van der Zwaard](#)⁸

Affiliations expand

- PMID: 37626300
- DOI: [10.1186/s12877-023-04232-2](https://doi.org/10.1186/s12877-023-04232-2)

Abstract

Background: The management and care of older patients with multiple health problems is demanding and complex. Interprofessional and intraprofessional collaboration has the potential to improve both the efficiency and the quality of care for these patients. However, it has proven difficult to demonstrate the efficacy of this approach in terms of objective patient-related outcomes. Recently, a care model with interprofessional and intraprofessional care was started, the Intensive Collaboration Ward (ICW). This ward combines interprofessional care and intraprofessional care for older patients with multiple health problems. The aim of this study was to evaluate the effects of ICW care in older patients with multiple health problems.

Methods: This retrospective cohort study evaluated the effects on patients outcomes. This was done by comparing patients of the new model, the ICW (ICW group), to a historical cohort of comparable patients who would have been eligible for the ICW (control group). Outcomes were medical consultations, allied health professional consultations, radiological procedures, waiting time for radiological procedures, change in primary treating specialty, length of hospital stay, readmission rate, and mortality rate. Linear and logistic regression analyses were performed, adjusted for baseline differences.

Results: The ICW group required significantly fewer medical consultations than the control group. Calls to specialists from the emergency room decreased significantly, but there was no change in in-person consultations on the ER. 51% of control patients had ≥ 1 in-hospital consultation compared to 21% of ICW patients ($p < 0.05$). Patients in the ICW group received significantly more consultations with allied health professionals and more often had a change in primary treating specialty.

Conclusions: Interprofessional and intraprofessional clinical collaboration on the ICW reduced in-hospital consultations and increased allied health professionals' consultations.

This approach may decrease fragmentation of care and provide more integrated, efficient and patient centered care. This may improve the overall care of older patients with multiple health problems.

Keywords: Collaboration; Collaborative practice; Efficacy; Interprofessional; Intraprofessional; Multimorbidity.

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- [28 references](#)

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Otolaryngol Head Neck Surg

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. 2023 Aug 25.

doi: 10.1002/ohn.507. Online ahead of print.

[Association Between Speech Reception Threshold in Noise and Multimorbidity: The UK Biobank Study](#)

[Humberto Yévenes-Briones](#)^{1,2}, [Francisco Félix Caballero](#)^{1,2}, [Ellen A Struijk](#)^{1,2}, [Lucía Arias-Fernández](#)³, [Alberto Lana](#)⁴, [Jorge Rey-Martinez](#)⁵, [Fernando Rodríguez-Artalejo](#)^{1,2,6}, [Esther Lopez-Garcia](#)^{1,2,6}

Affiliations expand

- PMID: 37622533

- DOI: [10.1002/ohn.507](https://doi.org/10.1002/ohn.507)

Abstract

Objective: To investigate the association between hearing function, as approached with the functional auditory capacity, and multimorbidity.

Study design: Cross-sectional study.

Setting: The UK Biobank was established from 2006 to 2010 in the United Kingdom. This cross-sectional analysis included 165,524 participants who provided baseline information on hearing function.

Methods: Functional auditory capacity was measured with a digit triplet test. Three categories were defined according to the speech reception threshold in noise (SRTn): normal (SRTn < -5.5 dB signal-to-noise ratio [SNR]), insufficient (SRTn \geq -5.5 to \leq -3.5 dB SNR) and poor hearing function (SRTn > -3.5 dB SNR). To define multimorbidity, 9 chronic diseases were considered, including chronic obstructive pulmonary disease, dementia, Parkinson's disease, stroke, cancer, depression, osteoarthritis, coronary heart disease, and diabetes; multimorbidity was defined as the coexistence of 2 or more in the same individual. Analyses were conducted using logistic models adjusted for relevant confounders.

Results: Among the study participants, 54.5% were women, and the mean (range) age was 56.7 (39-72) years. The prevalence of insufficient and poor hearing function and multimorbidity was 13% and 13.2%, respectively. In comparison with having a normal SRTn, the odds ratio (95% confidence interval) of multimorbidity associated with insufficient SRTn was 1.13 (1.08-1.18), and with poor SRTn was 1.25 (1.14-1.37).

Conclusion: Insufficient and poor hearing function was associated with multimorbidity. This association suggests common biological pathways for many of the considered morbidities.

Keywords: UK Biobank; cross-sectional studies; multimorbidity; speech in noise.

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- [59 references](#)

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3



. 2023 Aug 24.

doi: 10.1007/s11606-023-08364-4. Online ahead of print.

Changes in Polypharmacy and Potentially Inappropriate Medications in Homebound Older Adults in Japan, 2015–2019: a Nationwide Study

[Shota Hamada](#)^{1,2,3}, [Masao Iwagami](#)⁴, [Nobuo Sakata](#)^{4,5}, [Yukari Hattori](#)⁶, [Kiwami Kidana](#)⁷, [Tatsuro Ishizaki](#)⁸, [Nanako Tamiya](#)⁴, [Masahiro Akishita](#)⁶, [Takashi Yamanaka](#)⁷

Affiliations expand

- PMID: 37620717
- DOI: [10.1007/s11606-023-08364-4](https://doi.org/10.1007/s11606-023-08364-4)

Abstract

Background: With rising worldwide population aging, the number of homebound individuals with multimorbidity is increasing. Improvement in the quality of home medical care (HMC), including medications, contributes to meeting older adults' preference for "aging in place" and securing healthcare resources.

Objective: To evaluate the changes in drug prescriptions, particularly potentially inappropriate medications (PIMs), among older adults receiving HMC in recent years, during which measures addressing inappropriate polypharmacy were implemented, including the introduction of clinical practice guidelines and medical fees for deprescribing.

Design: A cross-sectional study.

Participants: Using data from the national claims database in Japan, this study included older adults aged ≥ 75 years who received HMC in October 2015 (N = 499,850) and October 2019 (N = 657,051).

Main measures: Number of drugs, prevalence of polypharmacy (≥ 5 regular drugs), major drug categories/classes, and PIMs according to Japanese guidelines were analyzed.

Random effects logistic regression models were used to evaluate the differences in medications between 2015 and 2019, considering the correlation within individuals who contributed to the analysis in both years.

Key results: The number of drugs remained unchanged from 2015 to 2019 (median: 6; interquartile range: 4, 9). The prevalence of polypharmacy also remained unchanged at 70.0% in both years ($P = 0.93$). However, the prescription of some drugs (e.g., direct oral anticoagulants, new types of hypnotics, acetaminophen, proton pump inhibitors, and β -blockers) increased, whereas others (e.g., warfarin, vasodilators, H2 blockers, acetylcholinesterase inhibitors, and benzodiazepines) decreased. Among the frequently prescribed PIMs, benzodiazepines/Z-drugs (25.6% in 2015 to 21.1% in 2019; adjusted odds ratio: 0.52) and H2 blockers (11.2 to 7.3%; 0.45) decreased, whereas diuretics (23.8 to 23.6%; 0.90) and antipsychotics (9.7 to 10.5%; 1.11) remained unchanged.

Conclusions: We observed some favorable changes but identified some continuous and new challenges. This study suggests that continued attention to medication optimization is required to achieve safe and effective HMC.

Keywords: deprescribing; home care; home health care; polypharmacy; potentially inappropriate medications.

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- [40 references](#)

SUPPLEMENTARY INFO

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Respiration

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. 2023 Aug 24;1-8.

doi: 10.1159/000533333. Online ahead of print.

Costs of Weaning Failure: A Prospective, Multicentre, Controlled, Non-Randomised, Interventional Study on Economic Implications for the German Health Care System

[Julia D Michels](#)¹, [Franziska C Trudzinski](#)¹, [Florian Bornitz](#)², [Ralf Ewert](#)³, [Michael Müller](#)¹, [Frederik Trinkmann](#)¹, [Mavi Schellenberg](#)¹, [Wolfram Windisch](#)⁴, [Felix J F Herth](#)¹

Affiliations expand

- PMID: 37619539
- DOI: [10.1159/000533333](https://doi.org/10.1159/000533333)

Abstract

Background: Intensive care patients with respiratory failure often need invasive mechanical ventilation (IMV). With increasing population age and multimorbidity, the number of patients who cannot be weaned from IMV rises as well. Up to 85% of these patients have no access to a certified weaning centre. Their medical care is associated with impaired quality of life and high costs for the German health care system.

Objectives: This study examined the weaning outcome of patients in certified weaning centres after a primarily unsuccessful weaning attempt in order to calculate saving expenses compared to patients on long-term IMV in an outpatient setting.

Methods: In this multicentre, controlled, non-randomised, interventional, prospective study, 61 patients (16 from out-of-hospital long-term IMV, 49 from other hospitals) were referred to a certified weaning centre for a second weaning phase. The incurred costs after 1 year of the latter were compared to insurance claim data of patients who were discharged from an acute hospital stay to receive IMV in an outpatient setting.

Results: In the intervention group, 50 patients (82%) could be completely weaned or partially weaned using non-invasive ventilation, thus not needing IMV any longer. The costs per patient for weaning and out-of-hospital care in the intervention group were EUR 114,877.08, and the costs in the comparison cohort were EUR 234,442.62.

Conclusions: Early transfer to a certified weaning centre can increase weaning success and reduce total costs by approximately EUR 120,000 per patient in the first year. Given the

existing structural prerequisites in Germany, every patient should have access to a weaning centre before being transferred to long-term IMV, from a medical and health economical point of view.

Keywords: Costs; Germany; Prolonged weaning; Weaning failure.

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5

[Review](#)

BMC Health Serv Res

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. 2023 Aug 23;23(1):894.

doi: 10.1186/s12913-023-09894-7.

[Models of integrated care for multi-morbidity assessed in systematic reviews: a scoping review](#)

[Anke Rohwer](#)¹, [Ingrid Toews](#)², [Jeannine Uwimana-Nicol](#)^{3,4}, [John L Z Nyirenda](#)², [Jean Berchmans Niyibizi](#)⁴, [Ann R Akiteng](#)⁵, [Joerg J Meerpohl](#)^{2,6}, [Charlotte M Bavuma](#)^{4,7}, [Tamara Kredo](#)^{8,9}, [Taryn Young](#)³

Affiliations [expand](#)

- PMID: 37612604
- DOI: [10.1186/s12913-023-09894-7](https://doi.org/10.1186/s12913-023-09894-7)

Free article

Abstract

Background: The prevalence of multi-morbidity is increasing globally. Integrated models of care present a potential intervention to improve patient and health system outcomes. However, the intervention components and concepts within different models of care vary widely and their effectiveness remains unclear. We aimed to describe and map the definitions, characteristics, components, and reported effects of integrated models of care in systematic reviews (SRs).

Methods: We conducted a scoping review of SRs according to pre-specified methods (PROSPERO 2019 CRD42019119265). Eligible SRs assessed integrated models of care at primary health care level for adults and children with multi-morbidity. We searched in PubMed (MEDLINE), Embase, Cochrane Database of Systematic Reviews, Epistemonikos, and Health Systems Evidence up to 3 May 2022. Two authors independently assessed eligibility of SRs and extracted data. We identified and described common components of integrated care across SRs. We extracted findings of the SRs as presented in the conclusions and reported on these verbatim.

Results: We included 22 SRs, examining data from randomised controlled trials and observational studies conducted across the world. Definitions and descriptions of models of integrated care varied considerably. However, across SRs, we identified and described six common components of integrated care: (1) chronic conditions addressed, (2) where services were provided, (3) the type of services provided, (4) healthcare professionals involved in care, (5) coordination and organisation of care and (6) patient involvement in care. We observed differences in the components of integrated care according to the income setting of the included studies. Some SRs reported that integrated care was beneficial for health and process outcomes, while others found no difference in effect when comparing integrated care to other models of care.

Conclusions: Integrated models of care were heterogeneous within and across SRs. Information that allows the identification of effective components of integrated care was lacking. Detailed, standardised and transparent reporting of the intervention components and their effectiveness on health and process outcomes is needed.

Keywords: Chronic diseases; Collaborative care; Integrated care; Low- and middle-income countries; Multi-morbidity; Non-communicable diseases; Systematic review.

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- [50 references](#)

SUPPLEMENTARY INFO

Publication types, MeSH terms, Grant supportexpand

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J Multimorb Comorb

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. 2023 Aug 22;13:26335565231195510.

doi: 10.1177/26335565231195510. eCollection 2023 Jan-Dec.

[The association between physical activity, low-grade inflammation, and labour market attachment among people with multimorbidity: A cross-sectional study from the Lolland-Falster Health Study, Denmark](#)

[Vivian Rueskov Poulsen](#)¹, [Linda Kjær Fischer](#)², [Mette Aadahl](#)^{3,4}, [Ole Steen Mortensen](#)^{1,5}, [Søren T Skou](#)^{6,7}, [Lars Bo Jørgensen](#)^{6,7,8}, [Randi Jepsen](#)⁹, [Anne Møller](#)^{10,11}, [Therese Lockenwitz Petersen](#)⁹, [Jan Christian Brønd](#)¹², [Lars Tang](#)^{7,13}, [Mette Korshøj](#)¹

Affiliations expand

- PMID: 37621316
- PMCID: [PMC10447179](#)
- DOI: [10.1177/26335565231195510](#)

Abstract

Aim: Evidence suggests low-grade inflammation (LGI) to be associated with multimorbidity. Furthermore, there are links between inflammation markers, physical activity (PA), and labour market participation. The aims of this study were to examine the association between PA and LGI in people with multimorbidity and if this association was moderated by self-reported labour market attachment.

Methods: Cross-sectional data were collected in the Lolland-Falster Health Study (LOFUS) from 2016-2020. We included 1,106 participants with multimorbidity and valid accelerometer data. PA was measured as the average counts per minute (CPM) per day during wake time and split in time spent in moderate to vigorous intensity (MVPA) and light intensity (LPA). Degree of inflammation was determined by high sensitive C-reactive protein (hsCRP) level. Associations were investigated using multiple logistic regression analyses, stratified by labour market attachment.

Results: The odds of having LGI was higher with lower amount of daily LPA. The highest odds of LGI was observed for CPM < 200 per day (odds ratio (OR) 2.55; 95% confidence interval (CI) 1.46-4.43), MVPA < 15 minutes per day (OR 2.97; 95 % CI 1.56-5.62), and LPA < 90 (OR 2.89; 95 % CI 1.43-5.81) with the reference groups being CPM ≥ 400 per day, MVPA ≥ 30, and LPA ≥ 180 min per day, respectively. We could not preclude an interaction between LPA and labour market attachment ($p = 0.109$).

Conclusion: PA recommendations should be developed with attention to people with chronic diseases, who may experience barriers to reach PA at high intensities. People with no labour market attachment may benefit from primary and secondary prevention of multimorbidity.

Keywords: Lolland-Falster Health Study; accelerometer; low-grade inflammation; multimorbidity; physical activity.

