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

1

Review

Medicine (Baltimore)

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. 2024 May 10;103(19):e38161.

doi: 10.1097/MD.00000000000038161.

[Which is a real valuable screening tool for lung cancer and measure thoracic diseases, chest radiography or low-dose computed tomography?: A review on the current status of Japan and other countries](#)

[Ikuma Kasuga](#)^{1,2,3}, [Yoshimi Yokoe](#)¹, [Sanae Gamo](#)¹, [Tomoko Sugiyama](#)¹, [Michiyo Tokura](#)¹, [Maiko Noguchi](#)¹, [Mayumi Okayama](#)¹, [Rei Nagakura](#)¹, [Nariko Ohmori](#)¹, [Takayoshi Tsuchiya](#)⁴, [Atsushi Sofuni](#)^{4,5}, [Takao Itoi](#)⁴, [Osamu Ohtsubo](#)^{3,6}

Affiliations expand

- PMID: 38728453
- DOI: [10.1097/MD.00000000000038161](https://doi.org/10.1097/MD.00000000000038161)

Abstract

Chest radiography (CR) has been used as a screening tool for lung cancer and the use of low-dose computed tomography (LDCT) is not recommended in Japan. We need to reconsider whether CR really contributes to the early detection of lung cancer. In addition, we have not well discussed about other major thoracic disease detection by CR and LDCT compared with lung cancer despite of its high frequency. We review the usefulness of CR and LDCT as veridical screening tools for lung cancer and other thoracic diseases. In the case of lung cancer, many studies showed that LDCT has capability of early detection and improving outcomes compared with CR. Recent large randomized trial also supports former results. In the case of chronic obstructive pulmonary disease (COPD), LDCT contributes to early detection and leads to the implementation of smoking cessation treatments. In the case of pulmonary infections, LDCT can reveal tiny inflammatory changes that are not observed on CR, though many of these cases improve spontaneously. Therefore, LDCT screening for pulmonary infections may be less useful. CR screening is more suitable for the detection of pulmonary infections. In the case of cardiovascular disease (CVD), CR may be a better screening tool for detecting cardiomegaly, whereas LDCT may be a more useful tool for detecting vascular changes. Therefore, the current status of thoracic disease screening is that LDCT may be a better screening tool for detecting lung cancer, COPD, and vascular changes. CR may be a suitable screening tool for pulmonary infections and cardiomegaly.

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Conflict of interest statement

The authors have no funding and conflicts of interest to disclose.

- [60 references](#)

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS



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J Am Assoc Nurse Pract



. 2024 May 10.

doi: 10.1097/JXX.0000000000001024. Online ahead of print.

[Improving patient education in hospitalized patients with chronic obstructive pulmonary disease: A quality improvement initiative using LEAN methodology](#)

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Affiliations expand

- PMID: 38727546
- DOI: [10.1097/JXX.0000000000001024](https://doi.org/10.1097/JXX.0000000000001024)

Abstract

Background: Chronic obstructive pulmonary disease (COPD) is a costly chronic disease affecting more than 15 million Americans. The prevalence among US veterans is 3 times higher than the general population.

Local problem: The Veteran Health Administration developed a standardized, evidence-based COPD educational tool called Green Light to Go (GLTG) designed to educate patients on managing their COPD symptoms at home. Despite the availability of this resource, inpatient education on COPD self-management practices is highly variable across

different medical teams. This quality improvement (QI) initiative sought to standardize inpatient COPD patient education using the GLTG tool. This initiative also assessed whether patients receiving standardized patient education during their index hospitalization had lower COPD 30-day readmission rates.

Method: The QI initiative followed the LEAN methodology and the A3 framework. The team performed rapid tests of change (plan-do-study-act cycles) to increase the percentage of veterans receiving COPD education.

Interventions: The interventions implemented for this QI initiative focused on clinical, patient, and system improvements.

Results: This initiative standardized COPD patient education and increased the percentage of veterans receiving (a) daily COPD education from 0% to 66%, (b) verbal COPD education on discharge from a baseline of 20% to 100%, (c) receipt of written educational material on discharge from 20% to 100%, and (d) the cohort all-cause 30-day readmission rate declined from 19.3% to 14.3%.

Conclusions: Given the substantial economic burden of COPD readmissions on the health care system and patients, evidence-based educational interventions may potentially improve outcomes and reduce hospital readmissions in this veteran population.

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Conflict of interest statement

Competing interests: The authors report no conflicts of interest.

- [15 references](#)

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Interdiscip Cardiovasc Thorac Surg

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. 2024 May 9:ivae094.

doi: 10.1093/icvts/ivae094. Online ahead of print.

Lung volume reduction surgery is safe and feasible after initial endobronchial valve treatment for emphysema patients

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Affiliations expand

- PMID: 38724230
- DOI: [10.1093/icvts/ivae094](https://doi.org/10.1093/icvts/ivae094)

Abstract

Background and objectives: Bronchoscopic lung volume reduction with endobronchial valves is a guideline treatment leading to improved pulmonary function, exercise tolerance, and quality of life, in patients with advanced emphysema, severe hyperinflation and no collateral ventilation. After valve-treatment, loss of the initial lung volume reduction effect can occur, as well as local valve-induced complications such as persistent hemoptysis. In these cases, a surgical lobectomy can be considered to achieve similar efficacy outcomes. We evaluated the safety and feasibility of a video assisted thoracoscopic surgery - lobectomy after valve-treatment.

Methods: This single-center retrospective study included patients who underwent an elective lobectomy after previous valve-treatment. Data was evaluated for safety and efficacy for the additional surgical procedure.

Results: Twenty one patients (73% female, median age 67 (7) years, FEV1 29 (7) %pred, and residual volume 223 (58) %pred) were included. There was no 90 days mortality, and no post-operative Intensive Care admissions. Pulmonary infections (14%) and prolonged air leak (14%) were the most common complications. In patients who underwent surgery due to loss or lack of effect of valve-treatment, a lobectomy led to a significant improvement in pulmonary function; median FEV1 +75 (193)ml (p < 0.013), Forced Vital Capacity +450 (572) ml (p 0.001), Residual Volume -665 (715) ml (p 0.005). In patients who

underwent a lobectomy because of complications of valve-treatment, all complications were resolved after surgery.

Conclusion: We demonstrate that an elective lobectomy after an initial valve-treatment is safe, feasible, and restores the lung volume reduction effect.

Keywords: COPD; Video Assisted Thoracic Surgery; bronchoscopic lung volume reduction; endobronchial valve treatment; lobectomy; lung volume reduction surgery.

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J Appl Physiol (1985)



. 2024 May 9.

doi: 10.1152/jappphysiol.00467.2023. Online ahead of print.

[LAMA improve tissue oxygenation more than LABA in patients with COPD](#)

[Silvia Perez-Bogerd](#)¹, [Alain Van Muylem](#)¹, [Selim Zengin](#)¹, [Yasmina El Khloufi](#)¹, [Emilie Maufroy](#)², [Vitalie Faoro](#)³, [Andrei Malinovschi](#)⁴, [Alain Michils](#)⁵

Affiliations expand

- PMID: 38722752

- DOI: [10.1152/jappphysiol.00467.2023](https://doi.org/10.1152/jappphysiol.00467.2023)

Abstract

Background The effect of bronchodilators is mainly assessed with forced expiratory volume in 1s (FEV₁) in COPD. Their impact on oxygenation and lung periphery is less known. **Objectives** To compare the action of long-acting β_2 -agonists (LABA-olodaterol) and muscarinic antagonists (LAMA-tiotropium) on tissue oxygenation in COPD, considering their impact on proximal and peripheral ventilation as well as lung perfusion. **Methods** FEV₁, Helium slope (S_{He}) from a single-breath washout test (S_{He} decrease reflecting a peripheral ventilation improvement), frequency dependence of resistance (R5-R19), area under reactance (AX), lung capillary blood volume (Vc) from double diffusion (DL_{NO}/DL_{CO}) and transcutaneous oxygenation (TcO₂) were measured before and 2 hours post-LABA (day 1) and LAMA (day 3) in 30 COPD patients (FEV₁ 54±18% pred; GOLD A 31%/B 48%/E 21%) after 5-7 days of washout, respectively. **Results** TcO₂ increased more (p=0.03) after LAMA (11±12% from baseline, p<0001) compared to LABA (4±11%, p=0.06) despite a lower FEV₁ increase (p=0.03) and similar S_{He} (p=0.98), AX (p=0.63) and R5-R19 decreases (p=0.37). TcO₂ and S_{He} changes were negatively correlated (r=-0.47, p=0.01) after LABA, not after LAMA (r=0.10, p=0.65). DL_{NO}/DL_{CO} decreased and Vc increased after LAMA (p=0.04; p=0.01, respectively) but not after LABA (p=0.53; p=0.24). **Conclusion** LAMA significantly improved tissue oxygenation in COPD patients, while only a trend was observed with LABA. The mechanisms involved may differ between both drugs: LABA increased peripheral ventilation while LAMA increased lung capillary blood volume. Should oxygenation differences persist over time, LAMA could arguably become the first therapeutic choice in COPD.

Keywords: Chronic Obstructive Pulmonary Disease; long-acting muscarinic antagonist; long-acting β_2 -agonist; peripheral ventilation; tissue oxygenation.

FULL TEXT LINKS



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Med Phys

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. 2024 May 9.

Chest CT-based automated vertebral fracture assessment using artificial intelligence and morphologic features

[Syed Ahmed Nadeem](#)¹, [Alejandro P Comellas](#)², [Elizabeth A Regan](#)^{3,4}, [Eric A Hoffman](#)^{1,2,5}, [Punam K Saha](#)^{1,6}

Affiliations expand

- PMID: 38721977
- DOI: [10.1002/mp.17072](https://doi.org/10.1002/mp.17072)

Abstract

Background: Spinal degeneration and vertebral compression fractures are common among the elderly that adversely affect their mobility, quality of life, lung function, and mortality. Assessment of vertebral fractures in chronic obstructive pulmonary disease (COPD) is important due to the high prevalence of osteoporosis and associated vertebral fractures in COPD.

Purpose: We present new automated methods for (1) segmentation and labelling of individual vertebrae in chest computed tomography (CT) images using deep learning (DL), multi-parametric freeze-and-grow (FG) algorithm, and separation of apparently fused vertebrae using intensity autocorrelation and (2) vertebral deformity fracture detection using computed vertebral height features and parametric computational modelling of an established protocol outlined for trained human experts.

Methods: A chest CT-based automated method was developed for quantitative deformity fracture assessment following the protocol by Genant et al. The computational method was accomplished in the following steps: (1) computation of a voxel-level vertebral body likelihood map from chest CT using a trained DL network; (2) delineation and labelling of individual vertebrae on the likelihood map using an iterative multi-parametric FG algorithm; (3) separation of apparently fused vertebrae in CT using intensity autocorrelation; (4) computation of vertebral heights using contour analysis on the central anterior-posterior (AP) plane of a vertebral body; (5) assessment of vertebral fracture status using ratio functions of vertebral heights and optimized thresholds. The method was applied to inspiratory or total lung capacity (TLC) chest scans from the multi-site Genetic Epidemiology of COPD (COPDGene) (ClinicalTrials.gov: [NCT00608764](https://clinicaltrials.gov/ct2/show/study/NCT00608764)) study, and the

performance was examined (n = 3231). One hundred and twenty scans randomly selected from this dataset were partitioned into training (n = 80) and validation (n = 40) datasets for the DL-based vertebral body classifier. Also, generalizability of the method to low dose CT imaging (n = 236) was evaluated.

Results: The vertebral segmentation module achieved a Dice score of .984 as compared to manual outlining results as reference (n = 100); the segmentation performance was consistent across images with the minimum and maximum of Dice scores among images being .980 and .989, respectively. The vertebral labelling module achieved 100% accuracy (n = 100). For low dose CT, the segmentation module produced image-level minimum and maximum Dice scores of .995 and .999, respectively, as compared to standard dose CT as the reference; vertebral labelling at low dose CT was fully consistent with standard dose CT (n = 236). The fracture assessment method achieved overall accuracy, sensitivity, and specificity of 98.3%, 94.8%, and 98.5%, respectively, for 40,050 vertebrae from 3231 COPDGene participants. For generalizability experiments, fracture assessment from low dose CT was consistent with the reference standard dose CT results across all participants.

Conclusions: Our CT-based automated method for vertebral fracture assessment is accurate, and it offers a feasible alternative to manual expert reading, especially for large population-based studies, where automation is important for high efficiency. Generalizability of the method to low dose CT imaging further extends the scope of application of the method, particularly since the usage of low dose CT imaging in large population-based studies has increased to reduce cumulative radiation exposure.

Keywords: Vertebral fracture assessment; computed tomography; deep learning.

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- [59 references](#)

SUPPLEMENTARY INFO

Associated data, Grants and funding [expand](#)

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. 2024 May 8.

doi: 10.1111/resp.14732. Online ahead of print.

Predictors of lung function in early adulthood: A population-based cohort study

[Xian Zhang](#)^{1,2}, [Andrew R Gray](#)¹, [Robert J Hancox](#)¹

Affiliations expand

- PMID: 38720400
- DOI: [10.1111/resp.14732](https://doi.org/10.1111/resp.14732)

Abstract

Background and objective: Lung function reaches a peak/plateau in early adulthood before declining with age. Lower early adult lung function may increase the risk for chronic obstructive pulmonary disease (COPD) in mid-late adult life. Understanding the effects of multiple childhood/adolescent exposures and their potential interactions on plateau lung function would provide insights into the natural history of COPD.

Methods: Longitudinal spirometry data from 688 participants with complete data from a population-based birth cohort (original n = 1037) were used to investigate associations between a wide range of childhood/adolescent exposures and repeated measures of FEV₁, FVC and FEV₁/FVC during the early-adult plateau phase. Generalized estimating equations were used to accommodate the multiple timepoints per participant.

Results: FEV₁ reached a peak/plateau between ages 18 and 26 and FVC from 21 to 32 years, whereas FEV₁/FVC declined throughout early adulthood. Childhood asthma and airway hyperresponsiveness were associated with lower early adult FEV₁ and FEV₁/FVC. Smoking by age 18 was associated with lower FEV₁/FVC. Higher BMI during early adulthood was associated with lower FEV₁ and FVC and lower FEV₁/FVC. Physical activity during adolescence was positively associated with FEV₁ and FEV₁/FVC but this was only

statistically significant in men. There was no convincing evidence of interactions between exposures.

Conclusion: Childhood asthma and airway hyperresponsiveness are associated with lower lung function in early adulthood. Interventions targeting these may reduce the risk of COPD in mid-late adult life. Promotion of physical activity during adolescence, prevention of cigarette smoking and maintenance of a healthy body weight in early adulthood are also priorities.

Keywords: Dunedin Multidisciplinary Health and Development Study; airway hyperresponsiveness; childhood asthma; lung function development; peak lung function; plateau lung function; population-based cohort study.

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- [47 references](#)

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Respirology

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. 2024 May 8.

doi: 10.1111/resp.14734. Online ahead of print.

[Impact and timing of pulmonary rehabilitation in patients undergoing](#)

bronchoscopic lung volume reduction with endobronchial valves: A multicentre randomized controlled trial in patients with severe emphysema

[Marieke C van der Molen](#)^{1,2}, [Rein Posthuma](#)^{3,4,5}, [Jorine E Hartman](#)^{1,2}, [Hester van der Vaart](#)^{1,2,6}, [Eline Bij de Vaate](#)⁷, [Anouk W Vaes](#)⁴, [Bram van den Borst](#)⁸, [Dirk van Ranst](#)⁹, [Martijn A Spruit](#)^{3,4,5}, [Lowie E G W Vanfleteren](#)^{10,11}, [Dirk-Jan Slebos](#)^{1,2}; [SoLVE consortium group](#)

Collaborators, Affiliations expand

- PMID: 38720189
- DOI: [10.1111/resp.14734](https://doi.org/10.1111/resp.14734)

Abstract

Background and objective: Both bronchoscopic lung volume reduction with endobronchial valves (BLVR-EBV) and pulmonary rehabilitation (PR) are effective treatments for improving exercise capacity and patient-reported outcomes in patients with severe Chronic Obstructive Pulmonary Disease (COPD). According to current recommendations, all BLVR-EBV patients should have undergone PR first. Our aim was to study the effects of PR both before and after BLVR-EBV compared to BLVR-EBV alone.

Methods: We included patients with severe COPD who were eligible for BLVR-EBV and PR. Participants were randomized into three groups: PR before BLVR-EBV, PR after BLVR-EBV or BLVR-EBV without PR. The primary outcome was change in constant work rate cycle test (CWRT) endurance time at 6-month follow-up of the PR groups compared to BLVR-EBV alone. Secondary endpoints included changes in 6-minute walking test, daily step count, dyspnoea and health-related quality of life.

Results: Ninety-seven participants were included. At 6-month follow-up, there was no difference in change in CWRT endurance time between the PR before BLVR-EBV and BLVR-EBV alone groups (median: 421 [IQR: 44; 1304] vs. 787 [123; 1024] seconds, $p = 0.82$) or in any of the secondary endpoints, but the PR after BLVR-EBV group exhibited a smaller improvement in CWRT endurance time (median: 107 [IQR: 2; 573], $p = 0.04$) and health-related quality of life compared to BLVR-EBV alone.

Conclusion: The addition of PR to BLVR-EBV did not result in increased exercise capacity, daily step count or improved patient-reported outcomes compared to BLVR-EBV alone,

neither when PR was administered before BLVR-EBV nor when PR was administered after BLVR-EBV.

Keywords: Bronchoscopic lung volume reduction; COPD; chronic obstructive pulmonary disease; endobronchial valves; pulmonary rehabilitation.

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Review

J Investig Med

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. 2024 May 7:10815589241249993.

doi: 10.1177/10815589241249993. Online ahead of print.

EXPRESS: State of the Art: Alternative Overlap Syndrome - Asthma and Obstructive Sleep Apnea

[Octavian C Ioachimescu](#)¹

Affiliations expand

- PMID: 38715213
- DOI: [10.1177/10815589241249993](https://doi.org/10.1177/10815589241249993)

Abstract

In the general population, Bronchial Asthma (BA) and Obstructive Sleep Apnea (OSA) are amongst the most prevalent chronic respiratory disorders. Significant epidemiologic connections and complex pathogenetic pathways link these disorders via complex interactions at genetic, epigenetic and environmental levels. The coexistence of BA and OSA in an individual likely represents a distinct syndrome, i.e., a collection of clinical manifestations attributable to several mechanisms and pathobiological signatures. To avoid terminological confusion, this association has been named alternative overlap syndrome (vs overlap syndrome represented by the chronic obstructive pulmonary disease - OSA association). This comprehensive review summarizes the complex, often bidirectional links between the constituents of the alternative overlap syndrome. Cross-sectional, population or clinic-based studies are unlikely to elucidate causality or directionality in these relationships. Even longitudinal epidemiological evaluations in BA cohorts developing over time OSA, or OSA cohorts developing BA during follow-up cannot exclude time factors or causal influence of other known or unknown mediators. As such, a lot of pathophysiological interactions described here have suggestive evidence, biological plausibility, potential or actual directionality. By showcasing existing evidence and current knowledge gaps, the hope is that deliberate, focused and collaborative efforts in the near-future will be geared towards opportunities to shine light on the unknowns, and accelerate discovery in this field of health, clinical care, education, research and scholarly endeavors.

Keywords: Asthma; Continuous Positive Airway Pressure; Sleep Apnea Syndromes; Sleep Apnea, Obstructive.

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Publication types expand

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Observational Study

JMIR Res Protoc

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. 2024 May 7:13:e55452.

doi: 10.2196/55452.

Measuring Physical Functioning Using Wearable Sensors in Parkinson Disease and Chronic Obstructive Pulmonary Disease (the Accuracy of Digital Assessment of Performance Trial Study): Protocol for a Prospective Observational Study

[Debbie de Graaf¹](#), [Nienke M de Vries¹](#), [Tessa van de Zande¹](#), [Janneke J P Schimmel¹](#), [Sooyoon Shin²](#), [Nathan Kowahl²](#), [Poulami Barman²](#), [Ritu Kapur^{1,2}](#), [William J Marks Jr²](#), [Alex van 't Hul³](#), [Bastiaan Bloem¹](#)

Affiliations expand

- PMID: 38713508
- DOI: [10.2196/55452](https://doi.org/10.2196/55452)

Free article

Abstract

Background: Physical capacity and physical activity are important aspects of physical functioning and quality of life in people with a chronic disease such as Parkinson disease

(PD) or chronic obstructive pulmonary disease (COPD). Both physical capacity and physical activity are currently measured in the clinic using standardized questionnaires and tests, such as the 6-minute walk test (6MWT) and the Timed Up and Go test (TUG). However, relying only on in-clinic tests is suboptimal since they offer limited information on how a person functions in daily life and how functioning fluctuates throughout the day. Wearable sensor technology may offer a solution that enables us to better understand true physical functioning in daily life.

Objective: We aim to study whether device-assisted versions of 6MWT and TUG, such that the tests can be performed independently at home using a smartwatch, is a valid and reliable way to measure the performance compared to a supervised, in-clinic test.

