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

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BMJ Open Respir Res

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Development of a clinical prediction model for falls in individuals with COPD

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Affiliations Expand

- **PMID: 41448796**

- **PMCID: PMC12742129**

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Abstract

Background: Chronic obstructive pulmonary disease (COPD) is linked to an increased risk of falls, however, there is no accurate method for predicting falls in

this population. This study aimed to develop and internally validate a clinical prediction model for falls in individuals with COPD.

Methods: A secondary analysis was conducted using data from a recent fall prevention trial. Participants with COPD who reported a 12-month history of falls, concerns with balance or recent near falls were tracked for falls over 12 months prospectively. Baseline data included demographics and measures of balance, mobility and health status. A predictive model was developed using backward-selected multivariate logistic regression with fall status (no falls versus ≥1 fall) as the dependent variable and 17 baseline candidate predictors as independent variables. Using the bootstrap resampling method for internal validation, model performance was assessed for discrimination by the concordance (c) statistic and calibration by the expected to observed (E:O) ratio, calibration in the large (CITL) and calibration slope. The final model was adjusted for optimism using the bootstrap shrinkage factor.

Results: Of 178 participants (mean age 73±9 years; 83 females), 74 (42%) reported ≥1 fall over 12 months, totalling 188 falls. The predictive model identified three factors associated with 12-month future falls: reporting a 12-month history of ≥2 falls (OR=3.59, CI (1.65 to 7.82)), more chronic conditions (OR=1.14, CI (1.01 to 1.28)) and worse Timed Up and Go Dual-Task test scores (OR=1.04, CI (1.00 to 1.09)). The final prediction model achieved acceptable discrimination (c-statistic=0.69, CI (0.61 to 0.78)) and calibration (E:O ratio=1.01, CITL=-0.01 and calibration slope=0.93).

Conclusions: A history of ≥2 falls, having more chronic conditions and impaired mobility under cognitive demand predicts future falls in individuals with COPD. The prediction model showed acceptable internal validation. External validation is needed to confirm these findings.

Trial registration number: NCT02995681; clinicaltrials.gov.

Keywords: COPD; Physical Examination.

Conflict of interest statement

Competing interests: None declared.

- 54 references
- 1 figure

Supplementary info

MeSH terms, Associated dataExpand

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Cite

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BMJ Open Respir Res

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Unravelling the exposome of severe exacerbations of obstructive respiratory diseases in France

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Abstract

Introduction: Understanding the influence of environmental and socioeconomic factors, collectively known as the exposome, on severe exacerbation risks in chronic obstructive pulmonary disease (COPD) and asthma is crucial for enhancing patient care.

Methods: We assessed the impact of the exposome on COPD and asthma severe exacerbations in France between 2018 and 2022, combining data from the French National Hospital Discharge Programme de Médicalisation des Systèmes d'Information database and open data for multiple environmental exposition. Using a retrospective matched case-control design, 473 990 patients with COPD and 187 332 patients with asthma were matched for sex, birth year and date of first hospitalisation. Conditional logistic regressions were performed to quantify ORs of exacerbations within the studied population.

Results: In a multivariate model, exposure to extreme cold temperatures and exceeding WHO standards for nitrogen dioxide (NO_2), fine particulate matter and ozone increased the odds of COPD exacerbation. Only exceeding NO_2 was related to an increased risk of asthma exacerbation. Patients with COPD or asthma living in urban or artificial areas or near livestock farms were much more likely to have a severe exacerbation, whereas those living near water, wetlands or green spaces

were protected from this risk. Higher poverty rates and long-term tobacco smoking were linked to a greater likelihood of COPD exacerbations.

Conclusions: The study highlights how exposome factors influence bronchial diseases and underscores the benefit of open-access data for advancing research. COPD and asthma exacerbations account for numerous deaths and cost billions and will increase with global warming, identifying modifiable environmental risk factors, improving patient care and helping shape valuable public health policies.

Keywords: Asthma; Asthma Epidemiology; COPD Exacerbations; COPD epidemiology; Pulmonary Disease, Chronic Obstructive; Respiratory Infection.