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Conflict of interest statement

The author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: STS is associate editor of JOSPT, and has received personal fees from Munksgaard and TrustMe-Ed, outside the submitted work. Furthermore, he is co-founder of GLA:D[®], a not-for profit initiative hosted at University of Southern Denmark aimed at implementing clinical guidelines for osteoarthritis in clinical practice.

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

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Trials

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. 2023 Aug 22;24(1):550.

doi: 10.1186/s13063-023-07561-0.

[Community-based integrated care for patients with diabetes and depression \(CIC-PDD\): study protocol for a cluster randomized controlled trial](#)

[Yanshang Wang](#)^{#1,2}, [Dan Guo](#)^{#2}, [Ming Wang](#)^{1,2}, [Mingzheng Hu](#)^{1,2}, [Dawei Zhu](#)², [Qianqian Yu](#)³, [Zhansheng Li](#)⁴, [Xiaoyi Zhang](#)⁴, [Ruoxi Ding](#)², [Miaomiao Zhao](#)^{5,6}, [Ping He](#)⁷

Affiliations [expand](#)

- PMID: 37608381

- DOI: [10.1186/s13063-023-07561-0](https://doi.org/10.1186/s13063-023-07561-0)

Free article

Abstract

Background: Managing the multimorbidity of diabetes and depression remains a clinical challenge for patients and healthcare professionals due to the fragmented healthcare delivery system. To effectively cope with multimorbidity, there is an urgent need for the health system to transform into people-centered integrated care (PCIC) system globally. Therefore, this paper describes the protocol of community-based integrated care for patients with diabetes and depression (CIC-PDD) project, an integrated and shared-care intervention project.

Methods/design: CIC-PDD project is conducted in two phases, namely "care model development" and "implementation and evaluation." In the first phase, CIC-PDD model was designed and developed based on the four criteria of collaborative care model (CCM) and was subsequently adjusted to align with the context of China. The second phase entails a pragmatic, two-arm, cluster randomized controlled implementation trial, accompanied by parallel mixed-methods process evaluation and cost-effectiveness analysis.

Discussion: We anticipate CIC-PDD project will facilitate the development and innovation of PCIC model and related theories worldwide, particularly in low- and middle-income countries (LMICs). In addition, CIC-PDD project will contribute to the exploration of primary health care (PHC) in addressing the multimorbidity of physical and mental health issues.

Trial registration: ClinicalTrials.gov registration ChiCTR2200065608 (China Clinical Trials Registry <https://www.chictr.org.cn>). Registered on November 9, 2022.

Keywords: Depression; Diabetes; Implementation; Integrated care; Multimorbidity.

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- [68 references](#)

SUPPLEMENTARY INFO

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

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Pilot Feasibility Stud

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. 2023 Aug 22;9(1):146.

doi: 10.1186/s40814-023-01375-2.

[Implementation and evaluation of a complex intervention to improve](#)

information availability at the interface between inpatient and outpatient care in older patients with multimorbidity and polypharmacy (HYPERION-TransCare) - study protocol for a pilot and feasibility cluster-randomized controlled trial in general practice in Germany

[Astrid-Alexandra Klein](#)¹, [Jenny Petermann](#)², [Franziska Brosse](#)², [Steve Piller](#)², [Martin Kramer](#)², [Maria Hanf](#)³, [Truc Sophia Dinh](#)³, [Sylvia Schulz-Rothe](#)³, [Jennifer Engler](#)³, [Karola Mergenthal](#)³, [Hanna M Seidling](#)⁴, [Sophia Klasing](#)⁴, [Nina Timmesfeld](#)⁵, [Marjan van den Akker](#)^{3,6,7}, [Karen Voigt](#)²

Affiliations expand

- PMID: 37608345
- DOI: [10.1186/s40814-023-01375-2](https://doi.org/10.1186/s40814-023-01375-2)

Free article

Abstract

Background: Despite attempts to improve the cross-sectoral flow of information, difficulties remain in routine healthcare. The resulting negative impact on continuity of care is often associated with poor health outcomes, especially in older patients. Our intervention aims to increase information availability with respect to medications and health conditions at the interface between inpatient and outpatient care and to contribute towards improving the quality of care in older patients. This pilot study focuses on feasibility and implementability.

Methods: The idea of the complex intervention has been developed in a previous study. This intervention will be tested in a prospective, multicenter, cluster-randomized (via web tool), controlled pilot trial with two parallel study arms (intervention and control group). The pilot study will be conducted in 20 general practices in Hesse and Saxony (Germany) and include 200 patients (≥ 65 years of age with multimorbidity and polypharmacy)

recruited by the practices. Practice staff and patients will be blinded. We will use qualitative and quantitative methods to assess the feasibility and implementability of the intervention and the study design in a process evaluation covering topics ranging from expectations to experiences. In addition, the feasibility of proposed outcome parameters for the future definitive trial will be explored. The composite endpoint will include health-related patient outcomes (hospitalization, falls, and mortality using, e.g., the FIMA questionnaire), and we will assess information on medications (SIMS questionnaire), symptoms and side effects of the medication (pro-CTCAE questionnaire), and health literacy (HLQ questionnaire). Data will be collected at study begin (baseline) and after 6 months. Furthermore, the study will include surveys and interviews with patients, general practitioners, and healthcare assistants.

Discussion: The intervention was developed using a participatory approach involving stakeholders and patients. It aims to empower general practice teams as they provide patient-centered care and play a key role in the coordination and continuity of care. We aim to encourage patients to adopt an active role in their health care. Overall, we want to increase the availability of health-related information for patients and healthcare providers. The results of the pilot study will be used in the design and implementation of the future definitive trial.

Trial registration: The study was registered in DRKS-German Clinical Trials Register: registration number DRKS00027649 (date: 19 January 2022). Date and version identifier 10.07.2023; Version 1.3.

Keywords: Continuity of care; Family practice; Information availability; Inpatient and outpatient care; Multimorbidity; Older patients; Participation; Pilot projects; Polypharmacy; Randomized controlled trial.

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- [53 references](#)

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9



Associations of hospitalisation - admission, readmission and length to stay - with multimorbidity patterns by age and sex in adults and older adults: the ELSI-Brazil study

[Luciana Pereira Rodrigues](#)¹, [Diego Galdino França](#)², [João Ricardo Nickenig Vissoci](#)³, [Nayara Malheiros Caruzzo](#)², [Sandro Rodrigues Batista](#)^{4,5}, [Cesar de Oliveira](#)⁶, [Bruno Pereira Nunes](#)⁷, [Erika Aparecida Silveira](#)^{8,9}

Affiliations expand

- PMID: 37605111
- PMCID: [PMC10441711](#)
- DOI: [10.1186/s12877-023-04167-8](#)

Free PMC article

Abstract

Background: Although the association between multimorbidity (MM) and hospitalisation is known, the different effects of MM patterns by age and sex in this outcome needs to be elucidated. Our study aimed to analyse the association of hospitalisations' variables (occurrence, readmission, length of stay) and patterns of multimorbidity (MM) according to sex and age.

Methods: Data from 8.807 participants aged ≥ 50 years sourced from the baseline of the Brazilian Longitudinal Study of Ageing (ELSI-Brazil) were analysed. Multimorbidity was defined as ≥ 2 (MM2) and ≥ 3 (MM3) chronic conditions. Poisson regression was used to

verify the association between the independent variables and hospitalisation according to sex and age group. Multiple linear regression models were constructed for the outcomes of readmission and length of stay. Ising models were used to estimate the networks of diseases and MM patterns.

Results: Regarding the risk of hospitalisation among those with MM2, we observed a positive association with male sex, age ≥ 75 years and women aged ≥ 75 years. For MM3, there was a positive association with hospitalisation among males. For the outcomes hospital readmission and length of stay, we observed a positive association with male sex and women aged ≥ 75 years. Network analysis identified two groups that are more strongly associated with occurrence of hospitalisation: the cardiovascular-cancer-glaucoma-cataract group stratified by sex and the neurodegenerative diseases-renal failure-haemorrhagic stroke group stratified by age group.

Conclusion: We conclude that the association between hospitalisation, readmission, length of stay, and MM changes when sex and age group are considered. Differences were identified in the MM patterns associated with hospitalisation according to sex and age group.

Keywords: Age groups; ELSI-Brazil; Health care utilisation; Multimorbidity; Network analysis; Sex.

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Conflict of interest statement

The authors declare that there is no conflict of interest.

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

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

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Nat Commun

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. 2023 Aug 21;14(1):4941.

doi: 10.1038/s41467-023-40566-6.

Environmental and genetic predictors of human cardiovascular ageing

[Mit Shah](#)¹, [Marco H de A Inácio](#)¹, [Chang Lu](#)¹, [Pierre-Raphaël Schiratti](#)¹, [Sean L Zheng](#)², [Adam Clement](#)¹, [Antonio de Marvao](#)¹, [Wenjia Bai](#)^{3,4}, [Andrew P King](#)⁵, [James S Ware](#)^{1,2}, [Martin R Wilkins](#)², [Johanna Mielke](#)⁶, [Eren Elci](#)⁶, [Ivan Kryukov](#)⁶, [Kathryn A McGurk](#)^{1,2}, [Christian Bender](#)⁶, [Daniel F Freitag](#)⁶, [Declan P O'Regan](#)⁷

Affiliations [expand](#)

- PMID: 37604819
- PMCID: [PMC10442405](#)
- DOI: [10.1038/s41467-023-40566-6](#)

Free PMC article

Abstract

Cardiovascular ageing is a process that begins early in life and leads to a progressive change in structure and decline in function due to accumulated damage across diverse cell types, tissues and organs contributing to multi-morbidity. Damaging biophysical, metabolic and immunological factors exceed endogenous repair mechanisms resulting in a pro-fibrotic state, cellular senescence and end-organ damage, however the genetic architecture of cardiovascular ageing is not known. Here we use machine learning approaches to quantify cardiovascular age from image-derived traits of vascular function, cardiac motion and myocardial fibrosis, as well as conduction traits from electrocardiograms, in 39,559 participants of UK Biobank. Cardiovascular ageing is found to be significantly associated with common or rare variants in genes regulating sarcomere homeostasis, myocardial immunomodulation, and tissue responses to biophysical stress. Ageing is accelerated by cardiometabolic risk factors and we also identify prescribed medications that are potential modifiers of ageing. Through large-scale modelling of ageing across multiple traits our results reveal insights into the mechanisms driving

premature cardiovascular ageing and reveal potential molecular targets to attenuate age-related processes.

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Conflict of interest statement

J.M., E.E., I.K., C.B. and D.F.F. are full-time employees of Bayer AG, Germany. D.P.O'R. has received research support and consultancy fees from Bayer AG. The remaining authors declare no competing interests.

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

SUPPLEMENTARY INFO

MeSH terms, Grant support [expand](#)

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nature portfolio **UNIMORE** 

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[Review](#)

Dermatologie (Heidelb)

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. 2023 Aug 20.

doi: 10.1007/s00105-023-05207-5. Online ahead of print.

[\[Management of pruritus in the elderly\]](#)

[Article in German]

[F Witte](#)¹, [C Zeidler](#)², [S Ständer](#)²

Affiliations [expand](#)

- PMID: 37599291

- DOI: [10.1007/s00105-023-05207-5](https://doi.org/10.1007/s00105-023-05207-5)

Abstract

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

Background: Chronic pruritus (CP), a frequent (20.3%) symptom in the elderly, increases with age. It has a significant impact on the quality of life, ranking among the 50 most burdensome diseases worldwide (Global Burden of Disease Study).

Objectives: The aim is to provide an overview of the symptom CP in the elderly and to improve differentiation of underlying conditions and management of this entity.

Materials and methods: A literature search in PubMed was performed, using the terms 'pruritus', 'elderly' and 'gerontodermatology'.

Results: The main causes of CP in the elderly are the physiologic aging process (xerosis cutis, immunosenescence, neuropathy), the increase in potentially pruritic diseases with increasing age (diabetes mellitus, chronic renal failure), and polypharmacy. Therapeutic options relate to causes, severity of pruritus, and individual patient factors (multimorbidity, impaired organ function). The recently updated S2k guideline 'Diagnosis and therapy of chronic pruritus' is helpful.

Conclusion: CP in the elderly is challenging for both patients and physicians. Not only the difficulty of identifying the underlying cause, but the complexity of treatment and its tolerability and practicability determines these patients' further burden.

Keywords: Chronic prurigo; Etiology; Gerontodermatology; Quality of life; Therapy.

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- [46 references](#)

SUPPLEMENTARY INFO

Publication types [expand](#)

FULL TEXT LINKS



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

Allergy

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. 2023 Aug 25.

doi: 10.1111/all.15867. Online ahead of print.

Biologics (mepolizumab and omalizumab) induced remission in severe asthma patients

[Dennis Thomas](#)¹, [Vanessa M McDonald](#)^{1,2}, [Sean Stevens](#)¹, [Erin S Harvey](#)^{1,2}, [Melissa Baraket](#)^{3,4}, [Philip Bardin](#)⁵, [Jeffrey J Bowden](#)⁶, [Simon Bowler](#)⁷, [Jimmy Chien](#)^{8,9}, [Li Ping Chung](#)¹⁰, [Andrew Gillman](#)¹¹, [Mark Hew](#)^{11,12}, [Sandra Hodge](#)^{13,14}, [Alan James](#)^{15,16}, [Christine Jenkins](#)^{17,18}, [Constance H Katelaris](#)^{19,20}, [Gregory P Katsoulotos](#)^{21,22,23,24}, [David Langton](#)^{25,26}, [Joy Lee](#)²⁷, [Guy Marks](#)^{3,21}, [Matthew Peters](#)¹⁷, [Naghme Radhakrishna](#)²⁸, [Paul N Reynolds](#)¹⁴, [Janet Rimmer](#)^{21,24}, [Pathmanathan Sivakumar](#)²⁹, [John W Upham](#)^{30,31}, [Peter Wark](#)^{1,2}, [Ian A Yang](#)^{31,32}, [Peter G Gibson](#)^{1,2}

Affiliations expand

- PMID: 37632144

- DOI: [10.1111/all.15867](https://doi.org/10.1111/all.15867)

Abstract

Background: Asthma remission has emerged as a potential treatment goal. This study evaluated the effectiveness of two biologics (mepolizumab/omalizumab) in achieving asthma remission.

Methods: This observational study included 453 severe asthma patients (41% male; mean age \pm SD 55.7 \pm 14.7 years) from two real-world drug registries: the Australian Mepolizumab Registry and the Australian Xolair Registry. The composite outcome clinical remission was defined as zero exacerbations and zero oral corticosteroids during the previous 6 months assessed at 12 months and 5-item Asthma Control Questionnaire (ACQ-5) \leq 1 at 12 months. We also assessed clinical remission plus optimization (post-bronchodilator FEV1 \geq 80%) or stabilization (post-bronchodilator FEV1 not greater than 5%

decline from baseline) of lung function at 12 months. Sensitivity analyses explored various cut-offs of ACQ-5/FEV1 scores. The predictors of clinical remission were identified.