Methods: This is a decentralized, prospective, observational study including 100 people with PD and 100 with COPD. The inclusion criteria are broad: age ≥ 18 years, able to walk independently, and no co-occurrence of PD and COPD. Participants are followed for 15 weeks with 4 in-clinic visits, once every 5 weeks. Outcomes include several walking tests, cognitive tests, and disease-specific questionnaires accompanied by data collection using wearable devices (the Verily Study Watch and Modus StepWatch). Additionally, during the last 10 weeks of this study, participants will follow an aerobic exercise training program aiming to increase physical capacity, creating the opportunity to study the responsiveness of the remote 6MWT.

Results: In total, 89 people with PD and 65 people with COPD were included in this study. Data analysis will start in April 2024.

Conclusions: The results of this study will provide information on the measurement properties of the device-assisted 6MWT and TUG in the clinic and at home. When reliable and valid, this can contribute to a better understanding of a person's physical capacity in real life, which makes it possible to personalize treatment options.

Trial registration: ClinicalTrials.gov [NCT05756075](https://clinicaltrials.gov/study/NCT05756075);
<https://clinicaltrials.gov/study/NCT05756075>.

International registered report identifier (irrid): DERR1-10.2196/55452.

Keywords: COPD; Parkinson disease; StepWatch; chronic obstructive pulmonary disease; dementia; exercise; home-based; locomotion; physical activity; physical capacity; smartwatch; treatment; walking; wearable; wearable devices; wearable sensor; wearables.

©Debbie de Graaf, Nienke M de Vries, Tessa van de Zande, Janneke J P Schimmel, Sooyoon Shin, Nathan Kowahl, Poulami Barman, Ritu Kapur, William J Marks Jr, Alex van 't Hul, Bastiaan Bloem. Originally published in JMIR Research Protocols (<https://www.researchprotocols.org>), 07.05.2024.

SUPPLEMENTARY INFO

Publication types, MeSH terms, Associated dataexpand

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Am J Respir Crit Care Med



. 2024 May 7.

doi: 10.1164/rccm.202402-0466RL. Online ahead of print.

[The Impact of Tobacco Smoking in Bronchiectasis: Data from the United States Bronchiectasis and NTM Research Registry](#)

[Pamela J McShane](#)¹, [Amanda E Brunton](#)², [Radmila Choate](#)³, [Meghan Marmor](#)⁴, [Christopher J Richards](#)⁵, [George M Solomon](#)⁶, [Diego J Maselli](#)⁷, [Colin Swenson](#)⁸, [Timothy R Aksamit](#)⁹, [Mark L Metersky](#)¹⁰

Affiliations expand

- PMID: 38712994
- DOI: [10.1164/rccm.202402-0466RL](https://doi.org/10.1164/rccm.202402-0466RL)

No abstract available

Keywords: epidemiology; exacerbations; hospitalizations; tobacco use.

FULL TEXT LINKS



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Respirology

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. 2024 May 7.

doi: 10.1111/resp.14731. Online ahead of print.

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

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

Affiliations expand

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

No abstract available

Keywords: asthma-COPD overlap; persistent airflow limitation.

- [21 references](#)

FULL TEXT LINKS



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Am J Physiol Lung Cell Mol Physiol

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. 2024 May 7.

doi: 10.1152/ajplung.00306.2023. Online ahead of print.

Elastin-derived peptides favor type 2 innate lymphoid cells in COPD

[Sarah Lahire](#)¹, [Caroline Fichel](#)², [Océane Rubaszewski](#)¹, [Cédric Lereverend](#)¹, [Sandra Audonnet](#)³, [Vincent Visneux](#)⁴, [Jeanne-Marie Perotin](#)⁵, [Gaëtan Deslée](#)⁵, [Sébastien Le Jan](#)¹, [Stéphane Potteaux](#)¹, [Richard Le Naour](#)⁶, [Arnaud Pommier](#)¹

Affiliations [expand](#)

- PMID: 38712445
- DOI: [10.1152/ajplung.00306.2023](https://doi.org/10.1152/ajplung.00306.2023)

Abstract

Chronic obstructive pulmonary disease (COPD) is a condition characterized by chronic airway inflammation and obstruction, primarily caused by tobacco smoking. Although the involvement of immune cells in COPD pathogenesis is well established, the contribution of innate lymphoid cells (ILC) remains poorly understood. ILC are a type of innate immune cells that participate in tissue remodeling processes, but their specific role in COPD has not been fully elucidated. During COPD, the breakdown of pulmonary elastin generates elastin peptides that elicit biological activities on immune cells. This study aimed to investigate the presence of ILC in COPD patients and examine the impact of elastin peptides on their functionality. Our findings revealed an elevated proportion of ILC2 in the peripheral blood

of COPD patients, and a general activation of ILC as indicated by an increase in their cytokine secretion capacity. Notably, our study demonstrated that serum from COPD patients promotes ILC2 phenotype, likely due to the elevated concentration of IL-5, a cytokine known to favor ILC2 activation. Furthermore, we uncovered that this increase in IL-5 secretion is partially attributed to its secretion by macrophages upon stimulation by elastin peptides, suggesting an indirect role of elastin peptides on ILC in COPD. These findings shed light on the involvement of ILC in COPD and provide insights into the potential interplay between elastin breakdown, immune cells, and disease progression. Further understanding of the mechanisms underlying ILC activation and their interaction with elastin peptides could contribute to the development of novel therapeutic strategies for COPD management.

Keywords: COPD; Elastin peptides; Innate lymphoid cells.

FULL TEXT LINKS



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Respir Care

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. 2024 May 6:respcare.11478.

doi: 10.4187/respcare.11478. Online ahead of print.

[Pulmonologist Education of the Teach-to-Goal Inhaler Technique for Those With Asthma and COPD](#)

[Vaishali Mehta](#)¹, [Najia Sayedy](#)², [Joshua Fogel](#)³, [Eric Lam](#)⁴, [Pratap Upadrista](#)⁴, [Bruno Okoro](#)⁴, [Hira Tahir](#)⁴, [Jagadish Akella](#)²

Affiliations expand

- PMID: 38688545
- DOI: [10.4187/respcare.11478](https://doi.org/10.4187/respcare.11478)

Abstract

Background: Inhaler education for patients with asthma and patients with COPD is typically provided by non-pulmonologists. We studied inhaler education by pulmonologists to determine changes in clinical outcomes and inhaler use.

Methods: This was a retrospective study of 296 subjects diagnosed with asthma, COPD, or both that evaluated use of inhaler technique education and its impact on (1) inhaler/dosage change consisting of dosage change in the same class of inhaler and/or change in number of inhalers, (2) forced expiratory volume in one second/forced vital capacity (FEV₁/FVC%), (3) disease symptom control, (4) out-patient visits, (5) urgent care visits (6) emergency department visits, and (7) hospital admissions. One group received inhaler technique education by a pulmonologist while the other group did not.

Results: The pulmonologist inhaler technique-educated group had significantly decreased relative risk for inhaler/dosage increase (relative risk 0.57 [95% CI 0.34-0.96], *P* = .03) and significantly increased odds for symptom control (odds ratio 2.15 [95% CI 1.24-3.74], *P* = .01) at 1-y follow-up as compared to the no education group. No differences occurred for FEV₁/FVC%, out-patient visits, urgent care visits, emergency department visits, and hospital admissions.

Conclusions: Pulmonologist education of inhaler technique for patients with asthma and patients with COPD was associated with decreased relative risk for inhaler/dosage increase and increased odds for symptom control. We recommend pulmonologists provide education of inhaler technique to patients with asthma and patients with COPD and not rely on non-pulmonologist education alone. Prospective research is needed to confirm the importance of proper inhaler techniques.

Keywords: COPD; asthma; education; nebulizers and vaporizers; pulmonologists.

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Pneumonia (Nathan)

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. 2024 May 5;16(1):8.

doi: 10.1186/s41479-024-00130-2.

[Accuracy of the recording of pneumonia events in English electronic healthcare record data in patients with chronic obstructive pulmonary disease](#)

[Alexander J Adamson](#)¹, [Constantinos Kallis](#)², [Ian Douglas](#)³, [Jennifer K Quint](#)²

Affiliations expand

- PMID: 38704560
- PMCID: [PMC11070075](#)
- DOI: [10.1186/s41479-024-00130-2](#)

Abstract

Background: In primary care, identifying pneumonia events in people with chronic obstructive pulmonary disease (COPD) may be challenging due to similarities in symptoms with COPD exacerbations and lack of diagnostic testing. This study explored the accuracy of pneumonia diagnosis coded in primary care by comparing diagnosis in primary care with diagnosis in hospital.

Methods: A study population of people with COPD in England was created using the Clinical Practice Research Datalink Aurum database linked with Hospital Episode Statistics inpatient data. Pneumonia codes only, and pneumonia code with associated clinical and/or

treatment codes (chest x-ray, symptoms, antibiotics, sputum and blood culture) were used to determine pneumonia events in primary care. Events that were followed by hospitalisation within 7 days were used to estimate the positive predictive value (PPV) of pneumonia coding in primary care, using primary diagnosis of pneumonia in secondary care as the gold standard. The PPV of primary care recording of hospitalised pneumonia was also calculated.

Results: Two hundred seventy-four thousand one hundred fifty-six COPD patients were eligible for inclusion, of whom 7,560 had an eligible pneumonia event in primary care diagnosed between 2015-2019 which was not 'hospital-acquired' and was diagnosed and entered on the same day. Of the 2,094 events which were followed by hospitalisation within 7 days, 1,208 had a primary diagnosis of pneumonia in hospital, representing a PPV of pneumonia coding in primary care of 57.7% (95% CI 55.6%-59.8%). Another 284 (13.6%) were diagnosed as a COPD exacerbation and 114 (5.4%) were diagnosed as another respiratory disease. Use of additional pneumonia clinical and treatment codes had a modest effect on the PPV but substantially lowered the number of events. Of the 33,603 eligible pneumonia events identified in secondary care, only 11,445 were recorded in primary care within 42 days, representing a sensitivity of 34.1% (95% CI 33.6%-34.6%).

Conclusions: Use of primary care pneumonia codes and associated clinical and treatment codes to determine pneumonia is not recommended due to significant levels of misdiagnosis and many hospitalised events failing to be recorded in primary care.

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Conflict of interest statement

JKQ reports grants from MRC, HDR UK, A+LUK, AZ, BI, GSK and personal fees for advisory board participation or speaking from GSK, AZ, Insmmed. ID reports grants from GSK and AZ and owns shares in GSK. AA and CK report no competing interests.

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

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EBioMedicine

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. 2024 May 4;104:105148.

doi: 10.1016/j.ebiom.2024.105148. Online ahead of print.

Multimorbidity and emergency hospitalisations during hot weather

[Zhiwei Xu](#)¹, [Weizhuo Yi](#)², [Aaron Bach](#)³, [Shilu Tong](#)⁴, [Kristie L Ebi](#)⁵, [Hong Su](#)⁶, [Jian Cheng](#)⁶, [Shannon Rutherford](#)³

Affiliations expand

- PMID: 38705102
- DOI: [10.1016/j.ebiom.2024.105148](https://doi.org/10.1016/j.ebiom.2024.105148)

Free article

Abstract

Background: People with chronic diseases are a commonly listed heat-vulnerable group in heat-health action plans. While prior research identifies multiple health conditions that may increase vulnerability to ambient heat, there is minimal evidence regarding the implications of multimorbidity (two or more chronic diseases).

Methods: From the statewide hospital registry of Queensland, Australia, we identified people aged ≥ 15 years who had emergency hospitalisation(s) between March 2004 and April 2016 and previously had 0, 1, 2, or ≥ 3 of five chronic diseases: cardiovascular disease, diabetes, mental disorders, asthma/COPD, and chronic kidney disease. We conducted time-stratified case-crossover analyses to estimate the odds ratio of hospitalisations associated with ambient heat exposure in people with different numbers, types, and combinations of chronic diseases. Ambient heat exposure was defined as a 5 °C increase in daily mean temperature above the median.

Findings: There were 2,263,427 emergency hospitalisations recorded (48.7% in males and 51.3% in females). When the mean temperature increased, hospitalisation odds increased with chronic disease number, particularly in older persons (≥ 65 years), males, and non-indigenous people. For instance, in older persons with 0, 1, 2, or ≥ 3 chronic diseases, the odds ratios associated with ambient heat exposure were 1.00 (95% confidence interval: 0.96, 1.04), 1.06 (1.02, 1.09), 1.08 (1.02, 1.14), and 1.13 (1.07, 1.19), respectively. Among the chronic diseases, chronic kidney disease, and asthma/COPD, either existing alone, together, or in combination with other diseases, were associated with the highest odds of hospitalisations under ambient heat exposure.

Interpretation: While individuals with multimorbidity are considered in heat-health action plans, this study suggests the need to consider specifically examining them as a distinct and vulnerable subgroup.

Funding: Wellcome.

Keywords: Chronic disease; Heat-health action plan; Multimorbidity.

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Conflict of interest statement

Declaration of interests We declare no competing interests.

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BMC Pulm Med

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. 2024 May 4;24(1):221.

doi: 10.1186/s12890-024-03035-4.

Factors associated with non-fatal heart failure and atrial fibrillation or flutter within the first 30 days post COPD exacerbation: a nested case-control study

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Affiliations expand

- PMID: 38704538
- PMCID: [PMC11069200](#)
- DOI: [10.1186/s12890-024-03035-4](#)

Abstract

Background: An immediate, temporal risk of heart failure and arrhythmias after a Chronic Obstructive Pulmonary Disease (COPD) exacerbation has been demonstrated, particularly in the first month post-exacerbation. However, the clinical profile of patients who develop heart failure (HF) or atrial fibrillation/flutter (AF) following exacerbation is unclear. Therefore we examined factors associated with people being hospitalized for HF or AF, respectively, following a COPD exacerbation.

Methods: We conducted two nested case-control studies, using primary care electronic healthcare records from the Clinical Practice Research Datalink Aurum linked to Hospital Episode Statistics, Office for National Statistics for mortality, and socioeconomic data (2014-2020). Cases had hospitalization for HF or AF within 30 days of a COPD exacerbation, with controls matched by GP practice (HF 2:1;AF 3:1). We used conditional logistic regression to explore demographic and clinical factors associated with HF and AF hospitalization.

Results: Odds of HF hospitalization (1,569 cases, 3,138 controls) increased with age, type II diabetes, obesity, HF and arrhythmia history, exacerbation severity (hospitalization), most cardiovascular medications, GOLD airflow obstruction, MRC dyspnea score, and chronic

kidney disease. Strongest associations were for severe exacerbations (adjusted odds ratio (aOR)=6.25, 95%CI 5.10-7.66), prior HF (aOR=2.57, 95%CI 1.73-3.83), age \geq 80 years (aOR=2.41, 95%CI 1.88-3.09), and prior diuretics prescription (aOR=2.81, 95%CI 2.29-3.45). Odds of AF hospitalization (841 cases, 2,523 controls) increased with age, male sex, severe exacerbation, arrhythmia and pulmonary hypertension history and most cardiovascular medications. Strongest associations were for severe exacerbations (aOR=5.78, 95%CI 4.45-7.50), age \geq 80 years (aOR=3.15, 95%CI 2.26-4.40), arrhythmia (aOR=3.55, 95%CI 2.53-4.98), pulmonary hypertension (aOR=3.05, 95%CI 1.21-7.68), and prescription of anticoagulants (aOR=3.81, 95%CI 2.57-5.64), positive inotropes (aOR=2.29, 95%CI 1.41-3.74) and anti-arrhythmic drugs (aOR=2.14, 95%CI 1.10-4.15).

Conclusions: Cardiopulmonary factors were associated with hospitalization for HF in the 30 days following a COPD exacerbation, while only cardiovascular-related factors and exacerbation severity were associated with AF hospitalization. Understanding factors will help target people for prevention.

Keywords: Arrhythmia; Atrial Fibrillation; Cardiovascular Disease; Chronic Obstructive Pulmonary Disease Exacerbations; Electronic Health Records; Epidemiology; Flutter; Heart Failure.

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Conflict of interest statement

JQ reports grants from GlaxoSmithKline, Health Data Research UK, MRC, Asthma+Lung UK, Bayer, BI, AZ and Chiesi, outside this work and AZ for the conduct of this study. JQ has received personal fees for advisory board participation, consultancy or speaking fees from GlaxoSmithKline, Evidera, AstraZeneca, and Insmed. CN, KR, and SM are employees of AZ and hold stock and/or options in the company. HW reports grants from Health Data Research UK outside the submitted work. EG, CK, AI, and MA have nothing to disclose.

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

SUPPLEMENTARY INFO

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Tuberc Respir Dis (Seoul)



. 2024 May 3.

doi: 10.4046/trd.2023.0174. Online ahead of print.

Eosinophilia is a favorable marker for pneumonia in chronic obstructive pulmonary disease

[Kang-Mo Gu](#)¹, [Jae-Woo Jung](#)¹, [Min-Jong Kang](#)², [Deog Kyeom Kim](#)³, [Hayoung Choi](#)⁴, [Young-Jae Cho](#)⁵, [Seung Hun Jang](#)⁶, [Chang-Hoon Lee](#)⁷, [Yeon Mok Oh](#)⁸, [Ji Sook Park](#)⁹, [Jae Yeol Kim](#)¹

Affiliations expand

- PMID: 38710525
- DOI: [10.4046/trd.2023.0174](https://doi.org/10.4046/trd.2023.0174)

Abstract

Background: Patients with chronic obstructive pulmonary disease (COPD) expressing eosinophilia experience slightly fewer episodes of community-acquired pneumonia (CAP) than those without eosinophilia. However, the severity and burden of hospitalized pneumonia patients with COPD concerning eosinophilia have not been assessed.

Methods: We evaluated the differences in clinical characteristics between patients with CAP and COPD with or without eosinophilia by a post-hoc analysis of a prospective, multi-center, cohort study data.

Results: Of 349 CAP patients with COPD, 45 (12.9%) had eosinophilia (blood eosinophil \geq 300 cells/ μ L). Patients with eosinophilia had a lower sputum culture percentile (8.1% vs. 23.4%, $P < 0.05$), a lower percentile of neutrophils (70.3% vs 80.2%, $P < 0.05$), reduced C-reactive protein levels (30.6 mg/L vs 86.6 mg/L, $P < 0.05$), and a lower pneumonia severity index score (82.5 vs. 90.0, $P < 0.05$) than those without eosinophilia. The duration of

antibiotic treatment (8.0 days vs. 10.0 days, $P < 0.05$) and hospitalization (7.0 days vs. 9.0 days, $P < 0.05$) were shorter in eosinophilic patients. The cost of medical care per day (256.4 US\$ vs. 291.0 US\$, $P < 0.05$), cost for the medication (276.4 US\$ vs. 349.9 US\$, $P < 0.05$), and cost for examination (685.5 US\$ vs 958.1 US\$, $P < 0.05$) were lower in patients with eosinophilia than those without eosinophilia.

Conclusion: Eosinophilia serves as a favorable marker for severity of pneumonia, health-care consumption, and cost of medical care in patients with CAP and COPD.

Keywords: COPD; cost; eosinophilia; pneumonia; severity.

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Am J Respir Crit Care Med



. 2024 May 3.

doi: 10.1164/rccm.202310-1972PP. Online ahead of print.

[Molecular Characterization of the Distal Lung: Novel Insights from COPD Omics](#)

[Peter J Castaldi](#)¹, [Maor Sauler](#)²

Affiliations expand

- PMID: 38701385
- DOI: [10.1164/rccm.202310-1972PP](https://doi.org/10.1164/rccm.202310-1972PP)

No abstract available

Keywords: copd; gwas; lung development and repair; single cell transcriptomics.

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ESC Heart Fail



. 2024 May 3.

doi: 10.1002/ehf2.14828. Online ahead of print.

[Artificial intelligence-assisted automated heart failure detection and classification from electronic health records](#)

[Mon Myat Oo](#)¹, [Chuang Gao](#)², [Christian Cole](#)^{2,3}, [Yoran Hummel](#)⁴, [Magalie Guignard-Duff](#)², [Emily Jefferson](#)^{2,3}, [James Hare](#)⁴, [Adriaan A Voors](#)⁵, [Rudolf A de Boer](#)⁶, [Carolyn S P Lam](#)^{7,8}, [Ify R Mordi](#)¹, [Jasper Tromp](#)^{7,8,9}, [Chim C Lang](#)¹

Affiliations expand

- PMID: 38700133
- DOI: [10.1002/ehf2.14828](https://doi.org/10.1002/ehf2.14828)

Free article

Abstract

Aims: Electronic health records (EHR) linked to Digital Imaging and Communications in Medicine (DICOM), biological specimens, and deep learning (DL) algorithms could potentially improve patient care through automated case detection and surveillance. We hypothesized that by applying keyword searches to routinely stored EHR, in conjunction with AI-powered automated reading of DICOM echocardiography images and analysing biomarkers from routinely stored plasma samples, we were able to identify heart failure (HF) patients.