Conflict of interest statement

Competing interests: CT served as the French medical expert. He works as a pulmonologist in the Foch Hospital, Suresnes. JC served as the French medical expert. He works as an allergist in Chartres. IA-M served as the French medical expert. She works as the director of research at Inserm and professor of environmental epidemiology at the University of Montpellier. CP served as the COPD expert patient. LA, FH, MFV, TS and PdlT are employees at Sanofi and may hold shares and/or stock options in the company. ACM and FF served as the consultant data scientist, Alira Health, Paris, France. RF served as the consultant data scientist, Alira Health, Milan, Italy. MR served as an epidemiologist, Alira Health, Barcelona, Spain, and is currently an employee at Sanofi. NM served as the French medical expert. He works as a university professor and hospital practitioner in biostatistics at the University of Montpellier.

- 39 references
- 3 figures

Supplementary info

MeSH terms, SubstancesExpand

Full text links

. 2025 Dec 23:251:108605.

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Allergic sensitization in asthma and COPD in the NOVELTY study

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Affiliations Expand

- PMID: 41448282

- DOI: 10.1016/j.rmed.2025.108605

Abstract

Background: Allergic sensitization is a hallmark of asthma, linked to increased disease burden. However, its role in chronic obstructive pulmonary disease (COPD) and asthma + COPD remains less understood.

Objective: This cross-sectional study evaluates the prevalence of allergic sensitization and its associations with disease severity, lung function, exacerbations and health status across these conditions in the multinational observational NOVELTY cohort.

Methods: Allergic sensitization was assessed from specific IgE (sIgE) to11 common aeroallergens. Physician-assessed severity, post-bronchodilator FEV1 % predicted, exacerbation history, and health status were evaluated. Mixed-effects multivariable regression models were used to assess associations, adjusted for age, sex, BMI, smoking history, and geographical region.

Results: Baseline sIgE data were available from n = 5389 participants (asthma:2707; asthma + COPD:773; COPD:1909). Allergic sensitization prevalence was 56 % in asthma, 36 % in asthma + COPD, and 19 % in COPD. In asthma, sensitization to any allergen, mites or molds was associated with more severe disease (odds ratios (OR) 1.46 to 2.91) and lower post-BD FEV_1 % predicted (coefficients -1.88 % to -8.94 %). Conversely, in COPD, sensitization was associated with higher FEV_1 and milder severity. Women were less likely than men to be sensitized across all diagnostic groups. Regional differences were evident, with higher sensitization rates in North America and Europe compared to Asia.

Conclusion: Allergic sensitization shows divergent clinical associations across asthma and COPD, being linked to more severe disease in asthma but higher lung function and milder severity in COPD.

Clinical implication: These findings emphasize the phenotypic heterogeneity of allergic sensitization in airway diseases and support its use in guiding personalized diagnostic and therapeutic strategies.

Keywords: Allergy; Asthma; COPD; IgE; Lung function; Severity.

Conflict of interest statement

Declaration of competing interest The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: The NOVELTY study is funded by AstraZeneca. The sponsor participated in the design of the study, data analysis, and preparation of the manuscript. Disclosure of potential conflicts of interest: C.J. has received personal fees from AstraZeneca, Boehringer Ingelheim, Chiesi, GSK, Novartis, and Teva outside of the submitted work. AM has received lecture and/or advisory board fees from Boehringer Ingelheim and Chiesi outside the submitted study as well as in-kind support in form of nitric oxide sensors from NIOX (a producer of FeNO devices) and reagents for allergy testing and inflammation biomarkers from Thermo Fisher Scientific, both within a frame of investigator-initiated studies, MB is an employee of Thermo Fisher, RN, RH, AM, XMand HM are employees of AstraZeneca. A.P. has received personal fees for consultation or board membership or lecturing for AstraZeneca, Boehringer Ingelheim, ChiesiFarmaceutici, Edmond Pharma, GSK, Mundipharma, Novartis, Sanofi/Regeneron, Teva, and Zambon. His Institution has received industry-sponsored grants from AstraZeneca, Chiesi Farmaceutici, Boehringer Ingelheim, and GSK. HKR has participated in advisory boards for AstraZeneca, Chiesi, GlaxoSmithKline, Novartis and Sanofi Genzyme; and has received honoraria from AstraZeneca, Boehringer Ingelheim, Chiesi, Cipla, GlaxoSmithKline, Sanofi and Teva Pharmaceuticals for independent medical educational presentations; consulting for Novartis and AstraZeneca; and independent research funding from Astra-Zeneca, GlaxoSmithKline, and Sanofi. She is Chair of the Global Initiative for Asthma Science Committee.