Results: 29.3% (73/249) of AMR and 22.8% (37/162) of AXR cohort met the criteria for clinical remission. When lung function criteria were added, the remission rates were reduced to 25.2% and 19.1%, respectively. Sensitivity analyses identified that the remission rate ranged between 18.1% and 34.9% in the AMR cohort and 10.6% and 27.2% in the AXR cohort. Better lung function, lower body mass index, mild disease and absence of comorbidities such as obesity, depression and osteoporosis predicted the odds of achieving clinical remission.

Conclusion: Biologic treatment with mepolizumab or omalizumab for severe asthma-induced asthma remission in a subgroup of patients. Remission on treatment may be an achievable treatment target and future studies should consider remission as an outcome measure.

Keywords: asthma; mepolizumab; omalizumab; remission.

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- [29 references](#)

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Pneumologie

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. 2023 Aug 25.

doi: 10.1055/a-2102-8128. Online ahead of print.

Criteria for evaluation of response to biologics in severe asthma – the Biologics Asthma Response Score (BARS)

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Affiliations expand

- PMID: 37625439
- DOI: [10.1055/a-2102-8128](https://doi.org/10.1055/a-2102-8128)

Abstract

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

Background: The introduction of monoclonal antibodies (biologics) has revolutionized the therapy of severe asthma. Even though there is a response in the majority of patients, the degree of response varies. To date criteria for assessment of response to biologics are not consistently defined.

Aim: To define criteria for evaluation of response to biologics that are precise, simple and suitable for daily use in order to guide decision-making regarding continuation, switching or stopping of biological therapy.

Methods: 8 physicians with large experience in this indication, supported by a data-scientist, developed a consensus on criteria to evaluate response to biologics in patients with severe asthma.

Result: We developed a combined score based on current literature, own experience and practicability. It uses the main criteria exacerbations, oral corticosteroid (OCS) therapy and asthma control (asthma control test, ACT). We defined thresholds for "good response", "response" and "insufficient response" rated with a score of "2", "1" and "0" respectively: annual exacerbations ("0 or reduction \geq 75 %", "reduction 50-74 %", "reductio $<$ 50 %"), daily OCS dose ("stopping or reduction \geq 75 %", "reduction 50-74 %", "reduction $<$ 50 %"), asthma control ("ACT increase \geq 6 or \geq 3 with result \geq 20", "ACT increase 3-5 with result $<$ 20", "ACT increase $<$ 3"). Additional individual criteria like lung function and comorbidities may be important for evaluation of response. We propose 3, 6 and 12 months timepoint

for assessment of tolerability and response. Using the combined score, we developed a scheme to guide the decision whether switching the biologic should be considered.

Conclusion: The Biologic Asthma Response Score (BARS) serves as objective and simple tool to evaluate response to biologic therapy using the three main criteria exacerbations, OCS use and asthma control. A validation of the score was initiated.

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Conflict of interest statement

KM: Lecture and consultancy fees for AstraZeneca, GSK, Janssen, Novartis, Sanofi. SK: Lecture and consultancy fees for AstraZeneca, GSK, Chiesi, GSK, Novartis, Sanofi. CF: Lecture and consultancy fees for AstraZeneca, GSK, Sanofi, ALK. JF: Fees for lecturing and consulting for AstraZeneca. AM: Nothing to disclose. WS: Nothing to disclose. DS: Lecture and consultancy fees for AstraZeneca, Bayer, Boehringer-Ingelheim, Chiesi, GSK, Janssen, Novartis. HT: Speaker fees and lecturing, consulting activities and/or research grants from: AstraZeneca, Almirall, Astellas Pharma, Bayer, Boehringer Ingelheim, Berlin-Chemie, GSK, Leti Pharma, Meda, Mundipharma, Novartis, Nycomed, Pfizer, Sanofi, Takeda, Teva. HS: Lecture and consultancy fees for AstraZeneca, GSK, Novartis, Sanofi.

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Telemed J E Health

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. 2023 Aug 25.

doi: 10.1089/tmj.2023.0109. Online ahead of print.

The Management of Pediatric Asthma Using Telehealth: An Integrative Review

[Katherine E Chike-Harris¹](#), [Sarah Miller¹](#), [Michelle Nichols¹](#), [James McElligott²](#), [Teresa Kelechi¹](#)

Affiliations expand

- PMID: 37624652
- DOI: [10.1089/tmj.2023.0109](https://doi.org/10.1089/tmj.2023.0109)

Abstract

Introduction: Asthma is one of the most chronic noncommunicable diseases of childhood, affecting 1 in 12 children in the United States. The use of telemedicine for the management of pediatric asthma has shown improved health outcomes; however, it is important to understand what can impact its acceptance. The purpose of this review was to identify the facilitators and barriers to pediatric asthma management, as viewed by stakeholders. **Methods:** An electronic literature search was performed using PubMed, Scopus, and Cumulative Index to Nursing and Allied Health Literature Complete. Articles included in the review contained perceptions of the use of telemedicine for the management of pediatric asthma, as viewed by stakeholders. The socioecological model was used as the theoretical framework to extract data based on its five levels. **Results:** After reviewing full texts of 143 articles, 118 were excluded, leaving 25 articles included in this review. A majority of included articles focused on mobile health (m-Health) studies for the management of pediatric asthma, with the remaining articles studying synchronous telemedicine or a combination of modalities. Common themes were identified; however, most were focused on the use of m-Health and few studies contained the viewpoints of the caregiver, children, or providers regarding synchronous telemedicine. **Discussion:** This integrative review identified a number of facilitators and barriers for the management of asthma using telemedicine. However, more qualitative studies are needed to evaluate the perceptions of caregivers, patients, and primary providers regarding synchronous telehealth. It was also recognized that telemedicine may increase instead of reduce health care disparities.

Keywords: Telehealth/Telemedicine; barriers; facilitators; pediatric asthma.

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MMWR Morb Mortal Wkly Rep

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. 2023 Aug 25;72(34):933-935.

doi: 10.15585/mmwr.mm7234a6.

[Notes from the Field: Asthma-Associated Emergency Department Visits During a Wildfire Smoke Event - New York, June 2023](#)

[Haillie C Meek](#), [Heather Aydin-Ghormoz](#), [Kathleen Bush](#), [Neil Muscatiello](#), [Cristin E McArde](#), [Charlene X Weng](#), [Dina Hoefler](#), [Wan-Hsiang Hsu](#), [Eli S Rosenberg](#)

- PMID: 37616254
- DOI: [10.15585/mmwr.mm7234a6](https://doi.org/10.15585/mmwr.mm7234a6)

Free article

No abstract available

Conflict of interest statement

All authors have completed and submitted the International Committee of Medical Journal Editors form for disclosure of potential conflicts of interest. No potential conflicts of interest were disclosed.

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MMWR Morb Mortal Wkly Rep

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. 2023 Aug 25;72(34):926-932.

doi: 10.15585/mmwr.mm7234a5.

[Asthma-Associated Emergency Department Visits During the Canadian Wildfire Smoke Episodes - United States, April- August 2023](#)

[Cristin E McArdle](#), [Tia C Dowling](#), [Kelly Carey](#), [Jourdan DeVies](#), [Dylan Johns](#), [Abigail L Gates](#), [Zachary Stein](#), [Katharina L van Santen](#), [Lakshmi Radhakrishnan](#), [Aaron Kite-Powell](#), [Karl Soetebier](#), [Jason D Sacks](#), [Kanta Sircar](#), [Kathleen P Hartnett](#), [Maria C Mirabelli](#)

- PMID: 37616233
- DOI: [10.15585/mmwr.mm7234a5](https://doi.org/10.15585/mmwr.mm7234a5)

Free article

Abstract

During April 30-August 4, 2023, smoke originating from wildfires in Canada affected most of the contiguous United States. CDC used National Syndromic Surveillance Program data to assess numbers and percentages of asthma-associated emergency department (ED) visits on days with wildfire smoke, compared with days without wildfire smoke. Wildfire smoke days were defined as days when concentrations of particulate matter (particles generally $\leq 2.5 \mu\text{m}$ in aerodynamic diameter) ($\text{PM}_{2.5}$) triggered an Air Quality Index ≥ 101 , corresponding to the air quality categorization, "Unhealthy for Sensitive Groups." Changes in asthma-associated ED visits were assessed across U.S. Department of Health and Human Services regions and by age. Overall, asthma-associated ED visits were 17% higher than expected during the 19 days with wildfire smoke that occurred during the study period; larger increases were observed in regions that experienced higher numbers of continuous wildfire smoke days and among persons aged 5-17 and 18-64 years. These results can help

guide emergency response planning and public health communication strategies, especially in U.S. regions where wildfire smoke exposure was previously uncommon.

Conflict of interest statement

All authors have completed and submitted the International Committee of Medical Journal Editors form for disclosure of potential conflicts of interest. Jason D. Sacks reports support from the European Respiratory Society to travel to and participate in the meeting, Clean Air in Europe for All Air Pollution and Health: Taking Stock of the Proposed Revisions to the Ambient Air Quality Directive, in Brussels, Belgium in May 2023, and serving as vice chair of the Career Mentoring Committee, American College of Epidemiology. No other potential conflicts of interest were disclosed.

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[Review](#)

Int J Pharm

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. 2023 Aug 25;643:123070.

doi: 10.1016/j.ijpharm.2023.123070. Epub 2023 May 23.

[Drug combinations for inhalation: Current products and future development addressing disease control and patient compliance](#)

[Heba Banat](#)¹, [Rita Ambrus](#)¹, [Ildikó Csóka](#)²

Affiliations expand

- PMID: 37230369

- DOI: [10.1016/j.ijpharm.2023.123070](https://doi.org/10.1016/j.ijpharm.2023.123070)

Abstract

Pulmonary delivery is an alternative route of administration with numerous advantages over conventional routes of administration. It provides low enzymatic exposure, fewer systemic side effects, no first-pass metabolism, and concentrated drug amounts at the site of the disease, making it an ideal route for the treatment of pulmonary diseases. Owing to the thin alveolar-capillary barrier, and large surface area that facilitates rapid absorption to the bloodstream in the lung, systemic delivery can be achieved as well. Administration of multiple drugs at one time became urgent to control chronic pulmonary diseases such as asthma and COPD, thus, development of drug combinations was proposed. Administration of medications with variable dosages from different inhalers leads to overburdening the patient and may cause low therapeutic intervention. Therefore, products that contain combined drugs to be delivered via a single inhaler have been developed to improve patient compliance, reduce different dose regimens, achieve higher disease control, and boost therapeutic effectiveness in some cases. This comprehensive review aimed to highlight the growth of drug combinations by inhalation over time, obstacles and challenges, and the possible progress to broaden the current options or to cover new indications in the future. Moreover, various pharmaceutical technologies in terms of formulation and device in correlation with inhaled combinations were discussed in this review. Hence, inhaled combination therapy is driven by the need to maintain and improve the quality of life for patients with chronic respiratory diseases; promoting drug combinations by inhalation to a higher level is a necessity.

Keywords: Combination product; Formulation technique; Inhalation; Particle engineering; Patient compliance; Pulmonary delivery; QbD; Respiratory diseases; Synergism.

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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 terms, Substances expand

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Eur Respir J

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. 2023 Aug 24;2202474.

doi: 10.1183/13993003.02474-2022. Online ahead of print.

Severe asthma trajectories in adults: findings from the NORDSTAR cohort

[Anna von Bülow](#)^{1,2}, [Susanne Hansen](#)^{1,3,2}, [Patrik Sandin](#)⁴, [Olivia Ernstsson](#)^{4,5}, [Christer Janson](#)⁶, [Lauri Lehtimäki](#)^{1,7,8}, [Hannu Kankaanranta](#)^{8,9,10}, [Charlotte Ulrik](#)¹¹, [Bernt Bøgvald Aarli](#)^{12,13}, [Kirk Geale](#)^{4,14}, [Sheila Tuyet Tang](#)¹⁵, [Maija Wolf](#)¹⁶, [Vibeke Backer](#)¹⁷, [Ole Hilberg](#)¹⁸, [Alan Altraja](#)¹⁹, [Helena Backman](#)²⁰, [Dóra Lúdvíksdóttir](#)²¹, [Unnur Steina Björnsdóttir](#)²², [Paula Kauppi](#)²³, [Thomas Sandström](#)¹⁴, [Asger Sverrild](#)¹, [Valentyna Yasinska](#)^{24,25}, [Maritta Kilpeläinen](#)^{26,27}, [Barbro Dahlén](#)^{24,25}, [Arja Viinanen](#)^{26,27}, [Leif Bjermer](#)²⁸, [Apostolos Bossios](#)^{24,25,29}, [Celeste Porsbjerg](#)³⁰

Affiliations expand

- PMID: 37620041
- DOI: [10.1183/13993003.02474-2022](https://doi.org/10.1183/13993003.02474-2022)

Abstract

Background: There is limited evidence on the pathways leading to severe asthma and we are presently unable to effectively predict the progression of the disease. **Aim:** We aimed to describe the longitudinal trajectories leading to severe asthma and to describe clinical events preceding disease progression in a nationwide population of patients with severe asthma.

Methods: We conducted an observational study based on Swedish data from the NORdic Dataset for aSThma Research (NORDSTAR) research collaboration platform. We identified adult patients with severe asthma in 2018 according to the ERS/ATS definition and used latent class analysis (LCA) to identify trajectories of asthma severity over a ten-year retrospective period from 2018.

Conclusions: Four distinct trajectories of severe asthma were identified illustrating different patterns of progression of asthma severity. This may eventually enable the development of better preventive management strategies in severe asthma.

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Int Arch Allergy Immunol



. 2023 Aug 24;1-10.

doi: [10.1159/000531980](https://doi.org/10.1159/000531980). Online ahead of print.

[Higher Prevalence and Severity of Eosinophilic Otitis Media in Patients with Asthma-COPD Overlap Compared with Asthma Alone](#)

[Emiri Sato](#)¹, [Yukako Seo](#)², [Etsuko Tagaya](#)³, [Osamitsu Yagi](#)³, [Yukie Yamamura](#)², [Manabu Nonaka](#)²

Affiliations [expand](#)

- PMID: 37619543
- DOI: [10.1159/000531980](https://doi.org/10.1159/000531980)

Abstract

Introduction: Eosinophilic otitis media (EOM) is well-known to frequently co-exist with adult-onset asthma. Both diseases are similar type 2 inflammation and are considered to

have a "one airway, one disease" relationship. Asthma-chronic obstructive pulmonary disease (COPD) overlap (ACO), characterized by airway obstruction caused by airway wall thickening (AWT), is a severe condition with a higher incidence of mortality compared to asthma alone or COPD alone. Based on the "one airway, one disease" concept, we hypothesized that the inflammatory pathophysiology of EOM differs depending on its comorbidity with ACO or with asthma alone.