Methods and results: We used EHR data between 1993 and 2021 from Tayside and Fife (~20% of the Scottish population). We implemented a keyword search strategy complemented by filtering based on International Classification of Diseases (ICD) codes and prescription data to EHR data set. We then applied DL for the automated interpretation of echocardiographic DICOM images. These methods were then integrated with the analysis of routinely stored plasma samples to identify and categorize patients into HF with reduced ejection fraction (HFrEF), HF with preserved ejection fraction (HFpEF), and controls without HF. The final diagnosis was verified through a manual review of medical records, measured natriuretic peptides in stored blood samples, and by comparing clinical outcomes among groups. In our study, we selected the patient cohort through an algorithmic workflow. This process started with 60 850 EHR data and resulted in a final cohort of 578 patients, divided into 186 controls, 236 with HFpEF, and 156 with HFrEF, after excluding individuals with mismatched data or significant valvular heart disease. The analysis of baseline characteristics revealed that compared with controls, patients with HFrEF and HFpEF were generally older, had higher BMI, and showed a greater prevalence of co-morbidities such as diabetes, COPD, and CKD. Echocardiographic analysis, enhanced by DL, provided high coverage, and detailed insights into cardiac function, showing significant differences in parameters such as left ventricular diameter, ejection fraction, and myocardial strain among the groups. Clinical outcomes highlighted a higher risk of hospitalization and mortality for HF patients compared with controls, with particularly elevated risk ratios for both HFrEF and HFpEF groups. The concordance between the algorithmic selection of patients and manual validation demonstrated high accuracy, supporting the effectiveness of our approach in identifying and classifying HF subtypes, which could significantly impact future HF diagnosis and management strategies.

Conclusions: Our study highlights the feasibility of combining keyword searches in EHR, DL automated echocardiographic interpretation, and biobank resources to identify HF subtypes.

Keywords: Deep learning algorithms; Electronic health record data; Epidemiology; Heart failure; Preserved ejection fraction; Validation.

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- [33 references](#)

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BMC Pulm Med

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. 2024 May 2;24(1):219.

doi: 10.1186/s12890-024-03034-5.

[Prevalence and clinical characteristics of Sarcopenia in older adult patients with stable chronic obstructive pulmonary disease: a cross-sectional and follow-up study](#)

[Sang Hun Kim](#)¹, [Cho Hui Hong](#)^{2,3}, [Myung-Jun Shin](#)¹, [Ki Uk Kim](#)⁴, [Tae Sung Park](#)², [Jun Yong Park](#)⁵, [Yong Beom Shin](#)⁶

Affiliations [expand](#)

- PMID: 38698380
- PMCID: [PMC11067242](#)
- DOI: [10.1186/s12890-024-03034-5](#)

Abstract

Background: The relationship between sarcopenia and chronic obstructive pulmonary disease (COPD) has been increasingly reported, and there is some overlap regarding their clinical features and pulmonary rehabilitation (PR) strategies. No Korean study has reported the actual prevalence of sarcopenia in patients with stable COPD who are recommended for pulmonary rehabilitation. This study evaluated the prevalence and clinical features of sarcopenia in older adult outpatients with stable COPD and the changes after 6 months.

Methods: In this cross-sectional and 6-month follow-up study, we recruited 63 males aged ≥ 65 diagnosed with stable COPD. Sarcopenia was diagnosed using the AWGS 2019 criteria, which included hand grip strength testing, bioelectrical impedance analysis, Short Physical Performance Battery administration, and Strength, Assistance with walking, Rising from a chair, Climbing stairs, and Falling screening tool administration. A 6-minute walk test (6 MWT) was conducted, forced vital capacity (FVC), forced expiratory volume in 1 s (FEV_1), maximal inspiratory and expiratory pressures (MIP and MEP, respectively) and peak expiratory flow (PEF) were assessed, and patient-reported questionnaires were administered.

Results: At baseline, 14 (22%) patients were diagnosed with possible sarcopenia, and eight (12.6%) were diagnosed with sarcopenia. There were significant differences in the age; body mass index; Body mass index, airflow Obstruction, Dyspnea, and Exercise index; modified Medical Research Council dyspnea scores; and International Physical Activity Questionnaire scores between the normal and sarcopenia groups. Whole-body phase angle, MIP, MEP, PEF, and 6-minute walk distance (6 MWD) also showed significant differences. Over 6 months, the proportion of patients with a reduced FEV_1 increased; however, the proportion of patients with sarcopenia did not increase.

Conclusion: A relatively low prevalence of sarcopenia was observed in older adult outpatients with stable COPD. No significant change in the prevalence of sarcopenia was found during the 6-month follow-up period.

Trial registration: The study was registered with the Clinical Research Information Service (KCT0006720). Registration date: 30/07/2021.

Keywords: Chronic obstructive Pulmonary Disease; Grip Strength; Maximal respiratory pressures; Sarcopenia.

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Conflict of interest statement

The authors declare no competing interests.

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

SUPPLEMENTARY INFO

MeSH terms, Grants and funding expand

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Eur Respir J

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. 2024 May 2:2301736.

doi: 10.1183/13993003.01736-2023. Online ahead of print.

[Who is at risk of lung nodules on low-dose CT in a Western country? A population-based approach](#)

[Jiali Cai](#)¹, [Marleen Vonder](#)¹, [Yihui Du](#)^{1,2}, [Gert Jan Pelgrim](#)^{3,4}, [Mienke Rook](#)⁵, [Gerdien Kramer](#)^{3,5}, [Harry J M Groen](#)⁶, [Rozemarijn Vliegenthart](#)³, [Geertruida H de Bock](#)⁷

Affiliations expand

- PMID: 38697647
- DOI: [10.1183/13993003.01736-2023](https://doi.org/10.1183/13993003.01736-2023)

Free article

Abstract

Background: This population-based study aimed to identify the risk factors for lung nodules in a Western European general population.

Methods: We quantified the presence or absence of lung nodules among 12 055 participants of the Dutch population-based ImaLife (Imaging in Lifelines) study (≥ 45 years) who underwent low-dose chest computed tomography. Outcomes included the presence of 1) at least one solid lung nodule (volume ≥ 30 mm³) and 2) a clinically relevant lung nodule (volume ≥ 100 mm³). Fully adjusted multivariable logistic regression models were applied overall and stratified by smoking status to identify independent risk factors for nodules presence.

Results: Among the 12 055 participants (44.1% men; median age 60 years; 39.9% never smokers; 98.7% Caucasian), we found lung nodules in 41.8% (5045 out of 12 055) and clinically relevant nodules in 11.4% (1377 out of 12 055); the corresponding figures among never smokers were 38.8% and 9.5%. Factors independently associated with increased odds of having any lung nodule included male-sex, older-age, low-educational level, former smoking, asbestos exposure, and chronic obstructive pulmonary disease. Among never smokers, a family history of lung cancer increased the odds of both lung nodules and clinically relevant nodules. Among former and current smokers, low educational level was positively associated with lung nodules, whereas being overweight was negatively associated. Among current smokers, asbestos exposure and low physical activity were associated with clinically relevant nodules.

Conclusions: The study provides a large-scale evaluation of lung nodules and associated risk factors in a Western European general population: lung nodules and clinically relevant nodules were prevalent, and never smokers with a family history of lung cancer were a non-negligible group.

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Eur Respir J

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. 2024 May 2;63(5):2400458.

doi: 10.1183/13993003.00458-2024. Print 2024 May.

Cannabis smoking is associated with advanced epigenetic age

[Ana I Hernandez Cordero](#)^{1,2}, [Xuan Li](#)¹, [Chen Xi Yang](#)¹, [Amirtha Ambalavanan](#)³, [Julie L Maclsaac](#)^{2,4}, [Michael S Kobor](#)^{2,4}, [Dany Doiron](#)⁵, [Wan Tan](#)¹, [Jean Bourbeau](#)⁵, [Don D Sin](#)^{1,2,6}, [Qingling Duan](#)^{3,7,8}, [Janice M Leung](#)^{9,2,6,8}; [CanCOLD Collaborative Research Group](#)

Affiliations expand

- PMID: 38609099
- PMCID: [PMC11063617](#)
- DOI: [10.1183/13993003.00458-2024](#)

Abstract

Current cannabis smoking is significantly associated with faster peripheral blood epigenetic age acceleration; interestingly, cannabis smoking cessation is shown to normalise this age acceleration signal. <https://bit.ly/3x7s2CU>

Conflict of interest statement

Conflicts of interest: D.D. Sin has received a stipend for giving talks on COPD from AstraZeneca, GlaxoSmithKline and Boehringer Ingelheim, and is deputy chief editor of the European Respiratory Journal. The remaining authors have no potential conflicts of interest to disclose.

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

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

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Review

Eur Respir J



. 2024 May 2;63(5):2301010.

doi: 10.1183/13993003.01010-2023. Print 2024 May.

[Advances in COPD imaging using CT and MRI: linkage with lung physiology and clinical outcomes](#)

[Amany F Elbehairy](#)^{1,2}, [Helen Marshall](#)³, [Josephine H Naish](#)^{4,5}, [Jim M Wild](#)^{3,6}, [Grace Parraga](#)^{7,8,9}, [Alexander Horsley](#)², [Jørgen Vestbo](#)²

Affiliations expand

- PMID: 38548292
- DOI: [10.1183/13993003.01010-2023](https://doi.org/10.1183/13993003.01010-2023)

Abstract

Recent years have witnessed major advances in lung imaging in patients with COPD. These include significant refinements in images obtained by computed tomography (CT) scans together with the introduction of new techniques and software that aim for obtaining the best image whilst using the lowest possible radiation dose. Magnetic resonance imaging (MRI) has also emerged as a useful radiation-free tool in assessing structural and more

importantly functional derangements in patients with well-established COPD and smokers without COPD, even before the existence of overt changes in resting physiological lung function tests. Together, CT and MRI now allow objective quantification and assessment of structural changes within the airways, lung parenchyma and pulmonary vessels. Furthermore, CT and MRI can now provide objective assessments of regional lung ventilation and perfusion, and multinuclear MRI provides further insight into gas exchange; this can help in structured decisions regarding treatment plans. These advances in chest imaging techniques have brought new insights into our understanding of disease pathophysiology and characterising different disease phenotypes. The present review discusses, in detail, the advances in lung imaging in patients with COPD and how structural and functional imaging are linked with common resting physiological tests and important clinical outcomes.

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Conflict of interest statement

Conflict of interest: A.F. Elbehairy has nothing to disclose. H. Marshall reports research funding from GlaxoSmithKline and meeting expenses from AstraZeneca. J.H. Naish has a part-time appointment with Bioxydyn Ltd. J.M. Wild is funded by the UKRI, NIHR, MRC and NIHR Sheffield Biomedical Research Centre, has investigator-led research funding from GlaxoSmithKline and AstraZeneca, and has provided consultancy for Vertex, Boehringer Ingelheim and AstraZeneca. G. Parraga acknowledges study funding from GlaxoSmithKline and AstraZeneca, honoraria from GlaxoSmithKline, AstraZeneca and Polarean, and travel support from GlaxoSmithKline and Polarean. A. Horsley reports personal fees from Vertex Pharmaceuticals and Mylan Pharmaceuticals, consulting fees from Vertex Pharmaceuticals, Boehringer Ingelheim and Roche Genentech, grants from JP Moulton Charitable Trust, EPSRC, CF Trust, Cystic Fibrosis Foundation and NIHR, and leadership roles with the Translational Research Collaboration and CF Trust Clinical Trials Accelerator Platform, outside the submitted work. J. Vestbo reports personal fees from ALK-Abelló, AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline and Teva, outside the submitted work. A. Horsley and J. Vestbo are supported by the NIHR Manchester Biomedical Research Centre and Clinical Research Facility.

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

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

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. 2024 May 8;14(1):10557.

doi: 10.1038/s41598-024-52164-7.

Association of the CUN-BAE body adiposity estimator and other obesity indicators with cardiometabolic multimorbidity: a cross-sectional study

Xuejiao Chen¹, Shuoji Geng¹, Zhan Shi², Jiacheng Ding¹, Haojie Li¹, Donghai Su¹, Yulin Cheng¹, Songhe Shi¹, Qingfeng Tian³

Affiliations expand

- PMID: 38719889
- PMCID: [PMC11078937](#)
- DOI: [10.1038/s41598-024-52164-7](#)

Abstract

Cardiometabolic multimorbidity (CM), defined as the coexistence of two or three cardiometabolic disorders, is one of the most common and deleterious multimorbidities. This study aimed to investigate the association of Clínica Universidad de Navarra-Body Adiposity Estimator (CUN-BAE), body mass index (BMI), waist circumference (WC), and waist-to-height ratio (WHtR) with the prevalence of CM. The data were obtained from the 2021 health checkup database for residents of the Electronic Health Management Center in Xinzheng, Henan Province, China. 81,532 participants aged ≥ 60 years were included in this study. Logistic regression models were used to estimate the odd ratios (ORs) and 95%

confidence intervals (CIs) for CUN-BAE, BMI, WC, and WHtR in CM. The area under the receiver operating characteristic curve (AUC) was used to compare the discriminatory ability of different anthropometric indicators for CM. The multivariable-adjusted ORs (95% CIs) (per 1 SD increase) of CM were 1.799 (1.710-1.893) for CUN-BAE, 1.329 (1.295-1.364) for BMI, 1.343 (1.308-1.378) for WC, and 1.314 (1.280-1.349) for WHtR, respectively. Compared with BMI, WC and WHtR, CUN-BAE had the highest AUC in both males and females (AUC: 0.642; 95% CI 0.630-0.653 for males, AUC: 0.614; 95% CI 0.630-0.653 for females). CUN-BAE may be a better measure of the adverse effect of adiposity on the prevalence of CM than BMI, WC, and WHtR.

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Conflict of interest statement

The authors declare no competing interests.

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

SUPPLEMENTARY INFO

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

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Psychosom Med

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. 2024 May 6.

doi: 10.1097/PSY.0000000000001319. Online ahead of print.

Evidence-Based Therapist-Supported Digital Mental Health Intervention for Patients Experiencing Medical Multimorbidity: A Retrospective Cohort Intent-to-Treat Study

[Benjamin W Nelson](#), [Nicholas C Peiper](#), [Kirstin Aschbacher](#), [Valerie L Forman-Hoffman](#)¹

Affiliations expand

- PMID: 38718176
- DOI: [10.1097/PSY.0000000000001319](https://doi.org/10.1097/PSY.0000000000001319)

Abstract

Objectives: Multimorbidity or the co-occurrence of multiple health conditions is increasing globally and is associated with significant psychological complications. It is unclear whether digital mental health (DMH) interventions for patients experiencing multimorbidity are effective, particularly given that this patient population faces more treatment resistance. The goal of the current study was to examine the impact of smartphone-delivered DMH interventions for patients presenting with elevated internalizing symptoms that have reported multiple lifetime medical conditions.

Methods: This preregistered (see <https://osf.io/vh2et/>) retrospective cohort intent-to-treat study with 2,819 patients enrolled in a therapist-supported DMH intervention examined the associations between medical multimorbidity (MMB) and mental health outcomes.

Results: Results indicated that more MMB was significantly associated with greater presenting mental health symptom severity. MMB did not have a deleterious influence on depressive symptom trajectories across treatment, although having one medical condition was associated with a steeper decrease in anxiety symptoms compared to patients with no medical conditions. Finally, MMB was not associated with time to dropout, but was associated with higher dropout and was differentially associated with fewer beneficial treatment outcomes, although this is likely attributable to higher presenting symptom severity, rather than lesser symptom reductions during treatment.

Conclusions: Overall, the MHP was associated with large effect size decreases in depressive and anxiety symptoms regardless of the number of MMB. Future DMH

treatments and research might investigate tailored barrier reduction and extended treatment lengths for patients experiencing MMB to allow for greater treatment dose to reduce symptoms below clinical outcome thresholds.

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Conflict of interest statement

Conflicts of Interest: Meru Health was the full-time employer of the authors. Meru Health had no role in the conceptualization or design of the study, analysis or interpretation of these data, writing of the manuscript, or in the decision to publish these findings.

FULL TEXT LINKS



[Proceed to details](#)

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3

EBioMedicine



. 2024 May 4;104:105148.

doi: 10.1016/j.ebiom.2024.105148. Online ahead of print.

Multimorbidity and emergency hospitalisations during hot weather

[Zhiwei Xu](#)¹, [Weizhuo Yi](#)², [Aaron Bach](#)³, [Shilu Tong](#)⁴, [Kristie L Ebi](#)⁵, [Hong Su](#)⁶, [Jian Cheng](#)⁶, [Shannon Rutherford](#)³

Affiliations expand

- PMID: 38705102

- DOI: [10.1016/j.ebiom.2024.105148](https://doi.org/10.1016/j.ebiom.2024.105148)

Free article

Abstract

Background: People with chronic diseases are a commonly listed heat-vulnerable group in heat-health action plans. While prior research identifies multiple health conditions that may increase vulnerability to ambient heat, there is minimal evidence regarding the implications of multimorbidity (two or more chronic diseases).

Methods: From the statewide hospital registry of Queensland, Australia, we identified people aged ≥ 15 years who had emergency hospitalisation(s) between March 2004 and April 2016 and previously had 0, 1, 2, or ≥ 3 of five chronic diseases: cardiovascular disease, diabetes, mental disorders, asthma/COPD, and chronic kidney disease. We conducted time-stratified case-crossover analyses to estimate the odds ratio of hospitalisations associated with ambient heat exposure in people with different numbers, types, and combinations of chronic diseases. Ambient heat exposure was defined as a 5 °C increase in daily mean temperature above the median.

Findings: There were 2,263,427 emergency hospitalisations recorded (48.7% in males and 51.3% in females). When the mean temperature increased, hospitalisation odds increased with chronic disease number, particularly in older persons (≥ 65 years), males, and non-indigenous people. For instance, in older persons with 0, 1, 2, or ≥ 3 chronic diseases, the odds ratios associated with ambient heat exposure were 1.00 (95% confidence interval: 0.96, 1.04), 1.06 (1.02, 1.09), 1.08 (1.02, 1.14), and 1.13 (1.07, 1.19), respectively. Among the chronic diseases, chronic kidney disease, and asthma/COPD, either existing alone, together, or in combination with other diseases, were associated with the highest odds of hospitalisations under ambient heat exposure.

Interpretation: While individuals with multimorbidity are considered in heat-health action plans, this study suggests the need to consider specifically examining them as a distinct and vulnerable subgroup.

Funding: Wellcome.

Keywords: Chronic disease; Heat-health action plan; Multimorbidity.

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Conflict of interest statement

Declaration of interests We declare no competing interests.

FULL TEXT LINKS



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4

Thorax

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. 2024 May 2:thorax-2023-220485.

doi: 10.1136/thorax-2023-220485. Online ahead of print.

[Lung function trajectories from school age to adulthood and their relationship with markers of cardiovascular disease risk](#)

[Raquel Granell](#)^{#1}, [Sadia Haider](#)^{#2}, [Matea Deliu](#)², [Anhar Ullah](#)², [Osama Mahmoud](#)^{3,4}, [Sara Fontanella](#)², [Lesley Lowe](#)⁵, [Angela Simpson](#)⁵, [James William Dodd](#)^{6,7}, [Seyed Hasan Arshad](#)⁸, [Clare S Murray](#)⁹, [Graham Roberts](#)^{10,11}, [Alun Hughes](#)¹², [Chloe Park](#)¹², [John W Holloway](#)^{#10}, [Adnan Custovic](#)^{#2}; [STELAR/UNICORN investigators](#)

Collaborators, Affiliations expand

- PMID: 38697843
- DOI: [10.1136/thorax-2023-220485](https://doi.org/10.1136/thorax-2023-220485)

Free article

Abstract

Rationale: Lung function in early adulthood is associated with subsequent adverse health outcomes.

Objectives: To ascertain whether stable and reproducible lung function trajectories can be derived in different populations and investigate their association with objective measures of cardiovascular structure and function.

Methods: Using latent profile modelling, we studied three population-based birth cohorts with repeat spirometry data from childhood into early adulthood to identify trajectories of forced expiratory volume in 1 s (FEV₁)/forced vital capacity (FVC). We used multinomial logistic regression models to investigate early-life predictors of the derived trajectories. We then ascertained the extent of the association between the derived FEV₁/FVC trajectories and blood pressure and echocardiographic markers of increased cardiovascular risk and stroke in ~3200 participants at age 24 years in one of our cohorts.

Results: We identified four FEV₁/FVC trajectories with strikingly similar latent profiles across cohorts (pooled N=6377): above average (49.5%); average (38.3%); below average (10.6%); and persistently low (1.7%). Male sex, wheeze, asthma diagnosis/medication and allergic sensitisation were associated with trajectories with diminished lung function in all cohorts. We found evidence of an increase in cardiovascular risk markers ascertained by echocardiography (including left ventricular mass indexed to height and carotid intima-media thickness) with decreasing FEV₁/FVC (with p values for the mean crude effects per-trajectory ranging from 0.10 to p<0.001). In this analysis, we considered trajectories as a pseudo-continuous variable; we confirmed the assumption of linearity in all the regression models.

Conclusions: Childhood lung function trajectories may serve as predictors in the development of not only future lung disease, but also the cardiovascular disease and multimorbidity in adulthood.

Keywords: Respiratory Measurement.