Cite

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Published Erratum

Am J Cardiol

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doi: 10.1016/j.amjcard.2025.12.001. Online ahead of print.

Corrigendum to 'Clinical Characteristics and Prognosis of Acute Heart Failure in Patients with Chronic Obstructive Pulmonary Disease' [The American Journal of Cardiology 257(2025) Pages 101-109]

Han Xia [1], Junlei Li [1], Jianzeng Dong [2]

Affiliations Expand

- PMID: 41448245

- DOI: 10.1016/j.amjcard.2025.12.001

No abstract available

Erratum for

- Clinical Characteristics and Prognosis of Acute Heart Failure in Patients with Chronic Obstructive Pulmonary Disease.

Xia H, Li J, Dong J.Am J Cardiol. 2025 Dec 15;257:101-109. doi: 10.1016/j.amjcard.2025.08.020. Epub 2025 Aug 16.PMID: 40819680

Supplementary info

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JMIR Res Protoc

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. 2025 Dec 24:14:e79503.

doi: 10.2196/79503.

The BREATH-TRACHER 2 Trial: Protocol for a Retrospective Mixed Methods Study to Establish the Utility of a Wearable Device in the Detection of Chronic Obstructive Pulmonary Disease Exacerbations

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- PMID: 41442677

- PMCID: PMC12736667

- DOI: 10.2196/79503

Abstract

Background: Acute exacerbations of chronic obstructive pulmonary disease (eCOPD) are a major clinical challenge, often leading to frequent emergency room visits and significantly reducing patients' quality of life. Early detection through wearable devices could facilitate timely interventions at the community level, reducing hospital admissions and disease-related morbidity and mortality.

Objective: This study seeks to retrospectively assess the feasibility and reliability of the Frontier X2 wearable device for continuous monitoring of clinically relevant physiological signals in volunteers with chronic obstructive pulmonary disease (COPD) who experience acute exacerbations. In particular, the study aims to characterize early physiological alterations that may occur prior to the exacerbation of COPD, assessing the ability of the device to capture these changes in the real-world settings.

Methods: This single-center feasibility study involves prospective physiological data collection with retrospective analytical evaluation of physiological changes occurring around clinically confirmed COPD exacerbations. A total of 30 participants with COPD (Modified Medical Research Council Grades 1-4) who have experienced at least one exacerbation within the past 12 months will be included. Each participant will wear a continuous physiological monitoring device in their free-living environment for up to 18 months or until an eCOPD event occurs. The device will continuously collect physiological signals, including heart rate, respiratory rate, and heart rate variability. Data will be analyzed using statistical quality control methods, specifically the Cumulative Sum approach, to identify physiological deviations occurring within 7 days (168 h) prior to an exacerbation event. These findings will be correlated with clinical records and qualitative data. Qualitative information will be obtained through biweekly self-administered questionnaires assessing symptom changes and through additional adherence and usability questionnaires completed during home visits conducted every 2 weeks by the researcher.

Results: Recruitment for this study started in June 2024 and was completed in July 2025. It is anticipated that data collection will be completed within 18 months of study initiation, with data analysis finalized by December 2025. Final results will be published in January 2026.

Conclusions: The BREATH-TRACHER 2 study will evaluate the use of the Frontier X2 device in participants with COPD in home settings. The Frontier X2 device, if successful, has the potential to transform COPD management and support proactive care, leading to enhanced clinical outcomes and reduced disease mortality and morbidity.