Methods: A total of 77 chronic rhinosinusitis (CRS) patients with asthma were enrolled in this study. The subjects were divided into 2 groups: a group with comorbid asthma alone (asthma group; 46 patients), and a group with comorbid ACO (ACO group; 31 patients). The 2 groups were compared and assessed with regard to various factors, including the patients' clinical characteristics, prevalence rate of EOM, EOM severity, EOMs relationships with smoking and AWT, and the eosinophil and neutrophil cell counts in the middle ear effusion (MEE).

Results: The ACO group included significantly more males ($p < 0.05$), was significantly older ($p < 0.05$), and showed significantly lower lung function values (FEV1 [L], FEV1 [%pred]) ($p < 0.01$) compared with the asthma group. The ACO group also had a significant history of smoking as shown by the Brinkman index ($p < 0.01$) and greater AWT as assessed by high-resolution computed tomography ($p < 0.05$). The EOM prevalence rate was significantly higher in the ACO group ($p < 0.05$), especially with increased ACO severity ($p < 0.05$). The EOM severity was also significantly higher in the ACO group ($p < 0.05$) and also correlated with the ACO severity ($p < 0.05$). The pretreatment ear clinical characteristics score and the average air conduction hearing level were significantly higher in the ACO group ($p < 0.05$). The eosinophil percentage in the MEE/otorrhea was significantly lower in the ACO group (25.3%) than in the asthma group (54.7%) ($p < 0.05$). Conversely, the neutrophil percentage was significantly higher in the ACO group (75.7% vs. 41.9%) ($p < 0.05$).

Conclusions: Our findings suggest that, in CRS patients with asthma, comorbidity with ACO may be a clinical factor leading to increased EOM prevalence and severity, as well as a higher neutrophil infiltration percentage in the middle ear. Cessation of smoking and early therapeutic intervention for ACO may mitigate progression of bronchial remodeling (i.e., reduce AWT) and help reduce the prevalence and severity of EOM.

Keywords: Airway wall thickening; Asthma; Asthma-chronic obstructive pulmonary disease overlap; Chronic obstructive pulmonary disease; Eosinophilic otitis media; One airway; One disease; Phenotype.

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J Asthma

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. 2023 Aug 24;1-4.

doi: 10.1080/02770903.2023.2241910. Online ahead of print.

"Patient remodeling" as a consequence of uncontrolled and prolonged OCS use in severe asthma: how biologic therapy can reverse a dangerous trend

[Margherita Perlato](#)¹, [Valentina Mecheri](#)¹, [Emanuele Vivarelli](#)², [Matteo Accinno](#)¹, [Alessandra Vultaggio](#)^{1,2}, [Andrea Matucci](#)²

Affiliations expand

- PMID: 37615543
- DOI: [10.1080/02770903.2023.2241910](https://doi.org/10.1080/02770903.2023.2241910)

Abstract

Introduction: Asthma is a chronic inflammatory disease that can lead to airways remodeling. Despite their well-known side-effects, oral corticosteroids (OCS) continue to be used to reduce exacerbations and control asthma symptoms in many patients.

Case study: We describe two cases of uncontrolled severe asthma characterized by systemic clinical consequences of prolonged OCS use, such as diabetes, weight gain, and osteoporosis.

Results: Both patients were treated with Dupilumab. During follow-up both patients showed an improvement in asthma control and were able to gradually taper the OCS dose, thus reducing the clinical burden associated with hypercortisolism.

Conclusion: Dupilumab was able to control both the inflammatory-induced "airway remodeling" as well as the OCS-induced "patient remodeling".

Keywords: Bronchial asthma; dupilumab; oral corticosteroids; remodeling.

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Allergy

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. 2023 Aug 24.

doi: 10.1111/all.15860. Online ahead of print.

[Circulating mast cell progenitors increase during natural birch pollen exposure in allergic asthma patients](#)

[P Abigail Alvarado-Vazquez](#)¹, [Erika Mendez-Enriquez](#)¹, [Maya Salomonsson](#)¹, [Ida Waern](#)², [Christer Janson](#)³, [Sara Wernersson](#)², [Andrei Malinovski](#)³, [Jenny Hallgren](#)¹

Affiliations expand

- PMID: 37615432

- DOI: [10.1111/all.15860](https://doi.org/10.1111/all.15860)

Abstract

Background: Mast cells (MCs) develop from a rare population of peripheral blood circulating MC progenitors (MCps). Here, we investigated whether the frequency of circulating MCps is altered in asthma patients sensitized to birch pollen during pollen season, compared to out of season.

Methods: Asthma patients were examined during birch pollen season in late April to early June (May), and out of season in November-January. Spirometry measurements, asthma and allergy-related symptoms, asthma control questionnaire (ACQ), and asthma control test (ACT) scores were assessed at both time points. The MCp frequency was determined by flow cytometry in ficoll-separated blood samples from patients with positive birch pollen-specific IgE, and analyzed in relation to basic and disease parameters.

Results: The frequency of MCps per liter of blood was higher in May than in November ($p = .004$), particularly in women ($p = .009$). Patients that reported moderate to severe asthma symptoms ($<.0001$), nose or eye symptoms ($p = .02$; $p = .01$), or reduced asthma control (higher ACQ, $p = .01$) had higher MCp frequency in May than those that did not report this. These associations remained significant after adjusting for sex and BMI. The change in asthma control to a lower ACT score in May correlated with an increase in MCp frequency in May ($p = .006$, $\rho = 0.46$).

Conclusions: The data suggest that the frequency of MCps increases in symptomatic patients with allergic asthma. Our results unravel a link between asthma symptoms and circulating MCps, and bring new insight into the impact of natural allergen exposure on the expansion of MCs.

Keywords: Betula; FcεRI; asthma control; asthma symptoms; mast cell.

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[Review](#)

Laryngoscope

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. 2023 Aug 24.

doi: 10.1002/lary.30992. Online ahead of print.

Non-Type 2 and Mixed Inflammation in Chronic Rhinosinusitis and Lower Airway Disease

[Austin Heffernan](#)¹, [Amir Shafiee](#)¹, [Teffran Chan](#)¹, [Sydney Sparanese](#)¹, [Andrew Thamboo](#)¹

Affiliations expand

- PMID: 37615304

- DOI: [10.1002/lary.30992](https://doi.org/10.1002/lary.30992)

Abstract

Objective: The aim was to discuss the role of non-type 2 inflammation in patients diagnosed with chronic rhinosinusitis (CRS) and comorbid lower airway disease.

Data sources: Medline, Embase, National Institute for Health and Care Excellence, TRIP Database, ProQuest, Clinicaltrials.gov, Cochrane Central Registry of Controlled Trials, Web of Science, government and health organizations, and graduate-level theses.

Review methods: This scoping review followed PRISMA-ScR guidelines. Search strategy was peer-reviewed by medical librarians. Studies were included if they utilized airway sampling, non-type 2 cytokines, and patients with CRS and lower airway disease.

Results: Twenty-seven from 7060 articles were included. In patients with CRS and comorbid asthma, aspirin-exacerbated respiratory disease (AERD), and chronic obstructive pulmonary disease (COPD)/bronchiectasis, 60% (n = 12), 33% (n = 2), and 100% (n = 1), respectively, demonstrated mixed or non-type 2 endotypes. Comorbid CRS and asthma produced type 1 (n = 1.5), type 2 (n = 8), type 3 (n = 1), mixed type 1/2 (n = 1), and mixed type 1/2/3 (n = 8.5) endotype shifts. AERD demonstrated type 2 (n = 4), mixed type 2/3 (n = 1), and mixed type 1/2/3 (n = 1) endotype shifts. CRS with COPD or bronchiectasis demonstrated a mixed 1/2 (n = 1) endotype shift.

Conclusion: Type 2 disease has been extensively reviewed due to advent biologics targeting type 2 inflammation, but outcomes may be suboptimal due to the presence of non-type 2 inflammation. A proportion of patients with CRS and comorbid lower airway disease demonstrated mixed and non-type 2 endotype shifts. This emphasizes that

patients with unified airway disease may have forms of inflammation beyond classical type 2 disease which could inform biologic development. *Laryngoscope*, 2023.

Keywords: chronic rhinosinusitis; endotypes; mixed inflammation; non-type 2 inflammation; unified airway disease.

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J Asthma

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. 2023 Aug 24;1-8.

doi: 10.1080/02770903.2023.2248485. Online ahead of print.

[In symptomatic patients on as-needed inhaled corticosteroids-formoterol, VAS asthma is associated with small airways resistance](#)

[Ilgim Vardaloglu](#)¹, [Bernardo Sousa-Pinto](#)^{2,3}, [Jean Bousquet](#)^{4,5,6}, [Peter Dodek](#)⁷, [Anna Bedbrook](#)^{6,8}, [Mert Karatas](#)⁹, [Bilun Gemicioglu](#)¹

Affiliations [expand](#)

- PMID: 37594413

- DOI: [10.1080/02770903.2023.2248485](https://doi.org/10.1080/02770903.2023.2248485)

Abstract

Objectives: Impulse oscillometry (IOS) can demonstrate small airways disease even when spirometry values are normal. However, it is unknown if the absence of symptoms excludes increased small airways resistance in asthma patients. We aimed to correlate symptoms (assessed through visual analogue scales) with measures of small airways resistance in patients with asthma and to determine whether less symptomatic patients have increased small airways resistance.

Methods: We conducted a single center, prospective cohort study. We included controlled asthma patients on as-needed inhaled corticosteroids-formoterol. Patients were evaluated on their symptom VASs, Spirometry and IOS (with R5-R20% measuring small airways resistance) which were measured both in periods when they were less symptomatic and symptomatic. Symptoms were assessed using MASK-air®, an mHealth app that includes a daily monitoring questionnaire with validated VASs. We correlated MASK-air VASs with small airways resistance.

Results: We assessed 29 patients. There was a significant correlation between VAS asthma and R5-R20% in symptomatic periods ($r = 0.43$; 95% CI = 0.13;0.68, $p = 0.019$), but not in less symptomatic periods (0.04; 95% CI-0.40;0.46; $p = 0.825$). In less symptomatic periods, patients presenting with low VAS asthma (VAS < 30) displayed a lower median R5-R20% than the remainder (0.26 versus 0.35), as well as a lower R5% (0.13 versus 0.15) ($p < 0.001$). In 68.9% of less symptomatic patients, R5-R20 values remained higher than normal values.

Conclusion: In symptomatic patients on as-needed inhaled corticosteroids-formoterol, VAS asthma was associated with small airways resistance. However, even if these patients are less symptomatic, small airways resistance may be higher than normal. Since SAD significantly affects asthma control, patients should be carefully followed-up, even in less symptomatic periods.

Keywords: Asthma; airway resistance; patient-reported outcome measures; symptom assessment.

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Ann Allergy Asthma Immunol

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. 2023 Aug 23;S1081-1206(23)00587-2.

doi: 10.1016/j.anai.2023.08.011. Online ahead of print.

[Adding oscillometry to spirometry in guidelines better identifies uncontrolled asthma, future exacerbations, potential targeted therapy](#)

[Stanley P Galant](#)¹, [Tricia Morphew](#)²

Affiliations expand

- PMID: 37625502
- DOI: [10.1016/j.anai.2023.08.011](https://doi.org/10.1016/j.anai.2023.08.011)

Abstract

The objective of this review is to provide new advances in our understanding of the clinical importance of establishing peripheral airway impairment (PAI) by impulse oscillometry (IOS), and targeted therapy, which could result in better asthma outcomes. Data sources include Pub Med and Google search, limited to English language and human disease, with key words IOS and asthma. Key findings: Using IOS reference equations, PAI is consistently associated with uncontrolled asthma across ethnicity, using Hispanic and White reference algorithms. PAI is common even in patients considered well controlled by asthma guidelines. In a large longitudinal analysis (ATLANTIS study), a composite of R5-R20, AX and X5 ordinal scores were independently predictive of asthma control and exacerbation in a multivariate analysis, but FEV1 was not significantly predictive of morbidities. However, combining FEV1 < 80% to PAI resulted in greater odds of identifying uncontrolled asthma and exacerbations, than either alone. Applying an external validation method in asthmatic children offers the clinician the IOS reference equations best fit for their own specific

population. Several clinical phenotypes can also identify PAI with high probability, useful when IOS not available. Poor asthma outcomes for the obese asthmatic are associated with dysanapsis and PAI, not obesity alone. Extra fine inhaled corticosteroids (EF-ICS) achieve better asthma control, with fewer exacerbations at lower dosages than non-EF- ICS aerosols, as well as improve peripheral airway function. In conclusion, these data support the benefit of adding IOS to spirometry in future asthma guidelines, and suggest the potential benefit from targeted therapy.

Keywords: asthma control; dysanapsis; exacerbations; external validation; extrafine inhaled corticosteroids; impulse oscillometry; median mass aerodynamic diameter; peripheral airway; peripheral airway impairment; phenotype; reference equations; resistance and reactance.

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Conflict of interest statement

Conflict of Interest None.

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Observational Study

BMC Health Serv Res

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. 2023 Aug 23;23(1):901.

doi: 10.1186/s12913-023-09861-2.

[Factors associated with hospital admission and 30-day readmission for](#)

children less than 18 years of age in 2018 in France: a one-year nationwide observational study

[Jeanne Pergeline](#)¹, [Sylvie Rey](#)², [Jeanne Fresson](#)², [Gonzague Debeugny](#)¹, [Antoine Rachas](#)¹, [Philippe Tuppin](#)³

Affiliations [expand](#)

- PMID: 37612699
- DOI: [10.1186/s12913-023-09861-2](https://doi.org/10.1186/s12913-023-09861-2)

Free article

Abstract

Background: Nationwide data for children for short-stay hospitalisation (SSH) and associated factors are scarce. This retrospective study of children in France < 18 years of age followed after their birth or birthday in 2018 focused on at least one annual SSH, stay < 1 night or ≥ 1 night, or 30-day readmission ≥ 1 night.

Methods: Children were selected from the national health data system (SNDS), which includes data on long-term chronic disease (LTD) status with full reimbursement and complementary universal coverage based on low household income (CMUC). Uni and multivariate quasi-Poisson regression were applied for each outcome.