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Conflict of interest statement

Competing interests: RG, SH, MD, AU, OM, SF, LL, AS, CP, CSM and GR declare no conflicts of interest. AS has received research grants. JWD has received research and charity grants and declares pharmaceutical support for lectures and attending conferences/meetings. AH has received support from Research Institutions and declares an unpaid fiduciary role. JWH has received research grant and support for travel to congress. AC has received research grants, consulting fees, honoraria for lectures and declares unpaid fiduciary role.

FULL TEXT LINKS



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

1

Allergy

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. 2024 May 10.

doi: 10.1111/all.16157. Online ahead of print.

Comparison of upper and lower airway expression of SARS-COV-2 receptors in allergic asthma

[Maral Ranjbar](#)¹, [Christiane E Whetstone](#)¹, [Ruth P Cusack](#)¹, [Dhuha Al-Sajee](#)¹, [Hafsa Omer](#)¹, [Nadia Alsaji](#)¹, [Terence Ho](#)^{1,2}, [MyLinh Duong](#)^{1,2,3}, [Patrick Mitchell](#)¹, [Imran Satia](#)¹, [Paul K Keith](#)¹, [Yanqing Xie](#)¹, [Jonathan MacLean](#)⁴, [Doron D Sommer](#)⁴, [Paul M O'Byrne](#)^{1,2}, [Roma Sehmi](#)^{1,2}, [Gail M Gauvreau](#)¹

Affiliations expand

- PMID: 38726474
- DOI: [10.1111/all.16157](https://doi.org/10.1111/all.16157)

No abstract available

- [6 references](#)

SUPPLEMENTARY INFO

Publication types, Grants and funding expand

FULL TEXT LINKS



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J Investig Allergol Clin Immunol



. 2024 May 9:0.

doi: 10.18176/jiaci.1011. Online ahead of print.

Concomitant Efficacy of Dupilumab in Treating Eosinophilic Esophagitis and Type 2 Asthma

[M Tomás-Pérez](#)^{1,2}, [A Trisán Alonso](#)³, [A Montoro-Ferrer](#)⁴, [J Dominguez-Ortega](#)^{1,2,5}, [P A Galindo-Bonilla](#)⁶, [M Clar Castelló](#)⁶, [J E Naves](#)⁷, [P Ausín](#)⁸

Affiliations expand

- PMID: 38725323
- DOI: [10.18176/jiaci.1011](https://doi.org/10.18176/jiaci.1011)

No abstract available

Keywords: Dupilumab; Eosinophilic esophagitis; Eosinophilic esophagitis control; Severe T2 asthma; Severe atopic dermatitis.

FULL TEXT LINKS



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Nat Commun



. 2024 May 9;15(1):3900.

doi: 10.1038/s41467-024-48034-5.

[A common polymorphism in the Intelectin-1 gene influences mucus plugging in severe asthma](#)

[Jamie L Everman](#)¹, [Satria P Sajuthi](#)¹, [Maude A Liegeois](#)², [Nathan D Jackson](#)¹, [Erik H Collet](#)³, [Michael C Peters](#)⁴, [Maurizio Chioccioli](#)⁵, [Camille M Moore](#)¹, [Bhavika B Patel](#)¹, [Nathan Dyjack](#)¹, [Roger Powell](#)⁶, [Cydney Rios](#)¹, [Michael T Montgomery](#)¹, [Celeste Eng](#)², [Jennifer R Elhawary](#)², [Angel C Y Mak](#)², [Donglei Hu](#)², [Scott Huntsman](#)², [Sandra Salazar](#)², [Luigi Feriani](#)⁷, [Ana Fairbanks-Mahnke](#)¹, [Gianna L Zinnen](#)¹, [Cole R Michel](#)⁶, [Joe Gomez](#)⁶, [Xing Zhang](#)⁶, [Vivian Medina](#)⁸, [Hong Wei Chu](#)⁹, [Pietro Cicuta](#)⁷, [Erin D Gordon](#)⁴, [Pamela Zeitlin](#)¹⁰, [Victor E Ortega](#)¹¹, [Nichole Reisdorph](#)⁶, [Eleanor M Dunican](#)¹², [Monica Tang](#)⁴, [Brett M Elicker](#)¹³, [Travis S Henry](#)¹⁴, [Eugene R Bleecker](#)¹⁵, [Mario Castro](#)¹⁶, [Serpil C Erzurum](#)¹⁷, [Elliot Israel](#)¹⁸, [Bruce D Levy](#)¹⁹, [David T Mauger](#)²⁰, [Deborah A Meyers](#)¹⁵, [Kaharu Sumino](#)²¹, [David S Gierada](#)²², [Annette T Hastie](#)²³, [Wendy C Moore](#)²³, [Loren C Denlinger](#)²⁴, [Nizar N Jarjour](#)²⁴, [Mark L Schiebler](#)²⁴, [Sally E Wenzel](#)²⁵, [Prescott G Woodruff](#)⁴, [Jose Rodriguez-Santana](#)⁸, [Chad G Pearson](#)³, [Esteban G Burchard](#)², [John V Fahy](#)², [Max A Seibold](#)^{26 27 28}

Affiliations expand

- PMID: 38724552
- DOI: [10.1038/s41467-024-48034-5](https://doi.org/10.1038/s41467-024-48034-5)

Abstract

By incompletely understood mechanisms, type 2 (T2) inflammation present in the airways of severe asthmatics drives the formation of pathologic mucus which leads to airway mucus plugging. Here we investigate the molecular role and clinical significance of intelectin-1 (ITLN-1) in the development of pathologic airway mucus in asthma. Through analyses of human airway epithelial cells we find that ITLN1 gene expression is highly induced by interleukin-13 (IL-13) in a subset of metaplastic MUC5AC⁺ mucus secretory cells, and that ITLN-1 protein is a secreted component of IL-13-induced mucus. Additionally, we find ITLN-1 protein binds the C-terminus of the MUC5AC mucin and that its deletion in airway epithelial cells partially reverses IL-13-induced mucostasis. Through analysis of nasal airway epithelial brushings, we find that ITLN1 is highly expressed in T2-high asthmatics, when compared to T2-low children. Furthermore, we demonstrate that

both ITLN-1 gene expression and protein levels are significantly reduced by a common genetic variant that is associated with protection from the formation of mucus plugs in T2-high asthma. This work identifies an important biomarker and targetable pathways for the treatment of mucus obstruction in asthma.

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- [63 references](#)

SUPPLEMENTARY INFO

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

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Pediatr Pulmonol

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. 2024 May 9.

doi: 10.1002/ppul.27058. Online ahead of print.

[Little lungs, big relief: Dupilumab in a 2-year-old with severe persistent asthma](#)

[Emily Steimel](#)¹, [Diana K Bayer](#)¹, [Brittany A Wright](#)¹, [Daniel M Hinds](#)¹

Affiliations [expand](#)

- PMID: 38721897

- DOI: [10.1002/ppul.27058](https://doi.org/10.1002/ppul.27058)

No abstract available

Keywords: asthma; biologics.

- [6 references](#)

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5

Respirology

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. 2024 May 8.

doi: [10.1111/resp.14732](https://doi.org/10.1111/resp.14732). Online ahead of print.

[Predictors of lung function in early adulthood: A population-based cohort study](#)

[Xian Zhang](#)^{1,2}, [Andrew R Gray](#)¹, [Robert J Hancox](#)¹

Affiliations expand

- PMID: [38720400](https://pubmed.ncbi.nlm.nih.gov/38720400/)

- DOI: [10.1111/resp.14732](https://doi.org/10.1111/resp.14732)

Abstract

Background and objective: Lung function reaches a peak/plateau in early adulthood before declining with age. Lower early adult lung function may increase the risk for chronic obstructive pulmonary disease (COPD) in mid-late adult life. Understanding the effects of multiple childhood/adolescent exposures and their potential interactions on plateau lung function would provide insights into the natural history of COPD.

Methods: Longitudinal spirometry data from 688 participants with complete data from a population-based birth cohort (original n = 1037) were used to investigate associations between a wide range of childhood/adolescent exposures and repeated measures of FEV₁, FVC and FEV₁/FVC during the early-adult plateau phase. Generalized estimating equations were used to accommodate the multiple timepoints per participant.

Results: FEV₁ reached a peak/plateau between ages 18 and 26 and FVC from 21 to 32 years, whereas FEV₁/FVC declined throughout early adulthood. Childhood asthma and airway hyperresponsiveness were associated with lower early adult FEV₁ and FEV₁/FVC. Smoking by age 18 was associated with lower FEV₁/FVC. Higher BMI during early adulthood was associated with lower FEV₁ and FVC and lower FEV₁/FVC. Physical activity during adolescence was positively associated with FEV₁ and FEV₁/FVC but this was only statistically significant in men. There was no convincing evidence of interactions between exposures.

Conclusion: Childhood asthma and airway hyperresponsiveness are associated with lower lung function in early adulthood. Interventions targeting these may reduce the risk of COPD in mid-late adult life. Promotion of physical activity during adolescence, prevention of cigarette smoking and maintenance of a healthy body weight in early adulthood are also priorities.

Keywords: Dunedin Multidisciplinary Health and Development Study; airway hyperresponsiveness; childhood asthma; lung function development; peak lung function; plateau lung function; population-based cohort study.

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- [47 references](#)

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Review

Clin Rheumatol

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. 2024 May 8.

doi: 10.1007/s10067-024-07000-8. Online ahead of print.

Eosinophilic granulomatosis with polyangiitis and its association with montelukast: a case-based review

[Grace Alexander](#)¹, [Steven A Moore](#)², [Petar S Lenert](#)³

Affiliations expand

- PMID: 38720163
- DOI: [10.1007/s10067-024-07000-8](https://doi.org/10.1007/s10067-024-07000-8)

Abstract

The association between the use of certain medications (including sulfonamides, hydralazine, and procainamide) and the occurrence of drug-induced lupus or hepatitis is well established. More recently, cases of immune-related adverse events ranging from inflammatory polyarthritis to necrotizing myositis in patients taking checkpoint inhibitors have been reported. However, data linking drugs to systemic vasculitis are scarce and at times debatable. Propylthiouracil, hydralazine, and minocycline have been associated with rare cases of ANCA-associated syndromes, including life-threatening pulmonary-renal syndromes and systemic polyarteritis nodosa-like diseases. Eosinophilic granulomatosis with polyangiitis (EGPA) has been reported in patients taking leukotriene inhibitors. Since the link between the use of leukotriene inhibitors and occurrence of EGPA remains highly controversial, we performed a literature review for cases of EGPA in patients taking

montelukast without prior history of oral corticosteroid use. We found 24 cases, along with our own two cases described, making 26 cases in total. The mean age was 43 and a majority (18/26) were female. In majority of cases EGPA-like disease never relapsed after they were taken off leukotriene inhibitors suggesting a clear causal relationship between the use of these drugs and occurrence of eosinophil-rich systemic EGPA.

Keywords: Asthma; Eosinophilic granulomatosis with polyangiitis; Leukotriene receptor antagonist; Montelukast.

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BMJ

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. 2024 May 8;385:q1048.

doi: 10.1136/bmj.q1048.

[Montelukast: UK regulator says asthma drug needs clearer warnings of side effects](#)

[Gareth Iacobucci](#)¹

Affiliations expand

- PMID: 38719533
- DOI: [10.1136/bmj.q1048](https://doi.org/10.1136/bmj.q1048)

No abstract available

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Publication types, MeSH terms, Substances expand

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8

Respir Care

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. 2024 May 7:respcare.11752.

doi: 10.4187/respcare.11752. Online ahead of print.

[Comparison of Forward-Leaning and Fowler Position: Effects on Vital Signs, Pain, and Anxiety Scores in Children With Asthma Exacerbations](#)

[Gamze Kaş Alay](#)¹, [Suzan Yıldız](#)²

Affiliations expand

- PMID: 38719226
- DOI: [10.4187/respcare.11752](https://doi.org/10.4187/respcare.11752)

Abstract

Background: It is essential to relieve bronchospasm or specific asthma symptoms by administering immediate inhaler treatment during an asthma exacerbation. The present study compared the effect of Fowler position and forward-leaning positions during nebulization on heart rate, S_{pO_2} , breathing frequency, pain, and anxiety levels in children experiencing asthma exacerbations.

Methods: The data originated from a randomized trial that compared 86 participants (study group $n = 43$, control group $n = 43$) who presented to the pediatric emergency department with asthma exacerbations between October 2019-February 2020. The subjects were administered nebulization 3 times, during which the study group was placed in the forward-leaning position and the control group in the routine Fowler position. The subjects provided information on chest pain and anxiety levels before and after nebulization, and heart rate, S_{pO_2} , and breathing frequency were measured before and after each nebulization.

Results: The difference in the mean S_{pO_2} measured at admission and after the third nebulization was significantly higher ($3.2 \pm 1.5\%$ vs $2.3 \pm 1.9\%$, $P = .01$); the difference in the mean breathing frequency was considerably higher (-6.0 ± 1.7 breaths/min vs -3.2 ± 1.8 breaths/min, $P < .001$), and the difference in the mean pain scores was significantly higher (-3.3 ± 2.5 vs -2.0 ± 2.3 , $P = .02$) in the study group than in the control group. In addition, after the third nebulization, the breathing frequency (22.8 ± 2.8 breaths/min vs 24.2 ± 2.7 breaths/min, $P = .02$) and pain score of the study group were lower (0.8 ± 1.3 vs 1.5 ± 1.5 , $P = .01$). There was no difference in the mean heart rate (20.6 ± 16.2 beats/min vs 20.0 ± 15.4 beats/min, $P = .85$) and anxiety levels (-2.0 ± 2.2 vs -1.9 ± 2.2 , $P = .90$) between the groups.

Conclusions: Placing children in a forward-leaning position during nebulization was effective in improving S_{pO_2} and reducing breathing frequency and chest pain. The forward-leaning position implemented during nebulization is a non-pharmacologic method that supports recovery in children with asthma exacerbations.

Keywords: anxiety; asthma exacerbation; body posture; child; inhalation; nebulization therapy; pain; vital signs.

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FULL TEXT LINKS

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9

Psychol Health

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. 2024 May 7:1-18.

doi: 10.1080/08870446.2024.2349644. Online ahead of print.

[Is bronchial asthma a risk factor for emotional well-being in adolescence? A comparative study](#)

[Selene Valero-Moreno](#)¹, [Inmaculada Montoya-Castilla](#)¹, [Marián Pérez-Marín](#)¹

Affiliations expand

- PMID: 38715417
- DOI: [10.1080/08870446.2024.2349644](https://doi.org/10.1080/08870446.2024.2349644)

Abstract

Objective: This study aimed to investigate whether bronchial asthma could be a risk factor for emotional well-being during adolescence.

Methods and measures: This is a comparative cross-sectional design. A total of 450 participants aged 12 to 16 years ($M = 13.61$ and $SD = 1.84$) were included (150 with bronchial asthma and 300 healthy). For both groups, self-esteem, emotional distress, problems with peers, family styles and psychosocial bonds were assessed. T-tests and multi-group structural equation modelling were used for comparative analyses, and the moderating role was analysed through PROCESS.

Results: The t-tests showed a difference in means between the groups, finding lower self-esteem scores in adolescents with asthma, but better emotional well-being, a greater number of bonds and healthier family styles than those of their healthy peers. In the multi-group, the moderating role of bronchial asthma on emotional well-being in adolescence could not be assessed. Moderation analyses indicated that asthma was a moderating variable for the relationship between self-esteem and emotional well-being in adolescence.

Conclusions: Asthma can be a stressful event that makes emotional well-being difficult in the adolescent stage, but there seem to be other more influential factors such as perceived family style or self-esteem.

Keywords: Bronchial asthma, risk factor, adolescence; emotional distress; peer problems.

FULL TEXT LINKS



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10

[Review](#)

J Investig Med



. 2024 May 7:10815589241249993.

doi: 10.1177/10815589241249993. Online ahead of print.

[EXPRESS: State of the Art: Alternative Overlap Syndrome - Asthma and Obstructive Sleep Apnea](#)

[Octavian C Ioachimescu](#)¹

Affiliations [expand](#)

- PMID: 38715213
- DOI: [10.1177/10815589241249993](https://doi.org/10.1177/10815589241249993)

Abstract

In the general population, Bronchial Asthma (BA) and Obstructive Sleep Apnea (OSA) are amongst the most prevalent chronic respiratory disorders. Significant epidemiologic connections and complex pathogenetic pathways link these disorders via complex interactions at genetic, epigenetic and environmental levels. The coexistence of BA and OSA in an individual likely represents a distinct syndrome, i.e., a collection of clinical manifestations attributable to several mechanisms and pathobiological signatures. To avoid terminological confusion, this association has been named alternative overlap syndrome (vs overlap syndrome represented by the chronic obstructive pulmonary disease - OSA association). This comprehensive review summarizes the complex, often bidirectional links between the constituents of the alternative overlap syndrome. Cross-sectional, population or clinic-based studies are unlikely to elucidate causality or directionality in these relationships. Even longitudinal epidemiological evaluations in BA cohorts developing over time OSA, or OSA cohorts developing BA during follow-up cannot exclude time factors or causal influence of other known or unknown mediators. As such, a lot of pathophysiological interactions described here have suggestive evidence, biological plausibility, potential or actual directionality. By showcasing existing evidence and current knowledge gaps, the hope is that deliberate, focused and collaborative efforts in the near-future will be geared towards opportunities to shine light on the unknowns, and accelerate discovery in this field of health, clinical care, education, research and scholarly endeavors.

Keywords: Asthma; Continuous Positive Airway Pressure; Sleep Apnea Syndromes; Sleep Apnea, Obstructive.

SUPPLEMENTARY INFO

Publication types [expand](#)

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. 2024 May 7.

doi: 10.1111/resp.14731. Online ahead of print.

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

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

Affiliations expand

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

No abstract available

Keywords: asthma-COPD overlap; persistent airflow limitation.

- [21 references](#)

FULL TEXT LINKS



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J Asthma

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. 2024 May 7:1-16.

doi: 10.1080/02770903.2024.2344156. Online ahead of print.

Acoustic biomarkers in asthma: a systematic review

[Karolina Wieczorek](#)¹, [Sachin Ananth](#)², [Diana Valazquez-Pimentel](#)³

Affiliations expand

- PMID: 38634718
- DOI: [10.1080/02770903.2024.2344156](https://doi.org/10.1080/02770903.2024.2344156)

Abstract

Objective: Current monitoring methods of asthma, such as peak expiratory flow testing, have important limitations. The emergence of automated acoustic sound analysis, capturing cough, wheeze, and inhaler use, offers a promising avenue for improving asthma diagnosis and monitoring. This systematic review evaluated the validity of acoustic biomarkers in supporting the diagnosis of asthma and its monitoring.

Data sources: A search was performed using two databases (PubMed and Embase) for all relevant studies published before November 2023.

Study selection: 27 studies were included for analysis. Eligible studies focused on acoustic signals as digital biomarkers in asthma, utilizing recording devices to register or analyze sound.

Results: Various respiratory acoustic signal types were analyzed, with cough and wheeze being predominant. Data collection methods included smartphones, custom sensors and digital stethoscopes. Across all studies, automated acoustic algorithms achieved average accuracy of cough and wheeze detection of 88.7% (range: 61.0 - 100.0%) with a median of 92.0%. The sensitivity of sound detection ranged from 54.0 to 100.0%, with a median of 90.3%; specificity ranged from 67.0 to 99.7%, with a median of 95.0%. Moreover, 70.4% (19/27) studies had a risk of bias identified.

Conclusions: This systematic review establishes the promising role of acoustic biomarkers, particularly cough and wheeze, in supporting the diagnosis of asthma and monitoring. The evidence suggests the potential for clinical integration of acoustic biomarkers, emphasizing the need for further validation in larger, clinically-diverse populations.

Keywords: Asthma monitoring; algorithm; digital; recording; respiratory; sound.

SUPPLEMENTARY INFO

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J Allergy Clin Immunol

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. 2024 May 6:S0091-6749(24)00455-X.

doi: 10.1016/j.jaci.2024.04.022. Online ahead of print.

[A pediatric randomized, controlled trial of German cockroach subcutaneous immunotherapy](#)

[Edward Zoratti](#)¹, [Robert Wood](#)², [Anna Pomés](#)³, [Ricardo Da Silva Antunes](#)⁴, [Matthew C Altman](#)⁵, [Basilin Benson](#)⁶, [Lisa M Wheatley](#)⁶, [Kate Cho](#)⁷, [Agustin Calatroni](#)⁷, [Frederic F Little](#)⁸, [J Pongracic](#)⁹, [Melanie Makhija](#)⁹, [Gurjit K Khurana Hershey](#)¹⁰, [Michael G Sherenian](#)¹⁰, [Katherine Rivera-Spoljaric](#)¹¹, [Jeffrey R Stokes](#)¹¹, [Michelle A Gill](#)¹¹, [Rebecca S Gruchalla](#)¹², [Jeffrey Chambliss](#)¹², [Andrew H Liu](#)¹³, [Meyer Kattan](#)¹⁴, [Paula J Busse](#)¹⁵, [Leonard B Bacharier](#)¹⁶, [William Sheehan](#)¹⁷, [Haejin Kim](#)¹⁸, [Jill Glesner](#)³, [Peter J Gergen](#)⁶, [Alkis Togias](#)⁶, [Jessica L Baucom](#)⁷, [Cynthia M Visness](#)⁷, [Alessandro Sette](#)⁴, [William W Busse](#)¹⁹, [Daniel J Jackson](#)¹⁹; [Inner-City Asthma and Childhood Asthma in Urban Settings Consortium](#)

Affiliations expand

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- DOI: [10.1016/j.jaci.2024.04.022](https://doi.org/10.1016/j.jaci.2024.04.022)

Abstract

Background: Cockroach allergy contributes to morbidity among urban children with asthma. Few trials address the effect of subcutaneous immunotherapy (SCIT) with cockroach allergen among these at-risk children.