Keywords: COPD; acute; chronic obstructive pulmonary disease; digital health; exacerbation; feasibility study; home monitoring; protocol; respiration; respiratory; vital signs; wearable device.

Conflict of interest statement

Conflicts of Interest: None declared.

- 33 references
- 1 figure

Supplementary info

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ERJ Open Res

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. 2025 Dec 22;11(6):00605-2025.

doi: 10.1183/23120541.00605-2025. eCollection 2025 Nov.

New-onset atrial fibrillation in patients with acute hypercapnic respiratory failure requiring noninvasive ventilation

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- PMID: 41438861
- PMCID: PMC12720159
- DOI: 10.1183/23120541.00605-2025

Abstract

Introduction: Atrial fibrillation (AF) and COPD are the most common cardiac arrhythmia and chronic lung conditions worldwide. Exacerbations of COPD can be associated with acute hypercapnic respiratory failure (AHRF). It is unclear if new-onset AF (NOAF) during hospitalisation with AHRF influences long-term outcomes.

Methods: We conducted a retrospective cohort study using TriNetX, a global federated health research network. Patients ≥18 years old and hospitalised with a known diagnosis of COPD and new AHRF requiring noninvasive ventilation (NIV) were divided into two cohorts based on the development of NOAF within 7 days of AHRF. After propensity score matching (1:1), there was a total of 14 213 patients in each group. Outcomes were recorded at 1 year from the index admission to hospital. The outcomes of interest were all-cause death, re-admission, stroke, myocardial infarction, composite embolic end-point (acquired absence of limb, acute vascular disorders of intestine, acute and critical limb ischaemia) and dementia.

Results: At 12 months following hospitalisation with AHRF requiring NIV, patients who developed NOAF during their admission had a statistically higher rate of death (hazard ratio (HR) 1.26, 95% CI 1.21-1.32), re-admission (HR 1.07, 95% CI 1.04-1.10), stroke (HR 1.46, 95% CI 1.27-1.68), myocardial infarction (HR 1.41, 95% CI 1.31-1.51) and the composite embolic end-point (HR 1.35, 95% CI 1.22-1.51). There was no statistically significant difference in rates of dementia (HR 1.08, 95% CI 0.97-1.21).

Conclusion: The development of NOAF in AHRF requiring NIV is associated with a higher risk of mortality, readmission, stroke, myocardial infarction and composite embolism at 1 year. NOAF functions an independent indicator of poor outcomes in such patients.

Conflict of interest statement

Conflict of interest: H. Essa, A. Balu, Y. Amanullah, A. Manuel and D. Duvva report no conflict of interest. F. Frost reports research grants/contracts from the UK Health Security Agency, National Institute for Health and Care Research (NIHR) Patient Involvement Fund and Cystic Fibrosis Trust; payment or honoraria for educational events from Chiesi Ltd, AstraZeneca and Vertex; support for attending meetings from Chiesi Ltd and Vertex; and is Deputy Chief Editor of ERJ Open Research. H. Burhan reports speaker or advisory fees from AstraZeneca, Chiesi, GSK and Sanofi-Regeneron; hospitality fees (including conference attendance) from Chiesi, GSK and Sanofi-Regeneron; and research fees from AstraZeneca, Boehringer Ingelheim, Chiesi, GSK, Roche and Sanofi-Regeneron. I. Welters is co-investigator on the TARGET project on digital twins for personalised management of atrial fibrillation and stroke (grant agreement number 101136244), and has received funding from the National Institute of Health and Social Care Research. G.Y.H. Lip is a NIHR Senior Investigator; consultant and speaker for BMS/Pfizer, Boehringer Ingelheim, Daiichi-Sankyo, Anthos (no fees are received personally); and co-principal investigator/lead of the AFFIRMO project on multimorbidity in atrial fibrillation (grant agreement number 899871), TARGET project on digital twins for personalised management of atrial fibrillation and stroke (grant agreement numebr 101136244) and ARISTOTELES project on artificial intelligence for management of chronic long term conditions (grant agreement No 101080189), which are all funded by the European Union's Horizon Europe Research and Innovation Programme.