Results: Among 13.211 million children (94.4% population, 51.2% boys), CMUC was identified for 17.5% and at least one LTD for 4% (0-<1 year: 1.5%; 14-<18 year: 5.2%). The most frequent LTDs were pervasive developmental diseases (0.53%), asthma (0.24%), epilepsy (0.17%), and type 1 diabetes (0.15%). At least one SSH was found for 8.8%: SSH < 1 night (4.9%), SSH ≥ 1 night (4.5%), readmission (0.4%). Children with at least one SSH were younger (median 6 vs. 9 years) and more often had CMUC (21%), a LTD (12%), an emergency department (ED) visit (56%), or various primary healthcare visits than all children. Those with a SSH ≥ 1 night vs. < 1 night were older (median: 9 vs. 4 years). They had the same frequency of LTD (13.4%) but more often an ED visit (78% vs. 42%). Children with readmissions were younger (median 3 years). They had the highest levels of CMUC (29.3%), LTD (34%), EDs in their municipality (35% vs. 29% for the whole population) and ED visits (87%). In adjusted analysis, each outcome was significantly less frequent among girls than boys and more frequent for children with CMUC. LTDs with the largest association with SSH < 1 night were cystic fibrosis, sickle cell diseases (SCD), diabetes type

1, those with SSH ≥ 1 night type 1 diabetes epilepsy and SCD, and those for readmissions lymphoid leukaemia, malignant neoplasm of the brain, and SCD. Among all SSH admissions of children < 10 years, 25.8% were potentially preventable.

Conclusion: Higher SSH and readmission rates were found for children with certain LTD living in low-income households, suggesting the need or increase of specific policy actions and research.

Keywords: Children; Conditions; Healthcare services use; Short stay hospital; Sociodeprivation.

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- [45 references](#)

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

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Nat Commun

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. 2023 Aug 23;14(1):5137.

doi: 10.1038/s41467-023-40820-x.

[Type-2 CD8⁺ T-cell formation relies on interleukin-33 and is linked to asthma exacerbations](#)

[Esmee K van der Ploeg](#)^{1,2}, [Lisette Krabbendam](#)^{#1}, [Heleen Vroman](#)^{#1}, [Menno van Nimwegen](#)¹, [Marjolein J W de Bruijn](#)¹, [Geertje M de Boer](#)^{1,3}, [Ingrid M Bergen](#)¹, [Mirjam Kool](#)¹, [Gerdien A Tramper-Standers](#)^{4,5}, [Gert-Jan Braunstahl](#)^{1,3}, [Danny Huylebroeck](#)², [Rudi W Hendriks](#)¹, [Ralph Stadhouders](#)^{6,7}

Affiliations expand

- PMID: 37612281
- PMCID: [PMC10447424](#)
- DOI: [10.1038/s41467-023-40820-x](#)

Free PMC article

Abstract

CD4⁺ T helper 2 (Th2) cells and group 2 innate lymphoid cells are considered the main producers of type-2 cytokines that fuel chronic airway inflammation in allergic asthma. However, CD8⁺ cytotoxic T (Tc) cells - critical for anti-viral defense - can also produce type-2 cytokines (referred to as 'Tc2' cells). The role of Tc cells in asthma and virus-induced disease exacerbations remains poorly understood, including which micro-environmental signals and cell types promote Tc2 cell formation. Here we show increased circulating Tc2 cell abundance in severe asthma patients, reaching peak levels during exacerbations and likely emerging from canonical IFN γ ⁺ Tc cells through plasticity. Tc2 cell abundance is associated with increased disease burden, higher exacerbations rates and steroid insensitivity. Mouse models of asthma recapitulate the human disease by showing extensive type-2 skewing of lung Tc cells, which is controlled by conventional type-1 dendritic cells and IFN γ . Importantly, we demonstrate that the alarmin interleukin-33 (IL-33) critically promotes type-2 cytokine production by lung Tc cells in experimental allergic airway inflammation. Our data identify Tc cells as major producers of type-2 cytokines in severe asthma and during exacerbations that are remarkably sensitive to alterations in their inflammatory tissue micro-environment, with IL-33 emerging as an important regulator of Tc2 formation.

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Conflict of interest statement

G.J.B. and G.A.T. declare the following competing interests: G.J.B. has received grant/research support for consultations and/or speaking at conferences from Novartis, GSK, AstraZeneca, ALK, Teva, Sanofi, and Chiesi. G.A.T. has received research support and consultation fees from OM Pharma, AstraZeneca, and Chiesi, all paid to a research foundation. The remaining authors declare no competing interests.

- [66 references](#)

- [10 figures](#)

SUPPLEMENTARY INFO

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

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nature portfolio [UNIMORE](#) 

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J Asthma

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. 2023 Aug 23;1-12.

doi: [10.1080/02770903.2023.2248507](https://doi.org/10.1080/02770903.2023.2248507). Online ahead of print.

[Feasibility of text message follow-up for pediatric asthma care after an emergency department visit](#)

[Kaitlin Hall](#)¹, [Frances Barry](#)², [Lindsey R Thompson](#)³, [Bahareh Ravandi](#)⁴, [Jeanine E Hall](#)⁴, [Todd P Chang](#)⁴, [Jill S Halterman](#)⁵, [Peter G Szilagyi](#)¹, [Sande O Okelo](#)¹

Affiliations [expand](#)

- PMID: [37610221](#)

- DOI: [10.1080/02770903.2023.2248507](https://doi.org/10.1080/02770903.2023.2248507)

Abstract

Background: Many children seen in the Emergency Department (ED) for asthma do not follow-up with their primary care provider. Text messaging via short message service (SMS) is a ubiquitous, but untested means of providing post-ED asthma follow-up care. **Objective:** To evaluate responses to an asthma assessment survey via SMS following an ED visit and estimate the likelihood of response by sociodemographic and clinical

characteristics. **Methods:** We recruited 173 parents of children 2-17 years-old presenting for ED asthma care to receive a follow-up text (participation rate: 85%). One month later, parents received via SMS a 22-item survey that assessed asthma morbidity. We assessed response rates overall and by various sociodemographic and clinical characteristics, including age, parental education, and indicators of asthma severity. **Results:** Overall, 55% of parents (n = 95) responded to the SMS survey. In multivariable logistic regression (MLR), parents who graduated high school had a 4-fold higher response rate compared to parents with less than a high school degree (OR: 4.05 (1.62,10.13)). More parents of children with oral steroid use in the prior 12 months responded to survey items (OR: 2.53 (1.2,5.31)). Reported asthma characteristics included: 48% uncontrolled, 22% unimproved/worse, 21% with sleep disruption, and 10% who were hospitalized for asthma. **Conclusions:** Text messaging may be a viable strategy to improve post-ED asthma assessment and to identify children with persistent symptoms in need of enhanced care or modification of care plans.

Keywords: SMS; emergency department; follow-up; pediatric asthma; text messaging.

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Respirology

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. 2023 Aug 23.

doi: 10.1111/resp.14583. Online ahead of print.

[Can we predict asthma exacerbations?](#)

[Fanny Wai San Ko](#)¹

Affiliations expand

- PMID: 37610215
- DOI: [10.1111/resp.14583](https://doi.org/10.1111/resp.14583)

No abstract available

Keywords: asthma; exacerbations; prediction.

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J Asthma

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. 2023 Aug 23;1-15.

doi: 10.1080/02770903.2023.2248512. Online ahead of print.

[Health-related quality of life, anxiety, depression, beliefs of medication and self-efficacy in individuals with severe asthma - a population-based study](#)

[L Rönnebjerg](#)¹, [M Axelsson](#)², [H Kankaanranta](#)^{1,3,4}, [L Ekerljung](#)¹

Affiliations expand

- PMID: 37610189
- DOI: [10.1080/02770903.2023.2248512](https://doi.org/10.1080/02770903.2023.2248512)

Abstract

Objective: Individuals with severe asthma often report poor Health-related quality of life (HRQoL) and more research is essential to increase understanding of how they may be helped to improve HRQoL. The main aim of the current paper was to evaluate HRQoL, and possible factors influencing HRQoL, in individuals with severe asthma. The aim was also to explore associations between anxiety, depression, beliefs of medication, self-efficacy and HRQoL among individuals with severe and other asthma as well as those with no asthma.

Methods: Participants with severe asthma (n = 59), other asthma (n = 526) and no asthma (n = 902) were recruited from West Sweden Asthma Study, a population-based study, which includes both questionnaire surveys and clinical examinations.

Results: Individuals with severe asthma had worse physical HRQoL (measured with SF-8) than those with other and no asthma (median 48.4, 51.9 and 54.3 respectively). They also had worse mental HRQoL (median 46.7) and reported higher anxiety and depression scores (measured using HADS, median 5.0 and 3.5, respectively) compared to no asthma (median 4.0 and 2.0 respectively). HRQoL was particularly affected among women with severe asthma. Individuals with severe asthma believed that their asthma medication was more necessary than those with other asthma, but they reported more concern for the medication. Asthma control and packyears predicted physical HRQoL and anxiety predicted mental HRQoL among individuals with severe asthma.

Conclusions: Efforts to improve asthma control and to reduce anxiety may improve HRQoL in individuals with severe asthma. Especially, women with severe asthma seem to need support to improve their HRQoL. Reducing concerns with asthma medication is most likely essential as high concerns may lead to poor adherence, which in turn may negatively affect asthma control and HRQoL.

Keywords: Difficult asthma; epidemiology; health psychology; physical functioning; treatable traits. clinical variables; well-being.

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Ann Allergy Asthma Immunol

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. 2023 Aug 22;S1081-1206(23)00593-8.

doi: 10.1016/j.anai.2023.08.015. Online ahead of print.

[Tezepelumab reduces exacerbations across all seasons in patients with](#)

severe, uncontrolled asthma (NAVIGATOR)

[Ian D Pavord](#)¹, [Flavia C L Hoyte](#)², [Andrew W Lindsley](#)³, [Christopher S Ambrose](#)⁴, [Joseph D Spahn](#)⁵, [Stephanie L Roseti](#)⁶, [Bill Cook](#)⁴, [Janet M Griffiths](#)⁷, [Åsa Hellqvist](#)⁸, [Nicole Martin](#)⁹, [Jean-Pierre Llanos](#)¹⁰, [Neil Martin](#)¹¹, [Gene Colice](#)⁶, [Jonathan Corren](#)¹²

Affiliations expand

- PMID: 37619779
- DOI: [10.1016/j.anai.2023.08.015](https://doi.org/10.1016/j.anai.2023.08.015)

Abstract

Background: Asthma exacerbation frequencies vary throughout the year owing to seasonal triggers. Tezepelumab is a human monoclonal antibody that targets thymic stromal lymphopoietin. In the phase 3 NAVIGATOR study ([NCT03347279](#)), tezepelumab significantly reduced the annualized asthma exacerbation rate (AAER) versus placebo in patients with severe, uncontrolled asthma.

Objective: This post hoc analysis evaluated the effect of tezepelumab on asthma exacerbations across all seasons in NAVIGATOR patients.

Methods: NAVIGATOR was a multicenter, randomized, double-blind, placebo-controlled study. Patients (1280 years) were randomized 1:1 to tezepelumab 210 mg or placebo subcutaneously every 4 weeks for 52 weeks. AAER over 52 weeks was assessed by season. Data from patients in the Southern Hemisphere were transformed to align with Northern Hemisphere seasons.

Results: Tezepelumab reduced the AAER versus placebo by 63% (95% confidence interval [CI]: 52, 72) in winter, 46% (95% CI: 26, 61) in spring, 62% (95% CI: 48, 73) in summer and 54% (95% CI: 41, 64) in fall. In matched climates, during spring (March 1 to June 15) and ragweed (September) allergy seasons, tezepelumab reduced the AAER versus placebo in patients with seasonal allergy by 59% (95% CI: 29, 77) and 70% (95% CI: 33, 87), respectively. In patients with perennial allergy and in those with seasonal allergy, tezepelumab reduced the AAER versus placebo across all seasons.

Conclusion: Tezepelumab reduced exacerbations across all seasons versus placebo in patients with severe, uncontrolled asthma, including patients with seasonal and perennial allergies. These data further support the efficacy of tezepelumab in a broad population of patients with severe, uncontrolled asthma.

Keywords: allergens; asthma; perennial; seasonal; tezepelumab; thymic stromal lymphopoietin.

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J Med Internet Res

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. 2023 Aug 22;25:e45955.

doi: 10.2196/45955.

[Exploring the Perspectives and Experiences of Older Adults With Asthma and Chronic Obstructive Pulmonary Disease Toward Mobile Health: Qualitative Study](#)

[Andrew Kouri](#)¹, [Samir Gupta](#)², [Sharon E Straus](#)^{2,3}, [Joanna E M Sale](#)^{2,3,4}

Affiliations expand

- PMID: 37606961
- DOI: [10.2196/45955](https://doi.org/10.2196/45955)

Free article

Abstract

Background: The use of mobile health (mHealth) in asthma and chronic obstructive pulmonary disease (COPD) is growing, and as the population ages, a greater number of older adults stand to benefit from mHealth-enhanced airway disease care. Though older adults are a heterogeneous population of health technology users, older age represents a potential barrier to health technology adoption, and there is currently a lack of knowledge on how older age influences mHealth use in asthma and COPD.

Objective: In this qualitative study, we sought to explore the experiences and perspectives of adults who were aged 65 years and older with asthma and COPD toward mHealth use.

Methods: Semistructured individual interviews were conducted with adults who were aged 65 years and older with asthma or COPD and owned a smartphone. Applying phenomenological methodology, we analyzed interview transcripts in order to develop themes and propose an essential experience of mHealth use among older adults with airway disease. We then summarized our qualitative findings and proposed strategies to leverage our results in order to guide future research and implementation efforts targeting older adults' use of airway mHealth.

Results: Twenty participants (mean age 79.8, SD 4.4 years) were interviewed. Participants described a central tension between (1) the perception that mHealth could help maintain independence throughout aging and (2) an apprehension toward the ways in which mHealth could negatively affect established health care experiences. Several elements of these 2 themes are absent from previous research focusing on younger adults with asthma and COPD. The individual elements of these 2 themes informed potential strategies to optimize future older adults' use of asthma and COPD mHealth tools.

Conclusions: Focusing on the perspectives and experiences of older adults with asthma and COPD in their use of mHealth identified novel understandings of health technology use in this important demographic in need of greater care. These lessons were translated into potential strategies that will need to be objectively evaluated in future airway mHealth research, development, and implementation efforts.

Keywords: airway; airway disease; asthma; barrier; chronic obstructive pulmonary disease; digital health; health technology; implementation; interview; mHealth; mobile phone; older adults; qualitative research; qualitative study; smartphone.

©Andrew Kouri, Samir Gupta, Sharon E Straus, Joanna E M Sale. Originally published in the Journal of Medical Internet Research (<https://www.jmir.org>), 22.08.2023.

SUPPLEMENTARY INFO

MeSH termsexpand

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Review

Neurosci Bull

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. 2023 Aug 22.

doi: 10.1007/s12264-023-01104-y. Online ahead of print.