Objective: To determine if nasal allergen challenge (NAC) responses to cockroach allergen would improve following one year of SCIT.

Methods: Urban children with asthma, that were cockroach-sensitized and reactive on NAC, participated in a yearlong randomized double-blind placebo-controlled SCIT trial using German cockroach extract. The primary endpoint was the change in mean total nasal symptoms scores (TNSS) during NAC after 12 months of SCIT. Changes in nasal transcriptomic responses during NAC, skin prick test (SPT) wheal size, serum allergen-specific antibody production and T-cell responses to cockroach allergen were assessed.

Results: Changes in mean NAC TNSS did not differ between SCIT-assigned (n=28) versus placebo-assigned (n=29) participants (p=0.63). Nasal transcriptomic responses correlated with TNSS, but a treatment effect was not observed. Cockroach serum specific IgE (sIgE) decreased to a similar extent in both groups, while decreased cockroach SPT wheal size was greater among SCIT participants (p=0.04). A 200-fold increase in cockroach sIgG4 was observed among subjects receiving SCIT (p<0.001) but was unchanged in the placebo group. T-cell interleukin-4 responses following cockroach allergen stimulation decreased to a greater extent among SCIT versus placebo (p=0.002), while no effect was observed for interleukin-10 or interferon-gamma.

Conclusion: A year of SCIT failed to alter NAC TNSS and nasal transcriptome responses to cockroach allergen challenge despite systemic effects on allergen-specific skin tests, induction of serum sIgG4 production and down-modulation of allergen stimulated T-cell responses.

Keywords: Allergen Immunotherapy; Asthma; Cockroach Allergy; Nasal Allergen Challenge; T cell response; Urban; antibody; prick skin test; transcriptome.

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Sci Rep



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[Ratio of plasma IL-13/TNF- \$\alpha\$ and CXCL10/CCL17 predicts mepolizumab and omalizumab response in asthma better than eosinophil count or immunoglobulin E level](#)

[Ayobami Akenroye](#)^{1,2}, [Tanawin Nopsopon](#)³, [Jonathan J Hacker](#)³, [Tanya M Laidlaw](#)³

Affiliations [expand](#)

- PMID: 38710930
- PMCID: [PMC11074109](#)
- DOI: [10.1038/s41598-024-60864-3](#)

Abstract

To date, most studies to identify biomarkers associated with response to the anti-interleukin 5 agent, mepolizumab, and to the anti-immunoglobulin E agent, omalizumab

have focused on clinically available biomarkers, such as the peripheral blood eosinophil counts (BEC) and total immunoglobulin E (IgE). However, these biomarkers often have low predictive accuracy, with many patients with eosinophilic or allergic asthma failing to demonstrate clinical response to mepolizumab or omalizumab respectively. In this study, we evaluated the association of baseline pre-biologic plasma levels of 26 cytokines and chemokines, including T-helper 1 (Th1)-, Th2-, Th17-related cytokines, and their ratios with subsequent clinical response to mepolizumab or omalizumab. We defined clinical response as a reduction in the baseline annual exacerbation rate by half or more over the one-year period following initiation of the biologic. Baseline levels of plasma IL-13 were differentially elevated in responders versus non-responders to mepolizumab and plasma CXCL10 levels were differentially elevated in responders to omalizumab. The ratio of IL-13/TNF- α had the best sensitivity and specificity in predicting response to mepolizumab and CXCL10/CCL17 to omalizumab, and these performed better as predictive biomarkers of response than BEC and IgE. Cytokines and chemokines associated with airway eosinophilia, allergic inflammation, or Th2 inflammation, such as IL-13 and CXCL10, may be better predictors of clinical response to mepolizumab and omalizumab, than IL-5 or IgE, the targets of mepolizumab and omalizumab.

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Conflict of interest statement

The authors declare no competing interests.

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

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Respirology



. 2024 May 6.

doi: 10.1111/resp.14722. Online ahead of print.

Prevalence and burden of difficult-to-treat and severe asthma in Australia: A national population survey

[Sharon R Davis](#)¹, [Rosario D Ampon](#)¹, [Leanne M Poulos](#)¹, [Taehoon Lee](#)^{1,2}, [Guy B Marks](#)^{1,3}, [Brett G Toelle](#)^{1,4,5}, [Helen K Reddel](#)^{1,4,6,7}

Affiliations expand

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Abstract

Background and objective: Most evidence about difficult-to-treat and severe asthma (DTTA) comes from clinical trials and registries. We aimed to identify people with DTTA from a large nationally representative asthma population and describe their characteristics and healthcare utilization compared with people whose asthma was not 'difficult-to-treat'.

Methods: We conducted a cross-sectional survey of Australians aged ≥ 18 years with current asthma from large web-based survey panels. Enrolment was stratified by gender, age-group and state/territory based on national population data for people with asthma. Difficult-to-treat or severe asthma was defined by poor symptom control, exacerbations and/or oral corticosteroid/biologic use despite medium/high-dose inhaled therapy. Outcomes included exacerbations, healthcare utilization, multimorbidity, quality of life and coronavirus disease of 2019 (COVID-19)-related behaviour. Weighted data were analysed using SAS version 9.4.

Results: The survey was conducted in February-March 2021. The weighted sample comprised 6048 adults with current asthma (average age $47.3 \pm \text{SD } 18.1$ years, 59.9% female), with 1313 (21.7%) satisfying ≥ 1 DTTA criteria. Of these, 50.4% had very poorly controlled symptoms (Asthma Control Test ≤ 15), 36.2% were current smokers, and 85.4% had ≥ 1 additional chronic condition, most commonly anxiety/depression. More than twice as many participants with DTTA versus non-DTTA had ≥ 1 urgent general practitioner (GP)

visit (61.4% vs. 27.5%, OR 4.8 [4.2-5.5, $p < 0.0001$]), or ≥ 1 emergency room visit (41.9% vs. 17.9%, OR 3.8 [3.3-4.4, $p < 0.0001$]) in the previous 12 months.

Conclusion: Our findings emphasize the burden of uncontrolled symptoms, current smoking, multimorbidity and healthcare utilization in people with DTTA in the community, who may be under-represented in registries or clinical trials.

Keywords: COVID-19; asthma; cross-sectional studies; emergency service; hospital; multimorbidity; prevalence; severe asthma.

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Occup Ther Health Care

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. 2024 May 6:1-17.

doi: 10.1080/07380577.2024.2346899. Online ahead of print.

[Effects of Asthma on the Performance of Activities of Daily Living: A Retrospective Study](#)

[Roy Meys](#)^{1,2,3}, [Frits M E Franssen](#)^{1,2,3}, [Nienke Nakken](#)¹, [Anouk W Vaes](#)¹, [Daisy J A Janssen](#)^{1,4}, [Anouk A F Stoffels](#)^{1,5}, [Hieronymus W H van Hees](#)⁵, [Bram van den Borst](#)⁵, [Chris Burtin](#)⁶, [Martijn A Spruit](#)^{1,2,3}

Affiliations expand

- PMID: 38709648
- DOI: [10.1080/07380577.2024.2346899](https://doi.org/10.1080/07380577.2024.2346899)

Abstract

The study aim was to identify the most problematic self--reported activities of daily living (ADLs). In a retrospective study, 1935 problematic ADLs were reported by 538 clients with 95% experiencing two or more problematic ADLs. Problematic ADLs were assessed by occupational therapists using the Canadian Occupational Performance Measure with walking (67%), household activities (41%), and climbing the stairs (41%) identified as the most prevalent problematic ADLs. Significant but weak associations were found between clinical determinants (e.g. physical, psychosocial) and problematic ADLs. The wide variety of problematic ADLs and the absence of a strong association with clinical determinants emphasizes the need for using individualized interview-based performance measures in clients with asthma.

Keywords: Activities of daily life; Canadian occupational performance measure; obstructive pulmonary disease; occupational therapy; patient-reported outcomes; performance; pulmonary function; satisfaction.

FULL TEXT LINKS



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Review

Life Sci

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. 2024 May 5:348:122691.

doi: 10.1016/j.lfs.2024.122691. Online ahead of print.

CXCL3: A key player in tumor microenvironment and inflammatory diseases

[Yuxuan Bao](#)¹, [Chang Tong](#)², [Xiangyang Xiong](#)³

Affiliations expand

- PMID: 38714265
- DOI: [10.1016/j.lfs.2024.122691](https://doi.org/10.1016/j.lfs.2024.122691)

Abstract

CXCL3 (C-X-C Motif Chemokine 3), a member of the C-X-C chemokine subfamily, operates as a potent chemoattractant for neutrophils, thereby orchestrating the recruitment and migration of leukocytes alongside eliciting an inflammatory response. Recent inquiries have shed light on the pivotal roles of CXCL3 in the context of carcinogenesis. In the tumor microenvironment, CXCL3 emanating from both tumor and stromal cells intricately modulates cellular behaviors through autocrine and paracrine actions, primarily via interaction with its receptor CXCR2. Activation of signaling cascades such as ERK/MAPK, AKT, and JAK2/STAT3 underscores CXCL3's propensity to favor tumorigenic processes. However, CXCL3 exhibits dualistic behaviors, as evidenced by its capacity to exert anti-tumor effects under specific conditions. Additionally, the involvement of CXCL3 extends to inflammatory disorders like eclampsia, obesity, and asthma. This review encapsulates the structural attributes, biological functionalities, and molecular underpinnings of CXCL3 across both tumorigenesis and inflammatory diseases.

Keywords: CXCL3; CXCR2; Carcinogenesis; Inflammation; Tumor microenvironment.

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Conflict of interest statement

Declaration of competing interest The authors declare no competing interests.

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J Public Health Res



. 2024 May 5;13(2):22799036241243270.

doi: 10.1177/22799036241243270. eCollection 2024 Apr.

[Predictors and components of inpatient asthma hospital cost: A retrospective cohort study. Analysis from a sample of 14 Belgian hospitals](#)

[Jehan Seret](#)¹, [Arnaud Bruyneel](#)¹, [Lionel Larcin](#)², [Fabienne Gooset](#)¹, [Djohra Azzi](#)¹, [Dimitri Martins](#)¹, [Julie Van Den Bulcke](#)¹, [Pol Leclercq](#)¹, [Magali Pirson](#)¹

Affiliations [expand](#)

- PMID: 38711424
- PMCID: [PMC11072054](#)
- DOI: [10.1177/22799036241243270](#)

Abstract

Background: Addressing the challenges of asthma has involved various approaches, including the examination of costs associated with hospitalization. However, there is a limited number of studies that have investigated the actual expenses incurred by hospital settings in caring for asthma patients. This study aims to describe the costs, predictors, and breakdown of expenditures in different categories.

Design and methods: A retrospective cohort study was conducted, involving 314 hospital stays of patients over 12 years old who were admitted for asthma and classified under APR-DRG 141 (asthma). Univariate and multiple linear regression analyses were performed.

Results: The median cost, regardless of DRG severity, amounted to 2.314€ (1.550€-3.847€). Significant variations were observed when the sample was stratified based on the severity of DRG, revealing a cost gradient that increases with severity. The length of stay followed a similar trend. Six predictors were identified: age, admission to intensive care, asthma severity, severity level of the DRG, winter admission, and length of stay. The cost breakdown showed that 44% constituted direct costs, 25% were indirect costs, 26% were attributed to medical procedures performed outside the patient unit, and 5% were related to medication administration.

Conclusions: This study initiates a discussion on the role of reducing hospital costs in strategies aiming at controlling asthma-related costs. We argue that cost reduction cannot be achieved solely at the hospital level but must be approached from a public health perspective. This includes promoting high-quality outpatient care and addressing factors leading to poor adherence to the care plan.

Keywords: Asthma; adherence; health care economics; hospital cost; public health.

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Conflict of interest statement

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

- [35 references](#)

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EBioMedicine

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. 2024 May 4;104:105148.

doi: 10.1016/j.ebiom.2024.105148. Online ahead of print.

Multimorbidity and emergency hospitalisations during hot weather

[Zhiwei Xu](#)¹, [Weizhuo Yi](#)², [Aaron Bach](#)³, [Shilu Tong](#)⁴, [Kristie L Ebi](#)⁵, [Hong Su](#)⁶, [Jian Cheng](#)⁶, [Shannon Rutherford](#)³

Affiliations expand

- PMID: 38705102
- DOI: [10.1016/j.ebiom.2024.105148](https://doi.org/10.1016/j.ebiom.2024.105148)

Free article

Abstract

Background: People with chronic diseases are a commonly listed heat-vulnerable group in heat-health action plans. While prior research identifies multiple health conditions that may increase vulnerability to ambient heat, there is minimal evidence regarding the implications of multimorbidity (two or more chronic diseases).

Methods: From the statewide hospital registry of Queensland, Australia, we identified people aged ≥ 15 years who had emergency hospitalisation(s) between March 2004 and April 2016 and previously had 0, 1, 2, or ≥ 3 of five chronic diseases: cardiovascular disease, diabetes, mental disorders, asthma/COPD, and chronic kidney disease. We conducted time-stratified case-crossover analyses to estimate the odds ratio of hospitalisations associated with ambient heat exposure in people with different numbers, types, and combinations of chronic diseases. Ambient heat exposure was defined as a 5 °C increase in daily mean temperature above the median.

Findings: There were 2,263,427 emergency hospitalisations recorded (48.7% in males and 51.3% in females). When the mean temperature increased, hospitalisation odds increased with chronic disease number, particularly in older persons (≥ 65 years), males, and non-indigenous people. For instance, in older persons with 0, 1, 2, or ≥ 3 chronic diseases, the odds ratios associated with ambient heat exposure were 1.00 (95% confidence interval: 0.96, 1.04), 1.06 (1.02, 1.09), 1.08 (1.02, 1.14), and 1.13 (1.07, 1.19), respectively. Among the chronic diseases, chronic kidney disease, and asthma/COPD, either existing alone, together, or in combination with other diseases, were associated with the highest odds of hospitalisations under ambient heat exposure.

Interpretation: While individuals with multimorbidity are considered in heat-health action plans, this study suggests the need to consider specifically examining them as a distinct and vulnerable subgroup.

Funding: Wellcome.

Keywords: Chronic disease; Heat-health action plan; Multimorbidity.

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Conflict of interest statement

Declaration of interests We declare no competing interests.

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Nat Commun

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. 2024 May 4;15(1):3751.

doi: 10.1038/s41467-024-47845-w.

Genetic association of inflammatory marker GlycA with lung function and respiratory diseases

[Yanjun Guo](#)^{1,2,3}, [Quanhong Liu](#)^{4,5}, [Zhilin Zheng](#)^{4,5}, [Mengxia Qing](#)^{4,5}, [Tianci Yao](#)⁵, [Bin Wang](#)^{4,5}, [Min Zhou](#)^{4,5}, [Dongming Wang](#)^{4,5}, [Qinmei Ke](#)⁶, [Jixuan Ma](#)^{4,5}, [Zhilei Shan](#)⁷, [Weihong Chen](#)^{8,9}

Affiliations expand

- PMID: 38704398
- PMCID: [PMC11069551](#)
- DOI: [10.1038/s41467-024-47845-w](#)

Abstract

Association of circulating glycoprotein acetyls (GlycA), a systemic inflammation biomarker, with lung function and respiratory diseases remain to be investigated. We examined the genetic correlation, shared genetics, and potential causality of GlycA (N = 115,078) with lung function and respiratory diseases (N = 497,000). GlycA showed significant genetic correlation with FEV1 ($r_g = -0.14$), FVC ($r_g = -0.18$), asthma ($r_g = 0.21$) and COPD ($r_g = 0.31$). We consistently identified ten shared loci (including chr3p21.31 and chr8p23.1) at both SNP and gene level revealing potential shared biological mechanisms involving ubiquitination, immune response, Wnt/ β -catenin signaling, cell growth and differentiation in tissues or cells including blood, epithelium, fibroblast, fetal thymus, and fetal intestine. Genetically elevated GlycA was significantly correlated with lung function and asthma susceptibility (354.13 ml decrement of FEV1, 442.28 ml decrement of FVC, and 144% increased risk of asthma per SD increment of GlycA) from MR analyses. Our findings provide insights into biological mechanisms of GlycA in relating to lung function, asthma, and COPD.

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Conflict of interest statement

The authors declare no competing interests.

- [41 references](#)

- [3 figures](#)

SUPPLEMENTARY INFO

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NPJ Prim Care Respir Med

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. 2024 May 3;34(1):8.

doi: 10.1038/s41533-024-00364-z.

[Measuring burden of disease in both asthma and COPD by merging the ACQ and CCQ: less is more?](#)

[Liz J A Cuperus](#)^{#123}, [Cathelijne M van Zelst](#)^{#45}, [Huib A M Kerstjens](#)⁶, [Rudi W Hendriks](#)⁵, [Maureen P M H Rutten-van Molken](#)⁷, [Jacqueline B Muilwijk-Kroes](#)⁸, [Gert-Jan Braunstahl](#)⁴⁵, [Johannes C C M In 't Veen](#)⁴⁵

Affiliations expand

- PMID: 38702303
- PMCID: [PMC11068875](#)

- DOI: [10.1038/s41533-024-00364-z](https://doi.org/10.1038/s41533-024-00364-z)

Abstract

Symptoms of asthma and COPD often overlap, and both diseases can co-exist in one patient. The asthma control questionnaire (ACQ) and clinical COPD questionnaire (CCQ) were developed to assess disease burden in respectively asthma or COPD. This study explores the possibility of creating a new questionnaire to assess disease burden in all obstructive lung diseases by integrating and reducing questions of the ACQ and CCQ. Data of patients with asthma, COPD and asthma-COPD overlap (ACO) were collected from a primary and secondary care center. Patients completed ACQ and CCQ on the same day. Linear regression tested correlations. Principal Component Analysis (PCA) was used for item reduction. The secondary cohort with asthma and COPD patients was used for initial question selection (development cohort). These results were reproduced in the primary care cohort and secondary cohort of patients with ACO. The development cohort comprised 252 patients with asthma and 96 with COPD. Correlation between ACQ and CCQ in asthma was $R = 0.82$, and in COPD $R = 0.83$. PCA determined a selection of 9 questions. Reproduction in primary care data (asthma $n = 1110$, COPD $n = 1041$, ACO = 355) and secondary care data of ACO patients ($n = 53$) resulted in similar correlations and PCA-derived selection of questions. In conclusion, PCA determined a selection of nine questions of the ACQ and CCQ: working title 'the Obstructive Lung Disease Questionnaire'. These results suggest that this pragmatic set of questions might be sufficient to assess disease burden in obstructive lung disease in both primary as secondary care.

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Conflict of interest statement

J.V.: reports a relationship with AstraZeneca (faculty research grant and speaking and lecture fees), Chiesi Pharmaceuticals (faculty research grant and speaking and lecture fees), Teva Pharmaceuticals (faculty research grant, Sanofi (speaking and lecture fees), and GSK (speaking and lecture fees) and the remaining authors declare no competing interests.

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

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Am J Respir Crit Care Med

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. 2024 May 3.

doi: 10.1164/rccm.202311-2192OC. Online ahead of print.

[Exploring Definitions and Predictors of Severe Asthma Clinical Remission Post-Biologic in Adults](#)

[Luis Perez-de-Llano](#)¹, [Ghislaine Scelo](#)^{2,3}, [Trung N Tran](#)⁴, [Tham T Le](#)⁵, [Malin Fagerås](#)⁶, [Borja G Cosio](#)^{7,8}, [Matthew Peters](#)⁹, [Paul E Pfeffer](#)¹⁰, [Mona Al-Ahmad](#)¹¹, [Riyad O Al-Lehebi](#)^{12,13}, [Alan Altraja](#)¹⁴, [Celine Bergeron](#)^{15,16}, [Leif H Bjermer](#)¹⁷, [Anne S Bjerrum](#)¹⁸, [Lakmini Bulathsinhala](#)^{19,20}, [John Busby](#)²¹, [Diana J Cano Rosales](#)²², [Giorgio W Canonica](#)^{23,24}, [Victoria A Carter](#)^{25,26}, [Jeremy Charriot](#)²⁷, [George C Christoff](#)²⁸, [Eve J Denton](#)²⁹, [Delbert R Dorscheid](#)³⁰, [Maria J Fernandez Sanchez](#)^{31,32}, [João A Fonseca](#)^{33,34}, [Peter G Gibson](#)³⁵, [Celine Y Y Goh](#)¹⁹, [Liam G Heaney](#)³⁶, [Enrico Heffler](#)³⁷, [Mark Hew](#)^{38,39}, [Takashi Iwanaga](#)⁴⁰, [Rohit Katial](#)⁴¹, [Mariko S Koh](#)⁴², [Piotr Kuna](#)⁴³, [Désirée E S Larenas-Linnemann](#)⁴⁴, [Lauri Lehtimäki](#)⁴⁵, [Bassam Mahboub](#)⁴⁶, [Neil Martin](#)^{47,48}, [Hisako Matsumoto](#)⁴⁹, [Andrew N Menzies-Gow](#)^{50,51}, [Nikolaos G Papadopoulos](#)^{52,53}, [Todor A Popov](#)⁵⁴, [Celeste M Porsbjerg](#)^{55,56}, [Pujan Patel](#)⁵⁷, [Chin K Rhee](#)⁵⁸, [Mohsen Sadatsafavi](#)⁵⁹, [Camille Taillé](#)^{60,61}, [Carlos A Torres-Duque](#)^{62,63}, [Ming-Ju Tsai](#)⁶⁴, [Charlotte S Ulrik](#)^{65,66}, [John W Upham](#)⁶⁷, [Anna von Bülow](#)⁶⁸, [Eileen Wang](#)⁶⁹, [Michael E Wechsler](#)⁷⁰, [David B Price](#)⁷¹

Affiliations expand

- PMID: 38701495
- DOI: [10.1164/rccm.202311-2192OC](https://doi.org/10.1164/rccm.202311-2192OC)

Abstract

Rationale: There is no consensus on criteria to include in an asthma remission definition in real-life. Factors associated with achieving remission post-biologic-initiation remain poorly understood.