- 47 references
- 3 figures

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ERJ Open Res

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. 2025 Dec 22;11(6):00324-2025.

doi: 10.1183/23120541.00324-2025. eCollection 2025 Nov.

Effect of budesonide/glycopyrronium/formoterol fumarate dihydrate on cardiopulmonary outcomes in COPD: rationale and design of the THARROS trial

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Affiliations Expand

- PMID: 41438852
- PMCID: PMC12720155
- DOI: 10.1183/23120541.00324-2025

Abstract

Background: COPD and cardiovascular disease (CVD) are leading causes of death with overlapping and syndemic pathophysiological interactions. Inhaled triple therapies containing inhaled corticosteroids (ICS), long-acting muscarinic antagonists (LAMA) and long-acting β_2-agonists (LABA) reduce COPD exacerbation rates and improve lung function *versus* dual LAMA/LABA therapy. The effect of inhaled triple therapies on combined cardiac and pulmonary (*i.e.*, cardiopulmonary) events in people with COPD and elevated cardiopulmonary risk has not been prospectively tested in randomised clinical trials.

Methods: THARROS is a multinational, event-driven cardiopulmonary outcomes trial evaluating budesonide/glycopyrronium/formoterol fumarate dihydrate (BGF) triple therapy *versus* glycopyrronium/formoterol fumarate dihydrate dual therapy in patients with COPD and elevated cardiopulmonary risk not using ICS-containing maintenance therapy. Eligibility requirements include symptomatic COPD (COPD Assessment Test scores ≥10) without a requirement for prior COPD exacerbations, blood eosinophils ≥100 cells·mm^{-3}, established CVD or CVD risk based on clinical characteristics, clinical risk scores or imaging-based risk criteria. The composite primary end-point is time to first severe cardiac or COPD event and includes three event types, including severe cardiac events (heart failure acute healthcare visit/hospitalisation, myocardial infarction hospitalisation), severe COPD exacerbations and cardiopulmonary death. Approximately 5000 patients will be randomised to achieve 632 participants with ≥1 primary severe adjudicated cardiopulmonary event.

Conclusion: This first-of-its-kind cardiopulmonary outcomes trial will determine the effect of BGF on a novel composite end-point comprising severe cardiopulmonary events in a broad COPD population with elevated cardiopulmonary risk not currently using ICS-containing maintenance therapy.

Conflict of interest statement

Conflict of interest: F.J. Martinez reports grants, personal fees and non-financial support from AstraZeneca during the conduct of the study; grants, personal fees and non-financial support from AstraZeneca, Bioscale/Proterrix Bio, Boehringer Ingelheim, Chiesi, CSL Behring, Gala, GlaxoSmithKline, Metronic, Novartis, Polarean, Pulmatrix, Pulmonx, Sanofi/Regeneron, Sunovion, Teva, Theravance/Viatris and Verona. He is also a COPD teleconsultant for Bayer. J.R. Hurst reports consulting fees from AstraZeneca; grant support from AstraZeneca; speaker fees from AstraZeneca, Boehringer Ingelheim, Chiesi, Pfizer, Sanofi and Takeda; and travel support from GlaxoSmithKline and AstraZeneca. M.K. Han reports personal fees from GlaxoSmithKline, AstraZeneca, Boehringer Ingelheim, Cipla, Chiesi, Novartis, Pulmonx, Teva, Verona, Merck, Mylan, Sanofi, Roche, DevPro, Aerogen, Polarian, Regeneron, Amgen, UpToDate, Altesa Biopharma, Owkin, Bristol Myers Squibb, Zymeworks, Medscape, NACE, MDBriefcase, and Integrity. She has received either in kind research support or funds paid to the institution from the NIH, Novartis, Sunovion, Nuvaira, Sanofi, Astrazeneca, Boehringer Ingelheim, Galvanize Therapeutics, Biodesix, the COPD Foundation and the American Lung Association. She has participated in Data Safety Monitoring Boards for Novartis and Medtronic with funds paid to the institution, and has received stock options from Meissa Vaccines and Altesa Biopharma. D. Price is an employee of OPRI, which was funded by AstraZeneca to conduct this study; has advisory board membership with AstraZeneca, Boehringer Ingelheim, Chiesi, Mylan, Novartis, Regeneron Pharmaceuticals, Sanofi Genzyme and Thermofisher; consultancy agreements with Airway Vista Secretariat, AstraZeneca, Boehringer Ingelheim, Chiesi, EPG Communication Holdings Ltd, FIECON Ltd, Fieldwork International, GlaxoSmithKline, Mylan, Mundipharma, Novartis, OM Pharma SA, PeerVoice, Phadia AB, Spirosure Inc, Strategic North Limited, Synapse Research Management Partners S.L., Talos Health Solutions, Theravance and WebMD Global LLC; grants and unrestricted funding for investigator-initiated studies (conducted