Neural Mechanisms Underlying the Coughing Reflex

[Haicheng Lu](#)^{1,2}, [Peng Cao](#)^{3,4}

Affiliations expand

- PMID: 37606821
- DOI: [10.1007/s12264-023-01104-y](https://doi.org/10.1007/s12264-023-01104-y)

Abstract

Breathing is an intrinsic natural behavior and physiological process that maintains life. The rhythmic exchange of gases regulates the delicate balance of chemical constituents within an organism throughout its lifespan. However, chronic airway diseases, including asthma and chronic obstructive pulmonary disease, affect millions of people worldwide. Pathological airway conditions can disrupt respiration, causing asphyxia, cardiac arrest, and potential death. The innervation of the respiratory tract and the action of the immune system confer robust airway surveillance and protection against environmental irritants and pathogens. However, aberrant activation of the immune system or sensitization of the nervous system can contribute to the development of autoimmune airway disorders. Transient receptor potential ion channels and voltage-gated Na⁺ channels play critical roles in sensing noxious stimuli within the respiratory tract and interacting with the immune system to generate neurogenic inflammation and airway hypersensitivity. Although recent studies have revealed the involvement of nociceptor neurons in airway diseases, the further

neural circuitry underlying airway protection remains elusive. Unraveling the mechanism underpinning neural circuit regulation in the airway may provide precise therapeutic strategies and valuable insights into the management of airway diseases.

Keywords: Airway disease; Cough; Na⁺ channel; Neural circuit; Transient receptor potential; Treatment.

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- [136 references](#)

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Pediatr Pulmonol

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. 2023 Aug 22.

doi: 10.1002/ppul.26606. Online ahead of print.

[Outcomes of a respiratory therapist driven high flow nasal cannula management protocol for pediatric critical asthma patients](#)

[Danielle K Maue¹](#), [Daniel T Cater¹](#), [Colin M Rogerson¹](#), [Aimee Ealy²](#), [Alvaro J Tori¹](#), [Samer Abu-Sultaneh¹](#)

Affiliations [expand](#)

- PMID: 37606224

- DOI: [10.1002/ppul.26606](https://doi.org/10.1002/ppul.26606)

Abstract

Introduction: This study aimed to determine if a respiratory therapist (RT)-driven high flow nasal cannula (HFNC) protocol could decrease duration of HFNC use, pediatric intensive care unit (PICU) and hospital length of stay (LOS), and duration of continuous albuterol use in pediatric patients with critical asthma.

Methods: This was a quality improvement project performed at a quaternary academic PICU. Patients admitted to the PICU between 2 and 18 years of age with a diagnosis of asthma requiring continuous albuterol and HFNC were included. Implementation of an RT-driven HFNC protocol [Plan-Do-Study-Act (PDSA) 1] occurred in October 2017. Additional interventions included weaning continuous albuterol and HFNC simultaneously (PDSA 2; March 2019), adjusting HFNC wean rate (PDSA 3; July 2020), and a HFNC holiday (PDSA 4; October 2021). HFNC duration was the primary outcome. Secondary outcomes included LOS data and continuous albuterol duration. Noninvasive ventilation (NIV), invasive mechanical ventilation (IMV), and 7-day PICU and hospital readmission rates were used as balancing measures.

Results: A total of 410 patients were included. Patient demographics and adjunct therapy use did not differ among the groups. After PDSA 2, mean HFNC duration decreased (26.8-18.1 h). Mean PICU LOS decreased (41-31.8 h). Mean hospital LOS also decreased (86.5-68 h). These outcomes remained stable during PDSA 3 and 4. Continuous albuterol duration and NIV use were unchanged, while IMV use decreased.

Conclusions: An RT-driven HFNC protocol led to decreased length of HFNC and PICU and hospital LOS for pediatric patients with critical asthma without an increase in adverse events.

Keywords: asthma; critical asthma; high flow nasal cannula; pediatrics; quality improvement; respiratory failure; respiratory therapy; standardization.

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- [43 references](#)

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Pediatr Pulmonol

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. 2023 Aug 22.

doi: 10.1002/ppul.26643. Online ahead of print.

[The impact of obstructive sleep apnea in children with sickle cell disease and asthma](#)

[Lance Feld](#)¹, [Anita Bhandari](#)^{1,2}, [Julian Allen](#)^{1,2}, [Shikha Saxena](#)³, [Darko Stefanovski](#)⁴, [Olufunke Afolabi-Brown](#)^{1,2}

Affiliations expand

- PMID: 37606223

- DOI: [10.1002/ppul.26643](https://doi.org/10.1002/ppul.26643)

Abstract

Introduction: Asthma and obstructive sleep apnea (OSA) are chronic diseases that disproportionately affect children with sickle cell disease (SCD). The literature describes the negative impact that both conditions have on children with SCD separately; however, the effect of OSA on asthmatic children with OSA is less specific. We hypothesized that the presence of OSA in children with SCD and asthma is associated with specific hematologic markers, worse clinical outcomes, and greater healthcare utilization.

Methods: We retrospectively evaluated children with both SCD and asthma who underwent polysomnography (PSG). We assessed their demographic information, PSG data, hematologic indices, and healthcare utilization based on the concurrent presence of OSA.

Results: Fifty-nine percent of the cohort had OSA with a lower oxygen saturation (SpO₂) nadir (87% vs. 93%, $p < 0.001$) and a lower median daytime SpO₂ (96.5% vs. 98.5%, $p < 0.05$); those with OSA were more likely to have the hemoglobin SS genotype (86% vs. 46.5%, $p = 0.03$). Additionally, those with OSA had a higher mean corpuscular volume (87 vs. 77.2 fL, $p = 0.03$) and reticulocyte count (10.1% vs. 5.5%, $p < 0.01$). There was no difference in asthma severity or healthcare utilization between those with OSA and those without OSA.

Discussion: Overall, children with SCD and asthma might be at increased risk for developing OSA, and screening for sleep-disordered breathing should be incorporated as part of their routine care.

Keywords: asthma; obstructive sleep apnea; sickle cell disease.

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- [31 references](#)

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24

J Asthma

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. 2023 Aug 22;1-13.

doi: 10.1080/02770903.2023.2247490. Online ahead of print.

[Genetic relationships between high blood eosinophil count, asthma susceptibility, and asthma severity](#)

[Huashi Li](#)^{1,2}, [Xingnan Li](#)²

Affiliations expand

- PMID: 37560908
- DOI: [10.1080/02770903.2023.2247490](https://doi.org/10.1080/02770903.2023.2247490)

Abstract

Objective: Genetic relationships between blood eosinophil count (BEC), asthma susceptibility, and severity are unclear. We sought to identify the genetic difference between type 2 (T2) and nontype 2 (non-T2) asthma (defined by BEC) and investigate genetic relationships between high BEC, asthma susceptibility, and severity.

Methods: Genome-wide association studies (GWASs) were performed for T2 ($n = 9,064$; BEC ≥ 300 cells/ μL) versus non-T2 asthma ($n = 14,379$; BEC < 150 cells/ μL) and asthma susceptibility (37,227 asthmatics vs. 124,132 nonasthma controls) in the UK Biobank and asthma severity (moderate-to-severe asthma [$n = 2,153$] vs. mild asthma [$n = 5165$]) in the All of Us Research Program (AoURP). Genetic causality between BEC, asthma susceptibility, and severity were dissected using Mendelian randomization (MR).

Results: High BEC was associated with asthma and decreased pulmonary function. GWASs revealed four sets of genetic variants ($p < 5 \times 10^{-8}$): genes associated with only BEC or asthma and genes associated with high BEC and asthma in the same or opposite direction. The C allele of rs653178 in *ATXN2* was associated with high BEC, risk for autoimmune diseases, and protection for asthma. Genetic variants associated with BEC or asthma were not associated with asthma severity. MR indicated high BEC and asthma were in bidirectional causal relationship ($p < .001$); however, they were not causal for asthma severity.

Conclusions: Genetic variants associated with asthma or BEC and asthma severity are distinctive. High BEC is a risk factor for asthma; however, it is neither necessary nor sufficient for asthma susceptibility and severity.

Keywords: All of Us Research Program; Mendelian randomization; UK Biobank; asthma severity; asthma susceptibility; blood eosinophil count; genome-wide association study.

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Proline is increased in allergic asthma and promotes airway remodeling

[Tingting Xu](#)¹, [Zhenzhen Wu](#)¹, [Qi Yuan](#)¹, [Xijie Zhang](#)¹, [Yanan Liu](#)^{1,2}, [Chaojie Wu](#)¹, [Meijuan Song](#)¹, [Jingjing Wu](#)¹, [Jingxian Jiang](#)¹, [Zhengxia Wang](#)¹, [Zhongqi Chen](#)¹, [Mingshun Zhang](#)³, [Mao Huang](#)¹, [Ningfei Ji](#)¹

Affiliations expand

- PMID: 37432745
- DOI: [10.1172/jci.insight.167395](https://doi.org/10.1172/jci.insight.167395)

Free article

Abstract

Proline and its synthesis enzyme pyrroline-5-carboxylate reductase 1 (PYCR1) are implicated in epithelial-mesenchymal transition (EMT), yet how proline and PYCR1 function in allergic asthmatic airway remodeling via EMT has not yet been addressed to our knowledge. In the present study, increased levels of plasma proline and PYCR1 were observed in patients with asthma. Similarly, proline and PYCR1 in lung tissues were high in a murine allergic asthma model induced by house dust mites (HDMs). Pycr1 knockout decreased proline in lung tissues, with reduced airway remodeling and EMT. Mechanistically, loss of Pycr1 restrained HDM-induced EMT by modulating mitochondrial fission, metabolic reprogramming, and the AKT/mTORC1 and WNT3a/ β -catenin signaling pathways in airway epithelial cells. Therapeutic inhibition of PYCR1 in wild-type mice disrupted HDM-induced airway inflammation and remodeling. Deprivation of exogenous proline relieved HDM-induced airway remodeling to some extent. Collectively, this study illuminates that proline and PYCR1 involved with airway remodeling in allergic asthma could be viable targets for asthma treatment.

Keywords: Amino acid metabolism; Asthma; Metabolism; Pulmonology.

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

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Am J Respir Crit Care Med

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. 2023 Aug 21.

doi: 10.1164/rccm.202305-0849LE. Online ahead of print.

[Pulmonary Vascular Differences in Eosinophilic Asthma after 2.5-Years Anti-IL-5R \$\alpha\$ Treatment](#)

[Marrissa J McIntosh](#)^{1,2}, [Alexander M Matheson](#)^{1,3}, [Harkiran K Kooner](#)^{1,2}, [Rachel L Eddy](#)^{4,5}, [Hana Serajeddini](#)^{1,6}, [Cory Yamashita](#)⁶, [Grace Parraga](#)^{7,8}

Affiliations expand

- PMID: 37603773
- DOI: [10.1164/rccm.202305-0849LE](https://doi.org/10.1164/rccm.202305-0849LE)

No abstract available

Keywords: anti-IL-5R α ; eosinophilic asthma; magnetic resonance imaging; pulmonary vascular tree; severe asthma.

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Am J Respir Crit Care Med

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. 2023 Aug 21.

doi: 10.1164/rccm.202306-1102LE. Online ahead of print.

Effects of Dupilumab on Mucus Plugging and Ventilation Defects in Patients with Moderate-to-Severe Asthma: A Randomized, Double-Blind, Placebo-controlled Trial

[Sarah Svenningsen](#)^{1,2,3}, [Melanie Kjarsgaard](#)^{1,3}, [Ehsan Haider](#)^{2,4}, [Carmen Venegas](#)^{1,5}, [Norman Konyer](#)², [Yonni Friedlander](#)^{6,7}, [Neha Nasir](#)⁸, [Colm Boylan](#)^{2,9}, [Miranda Kirby](#)⁸, [Parameswaran Nair](#)^{1,10}

Affiliations expand

- PMID: 37603097
- DOI: [10.1164/rccm.202306-1102LE](https://doi.org/10.1164/rccm.202306-1102LE)

No abstract available

Keywords: asthma; dupilumab; mucus; ventilation.

FULL TEXT LINKS



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Cochrane Database Syst Rev



. 2023 Aug 21;8(8):CD013797.

doi: 10.1002/14651858.CD013797.pub2.

Addition of long-acting beta2 agonists or long-acting muscarinic antagonists versus doubling the dose of inhaled corticosteroids (ICS) in adolescents and adults with uncontrolled asthma with medium dose ICS: a systematic review and network meta-analysis

[Yuji Oba](#)¹, [Sumayya Anwer](#)², [Tarang Patel](#)¹, [Tinashe Maduke](#)¹, [Sofia Dias](#)²

Affiliations expand

- PMID: 37602534
- PMCID: PMC10441001 (available on 2024-08-21)
- DOI: [10.1002/14651858.CD013797.pub2](https://doi.org/10.1002/14651858.CD013797.pub2)

Abstract

Background: Inhaled corticosteroids (ICS) are the mainstay treatment for persistent asthma. Escalating treatment is required when asthma is not controlled with ICS therapy alone, which would include, but is not limited to, adding a long-acting beta2-agonist (LABA) or a long-acting muscarinic antagonist (LAMA) or doubling the dose of ICS.

Objectives: To assess the efficacy and safety of adding a LABA or LAMA to ICS therapy versus doubling the dose of ICS in adolescents and adults whose asthma is not well

controlled on medium-dose (MD)-ICS using a network meta-analysis (NMA), and to provide a ranking of these treatments according to their efficacy and safety.

Search methods: We searched the Cochrane Airways Trials Register, CENTRAL, MEDLINE, Embase, Global Health, ClinicalTrials.gov, and the World Health Organization ICTRP for pre-registered randomised controlled trials (RCTs) from January 2008 to 19 December 2022.

Selection criteria: We searched for studies including adolescents and adults with uncontrolled asthma who had been treated with or were eligible for MD-ICS, comparing it to high-dose (HD)-ICS, ICS/LAMA, or ICS/LABA. We excluded cluster- and cross-over RCTs. Studies were of at least 12 weeks duration.

Data collection and analysis: We conducted a systematic review and network meta-analysis according to a previously published protocol. We used Cochrane's Screen4ME workflow to assess search results. We used Grading of Recommendations Assessment, Development and Evaluation (GRADE) to assess the certainty of evidence. The primary outcome is asthma exacerbations (moderate and severe).