Objectives: To quantify the proportion of adults with severe asthma achieving multi-domain-defined remission post-biologic-initiation and identify pre-biologic characteristics associated with achieving remission which may be used to predict it.

Methods: This was a longitudinal cohort study using data from 23 countries from the International Severe Asthma Registry. Four asthma outcome domains were assessed in the 1-year pre- and post-biologic-initiation. *A priori*-defined remission cut-offs were: 0 exacerbations/year, no long-term oral corticosteroid (LTOCS), partly/well-controlled asthma, and percent predicted forced expiratory volume in one second $\geq 80\%$. Remission was defined using 2 (exacerbations + LTOCS), 3 (+control or +lung function) and 4 of these domains. The association between pre-biologic characteristics and post-biologic remission was assessed by multivariable analysis.

Measurements and main results: 50.2%, 33.5%, 25.8% and 20.3% of patients met criteria for 2, 3 (+control), 3 (+lung function) and 4-domain-remission, respectively. The odds of achieving 4-domain remission decreased by 15% for every additional 10-years asthma duration (odds ratio: 0.85; 95% CI: 0.73, 1.00). The odds of remission increased in those with fewer exacerbations/year, lower LTOCS daily dose, better control and better lung function pre-biologic-initiation.

Conclusions: One in 5 patients achieved 4-domain remission within 1-year of biologic-initiation. Patients with less severe impairment and shorter asthma duration at initiation had a greater chance of achieving remission post-biologic, indicating that biologic treatment should not be delayed if remission is the goal. This article is open access and distributed under the terms of the Creative Commons Attribution Non-Commercial No Derivatives License 4.0 (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Keywords: anti-IL4R α ; anti-IL5/5R; anti-IgE; exacerbation; lung function.

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Am J Respir Crit Care Med



. 2024 May 3.

doi: 10.1164/rccm.202404-0707ED. Online ahead of print.

Strategies for Identifying Biomarkers in Severe Asthma

[Pierre-Olivier Girodet](#)^{1,2}

Affiliations expand

- PMID: 38701409
- DOI: [10.1164/rccm.202404-0707ED](https://doi.org/10.1164/rccm.202404-0707ED)

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Allergy



. 2024 May 3.

doi: 10.1111/all.16135. Online ahead of print.

Digitally-enabled, person-centred care (PCC) in allergen immunotherapy: An ARIA-EAACI Position Paper

[Oliver Pfaar](#)¹, [Bernardo Sousa-Pinto](#)^{2,3}, [Nikolaos G Papadopoulos](#)⁴, [Désirée E Larenas-Linnemann](#)⁵, [Michal Ordak](#)⁶, [Maria J Torres](#)⁷, [Ralph Mösges](#)^{8,9}, [Ludger Klimek](#)^{10,11}, [Torsten Zuberbier](#)^{12,13}, [Paolo M Matricardi](#)^{12,13,14}, [Uwe E Berger](#)^{15,16}, [Markus Berger](#)^{15,16,17}, [Stephanie Dramburg](#)¹⁴, [Vera Mahler](#)¹⁸, [Sanna K Toppila-Salmi](#)^{19,20}, [Karl-Christian Bergmann](#)^{12,13}, [Markus Ollert](#)^{21,22}, [Salvatore Tripodi](#)²³, [Marek Jutel](#)^{24,25}, [Ioana Agache](#)²⁶, [Ibon Eguiluz-Gracia](#)⁷, [G Walter Canonica](#)^{27,28}, [Cezmi A Akdis](#)²⁹, [Milena Sokolowska](#)²⁹, [Mikhail Sofiev](#)³⁰, [Mohamed H Shamji](#)^{31,32}, [Wiencyslawa Czarlewski](#)^{33,34}, [Joao A Fonseca](#)^{2,3}, [Anna Bedbrook](#)^{34,35}, [Jean Bousquet](#)^{12,13,34,35}

Affiliations expand

- PMID: 38700063
- DOI: [10.1111/all.16135](https://doi.org/10.1111/all.16135)

Abstract

In rhinitis and asthma, several mHealth apps have been developed but only a few have been validated. However, these apps have a high potential for improving person-centred care (PCC), especially in allergen immunotherapy (AIT). They can provide support in AIT initiation by selecting the appropriate patient and allergen shared decision-making. They can also help in (i) the evaluation of (early) efficacy, (ii) early and late stopping rules and (iii) the evaluation of (carried-over) efficacy after cessation of the treatment course. Future perspectives have been formulated in the first report of a joint task force (TF)-Allergic Rhinitis and Its Impact on Asthma (ARIA) and the European Academy of Allergy and Clinical Immunology (EAACI)-on digital biomarkers. The TF on AIT now aims to (i) outline the potential of the clinical applications of mHealth solutions, (ii) express their current limitations, (iii) make proposals regarding further developments for both clinical practice and scientific purpose and (iv) suggest which of the tools might best comply with the purpose of digitally-enabled PCC in AIT.

Keywords: AllergyMonitor®; MASK-air®; allergen immunotherapy; allergy; digital biomarkers.

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- [66 references](#)

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Thorax

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. 2024 May 2:thorax-2023-220485.

doi: 10.1136/thorax-2023-220485. Online ahead of print.

[Lung function trajectories from school age to adulthood and their relationship with markers of cardiovascular disease risk](#)

[Raquel Granell](#)^{#1}, [Sadia Haider](#)^{#2}, [Matea Deliu](#)², [Anhar Ullah](#)², [Osama Mahmoud](#)^{3,4}, [Sara Fontanella](#)², [Lesley Lowe](#)⁵, [Angela Simpson](#)⁵, [James William Dodd](#)^{6,7}, [Sayed Hasan Arshad](#)⁸, [Clare S Murray](#)⁹, [Graham Roberts](#)^{10,11}, [Alun Hughes](#)¹², [Chloe Park](#)¹², [John W Holloway](#)^{#10}, [Adnan Custovic](#)^{#2}; [STELAR/UNICORN investigators](#)

Collaborators, Affiliations expand

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- DOI: [10.1136/thorax-2023-220485](https://doi.org/10.1136/thorax-2023-220485)

Free article

Abstract

Rationale: Lung function in early adulthood is associated with subsequent adverse health outcomes.

Objectives: To ascertain whether stable and reproducible lung function trajectories can be derived in different populations and investigate their association with objective measures of cardiovascular structure and function.

Methods: Using latent profile modelling, we studied three population-based birth cohorts with repeat spirometry data from childhood into early adulthood to identify trajectories of forced expiratory volume in 1 s (FEV₁)/forced vital capacity (FVC). We used multinomial logistic regression models to investigate early-life predictors of the derived trajectories. We then ascertained the extent of the association between the derived FEV₁/FVC trajectories and blood pressure and echocardiographic markers of increased cardiovascular risk and stroke in ~3200 participants at age 24 years in one of our cohorts.

Results: We identified four FEV₁/FVC trajectories with strikingly similar latent profiles across cohorts (pooled N=6377): above average (49.5%); average (38.3%); below average (10.6%); and persistently low (1.7%). Male sex, wheeze, asthma diagnosis/medication and allergic sensitisation were associated with trajectories with diminished lung function in all cohorts. We found evidence of an increase in cardiovascular risk markers ascertained by echocardiography (including left ventricular mass indexed to height and carotid intima-media thickness) with decreasing FEV₁/FVC (with p values for the mean crude effects per-trajectory ranging from 0.10 to p<0.001). In this analysis, we considered trajectories as a pseudo-continuous variable; we confirmed the assumption of linearity in all the regression models.

Conclusions: Childhood lung function trajectories may serve as predictors in the development of not only future lung disease, but also the cardiovascular disease and multimorbidity in adulthood.

Keywords: Respiratory Measurement.

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Conflict of interest statement

Competing interests: RG, SH, MD, AU, OM, SF, LL, AS, CP, CSM and GR declare no conflicts of interest. AS has received research grants. JWD has received research and charity grants and declares pharmaceutical support for lectures and attending conferences/meetings. AH has received support from Research Institutions and declares an unpaid fiduciary role. JWH has received research grant and support for travel to congress. AC has received research grants, consulting fees, honoraria for lectures and declares unpaid fiduciary role.

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Observational Study

BMJ Open Respir Res

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. 2024 May 2;11(1):e001919.

doi: 10.1136/bmjresp-2023-001919.

[Single and multiple breath nitrogen washout compared with the methacholine test in patients with suspected asthma and normal spirometry](#)

[Aline Stalder Siebeneichler](#)¹, [Desiree M Schumann](#)¹, [Meropi Karakioulaki](#)¹, [Nora Brachsler](#)¹, [Andrei M Darie](#)¹, [Leticia Grize](#)¹, [Thiago G Heck](#)², [Michael Tamm](#)¹, [Philipp Latzin](#)³, [Daiana Stolz](#)^{4 5 6}

Affiliations expand

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- DOI: [10.1136/bmjresp-2023-001919](https://doi.org/10.1136/bmjresp-2023-001919)

Free article

Abstract

Background: Methods used to assess ventilation heterogeneity through inert gas washout have been standardised and showed high sensitivity in diagnosing many respiratory diseases. We hypothesised that nitrogen single or multiple breath washout tests, respectively nitrogen single breath washout (N₂SBW) and nitrogen multiple breath washout (N₂MBW), may be pathological in patients with clinical suspicion of asthma but normal spirometry. Our aim was to assess whether N₂SBW and N₂MBW are associated with methacholine challenge test (MCT) results in this population. We also postulated that an alteration in S_{III} at N₂SBW could be detected before the 20% fall of forced expiratory volume in the first second (FEV₁) in MCT.

Study design and methods: This prospective, observational, single-centre study included patients with suspicion of asthma with normal spirometry. Patients completed questionnaires on symptoms and health-related quality-of-life and underwent the following lung function tests: N₂SBW (S_{III}), N₂MBW (Lung clearance index (LCI), S_{cond}, S_{acin}), MCT (FEV₁ and sGeff) as well as N₂SBW between each methacholine dose.

Results: 182 patients were screened and 106 were included in the study, with mean age of 41.8±14 years. The majority were never-smokers (58%) and women (61%). MCT was abnormal in 48% of participants, N₂SBW was pathological in 10.6% at baseline and N₂MBW abnormality ranged widely (LCI 81%, S_{cond} 18%, S_{acin} 43%). The dose response rate of the MCT showed weak to moderate correlation with the subsequent N₂SBW measurements during the provocation phases (ρ 0.34-0.50) but no correlation with N₂MBW.

Conclusions: Both MCT and N₂ washout tests are frequently pathological in patients with suspicion of asthma with normal spirometry. The weak association and lack of concordance across the tests highlight that they reflect different but not interchangeable pathological pathways of the disease.

Keywords: Asthma; Asthma Mechanisms; Exhaled Airway Markers; Respiratory Measurement.

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Conflict of interest statement

Competing interests: DS (second author) is currently employed at Tillotts Pharma AG, however, during the period of the study was an employee of the University Hospital of Basel. AMD has received a grant from University Hospital Basel, PL has a grant/contract to Vertex and OM Pharma. DS (last author) reports grants from Astra-Zeneca AG, Curetis AG, BostonScientific, Novartis AG, GSK AG, Roche AG, Zambon, Pfizer, Schwabe Pharma AG, Vifor AG. Other authors have no conflict of interest to declare.

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Comparative Study

BMJ Open Respir Res

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. 2024 May 2;11(1):e001799.

doi: 10.1136/bmjresp-2023-001799.

[Impact of patient support programmes among patients with severe asthma treated with biological therapies: a systematic literature review and indirect treatment comparison](#)

[Adrian P J Rabe](#)^{1,2}, [Wei J Loke](#)³, [Danuta Kielar](#)⁴, [Tamsin Morris](#)⁴, [Vivian H Shih](#)⁴, [Lynda Olinger](#)^{4,5}, [Mihaela G Musat](#)⁵, [Zhiyi Lan](#)⁵, [Sharada Harricharan](#)⁵, [Olivia Fulton](#)⁶, [Azeem Majeed](#)², [Liam G Heaney](#)⁷

Affiliations expand

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- DOI: [10.1136/bmjresp-2023-001799](https://doi.org/10.1136/bmjresp-2023-001799)

Free article

Abstract

Introduction: Effective treatment of severe asthma requires patient adherence to inhaled and biological medications. Previous work has shown that patient support programmes (PSP) can improve adherence in patients with chronic diseases, but the impact of PSPs in patients with severe asthma treated with biologics has not been thoroughly investigated.

Methods: We conducted a systematic literature review to understand the impact of PSPs on treatment adherence, asthma control and health-related quality of life (HRQoL) in patients with severe asthma. Embase, MEDLINE and EconLit databases were searched for studies published from 2003 (the year of the first biological approval for severe asthma) to June 2023 that described PSP participation among patients with severe asthma on biological treatment. Direct pooling of outcomes was not possible due to the heterogeneity across studies, so an indirect treatment comparison (ITC) was performed to determine the effect of PSP participation on treatment discontinuation. The ITC used patient-level data from patients treated with benralizumab either enrolled in a PSP (VOICE study, Connect 360 PSP) or not enrolled in a PSP (Benralizumab Patient Access Programme study) in the UK.

Findings: 25 records of 21 studies were selected. Six studies investigated the impact of PSPs on treatment adherence, asthma control or HRQoL. All six studies reported positive outcomes for patients enrolled in PSPs; the benefits of each PSP were closely linked to the services provided. The ITC showed that patients in the Connect 360 PSP group were less likely to discontinue treatment compared with the non-PSP group (OR 0.26, 95% CI 0.11 to 0.57, $p < 0.001$).

Conclusions: PSPs contribute to positive clinical outcomes in patients with severe asthma on biological treatment. Future analyses will benefit from thorough descriptions of PSP services, and study designs that allow direct comparisons of patient outcomes with and without a PSP.

Keywords: Asthma.

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Conflict of interest statement

Competing interests: DK and TM are employees of AstraZeneca; APJR and VHS were employees of AstraZeneca at the time the study was conducted; LO is an employee of Cytel contracted by AstraZeneca; MGM, ZL and SH are employees of Cytel who was

contracted by AstraZeneca for support in conducting this study; WJL is an external consultant at Wei Medical Consultancy and a medical doctor affiliated with Royal Free NHS Trust; LGH has received grant funding, participated in advisory boards and given lectures at meetings supported by Amgen, AstraZeneca, Boehringer Ingelheim, Chiesi, Circassia, Hoffmann la Roche, GlaxoSmithKline, Novartis, Theravance, Evelo Biosciences, Sanofi and Teva; he has received grants from MedImmune, Novartis UK, Roche/Genentech and GlaxoSmithKline, Amgen, Genentech/Hoffman la Roche, AstraZeneca, MedImmune, GlaxoSmithKline, Aerocrine and Vitalograph; he has received sponsorship for attending international scientific meetings from AstraZeneca, Boehringer Ingelheim, Chiesi, GSK and Napp Pharmaceuticals; he has also taken part in asthma clinical trials sponsored by AstraZeneca, Boehringer Ingelheim, Hoffmann la Roche and GlaxoSmithKline for which his institution received remuneration; he is the Academic Lead for the Medical Research Council Stratified Medicine UK Consortium in Severe Asthma which involves industrial partnerships with a number of pharmaceutical companies including Amgen, AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline, Hoffmann la Roche and Janssen.

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[Review](#)

Eur Respir J

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. 2024 May 2:2300826.

doi: 10.1183/13993003.00826-2023. Online ahead of print.

Advances in Non-Type 2 Asthma in the Severe Cases: from molecular insights to novel treatment strategies

Tao Liu^{1,2,3}, Woodruff G Prescott⁴, Xiaobo Zhou⁵

Affiliations expand

- PMID: 38697650
- DOI: [10.1183/13993003.00826-2023](https://doi.org/10.1183/13993003.00826-2023)

Abstract

Asthma is a prevalent pulmonary disease that affects nearly 300 million people worldwide and imposes a substantial economic burden. While medication can effectively control symptoms in some patients, severe asthma attacks, driven by airway-inflammation induced by environmental and infectious exposures, continue to be a major cause of asthma-related mortality. Heterogenous phenotypes of asthma include type 2 (T2) and non-T2 asthma. Non-T2 asthma is often observed in patients with severe and/or steroid-resistant asthma. This review will cover the molecular mechanisms, clinical phenotypes, causes and promising treatment of non-T2 severe asthma. Specifically, we will discuss the signaling pathways for non-T2 asthma including the activation of inflammasomes, interferon responses, and IL-17 pathways, and their contributions to the subtypes, progression, and severity of non-T2 asthma. Understanding the molecular mechanisms and genetic determinants underlying non-T2 asthma could form the basis for precision medicine in severe asthma treatment.

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PLOS Glob Public Health



. 2024 May 2;4(5):e0003168.

doi: 10.1371/journal.pgph.0003168. eCollection 2024.

[Reducing non-communicable diseases among Palestinian populations in Gaza: A participatory comparative and cost-effectiveness modeling assessment](#)

[Sanjay Basu](#)^{1,2}, [John S Yudkin](#)³, [Mohammed Jawad](#)⁴, [Hala Ghattas](#)^{5,6}, [Bassam Abu Hamad](#)⁷, [Zeina Jamaluddine](#)⁸, [Gloria Safadi](#)⁵, [Marie-Elizabeth Ragi](#)⁵, [Raeda El Sayed Ahmad](#)⁵, [Eszter P Vamos](#)⁴, [Christopher Millett](#)^{4,9}

Affiliations expand

- PMID: 38696423
- PMCID: [PMC11065248](#)
- DOI: [10.1371/journal.pgph.0003168](#)

Abstract

We sought to assess the effectiveness and cost-effectiveness of potential new public health and healthcare NCD risk reduction efforts among Palestinians in Gaza. We created a microsimulation model using: (i) a cross-sectional household survey of NCD risk factors among 4,576 Palestinian adults aged ≥ 40 years old in Gaza; (ii) a modified Delphi process among local public health experts to identify potentially feasible new interventions; and (iii) reviews of intervention cost and effectiveness, modified to the Gazan and refugee contexts. The survey revealed 28.6% tobacco smoking, a 40.4% prevalence of hypertension diagnosis

(with a 95.6% medication treatment rate), a 25.6% prevalence of diabetes diagnosis (with 95.3% on treatment), a 21.9% prevalence of dyslipidemia (with 79.6% on a statin), and a 9.8% prevalence of asthma or chronic obstructive pulmonary disease (without known treatment). A calibrated model estimated a loss of 9,516 DALYs per 10,000 population over the 10-year policy horizon. The interventions having an incremental cost-effectiveness ratio (ICER) less than three times the GDP per capita of Palestine per DALY averted (<\$10,992 per DALY averted)(<\$10,992 per DALY averted) included bans on tobacco smoking in indoor and public places [\$34 per incremental DALY averted (95% CI: \$17, \$50)], treatment of asthma using low dose inhaled beclometasone and short-acting beta-agonists [\$140 per DALY averted (95% CI: \$77, \$207)], treatment of breast cancer stages I and II [\$730 per DALY averted (95% CI: \$372, \$1,100)], implementing a mass media campaign for healthier nutrition [\$737 per DALY averted (95% CI: \$403, \$1,100)], treatment of colorectal cancer stages I and II [\$7,657 per DALY averted (95% CI: \$3,721, \$11,639)], and (screening with mammography [\$17,054 per DALY averted (95% CI: \$8,693, \$25,359)]). Despite high levels of NCD risk factors among Palestinians in Gaza, we estimated that several interventions would be expected to reduce the loss of DALYs within common cost-effectiveness thresholds.

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Conflict of interest statement

The authors have declared that no competing interests exist.

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

SUPPLEMENTARY INFO

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FULL TEXT LINKS



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

1
Eur Arch Otorhinolaryngol

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. 2024 May 9.

doi: 10.1007/s00405-024-08700-2. Online ahead of print.