through Observational and Pragmatic Research Institute Pte Ltd) from AstraZeneca, Boehringer Ingelheim, Chiesi, Mylan, Novartis, Regeneron Pharmaceuticals, Respiratory Effectiveness Group, Sanofi Genzyme, Theravance and UK National Health Service; payment for lectures/speaking engagements from AstraZeneca, Boehringer Ingelheim, Chiesi, Cipla, GlaxoSmithKline, Kyorin, Mylan, Mundipharma, Novartis, Regeneron Pharmaceuticals and Sanofi Genzyme; payment for travel/accommodation/meeting expenses from AstraZeneca, Boehringer Ingelheim, Mundipharma, Mylan, Novartis and Thermofisher; stock/stock options from AKL Research and Development Ltd which produces phytopharmaceuticals; owns 74% of the social enterprise Optimum Patient Care Ltd (Australia and UK) and 92.61% of Observational and Pragmatic Research Institute Pte Ltd (Singapore); 5% shareholding in Timestamp, which develops adherence monitoring technology; is a peer reviewer for grant committees of the UK Efficacy and Mechanism Evaluation programme and Health Technology Assessment; and was an expert witness for GlaxoSmithKline. J. Zheng reports grants, consulting fees and honoraria from AstraZeneca. D.D. Berg reports consulting fees from AstraZeneca, Pfizer, Youngene Therapeutics and Mobility Bio Inc; has research/grant support from AstraZeneca and Pfizer; CEC adjudication from Beckman Coulter, Tosoh Biosciences and Kowa Pharmaceuticals; honoraria from Medical Education Speakers Network and USV Private Limited. M Pszczol has no disclosures to report. M. Bafadhel reports grants to her institution from AstraZeneca, and honoraria to her institution from AstraZeneca, Chiesi and GlaxoSmithKline; and is on the scientific advisory board for Albus Health and ProAxsis. C.S.P. Lam reports consulting fee, advisory boards and steering committee from Alleviant Medical, Allysta Pharma, AnaCardio AB, Applied Therapeutics, AstraZeneca, Bayer, Biopeutics, Boehringer Ingelheim, Boston Scientific, Bristol Myers Squibb, CardioRenal, CPC Clinical Research, Eli Lilly, Hanmi, Impulse Dynamics, Intellia Therapeutics, Ionis Pharmaceutical, Janssen Research & Development LLC, Medscape/WebMD Global LLC, Merck, Novartis, Novo Nordisk, Prosciento Inc, Quidel Corporation, Radcliffe Group Ltd., Recardio Inc, ReCor Medical, Roche Diagnostics, Sanofi, Siemens Healthcare Diagnostics and Us2.ai; has grant support from NovoNordisk and Roche Diagnostics; and serves as co-founder and non-executive director of Us2.ai. M. Fredriksson, M.R. Cowie, N. Arya, K. Bowen, A. Mushunje and M. Patel are employees of AstraZeneca and own stock and/or stock options in the company.

- **38 references**
- **2 figures**

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Review

J Transl Med

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doi: 10.1186/s12967-025-07441-y.