Main results: We included 38,276 participants from 35 studies (median duration 24 weeks (range 12 to 78); mean age 44.1; 38% male; 69% white; mean forced expiratory volume in one second 2.1 litres and 68% of predicted). MD- and HD-ICS/LABA likely reduce and MD-ICS/LAMA possibly reduces moderate to severe asthma exacerbations compared to MD-ICS (hazard ratio (HR) 0.70, 95% credible interval (CrI) 0.59 to 0.82; moderate certainty; HR 0.59, 95% CrI 0.46 to 0.76; moderate certainty; and HR 0.56, 95% CrI 0.38 to 0.82; low certainty, respectively), whereas HD-ICS probably does not (HR 0.94, 95% CrI 0.70 to 1.24; moderate certainty). There is no clear evidence to suggest that any combination therapy or HD-ICS reduces severe asthma exacerbations compared to MD-ICS (low to moderate certainty). This study suggests no clinically meaningful differences in the symptom or quality of life score between dual combinations and monotherapy (low to high certainty). MD- and HD-ICS/LABA increase or likely increase the odds of Asthma Control Questionnaire (ACQ) responders at 6 and 12 months compared to MD-ICS (odds ratio (OR) 1.47, 95% CrI 1.23 to 1.76; high certainty; and OR 1.59, 95% CrI 1.31 to 1.94; high certainty at 6 months; and OR 1.61, 95% CrI 1.22 to 2.13; moderate certainty and OR 1.55, 95% CrI 1.20 to 2.00; high certainty at 12 months, respectively). MD-ICS/LAMA probably increases the odds of ACQ responders at 6 months (OR 1.32, 95% CrI 1.11 to 1.57; moderate certainty). No data were available at 12 months. There is no clear evidence to suggest that HD-ICS increases the odds of ACQ responders or improves the symptom or quality of life score compared to MD-ICS (very low to high certainty). There is no evidence to suggest that ICS/LABA or ICS/LAMA reduces asthma-related or all-cause serious adverse events (SAEs) compared to MD-ICS (very low to high certainty). HD-ICS results in or likely results in little or no difference in the included safety outcomes compared to MD-ICS as well as HD-ICS/LABA compared to MD-ICS/LABA. The pairwise meta-analysis shows that MD-ICS/LAMA likely reduces all-cause adverse events (AEs) and results in a slight reduction in treatment discontinuation due to AEs compared to MD-ICS (risk ratio (RR) 0.86, 95% confidence interval (CI) 0.77 to 0.96; 4 studies, 2238 participants; moderate certainty; and

RR 0.51, 95% CI 0.26 to 0.99; 4 studies, 2239 participants; absolute risk reduction 10 fewer per 1000 participants; moderate certainty, respectively). The NMA evidence is in agreement with the pairwise evidence on treatment discontinuation due to AEs, but very uncertain on all-cause AEs, due to imprecision and heterogeneity.

Authors' conclusions: The review findings suggest that MD- or HD-ICS/LABA and MD-ICS/LAMA reduce moderate to severe asthma exacerbations and increase the odds of ACQ responders compared to MD-ICS whereas HD-ICS probably does not. The evidence is generally stronger for MD- and HD-ICS/LABA than for MD-ICS/LAMA primarily due to a larger evidence base. There is no evidence to suggest that ICS/LABA, ICS/LAMA, or HD-ICS/LABA reduces severe asthma exacerbations or SAEs compared to MD-ICS. MD-ICS/LAMA likely reduces all-cause AEs and results in a slight reduction in treatment discontinuation due to AEs compared to MD-ICS. The above findings may assist in deciding on a treatment option during the stepwise approach of asthma management. Longer-term safety of higher than medium-dose ICS needs to be addressed in phase 4 or observational studies given that the median duration of included studies was six months.

Trial registration: ClinicalTrials.gov [NCT00565266](https://clinicaltrials.gov/ct2/show/study/NCT00565266).

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Conflict of interest statement

Y. Oba has provided consultation and received honoraria from Genentech unrelated to the current review. This author, who is a Cochrane Editor, was not involved in the editorial process.

T Patel: none known.

S Anwer: none known.

T Maduke: none known.

S Dias: none known.

Update of

- [doi: 10.1002/14651858.CD013797](https://doi.org/10.1002/14651858.CD013797)

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances, Associated dataexpand

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Review

Expert Rev Respir Med

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. 2023 Aug 21;1-12.

doi: 10.1080/17476348.2023.2247973. Online ahead of print.

Evaluating as-needed inhaled corticosteroid strategies in asthma: expanding the benefits to mild asthma

[Tommaso Bigoni](#)¹, [Franco Alfano](#)¹, [Federico Baraldi](#)¹, [Marco Contoli](#)¹, [Alberto Papi](#)¹

Affiliations expand

- PMID: 37578053
- DOI: [10.1080/17476348.2023.2247973](https://doi.org/10.1080/17476348.2023.2247973)

Abstract

Introduction: Adherence to regular anti-inflammatory treatment is commonly low, and short-acting β 2 agonist (SABA) overuse is common in patients with asthma, leading to an increased risk of asthma-related adverse events.

Areas covered: Given the pivotal role of inflammation in asthma, multiple as-needed inhaled corticosteroid (ICS)-containing therapies have been developed, leading to a reduction in asthma exacerbations and improvement in symptom control. Currently, as-needed ICS/formoterol is one of the most commonly available formulations; however, other combinations such as ICS/SABA have been shown to be superior to as-needed SABA alone. Therefore, we performed a comprehensive review of the available scientific literature to enhance the advantages and disadvantages of each combination in clinical practice.

Expert opinion: The future direction we foresee in asthma management consists in abandoning as-needed short-acting bronchodilators in favor of as-needed ICS-containing therapies. Each patient is unique and differs from others; consequently, a single option will

not fit everyone. Patients' and physicians' awareness of this perspective can be reached through the development of multiple therapeutic options suitable for each condition that can be found in 'real life'.

Keywords: Asthma; ICS; SABA; as-needed; inflammation; mild; treatment.

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[Review](#)

J Clin Med

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. 2023 Aug 20;12(16):5404.

doi: 10.3390/jcm12165404.

[Early Prediction of Asthma](#)

[Sergio de Jesus Romero-Tapia](#)¹, [José Raúl Becerril-Negrete](#)², [Jose A Castro-Rodriguez](#)³, [Blanca E Del-Río-Navarro](#)⁴

Affiliations [expand](#)

- PMID: 37629446
- DOI: [10.3390/jcm12165404](https://doi.org/10.3390/jcm12165404)

Abstract

The clinical manifestations of asthma in children are highly variable, are associated with different molecular and cellular mechanisms, and are characterized by common symptoms that may diversify in frequency and intensity throughout life. It is a disease that generally

begins in the first five years of life, and it is essential to promptly identify patients at high risk of developing asthma by using different prediction models. The aim of this review regarding the early prediction of asthma is to summarize predictive factors for the course of asthma, including lung function, allergic comorbidity, and relevant data from the patient's medical history, among other factors. This review also highlights the epigenetic factors that are involved, such as DNA methylation and asthma risk, microRNA expression, and histone modification. The different tools that have been developed in recent years for use in asthma prediction, including machine learning approaches, are presented and compared. In this review, emphasis is placed on molecular mechanisms and biomarkers that can be used as predictors of asthma in children.

Keywords: asthma; biomarkers; epigenetics; machine learning; predictive models.

SUPPLEMENTARY INFO

Publication types [expand](#)

FULL TEXT LINKS



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

1

BMC Public Health

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. 2023 Aug 25;23(1):1633.

doi: 10.1186/s12889-023-16607-6.

[Knowledge, attitudes, and practice towards allergic rhinitis in patients with allergic rhinitis: a cross-sectional study](#)

[Wenzhe Gu](#)¹, [Daonan Yan](#)², [Zijiang Yuan](#)¹, [Xiaoting Jiang](#)¹, [Yuhan Qian](#)¹, [Hongjun Dong](#)¹, [Zhengjie Shen](#)³

Affiliations [expand](#)

- PMID: 37626323

- DOI: [10.1186/s12889-023-16607-6](https://doi.org/10.1186/s12889-023-16607-6)

Abstract

Background: The knowledge, attitude, and practice (KAP) of Chinese patients with allergic rhinitis (AR) on AR is poorly known. This study investigated the KAP towards AR in patients with this disease and explored the factors associated with KAP.

Methods: This cross-sectional study enrolled patients with AR in Zhangjiagang Hospital of Traditional Chinese Medicine between October 2022 and March 2023.

Results: This study included 656 valid questionnaires. Most participants were 26-35 years old (36.13%) and were female (55.18%). The knowledge, attitude, and practice scores were 5.70 ± 2.88 (possible range: 0-12), 29.51 ± 3.52 (possible range: 9-45), and 34.13 ± 7.55 (possible range: 9-45), indicating poor knowledge, unfavorable attitudes, and proactive practice. AR history of 3-5 years (adjusted odds ratio (adjOR) = 1.62, 95% confidence interval (CI): 1.03-2.54, P = 0.037), AR history of > 6 years (adjOR = 1.64, 95%CI: 1.06-2.54, P = 0.027), and know their own allergens (adjOR = 2.34, 95%CI: 1.28-4.25, P = 0.005) were independently associated with the sufficient knowledge. AR history of ≥ 6 years (adjOR = 0.60, 95%CI: 0.37-0.96, P = 0.035), and liking sports (adjOR = 1.58, 95%CI = 1.07-2.33, P = 0.020) were independently associated with the positive attitude. The knowledge scores (adjOR = 1.14, 95%CI: 1.05-1.22, P = 0.001), attitude scores (adjOR = 1.24, 95%CI: 1.17-1.32, P < 0.001), age 36-45 (adjOR = 2.13, 95%CI: 1.19-3.82, P = 0.011), employed (adjOR = 0.59, 95%CI: 0.37-0.94, P = 0.026), and liking sports (adjOR = 2.11, 95%CI: 1.43-3.14, P < 0.001) were independently associated with the proactive practice.

Conclusions: Patients with AR have poor knowledge and unfavorable attitudes but good practice toward AR. Continuous quality teaching interventions and education on patients for AR were recommended.

Keywords: Allergic rhinitis; Cross-sectional study; Knowledge, attitudes, practice; Patients.

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- [31 references](#)

SUPPLEMENTARY INFO

Grant supportexpand

FULL TEXT LINKS

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. 2023 Aug 23;e2302059.

doi: 10.1002/adhm.202302059. Online ahead of print.

[A Biodegradable, Adhesive and Stretchable Hydrogel and Potential Applications for Allergic Rhinitis and Epistaxis](#)

[Shengnan Liu](#)¹, [Qianru Yu](#)², [Rui Guo](#)², [Kuntao Chen](#)¹, [Jiao Xia](#)², [Zhenhu Guo](#)¹, [Lu He](#)², [Qian Wu](#)², [Lan Liu](#)^{3,4}, [Yunxuan Li](#)¹, [Bozhen Zhang](#)¹, [Lin Lu](#)^{3,4}, [Xing Sheng](#)⁵, [Jiahua Zhu](#)⁴, [Lingyun Zhao](#)¹, [Hui Qi](#)⁶, [Ke Liu](#)^{2,7}, [Lan Yin](#)¹

Affiliations [expand](#)

- PMID: 37610041
- DOI: [10.1002/adhm.202302059](https://doi.org/10.1002/adhm.202302059)

Abstract

Bioadhesive hydrogels have attracted considerable attention as innovative materials in medical interventions and human-machine interface engineering. Despite significant advances in their application, it remains critical to develop adhesive hydrogels that meet the requirements for biocompatibility, biodegradability, long-term strong adhesion and efficient drug delivery vehicles in moist condition. We propose a biocompatible, biodegradable, soft and stretchable hydrogel made from a combination of a biopolymer (unmodified natural gelatin) and stretchable biodegradable poly(ethylene glycol) diacrylate (PEGDA) to achieve durable and tough adhesion, and explore its use for convenient and effective intranasal hemostasis and drug administration. Desirable hemostasis efficacy and enhanced therapeutic outcomes for allergic rhinitis are accomplished. Biodegradation

enables spontaneous removal of materials without causing secondary damage and minimize medical waste. Preliminary trials on human subjects provide an essential foundation for practical applications. This work elucidates material strategies for biodegradable adhesive hydrogels, which are critical to achieve robust material interfaces and advanced drug delivery platforms for novel clinical treatments. This article is protected by copyright. All rights reserved.

Keywords: adhesive hydrogels; allergic rhinitis; biodegradable; epistaxis; stretchable.

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Ann Otol Rhinol Laryngol

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. 2023 Aug 22;34894231195662.

doi: 10.1177/00034894231195662. Online ahead of print.

[Gender Differences in Quality of Life of Adolescent Patients With Chronic Rhinosinusitis](#)

[Caroline Dundervill](#)¹, [Zayd Al-Asadi](#)¹, [John Behnke](#)², [Parker Tumlin](#)², [Rafka Chaiban](#)³, [Hassan H Ramadan](#)², [Chadi A Makary](#)²

Affiliations expand

- PMID: 37608693

- DOI: [10.1177/00034894231195662](https://doi.org/10.1177/00034894231195662)

Abstract

Objectives: To identify the differences in the impact of chronic rhinosinusitis (CRS) between female and male adolescent patients at presentation.

Study design: Cross sectional study.

Methods: Adolescent patients, age 12 to 18 years old, presenting to our Otolaryngology clinic between August 2020 and April 2023 for CRS were asked to fill both the SNOT-22 and the SN5 forms. Female and male cohorts were compared regarding their demographics, comorbidities, subjective and objective disease measurements, and choice of treatment.

Results: Sixty-six patients were included, 30 female and 36 male patients. There were no differences in age, allergic rhinitis, asthma, obstructive sleep apnea, presence of nasal septal deviation, and objective disease severity ($P > .05$ for all). At presentation, mean overall SNOT-22, ear/facial, sleep, and psychological domains were all higher in female patients (43vs 30.9, $P = .02$; 9.1vs 6, $P = .03$; 11.8vs 8.3, $P = .07$; 14.1vs 8.8, $P = .02$ respectively). SN5 scores and overall QoL visual analog scale were similar in females and males.

Conclusion: Female patients with CRS show higher subjective disease burden. Incorporating data on gender-specific differences may be important to personalize treatment decision making.

Keywords: SN5; SNOT-22; adolescents; chronic rhinosinusitis; disease burden; female; gender differences; male; quality of life.

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Int Forum Allergy Rhinol

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. 2023 Aug 22.

doi: 10.1002/alr.23256. Online ahead of print.

[Impact of recurrent acute rhinosinusitis on quality of life](#)

[Zayd Al-Asadi](#)¹, [Ruifeng Cui](#)², [Dominic Lombardo](#)¹, [John Dewey](#)², [Hassan H Ramadan](#)², [Chadi A Makary](#)²

Affiliations expand

- PMID: 37608458
- DOI: [10.1002/alr.23256](https://doi.org/10.1002/alr.23256)

Abstract

Quality of life (QoL) in patients with recurrent acute rhinosinusitis (RARS) is understudied. QoL for RARS patients is similar to chronic rhinosinusitis patients, although objective disease severity is lower. QoL of RARS patients is similarly affected during active and inactive infection.

Keywords: SNOT-22; chronic rhinitis; chronic rhinosinusitis; quality of life; recurrent acute rhinosinusitis.

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Pediatr Pulmonol

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. 2023 Aug 22.

doi: [10.1002/ppul.26626](https://doi.org/10.1002/ppul.26626). Online ahead of print.