Diagnosics of allergic rhinitis under dupilumab therapy

[Patrick Huber](#)¹, [Moritz Gröger](#)², [Clemens Stihl](#)², [Hanna Frankenberger](#)², [Mattis Bertlich](#)³, [Frank Haubner](#)², [Donata Gellrich](#)²

Affiliations expand

- PMID: 38722319
- DOI: [10.1007/s00405-024-08700-2](https://doi.org/10.1007/s00405-024-08700-2)

Abstract

Background: Allergic rhinitis is a prevalent condition, affecting a substantial proportion of the population. This study investigates the impact of ongoing biologic therapy, specifically with Dupilumab, on allergy diagnostics in patients with allergic rhinitis.

Methods: Various tests, including the Skin Prick Test, serum IgE levels and Allergy Screening Panels, were examined for their effectiveness in detecting sensitizations during biologic treatment.

Results: The results indicate a significant decline in total IgE levels following biologic therapy initiation, aligning with previous findings on Dupilumab's inhibitory effects on IL-4 and IL-13. However, the specific IgE to total IgE ratio for major allergens was not significantly reduced. Comparing diagnostic tools, the Skin Prick Test demonstrates an impressive retention rate of sensitizations (98%) during Dupilumab treatment, outperforming the Allergy Screening Panel, which shows a 75% detection rate. Notably, the panel displays limitations in capturing lower sensitization levels.

Conclusion: In summary, this study underscores that, despite the influence of biologic therapy on certain markers, standard allergy tests remain viable while emphasizing the importance of considering specific IgE levels rather than relying solely on CAP classes. The Skin Prick Test in particular proves to be a reliable tool for identifying sensitizations during Dupilumab treatment. The results offer valuable guidance for the diagnostic management of Allergic rhinitis in individuals subjected to Dupilumab treatment.

Keywords: Allergic rhinitis; Allergy diagnostics; Biologics; Chronic rhinosinusitis; Dupilumab.

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- [18 references](#)

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Glob Pediatr Health

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. 2024 May 6:11:2333794X241251615.

doi: 10.1177/2333794X241251615. eCollection 2024.

[Coexistence of Allergic Diseases in Pediatric Systemic Lupus Erythematosus Patients: Prevalence, Clinical manifestation and Severity](#)

[Porn-tipa Suebsarakam](#)¹, [Kitiporn Kaweeyanont](#)¹, [Sureeporn Srisutthikamol](#)¹, [Dara Mairiang](#)¹

Affiliations expand

- PMID: 38716425
- PMCID: [PMC11075592](#)

- DOI: [10.1177/2333794X241251615](https://doi.org/10.1177/2333794X241251615)

Abstract

Objective. This study aimed to evaluate allergic diseases in pediatric patients with SLE and their association with SLE disease activity. *Method.* Patients with SLE aged ≤ 18 years were enrolled. Allergic diseases were screened using the International Study of Asthma and Allergies in Childhood questionnaire. Patients with a positive allergic disease screen were evaluated by a pediatric allergist for diagnostic confirmation and severity assessment. *Results.* Out of 118 patients, 16 patients (13.56%) were confirmed to have 1 or more allergic diseases; fourteen with allergic rhinitis, 4 with asthma, and 2 with atopic dermatitis. Two patients had severe-persistent allergic rhinitis and one patient had undiagnosed, uncontrolled severe asthma. No statistically significant correlations between the severity of allergic diseases and SLE disease activity were identified. *Conclusions.* The overall prevalence of allergic disease among pediatric patients with SLE is within the range of the general population. Severe and undiagnosed allergic diseases and SLE can coexist.

Keywords: allergic rhinitis; allergy and immunology; asthma; atopic dermatitis; systemic lupus erythematosus.

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Conflict of interest statement

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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

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Pediatr Pulmonol

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. 2024 May 6.

doi: 10.1002/ppul.26907. Online ahead of print.

Age-related effects of Mycoplasma pneumoniae infection and subsequent asthma exacerbation in children

[Eun Kyo Ha](#)¹, [Joo Ok Jin](#)¹, [Ju Hee Kim](#)², [Jeewon Shin](#)³, [Gi Chun Lee](#)⁴, [Hye Ryeong Cha](#)⁵, [Sun Hee Choi](#)⁶, [Man Yong Han](#)³

Affiliations expand

- PMID: 38708969
- DOI: [10.1002/ppul.26907](https://doi.org/10.1002/ppul.26907)

Abstract

Background: Mycoplasma pneumoniae causes community-acquired pneumonia in children and increases asthma risk, but large studies are lacking.

Objective: To assess the link between M. pneumoniae infection and to asthma exacerbation, in children with allergies, and age of infection impact.

Methods: This retrospective cohort study analyzed medical records of South Korean children between January 2002 and December 2017. The study's exposure was hospitalization with an M. pneumoniae-related diagnosis, and the outcome was defined as asthma exacerbation, confirmed by hospitalization at least 6 months after M. pneumoniae infection, with alternative validation using asthma diagnosis and systemic steroid prescription records. Hazard ratios (HRs) for asthma exacerbation risk were estimated for the matched cohort using a Cox proportional hazards model stratified by allergic comorbidities. Time-dependent covariates and age-stratified exposure groups were used to calculate odds ratios.

Results: The study included 84,074 children with M. pneumoniae infection and 336,296 unexposed children. Follow-up for 12.2 ± 2.3 years found the exposed group had a significant risk of asthma exacerbation (HR 2.86, 95% confidence interval [CI] 2.67-3.06) regardless of allergic comorbidities. The risk was highest (over threefold) in children infected between 24 and 71 months. Sensitivity analysis using an alternative definition of

the outcome showed an HR of 1.38 (95% CI 1.35-1.42), further supporting the association between M. pneumoniae infection and asthma exacerbation.

Conclusion: M. pneumoniae infection was significantly associated with an increased risk of subsequent asthma exacerbation regardless of allergic comorbidities. Further research needed for understanding and confirmation.

Keywords: Mycoplasma pneumoniae; allergic rhinitis; asthma; atopic dermatitis; childhood; epidemiology; pneumonia.

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Allergy

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. 2024 May 5.

doi: 10.1111/all.16140. Online ahead of print.

[Correspondence to "The effectiveness of pollen allergen immunotherapy on allergic rhinitis over 18 years: A national cohort study in Denmark"](#)

[Celeste Porsbjerg](#)¹, [Benedikt Fritzsching](#)², [Nick Freemantle](#)³, [Marco Contoli](#)⁴, [Andreas Kallsoy Slættanes](#)³, [Christian Woehlke](#)^{1,5}

Affiliations expand

- PMID: 38706208
- DOI: [10.1111/all.16140](https://doi.org/10.1111/all.16140)

No abstract available

- [9 references](#)

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Allergy

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. 2024 May 3.

doi: 10.1111/all.16135. Online ahead of print.

[Digitally-enabled, person-centred care \(PCC\) in allergen immunotherapy: An ARIA-EAACI Position Paper](#)

[Oliver Pfaar](#)¹, [Bernardo Sousa-Pinto](#)^{2,3}, [Nikolaos G Papadopoulos](#)⁴, [Désirée E Larenas-Linnemann](#)⁵, [Michal Ordak](#)⁶, [Maria J Torres](#)⁷, [Ralph Mösges](#)^{8,9}, [Ludger Klimek](#)^{10,11}, [Torsten Zuberbier](#)^{12,13}, [Paolo M Matricardi](#)^{12,13,14}, [Uwe E Berger](#)^{15,16}, [Markus Berger](#)^{15,16,17}, [Stephanie Dramburg](#)¹⁴, [Vera Mahler](#)¹⁸, [Sanna K Toppila-Salmi](#)^{19,20}, [Karl-Christian Bergmann](#)^{12,13}, [Markus Ollert](#)^{21,22}, [Salvatore Tripodi](#)²³, [Marek Jutel](#)^{24,25}, [Ioana Agache](#)²⁶, [Ibon Eguiluz-Gracia](#)⁷, [G Walter Canonica](#)^{27,28}, [Cezmi A Akdis](#)²⁹, [Milena Sokolowska](#)²⁹, [Mikhail Sofiev](#)³⁰, [Mohamed H Shamji](#)^{31,32}, [Wienczyslawa Czarlewski](#)^{33,34}, [Joao A Fonseca](#)^{2,3}, [Anna Bedbrook](#)^{34,35}, [Jean Bousquet](#)^{12,13,34,35}

Affiliations expand

- PMID: 38700063
- DOI: [10.1111/all.16135](https://doi.org/10.1111/all.16135)

Abstract

In rhinitis and asthma, several mHealth apps have been developed but only a few have been validated. However, these apps have a high potential for improving person-centred care (PCC), especially in allergen immunotherapy (AIT). They can provide support in AIT initiation by selecting the appropriate patient and allergen shared decision-making. They can also help in (i) the evaluation of (early) efficacy, (ii) early and late stopping rules and (iii) the evaluation of (carried-over) efficacy after cessation of the treatment course. Future perspectives have been formulated in the first report of a joint task force (TF)-Allergic Rhinitis and Its Impact on Asthma (ARIA) and the European Academy of Allergy and Clinical Immunology (EAACI)-on digital biomarkers. The TF on AIT now aims to (i) outline the potential of the clinical applications of mHealth solutions, (ii) express their current limitations, (iii) make proposals regarding further developments for both clinical practice and scientific purpose and (iv) suggest which of the tools might best comply with the purpose of digitally-enabled PCC in AIT.

Keywords: AllergyMonitor®; MASK-air®; allergen immunotherapy; allergy; digital biomarkers.

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- [66 references](#)

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Grants and funding expand

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chronic cough

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Prev Chronic Dis

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. 2024 May 9:21:E31.

doi: 10.5888/pcd21.230399.

Risk of Chronic Obstructive Pulmonary Disease and Receipt of a Breathing Test in 26 States and the District of Columbia, 2017–2018

[Kathleen B Watson](#)¹, [Janet B Croft](#)², [Anne G Wheaton](#)², [Yong Liu](#)², [Antonello Punturieri](#)³, [Lisa Postow](#)³, [Susan A Carlson](#)², [Kurt J Greenlund](#)²

Affiliations expand

- PMID: 38723273
- DOI: [10.5888/pcd21.230399](https://doi.org/10.5888/pcd21.230399)

Abstract

We estimated the prevalence of respiratory symptoms, chronic obstructive pulmonary disease (COPD) risk level, and receipt of a breathing test among adults without reported COPD in 26 states and the District of Columbia by using 2017–2018 Behavioral Risk Factor Surveillance System data. Among adults without reported COPD, the 3 respiratory symptoms indicating COPD (chronic cough, phlegm or mucus production, shortness of breath) were common (each >10%). About 15.0% were at higher COPD risk (based on the number of symptoms, age, and smoking status); 41.4% of adults at higher risk reported receipt of a breathing test. Patient-provider recognition and communication of risk symptoms, appropriate screening, and follow-up are important for early diagnosis and treatment.

SUPPLEMENTARY INFO

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Case Reports

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. 2024 May 8;12(5):e01367.

doi: 10.1002/rcr2.1367. eCollection 2024 May.

[Long-term pneumatic stenting with positive expiratory pressure therapy for severe expiratory central airway collapse](#)

[Rodrigo Funes-Ferrada](#)¹, [Alanna Barrios-Ruiz](#)¹, [Alejandra Yu Lee-Mateus](#)¹, [Margaret M Johnson](#)¹, [Sebastian Fernandez-Bussy](#)¹, [David Abia-Trujillo](#)¹

Affiliations expand

- PMID: 38725709
- PMCID: [PMC11079437](#)

- DOI: [10.1002/rcr2.1367](https://doi.org/10.1002/rcr2.1367)

Abstract

Expiratory central airway collapse (ECAC) comprising excessive central airway collapse (EDAC) and tracheobronchomalacia. Treatment is challenging for severe cases that are not candidates for surgical management. We report a case of severe ECAC successfully managed with continuous positive airway pressure (CPAP) therapy. A 75-year-old female patient status post right pneumonectomy, presented with chronic cough. Dynamic bronchoscopy evaluation showed severe EDAC which improved with intraprocedural noninvasive positive pressure (NIPPV) therapy. Due to patients' comorbidities, she was not a candidate to surgical tracheobronchoplasty. Therefore, we attempted pneumatic stenting with long-term CPAP therapy resulting in improvement of symptoms and functional capacity. The long-term efficacy of pneumatic stenting has not been clearly established yet. Literature review of management of ECAC with NIPPV consist primarily of case reports and there is only one clinical trial being conducted to assess the efficacy of CPAP therapy in ECAC. While NIPPV arises as a sufficient alternative for management of severe ECAC, larger scale studies are needed to prove the real efficacy of NIPPV in this setting.

Keywords: CPAP; expiratory central airway collapse; noninvasive positive pressure ventilation; pneumatic stent.

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Conflict of interest statement

None declared.

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BMJ Open Respir Res

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. 2024 May 7;11(1):e002216.

doi: 10.1136/bmjresp-2023-002216.

Erdosteine in children and adults with bronchiectasis (BETTER trial): study protocol for a multicentre, double-blind, randomised controlled trial

[Anne B Chang](#)^{1,2,3}, [Stephanie T Yerkovich](#)^{2,3}, [Katherine J Baines](#)^{4,5}, [Lucy Burr](#)⁶, [Anita Champion](#)⁷, [Mark D Chatfield](#)⁸, [Kah P Eg](#)⁹, [Vikas Goyal](#)^{2,10}, [Robyn L Marsh](#)^{3,11}, [Gabrielle B McCallum](#)³, [Margaret McElrea](#)², [Steven McPhail](#)^{2,12,13}, [Lucy C Morgan](#)¹⁴, [Peter S Morris](#)³, [Anne M Nathan](#)⁹, [Hannah O'Farrell](#)^{2,3}, [Marion O Sanchez](#)¹⁵, [Marianne Parsons](#)¹⁶, [André Schultz](#)^{17,18}, [Paul J Torzillo](#)^{19,20}, [Nicholas P West](#)²¹, [Lesley Versteegh](#)³, [Julie M Marchant](#)^{22,2}, [Keith Grimwood](#)^{21,23}

Affiliations expand

- PMID: 38719503
- DOI: [10.1136/bmjresp-2023-002216](https://doi.org/10.1136/bmjresp-2023-002216)

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Abstract

Introduction: Bronchiectasis is a worldwide chronic lung disorder where exacerbations are common. It affects people of all ages, but especially Indigenous populations in high-income nations. Despite being a major contributor to chronic lung disease, there are no licensed therapies for bronchiectasis and there remain relatively few randomised controlled trials (RCTs) conducted in children and adults. Our RCT will address some of these unmet needs by evaluating whether the novel mucoactive agent, erdosteine, has a therapeutic role in children and adults with bronchiectasis. Our primary aim is to determine in children

and adults aged 2-49 years with bronchiectasis whether regular erdosteine over a 12-month period reduces acute respiratory exacerbations compared with placebo. Our primary hypothesis is that people with bronchiectasis who regularly use erdosteine will have fewer exacerbations than those receiving placebo. Our secondary aims are to determine the effect of the trial medications on quality of life (QoL) and other clinical outcomes (exacerbation duration, time-to-next exacerbation, hospitalisations, lung function, adverse events). We will also assess the cost-effectiveness of the intervention.

Methods and analysis: We are undertaking an international multicentre, double-blind, placebo-RCT to evaluate whether 12 months of erdosteine is beneficial for children and adults with bronchiectasis. We will recruit 194 children and adults with bronchiectasis to a parallel, superiority RCT at eight sites across Australia, Malaysia and Philippines. Our primary endpoint is the rate of exacerbations over 12 months. Our main secondary outcomes are QoL, exacerbation duration, time-to-next exacerbation, hospitalisations and lung function.

Ethics and dissemination: The Human Research Ethics Committees (HREC) of Children's Health Queensland (for all Australian sites), University of Malaya Medical Centre (Malaysia) and St. Luke's Medical Centre (Philippines) approved the study. We will publish the results and share the outcomes with the academic and medical community, funding and relevant patient organisations.

Trial registration number: ACTRN12621000315819.

Keywords: Bronchiectasis; Paediatric Lung Disease.

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Conflict of interest statement

Competing interests: None declared.

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Med J Aust

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. 2024 May 6;220(8):435.

doi: 10.5694/mja2.52268. Epub 2024 Apr 4.

Cough in Children and Adults: Diagnosis, Assessment and Management (CICADA). Summary of an updated position statement on chronic cough in Australia

[Richard Turner](#)¹, [Surinder Biring](#)^{2,3}

Affiliations expand

- PMID: 38571453
- DOI: [10.5694/mja2.52268](https://doi.org/10.5694/mja2.52268)

No abstract available

Keywords: Respiration disorders.

- [5 references](#)

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Practice Guideline

Med J Aust

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. 2024 May 6;220(8):435.

doi: 10.5694/mja2.52269. Epub 2024 Apr 4.

[Cough in Children and Adults: Diagnosis, Assessment and Management \(CICADA\). Summary of an updated position statement on chronic cough in Australia](#)

[Julie M Marchant](#)^{1,2}, [Anne B Chang](#)^{1,2,3}, [Peter Ab Wark](#)^{4,5}

Affiliations expand

- PMID: 38571452
- DOI: [10.5694/mja2.52269](https://doi.org/10.5694/mja2.52269)

No abstract available

Keywords: Bronchitis; Respiratory function.

- [5 references](#)

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

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6

BMC Pediatr



. 2024 May 3;24(1):296.

doi: 10.1186/s12887-024-04749-4.

[Impulse oscillometry in the diagnosis of cough variant asthma in children](#)

[Chunyu Tian](#)¹, [Shiqiu Xiong](#)¹, [Shuo Li](#)¹, [Xin Song](#)¹, [Yantao Zhang](#)¹, [Xinmei Jiang](#)¹, [Xinyue Hou](#)¹, [Yifan Zhang](#)¹, [Chuanhe Liu](#)²

Affiliations expand

- PMID: 38702638
- PMCID: [PMC11067131](#)
- DOI: [10.1186/s12887-024-04749-4](#)

Abstract

Background: Cough variant asthma (CVA) is one of the most common causes of chronic cough in children worldwide. The diagnosis of CVA in children remains challenging. This study aimed to assess the diagnostic utility of impulse oscillometry (IOS) pulmonary function in children with CVA.

Methods: This study included children aged 4 to 12 years diagnosed with CVA who underwent IOS pulmonary function and bronchodilation (BD) tests. A control group of healthy children was matched. Pre- and post-BD IOS parameters were recorded and presented as mean \pm standard deviation or median. Receiver operating characteristic (ROC) curves were plotted, and the area under the curve (AUC) was calculated to evaluate the discriminatory potential of the IOS parameters for diagnosing CVA.

Results: A total of 180 patients with CVA and 65 control subjects were included. The baseline IOS parameters in the CVA group, except X5%pred, were significantly greater compared to the control group. After inhalation of salbutamol sulfate, all IOS parameters improved significantly in the CVA group. However, Z5%pred, R5%pred, and R20%pred remained greater in the CVA group compared to the control group. The improvement rates of IOS parameters in the CVA group significantly surpassed those in the control group. The ROC curve results for pre-BD IOS parameters and the improvement rate during the BD test showed that the combinations of pre-Z5%pred+ Δ Z5% and pre-R5%pred+ Δ R5% achieved the highest AUC value of 0.920 and 0.898, respectively. The AUC values of these combined parameters surpassed those of individual ones.

Conclusions: This study highlights that children with CVA exhibit greater IOS parameters compared to healthy children. The changes in IOS parameters during the BD test provided valuable diagnostic information for CVA, and the combination of various parameters can help pediatricians accurately identify CVA in children.

Keywords: Children; Cough variant asthma; Diagnosis; Impulse oscillometry.

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Conflict of interest statement

The authors declare no competing interests.

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

SUPPLEMENTARY INFO

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

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7

Multicenter Study

Balkan Med J

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. 2024 May 3;41(3):206-212.

doi: 10.4274/balkanmedj.galenos.2024.2023-12-57.

[Bronchiectasis in Türkiye: Data from a Multicenter Registry \(Turkish Adult Bronchiectasis Database\)](#)

[Ebru Çakır Edis¹](#), [Aykut Çilli²](#), [Deniz Kızılırmak³](#), [Aysin Şakar Coşkun³](#), [Nurcan Güler⁴](#), [Sedat Çiçek²](#), [Can Sevinç⁵](#), [Meltem Çoban Ağca⁶](#), [İnci Gülmez⁷](#), [Benan Çağlayan⁸](#), [Mehmet Kabak⁹](#), [Elif Yelda Özgün Niksarlıoğlu¹⁰](#), [Nurdan Köktürk¹¹](#), [Abdullah Sayiner¹²](#); [TEBVEB researchers](#)

Affiliations expand

- PMID: 38700365
- PMCID: [PMC11077934](#)
- DOI: [10.4274/balkanmedj.galenos.2024.2023-12-57](#)

Abstract

Background: Bronchiectasis is a chronic lung disease characterized by permanent bronchial wall dilatation. Although it has been known as an orphan disease, it has recently gained attention because of registry-based studies and drug research.