The airway mycobiome in chronic respiratory diseases: current advances and future frontiers

Wenliang Zhu [# 1], Feng Li [# 2], Dingnan Lin [1], Lixian Cai [1], Chunmei Dai [1], Haiyue Liu [3], Yihua Lin [4]

Affiliations Expand

- PMID: 41437272

- PMCID: PMC12723897

- DOI: 10.1186/s12967-025-07441-y

Abstract

The airway mycobiome is an important component of the respiratory microbiome and of clinical relevance, but has been largely underappreciated. Recent studies have characterized fungal community composition in the airways and elucidated its associations with the pathogenesis and progression of chronic respiratory diseases (CRDs), including chronic obstructive pulmonary disease (COPD), asthma, bronchiectasis and cystic fibrosis (CF). A systematic understanding of the composition and dynamic changes of fungal microbiota in the airways, as well as their currently known interactions with the host in CRDs, may provide comprehensive insights into the pathological mechanisms of CRDs and improve diagnostic and therapeutic strategies. In this review, we synthesize current evidence on the role of the respiratory mycobiome in CRDs, focusing on mycobiome dysbiosis during disease pathogenesis, host-fungal interactions, and associated immune modulation. Additionally, we explore future research directions, key challenges, and potential therapeutic strategies targeting the fungal microbiota. This review redefines the contribution of fungi to the pathophysiology of CRDs based on current evidence and insights.

Supplementary information: The online version contains supplementary material available at 10.1186/s12967-025-07441-y.

Keywords: Chronic respiratory diseases; Fungi; Microbiome; Mycobiome.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: Not applicable. Consent for publication: Not applicable. Competing interests: There is no confict of interests.

- **135 references**
- **4 figures**

Supplementary info

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Pulmonology

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. 2026 Dec;32(1):2588515.

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Self-monitoring symptoms and pulse oximetry to predict imminent altitude illness in patients with chronic obstructive pulmonary disease

Michael Furian [1 2], Aurelia E Reiser [1 2], Maamed Mademilov [2 3], Simone Sutter [1 2], Benoit Champigneulle [4], Mirjam Grimm [1 2], Kamila Magdieva [2 3], Alymkadyr S Beishenaliev [5], Talant M Sooronbaev [2 3], Silvia Ulrich [1 2], Konrad E Bloch [1 2]

Affiliations Expand

- **PMID: 41433778**
- **DOI: 10.1080/25310429.2025.2588515**

Free article

Abstract

Background: Patients with chronic obstructive pulmonary disease (COPD) are susceptible to altitude-related adverse health effects (ARAHE).

Research question: Does structured self-monitoring (SSM) predict imminent ARAHE in COPD patients during altitude travel.

Methods: Patients with moderate to severe COPD without chronic respiratory failure, living below 800 m, ascended by bus within 5 h to a clinic at 3100 m and stayed there for 2 days. During the altitude sojourn, patients regularly monitored themselves for symptoms of acute mountain sickness (AMS) and/or drops of pulse oximetry (SpO_2) to ≤84%, events designated as positive SSM. Measures of diagnostic accuracy of SSM in predicting subsequent ARAHE (defined as AMS Lake Louise score >4 and/or SpO_2 <80% for >30 min or <75% for >15 min and/or any condition requiring medical intervention) were computed. www.ClinicalTrials.org NCT03957759.

Results: Among 153 COPD patients (79 women, mean ± SD age 57 ± 10y) travelling to 3100 m, SSM was positive in 55 (36%), ARAHE occurred in 116 (76%). Concordance statistics indicated a diagnostic accuracy of SSM in predicting ARAHE of 0.65 (95%CI 0.58 to 0.72). In SSM positive patients, the odds ratio for ARAHE was 4.9 (95%CI 1.8 to 12.9). Positive and negative predictive values of SSM for ARAHE were 91% (95%CI 80 to 97) and 33% (95%CI 24 to 43). In exploratory analyses, supplementing SSM by nocturnal pulse oximetry with alarm capability enhanced diagnostic accuracy considerably (sensitivity improved from 43% to 73% concordance statistic increased to 0.80).

Conclusions: Lowlanders with COPD ascending to 3100 m commonly experience ARAHE. Due to its high positive predictive value, performing SSM may allow patients to predict imminent ARAHE and take timely appropriate actions such as descend or use oxygen. Negative SSM does not reliably indicate a low risk of ARAHE.