Phenotypic characteristics, healthcare use, and treatment in children with

night cough compared with children with wheeze

[Maria C Mallet](#)^{1,2}, [Rebeca Mozun](#)^{1,3}, [Cristina Ardura-Garcia](#)¹, [Eva S L Pedersen](#)¹, [Maja Jurca](#)^{1,4}, [Philipp Latzin](#)⁵; [LUIS Study Group](#); [Alexander Moeller](#)⁶, [Claudia E Kuehni](#)^{1,5}

Affiliations expand

- PMID: 37606206
- DOI: [10.1002/ppul.26626](https://doi.org/10.1002/ppul.26626)

Abstract

Objectives: Population-based studies of children with dry night cough alone compared with those who also wheeze are few and inconclusive. We compared how children with dry night cough differ from those who wheeze.

Methods: LuftiBus in the school is a population-based study of schoolchildren conducted between 2013 and 2016 in Zurich, Switzerland. We divided children into four mutually exclusive groups based on reported dry night cough (henceforth referred as "cough") and wheeze and compared parent-reported symptoms, comorbidities, exposures, FeNO, spirometry, and healthcare use and treatment.

Results: Among 3457 schoolchildren aged 6-17 years, 294 (9%) reported "cough," 181 (5%) reported "wheeze," 100 (3%) reported "wheeze and cough," and 2882 (83%) were "asymptomatic." Adjusting for confounders in a multinomial regression, children with "cough" reported more frequent colds, rhinitis, and snoring than "asymptomatic" children; children with "wheeze" or "wheeze and cough" more often reported hay fever, eczema, and parental histories of asthma. FeNO and spirometry were similar among "asymptomatic" and children with "cough," while children with "wheeze" or "wheeze and cough" had higher FeNO and evidence of bronchial obstruction. Children with "cough" used healthcare less often than those with "wheeze," and they attended mainly primary care. Twenty-two children (7% of those with "cough") reported a physician diagnosis of asthma and used inhalers. These had similar characteristics as children with wheeze.

Conclusion: Our representative population-based study confirms that children with dry night cough without wheeze clearly differed from those with wheeze. This suggests asthma is unlikely, and they should be investigated for alternative aetiologies, particularly upper airway disease.

Keywords: FeNO; asthma; healthcare; spirometry.

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Toxics

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. 2023 Aug 21;11(8):719.

doi: [10.3390/toxics11080719](https://doi.org/10.3390/toxics11080719).

[Machine Learning Big Data Analysis of the Impact of Air Pollutants on Rhinitis-Related Hospital Visits](#)

[Soyeon Lee](#)¹, [Changwan Hyun](#)², [Minhyeok Lee](#)¹

Affiliations [expand](#)

- PMID: 37624224
- DOI: [10.3390/toxics11080719](https://doi.org/10.3390/toxics11080719)

Abstract

This study seeks to elucidate the intricate relationship between various air pollutants and the incidence of rhinitis in Seoul, South Korea, wherein it leveraged a vast repository of data and machine learning techniques. The dataset comprised more than 93 million hospital visits ($n = 93,530,064$) by rhinitis patients between 2013 and 2017. Daily

atmospheric measurements were captured for six major pollutants: PM10, PM2.5, O₃, NO₂, CO, and SO₂. We employed traditional correlation analyses alongside machine learning models, including the least absolute shrinkage and selection operator (LASSO), random forest (RF), and gradient boosting machine (GBM), to dissect the effects of these pollutants and the potential time lag in their symptom manifestation. Our analyses revealed that CO showed the strongest positive correlation with hospital visits across all three categories, with a notable significance in the 4-day lag analysis. NO₂ also exhibited a substantial positive association, particularly with outpatient visits and hospital admissions and especially in the 4-day lag analysis. Interestingly, O₃ demonstrated mixed results. Both PM10 and PM2.5 showed significant correlations with the different types of hospital visits, thus underlining their potential to exacerbate rhinitis symptoms. This study thus underscores the deleterious impacts of air pollution on respiratory health, thereby highlighting the importance of reducing pollutant levels and developing strategies to minimize rhinitis-related hospital visits. Further research considering other environmental factors and individual patient characteristics will enhance our understanding of these intricate dynamics.

Keywords: air pollution; carbon monoxide; hospital visits; machine learning; nitrogen dioxide; ozone; particulate matter; respiratory health; rhinitis; time lag effect.

SUPPLEMENTARY INFO

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

1

[Review](#)

Neurosci Bull

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. 2023 Aug 22.

doi: 10.1007/s12264-023-01104-y. Online ahead of print.

Neural Mechanisms Underlying the Coughing Reflex

[Haicheng Lu](#)^{1,2}, [Peng Cao](#)^{3,4}

Affiliations expand

- PMID: 37606821
- DOI: [10.1007/s12264-023-01104-y](https://doi.org/10.1007/s12264-023-01104-y)

Abstract

Breathing is an intrinsic natural behavior and physiological process that maintains life. The rhythmic exchange of gases regulates the delicate balance of chemical constituents within an organism throughout its lifespan. However, chronic airway diseases, including asthma and chronic obstructive pulmonary disease, affect millions of people worldwide. Pathological airway conditions can disrupt respiration, causing asphyxia, cardiac arrest, and potential death. The innervation of the respiratory tract and the action of the immune system confer robust airway surveillance and protection against environmental irritants and pathogens. However, aberrant activation of the immune system or sensitization of the nervous system can contribute to the development of autoimmune airway disorders. Transient receptor potential ion channels and voltage-gated Na⁺ channels play critical roles in sensing noxious stimuli within the respiratory tract and interacting with the immune system to generate neurogenic inflammation and airway hypersensitivity. Although recent studies have revealed the involvement of nociceptor neurons in airway diseases, the further neural circuitry underlying airway protection remains elusive. Unraveling the mechanism underpinning neural circuit regulation in the airway may provide precise therapeutic strategies and valuable insights into the management of airway diseases.

Keywords: Airway disease; Cough; Na⁺ channel; Neural circuit; Transient receptor potential; Treatment.

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- [136 references](#)

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Complement Med Res

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. 2023 Aug 21;1-7.

doi: 10.1159/000533252. Online ahead of print.

[Efficacy and Safety of Yukmijihwang-Tang in the Treatment of Cough-Variant Asthma: Study Protocol for a Phase 2, Randomized, Double-Blind, Placebo-Controlled, Multicenter Trial](#)

[Su Won Lee](#)¹, [Yee Ran Lyu](#)^{2,3}, [Won Kyung Yang](#)^{2,4}, [Seung Hyung Kim](#)⁴, [Si Yeon Kim](#)⁵, [Weechang Kang](#)⁵, [In Chul Jung](#)⁶, [Beom Joon Lee](#)⁷, [Jun Yong Choi](#)⁸, [Mee Young Lee](#)³, [Yang Chun Park](#)^{2,4}

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- PMID: 37604125

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Abstract

Background: Cough-variant asthma (CVA), a precursor of typical asthma, is the main cause of chronic cough. We hypothesize that yukmijihwang-tang (YJT), which has been used for chronic cough in traditional medicine and has been reported to have an anti-inflammatory effect, could be an adjuvant to asthma treatment.

Methods: We plan a randomized, double-blind, placebo-controlled, multicenter, phase 2 trial to investigate the efficacy and safety of YJT in CVA patients. A total of 60 patients with CVA will be recruited and randomly assigned to either a high-dose YJT group, standard-dose YJT group, or control group (placebo) in a 1:1:1 allocation ratio after a 2-week run-in period. For the run-in period, only inhaled corticosteroids (ICSs) will be used, and the investigational drug will be administered once a day with concomitant ICS for 6 weeks. Data will be collected at baseline, week 3, and week 6, and the primary outcome measure will be the mean cough symptom score (CSS) change before and after medication. The secondary outcome measures will include the Leicester cough questionnaire-Korean version (LCQ-K) score, eosinophil count and eosinophil cationic protein level, pulmonary function test, and the number of uses of rescue medication, and so on.

Conclusion: This study aimed to evaluate the efficacy and safety of YJT in concomitant treatment with ICS in patients with CVA and to determine the optimal dosage of YJT. The results are expected to provide evidence for the use of YJT as an adjuvant treatment for CVA.

<title>Hintergrund</title>Cough-Variant-Asthma (CVA), eine Frühform von typischem Asthma, ist die Hauptursache von chronischem Husten. Unserer Vermutung nach könnte Yukmijhwang-Tang (YJT), das in der traditionellen Medizin zur Behandlung von chronischem Husten eingesetzt wird und das Berichten zufolge einen entzündungshemmenden Effekt hat, unterstützend in der Asthma-Therapie wirken.<title>Method</title>en: Wir planen eine randomisierte, doppelblinde, placebokontrollierte, multizentrische Phase-2-Studie, um die Wirksamkeit und Sicherheit von YJT bei Patienten mit CVA zu untersuchen. Insgesamt werden 60 CVA-Patienten für die Studie rekrutiert und nach einer zweiwöchigen Run-in-Phase randomisiert im Verhältnis 1:1:1 einer Gruppe mit hochdosiertem YJT, einer Gruppe, die YJT in der Standarddosierung erhält oder einer Kontrollgruppe (Placebo) zugewiesen. Während der Run-in-Phase werden nur inhalative Corticosteroide (ICS) verwendet, und das Prüfpräparat wird über 6 Wochen einmal täglich gleichzeitig mit den ICS angewendet. Die Datenerhebung erfolgt bei Studienbeginn, in Woche 3 sowie in Woche 6, und das primäre Zielkriterium ist die Änderung des mittleren Hustenscores (cough symptom score, CSS) vor und nach der Anwendung der Medikamente. Zu den sekundären Zielkriterien gehören der Score des Leicester Hustenfragebogens - koreanische Version (LCQ-K), die Eosinophilenzahl und der Spiegel an eosinophilem kationischen Protein, Lungenfunktionstests sowie die Anzahl der Anwendungen von Bedarfsmedikation usw.<title>Schlussfolgerung</title>Ziel dieser Studie ist es, die Wirksamkeit und Sicherheit von YJT bei gleichzeitiger Behandlung mit ICS bei Patienten mit CVA zu bewerten und die optimale YJT-Dosis zu ermitteln. Es wird erwartet, dass die Ergebnisse Belege für die Anwendung von YJT als adjuvante Therapie bei CVA liefern werden.<title>Registrierung der Studie</title>WHO International Clinical Trials Registry Platform, Clinical Research Information Service (CRIS), KCT0006994, registriert am 10. Februar 2022, <ext-link ext-link-type="uri" xlink:href="https://cris.nih.go.kr/cris/search/detailSearch.do/217431" xmlns:xlink="http://www.w3.org/1999/xlink">https://cris.nih.go.kr/cris/search/detailSearch.do/21743</ext-link>.

Keywords: Cough-Variant-Asthma; Cough-variant asthma; Heilpflanzenmedizin; Herbal medicine; Korean medicine; Yukmijihwang-tang; koreanische Medizin.

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

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doi: 10.1093/mr/roac117.

Clinical characteristics of rheumatoid arthritis patients complicated with pulmonary nontuberculous mycobacterial disease: A cross- sectional case series study

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Abstract

Objectives: Pulmonary nontuberculous mycobacterial disease (pNTM) is a common pulmonary complication of rheumatoid arthritis (RA), but their association has rarely been researched. We aimed to reveal the clinical characteristics of RA with pNTM.

Methods: Among all the RA patients who visited Tenri hospital from April 2017 to March 2018, we enrolled those fulfilling the 2007 ATS/IDSA diagnostic criteria of pNTM, and sex- and age- matched control group at a ratio of 1:5. Demographic characteristics were compared between the two groups.

Results: Among 865 RA patients, 35 (4.0%) patients were complicated with pNTM. RA patients with pNTM had significantly lower BMI and higher rheumatoid factor (RF) and anti-citrullinated protein antibody (ACPA) positivity. Bronchiectasis was the most frequent lesion, followed by clusters of small nodules, patchy consolidation and cavity. Multivariable logistic regression analysis revealed bronchiectasis as a strong independent associated factor of pNTM. Treatment for pNTM was needed in 14 of the 35 (40%) RA patients with pNTM and sputum negative conversion was accomplished in 11 of the 14 cases (78.6%).

Conclusions: RA patients with lower BMI, RF/ACPA positivity, and bronchiectasis were associated with pNTM. Treatment for pNTM may attain sputum negative conversion and radiological improvement in patients with RA.

Keywords: Arthritis; bronchiectasis; nontuberculous mycobacteria; rheumatoid.

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. 2023 Aug 24.

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Non-Type 2 and Mixed Inflammation in Chronic Rhinosinusitis and Lower Airway Disease

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Abstract

Objective: The aim was to discuss the role of non-type 2 inflammation in patients diagnosed with chronic rhinosinusitis (CRS) and comorbid lower airway disease.

Data sources: Medline, Embase, National Institute for Health and Care Excellence, TRIP Database, ProQuest, Clinicaltrials.gov, Cochrane Central Registry of Controlled Trials, Web of Science, government and health organizations, and graduate-level theses.

Review methods: This scoping review followed PRISMA-ScR guidelines. Search strategy was peer-reviewed by medical librarians. Studies were included if they utilized airway sampling, non-type 2 cytokines, and patients with CRS and lower airway disease.

Results: Twenty-seven from 7060 articles were included. In patients with CRS and comorbid asthma, aspirin-exacerbated respiratory disease (AERD), and chronic obstructive pulmonary disease (COPD)/bronchiectasis, 60% (n = 12), 33% (n = 2), and 100% (n = 1), respectively, demonstrated mixed or non-type 2 endotypes. Comorbid CRS and asthma produced type 1 (n = 1.5), type 2 (n = 8), type 3 (n = 1), mixed type 1/2 (n = 1), and mixed type 1/2/3 (n = 8.5) endotype shifts. AERD demonstrated type 2 (n = 4), mixed type 2/3 (n = 1), and mixed type 1/2/3 (n = 1) endotype shifts. CRS with COPD or bronchiectasis demonstrated a mixed 1/2 (n = 1) endotype shift.

Conclusion: Type 2 disease has been extensively reviewed due to advent biologics targeting type 2 inflammation, but outcomes may be suboptimal due to the presence of non-type 2 inflammation. A proportion of patients with CRS and comorbid lower airway disease demonstrated mixed and non-type 2 endotype shifts. This emphasizes that patients with unified airway disease may have forms of inflammation beyond classical type 2 disease which could inform biologic development. *Laryngoscope*, 2023.

Keywords: chronic rhinosinusitis; endotypes; mixed inflammation; non-type 2 inflammation; unified airway disease.

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doi: [10.36416/1806-3756/e20230235](https://doi.org/10.36416/1806-3756/e20230235).

[Bronchiectasis with tracheobronchial dilation](#)

[Article in English, Portuguese]

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