Aims: We aimed to use a multicenter database to analyze and compare data regarding the etiology, associated comorbidities, microbiological characteristics, and preventive strategies of bronchiectasis in Türkiye to those of other countries.

Study design: A multicenter prospective cohort study.

Methods: The multicenter, prospective cohort study was conducted between March 2019 and January 2022 using the Turkish Adult Bronchiectasis Database, in which 25 centers in Türkiye participated. Patients aged > 18 years who presented with respiratory symptoms such as cough, sputum, and dyspnea and were diagnosed with non-cystic fibrosis bronchiectasis using computed tomography were included in the study. Demographic information, etiologies, comorbidities, pulmonary functions, and microbiological, radiological, and clinical data were collected from the patients.

Results: Of the 1,035 study participants, 518 (50%) were females. The mean age of the patients was 56.1 ± 16.1 years. The underlying etiology was detected in 565 (54.6%) patients. While postinfectious origin was the most common cause of bronchiectasis (39.5%), tuberculosis was identified in 11.3% of the patients. An additional comorbidity was detected in 688 (66.5%) patients. The most common comorbidity was cardiovascular disease, and chronic obstructive pulmonary disease (COPD) and bronchiectasis was identified in 19.5% of the patients. The most commonly detected microbiological agent was *Pseudomonas aeruginosa* (29.4%). Inhaled corticosteroids (ICS) were used in 70.1% of the patients, and the frequency of exacerbations in the last year was significantly higher in patients using ICS than in nonusers ($p < 0.0001$). Age [odds ratio (OR): 1.028; 95% confidence interval (CI): 1.005-1.051], cachexia (OR: 4.774; 95% CI: 2,054-11,097), high modified medical research council dyspnea scale score (OR: 1,952; 95% CI: 1,459-2,611), presence of chronic renal failure (OR: 4,172; 95% CI: 1,249-13,938) and use of inhaled steroids (OR: 2,587; 95% CI: 1,098-6,098) were significant risk factors for mortality. Mortality rates were higher in patients with COPD than in those with no COPD (21.7-9.1%, $p = 0.016$). Patients with bronchiectasis and COPD exhibited more frequent exacerbations, exacerbation-related hospitalizations, and hospitalization in the intensive care unit in the previous year than patients without COPD.

Conclusion: This is the first multicenter study of bronchiectasis in Türkiye. The study results will provide important data that can guide the development of health policies in Türkiye on issues such as infection control, vaccination, and the unnecessary use of antibiotics and steroids.

Conflict of interest statement

Conflict of Interest: No conflict of interest was declared by the authors.

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

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS



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

1
Am J Respir Crit Care Med

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. 2024 May 8.

doi: 10.1164/rccm.202404-0764ED. Online ahead of print.

Reversal of Bronchiectasis in Children: Early Intervention May Stop the Vicious Circle!

[Pierre-Régis Burgel](#)¹, [Andrew Bush](#)²

Affiliations expand

- PMID: 38717794
- DOI: [10.1164/rccm.202404-0764ED](https://doi.org/10.1164/rccm.202404-0764ED)

No abstract available

Keywords: Bronchiectasis.

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Am J Respir Crit Care Med

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. 2024 May 8.

doi: 10.1164/rccm.202403-0611ED. Online ahead of print.

Deciphering Idiopathic Bronchiectasis One Gene at a Time

[Amjad Horani](#)¹

Affiliations expand

- PMID: 38717359
- DOI: [10.1164/rccm.202403-0611ED](https://doi.org/10.1164/rccm.202403-0611ED)

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. 2024 May 8.

doi: 10.1164/rccm.202310-1729OC. Online ahead of print.

Endotypes of Exacerbation in Bronchiectasis: An Observational Cohort Study

[Yonghua Gao](#)¹, [Hollian Richardson](#)², [Alison J Dicker](#)³, [Alun Barton](#)³, [Elena Kuzmanova](#)⁴, [Michal Shteinberg](#)^{5,6}, [Lidia Perea](#)⁷, [Pieter C Goeminne](#)^{8,9}, [Erin Cant](#)², [Chandani Hennayake](#)², [Jennifer Pollock](#)¹⁰, [Hani Abo Leyah](#)¹¹, [Hayoung Choj](#)¹², [Eva Polverino](#)¹³, [Francesco Blasi](#)¹⁴, [Tobias Welte](#)¹⁵, [Stefano Aliberti](#)^{16,17}, [Merete Long](#)³, [Amelia Shoemark](#)¹⁸, [Oriol Sibila](#)¹⁹, [Jeffrey T J Huang](#)²⁰, [James D Chalmers](#)²¹

Affiliations expand

- PMID: 38717347
- DOI: [10.1164/rccm.202310-1729OC](https://doi.org/10.1164/rccm.202310-1729OC)

Abstract

Rationale: Bronchiectasis is characterised by acute exacerbations but the biological mechanisms underlying these events is poorly characterised. Objectives To investigate the inflammatory and microbial characteristics of exacerbations of bronchiectasis.

Methods: 120 patients with bronchiectasis were enrolled and presented with acute exacerbations within 12 months. Spontaneous sputum samples were obtained during a period of clinical stability and again at exacerbation prior to receipt of antibiotic treatment. A validated rapid PCR assay for bacteria and viruses was used to classify exacerbations as bacterial, viral or both. Sputum inflammatory assessments included label free Liquid chromatography/mass spectrometry and measurement of sputum cytokines and neutrophil elastase activity. 16s rRNA sequencing was used to characterise the microbiome.

Measurements and main results: Bronchiectasis exacerbations showed profound molecular heterogeneity. At least one bacteria was identified in 103 samples (86%) and a high bacterial load (total bacterial load >10(7) copies/g) was observed in 81 patients (68%). Respiratory viruses were identified in 55 (46%) patients with rhinovirus being the most

common virus (31%). PCR was more sensitive than culture. No consistent change in the microbiome was observed at exacerbation. Exacerbations were associated with increased neutrophil elastase, proteinase-3, Il-1beta and CXCL8. These markers were particularly associated with bacterial and bacterial+viral exacerbations. Distinct inflammatory and microbiome profiles were seen between different exacerbation subtypes, including bacterial, viral and eosinophilic events in both hypothesis led, and hypothesis-free analysis using integrated microbiome and proteomics, demonstrating 4 subtypes of exacerbation.

Conclusion: Bronchiectasis exacerbations are heterogeneous events with contributions from bacteria, viruses and inflammatory dysregulation.

Keywords: bronchiectasis; exacerbations; microbiome; proteomics; viruses.

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Multicenter Study

BMJ Open Respir Res

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. 2024 May 7;11(1):e002216.

doi: 10.1136/bmjresp-2023-002216.

[Erdosteine in children and adults with bronchiectasis \(BETTER trial\): study protocol for a multicentre, double-blind, randomised controlled trial](#)

[Anne B Chang](#)^{1,2,3}, [Stephanie T Yerkovich](#)^{2,3}, [Katherine J Baines](#)^{4,5}, [Lucy Burr](#)⁶, [Anita Champion](#)⁷, [Mark D Chatfield](#)⁸, [Kah P Eg](#)⁹, [Vikas Goyal](#)^{2,10}, [Robyn L Marsh](#)^{3,11}, [Gabrielle B McCallum](#)³, [Margaret McElrea](#)², [Steven McPhail](#)^{2,12,13}, [Lucy C Morgan](#)¹⁴, [Peter S Morris](#)³, [Anne M Nathan](#)⁹, [Hannah O'Farrell](#)^{2,3}, [Marion O Sanchez](#)¹⁵, [Marianne Parsons](#)¹⁶, [André Schultz](#)^{17,18}, [Paul J Torzillo](#)^{19,20}, [Nicholas P West](#)²¹, [Lesley Versteegh](#)³, [Julie M Marchant](#)^{22,2}, [Keith Grimwood](#)^{21,23}

Affiliations expand

- PMID: 38719503
- DOI: [10.1136/bmjresp-2023-002216](https://doi.org/10.1136/bmjresp-2023-002216)

Free article

Abstract

Introduction: Bronchiectasis is a worldwide chronic lung disorder where exacerbations are common. It affects people of all ages, but especially Indigenous populations in high-income nations. Despite being a major contributor to chronic lung disease, there are no licensed therapies for bronchiectasis and there remain relatively few randomised controlled trials (RCTs) conducted in children and adults. Our RCT will address some of these unmet needs by evaluating whether the novel mucoactive agent, erdosteine, has a therapeutic role in children and adults with bronchiectasis. Our primary aim is to determine in children and adults aged 2-49 years with bronchiectasis whether regular erdosteine over a 12-month period reduces acute respiratory exacerbations compared with placebo. Our primary hypothesis is that people with bronchiectasis who regularly use erdosteine will have fewer exacerbations than those receiving placebo. Our secondary aims are to determine the effect of the trial medications on quality of life (QoL) and other clinical outcomes (exacerbation duration, time-to-next exacerbation, hospitalisations, lung function, adverse events). We will also assess the cost-effectiveness of the intervention.

Methods and analysis: We are undertaking an international multicentre, double-blind, placebo-RCT to evaluate whether 12 months of erdosteine is beneficial for children and adults with bronchiectasis. We will recruit 194 children and adults with bronchiectasis to a parallel, superiority RCT at eight sites across Australia, Malaysia and Philippines. Our primary endpoint is the rate of exacerbations over 12 months. Our main secondary outcomes are QoL, exacerbation duration, time-to-next exacerbation, hospitalisations and lung function.

Ethics and dissemination: The Human Research Ethics Committees (HREC) of Children's Health Queensland (for all Australian sites), University of Malaya Medical Centre (Malaysia) and St. Luke's Medical Centre (Philippines) approved the study. We will publish the results and share the outcomes with the academic and medical community, funding and relevant patient organisations.

Trial registration number: ACTRN12621000315819.

Keywords: Bronchiectasis; Paediatric Lung Disease.

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Conflict of interest statement

Competing interests: None declared.

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Am J Respir Crit Care Med

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. 2024 May 7.

doi: 10.1164/rccm.202402-0466RL. Online ahead of print.

[The Impact of Tobacco Smoking in Bronchiectasis: Data from the United States Bronchiectasis and NTM Research Registry](#)

[Pamela J McShane](#)¹, [Amanda E Brunton](#)², [Radmila Choate](#)³, [Meghan Marmor](#)⁴, [Christopher J Richards](#)⁵, [George M Solomon](#)⁶, [Diego J Maselli](#)⁷, [Colin Swenson](#)⁸, [Timothy R Aksamit](#)⁹, [Mark L Metersky](#)¹⁰

Affiliations expand

- PMID: 38712994
- DOI: [10.1164/rccm.202402-0466RL](https://doi.org/10.1164/rccm.202402-0466RL)

No abstract available

Keywords: epidemiology; exacerbations; hospitalizations; tobacco use.

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Jpn J Radiol

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. 2024 May 6.

doi: 10.1007/s11604-024-01570-y. Online ahead of print.

[CT findings as predictive factors for treatment failure in Mycobacterium abscessus complex lung disease: a retrospective cohort study](#)

[Pin-Yi Chiang¹](#), [Yu-Sen Huang¹](#), [Yu-Cheng Huang¹](#), [Ming-Yann Lee²](#), [Victor Jing-Wei Kang¹](#), [Chin-Chung Shu³](#), [Yeun-Chung Chang¹](#)

Affiliations expand

- PMID: 38705936

- DOI: [10.1007/s11604-024-01570-y](https://doi.org/10.1007/s11604-024-01570-y)

Abstract

Purpose: Mycobacterium abscessus complex (MABC) commonly causes lung disease (LD) and has a high treatment failure rate of around 50%. In this study, our objective is to investigate specific CT patterns for predicting treatment prognosis and monitoring treatment response, thus providing valuable insights for clinical physicians in the management of MABC-LD treatment.

Methods: We retrospectively assessed 34 patients with MABC-LD treated between January 2015 and December 2020. CT scores for bronchiectasis, cellular bronchiolitis, consolidation, cavities, and nodules were measured at initiation and after treatment. The ability of the CT scores to predict treatment outcomes was analyzed in logistic regression analyses.

Results: The CT scoring system had excellent inter-reader agreement (all intraclass correlation coefficients, > 0.82). The treatment failure (TF) group (17/34; 50%) had higher cavitation diameter ($p = 0.049$) and extension ($p = 0.041$) at initial CT and higher cavitation diameter ($p = 0.049$) and extension ($p = 0.045$), consolidation ($p = 0.022$), and total ($p = 0.013$) scores at follow-up CT than the treatment success (TS) group. The changes of total score and consolidation score ($p = 0.049$ and 0.024 , respectively) increased in the TF group more than the TS group between the initial and follow-up CT. Multivariable logistic regression analysis showed initial cavitation extension, follow-up consolidation extension, and change in consolidation extension (adjusted odds ratio: 2.512, 2.495, and 9.094, respectively, per 1-point increase; all $p < 0.05$) were significant predictors of treatment failure.

Conclusions: A high pre-treatment cavitation extension score and an increase in the consolidation extension score during treatment on CT could be alarm signs of treatment failure requiring tailor the treatment of MABC-LD carefully.

Keywords: Mycobacterium abscessus complex lung disease; Computed tomography; Nontuberculous mycobacteria; Thorax; Treatment outcome.

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- [27 references](#)

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Case Reports

Clin Med Insights Case Rep

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. 2024 May 3:17:11795476241251940.

doi: 10.1177/11795476241251940. eCollection 2024.

[Kartagener's Syndrome Complicated by Bronchiectasis with Tricuspid and Mitral Valve Regurgitation: A Case Report](#)

[Rayyan Vaid](#)¹, [Areeba Fareed](#)¹, [Maaz Ahmad Siddiqui](#)²

Affiliations expand

- PMID: 38706639
- PMCID: [PMC11069330](#)
- DOI: [10.1177/11795476241251940](#)

Abstract

Background: Kartagener's syndrome, a rare autosomal recessive genetic disorder, is characterized by primary ciliary dyskinesia (PCD), resulting in defective cilia function in the respiratory tract and fallopian tubes.

Case presentation: This case report discusses a 23-year-old female with Kartagener's syndrome, bronchiectasis, and cardiac involvement, who presented with shortness of breath, cough, and syncope. Notably, she received home oxygen therapy but became exhausted, leading to loss of consciousness. Clinical examination revealed prominent heart sounds and abnormal lung findings. Laboratory results indicated leukocytosis, and an ECG confirmed dextrocardia and cardiac abnormalities. Doppler studies identified mitral and tricuspid regurgitation along with severe pulmonary arterial hypertension. Antibiotics were administered for coagulase-negative Staphylococcus infection. The patient improved with a treatment regimen, including oxygenation and nebulization. Regular follow-up and patient education were emphasized.

Conclusion: This case underscores the complexity of Kartagener's syndrome and the importance of a multidisciplinary approach in managing its respiratory and cardiac manifestations.

Keywords: Kartagener's syndrome; bronchiectasis; dextrocardia; mitral valve regurgitation; pulmonary arterial hypertension; tricuspid valve regurgitation.

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Conflict of interest statement

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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

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Multicenter Study

Balkan Med J

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. 2024 May 3;41(3):206-212.

doi: 10.4274/balkanmedj.galenos.2024.2023-12-57.

Bronchiectasis in Türkiye: Data from a Multicenter Registry (Turkish Adult Bronchiectasis Database)

[Ebru Çakır Edis¹](#), [Aykut Çilli²](#), [Deniz Kızıllırmak³](#), [Aysin Şakar Coşkun³](#), [Nurcan Güler⁴](#), [Sedat Çiçek²](#), [Can Sevinç⁵](#), [Meltem Çoban Ağca⁶](#), [İnci Gülmez⁷](#), [Benan Çağlayan⁸](#), [Mehmet Kabak⁹](#), [Elif Yelda Özgün Niksarlıoğlu¹⁰](#), [Nurdan Köktürk¹¹](#), [Abdullah Sayiner¹²](#); [TEBVEB researchers](#)

Affiliations expand

- PMID: 38700365
- PMCID: [PMC11077934](#)
- DOI: [10.4274/balkanmedj.galenos.2024.2023-12-57](#)

Abstract

Background: Bronchiectasis is a chronic lung disease characterized by permanent bronchial wall dilatation. Although it has been known as an orphan disease, it has recently gained attention because of registry-based studies and drug research.

Aims: We aimed to use a multicenter database to analyze and compare data regarding the etiology, associated comorbidities, microbiological characteristics, and preventive strategies of bronchiectasis in Türkiye to those of other countries.

Study design: A multicenter prospective cohort study.

Methods: The multicenter, prospective cohort study was conducted between March 2019 and January 2022 using the Turkish Adult Bronchiectasis Database, in which 25 centers in Türkiye participated. Patients aged > 18 years who presented with respiratory symptoms such as cough, sputum, and dyspnea and were diagnosed with non-cystic fibrosis bronchiectasis using computed tomography were included in the study. Demographic information, etiologies, comorbidities, pulmonary functions, and microbiological, radiological, and clinical data were collected from the patients.

Results: Of the 1,035 study participants, 518 (50%) were females. The mean age of the patients was 56.1 ± 16.1 years. The underlying etiology was detected in 565 (54.6%) patients. While postinfectious origin was the most common cause of bronchiectasis (39.5%), tuberculosis was identified in 11.3% of the patients. An additional comorbidity was detected in 688 (66.5%) patients. The most common comorbidity was cardiovascular disease, and chronic obstructive pulmonary disease (COPD) and bronchiectasis was identified in 19.5% of the patients. The most commonly detected microbiological agent was *Pseudomonas aeruginosa* (29.4%). Inhaled corticosteroids (ICS) were used in 70.1% of the patients, and the frequency of exacerbations in the last year was significantly higher in patients using ICS than in nonusers ($p < 0.0001$). Age [odds ratio (OR): 1.028; 95% confidence interval (CI): 1.005-1.051], cachexia (OR: 4.774; 95% CI: 2,054-11,097), high modified medical research council dyspnea scale score (OR: 1,952; 95% CI: 1,459-2,611), presence of chronic renal failure (OR: 4,172; 95% CI: 1,249-13,938) and use of inhaled steroids (OR: 2,587; 95% CI: 1,098-6,098) were significant risk factors for mortality. Mortality rates were higher in patients with COPD than in those with no COPD (21.7-9.1%, $p = 0.016$). Patients with bronchiectasis and COPD exhibited more frequent exacerbations, exacerbation-related hospitalizations, and hospitalization in the intensive care unit in the previous year than patients without COPD.

Conclusion: This is the first multicenter study of bronchiectasis in Türkiye. The study results will provide important data that can guide the development of health policies in Türkiye on issues such as infection control, vaccination, and the unnecessary use of antibiotics and steroids.

Conflict of interest statement

Conflict of Interest: No conflict of interest was declared by the authors.

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Observational Study

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[Effects of high-flow nasal cannula oxygen therapy in bronchiectasis and hypercapnia: a retrospective observational study](#)

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Abstract

Background: The effectiveness of high-flow nasal cannula (HFNC) therapy in patients with bronchiectasis experiencing hypercapnia remains unclear. Our aim was to retrospectively analyze the short-term outcomes of HFNC therapy in such patients, and to further explore the predictors of HFNC treatment failure in this particular patient population.

Methods: A retrospective review was conducted on patients with bronchiectasis who received HFNC (n = 70) for hypercapnia (arterial partial pressure of carbon dioxide, PaCO₂ ≥ 45 mmHg) between September 2019 and September 2023.

Results: In the study population, 30% of patients presented with acidemia (arterial pH < 7.35) at baseline. Within 24 h of HFNC treatment, there was a significant reduction in PaCO₂ levels by a mean of 4.0 ± 12.7 mmHg (95% CI -7.0 to -1.0 mmHg). Concurrently, arterial pH showed a statistically significant increase with a mean change of 0.03 ± 0.06 (95% CI 0.01 to 0.04). The overall hospital mortality rate in our study was 17.5%. The median length of hospital stay was 11.0 days (interquartile range [IQR] 8.0 to 16.0 days). Sub-analysis revealed no statistically significant differences in hospital mortality (19.0% vs. 20.4%, p = 0.896), length of hospital stay (median 14.0 days [IQR 9.0 to 18.0 days] vs. 10.0 days [IQR 7.0 to 16.0 days], p = 0.117) and duration of HFNC application (median 5.0 days [IQR 2.0 to 8.5 days] vs. 6.0 days [IQR 4.9 to 9.5 days], p = 0.076) between the acidemia group and the non-acidemia group (arterial pH ≥ 7.35). However, more patients in the non-acidemia group had do-not-intubate orders. The overall treatment failure rate for HFNC was 28.6%. Logistic regression analysis identified the APACHE II score (OR 1.24 per point) as the independent predictor of HFNC failure.

Conclusions: In patients with bronchiectasis and hypercapnia, HFNC as an initial respiratory support can effectively reduce PaCO₂ level within 24 h of treatment. A high APACHE II score has emerged as a prognostic indicator for HFNC treatment failure. These observations highlight randomized controlled trials to meticulously evaluate the efficacy of HFNC in this specific population.

Keywords: Bronchiectasis; High-flow nasal cannula; Noninvasive ventilation; Respiratory failure.

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Conflict of interest statement

The authors declare no competing interests.

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