Keywords: Altitude; altitude illness; diagnostic accuracy; hypoxia; monitoring.

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Clin Infect Dis

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. 2025 Dec 23:ciaf710.

doi: 10.1093/cid/ciaf710. Online ahead of print.

Long-term clinical outcomes after hospitalization for acute respiratory illness due to respiratory syncytial virus (RSV)

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Affiliations Expand

- PMID: 41432364

- DOI: 10.1093/cid/ciaf710

Abstract

Background: Acute respiratory illnesses (ARI) can be severe in older adults and adults with chronic conditions. We compared long-term outcomes of United States patients aged ≥50 years with ≥1 hospitalized acute-respiratory illness due to respiratory syncytial virus (RSV-ARI cohort) versus controls without ARI (control cohort) and patients with ≥1 hospitalized influenza-ARI (influenza-ARI cohort).

Methods: This retrospective study used October 1, 2015-June 30, 2023 claims data to evaluate clinical outcomes across the three cohorts. The index date was defined as the start of an ARI episode. Cumulative incidence functions assessed risks of readmission, all-cause mortality, myocardial infarction, asthma and chronic obstructive pulmonary disease (COPD) exacerbation, and hospitalization due to heart failure; adjusted risks were compared using multivariable regression models.

Results: A total of 14,759, 77,468, and 73,795 patients were selected into the RSV-ARI, influenza-ARI, and control cohorts, respectively. The RSV-ARI cohort had a substantially higher adjusted risk of all-cause mortality than controls, with the highest adjusted hazard ratio (95% confidence interval) 0-30 days post-index (10.772 [9.190, 12.627]). Myocardial infarction risk followed a pattern similar to all-cause mortality. Adjusted risks of asthma exacerbation, COPD exacerbation, and hospitalization for heart failure were significantly higher in the RSV-ARI cohort than controls, and similar between RSV-ARI and influenza-ARI cohorts.

Conclusions: RSV-ARI had considerable long-term impact on clinical outcomes, with measurable increases in outcomes associated with RSV-ARI when compared with controls, and similar outcomes compared to influenza-ARI. These findings can inform RSV prevention efforts and support future research on the long-term impact of RSV.

Keywords: Respiratory syncytial virus; acute respiratory illness; clinical outcomes; hospitalization; older adults.

Plain language summary

Acute respiratory illnesses (ARI) can be particularly severe for older adults and those with chronic health conditions. This study used a large database of United States (US) health insurance claims to compare long-term health outcomes across three groups of adults aged ≥50 years: (1) 14,759 adults who were hospitalized with ARI caused by respiratory syncytial virus (RSV), (2) 77,468 adults who were hospitalized with ARI caused by influenza, and (3) a control group of 73,795 adults

who did not have any recent ARI. Over time, both the RSV-ARI and influenza-ARI groups had similar risks of heart attack (myocardial infarction) and death due to any cause. Adults with RSV-ARI had a higher risk of death within 30 days of hospitalization compared with adults with no recent ARI. Adults with RSV-ARI also had a higher risk of worsening asthma, worsening chronic obstructive pulmonary disease (COPD), and hospitalization for heart failure compared with the control group, and their risk of these events was similar to risks in the influenza-ARI group. RSV has a significant long-term impact on the health outcomes of older patients, reinforcing the importance of preventing RSV among adults aged ≥50 years.

Cite

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Korean J Intern Med

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. 2025 Dec 23.

doi: 10.3904/kjim.2025.081. Online ahead of print.

Telemedicine in chronic lung disease management: progress and prospects

Hee-Young Yoon [1], Jin Woo Song [2]

Affiliations Expand

- PMID: 41429145

- DOI: 10.3904/kjim.2025.081

Free article

Abstract

Chronic lung diseases, including asthma, chronic obstructive pulmonary disease, and interstitial lung disease, contribute significantly to morbidity and mortality worldwide. Telemedicine has emerged as a promising approach for addressing these challenges by enabling remote patient monitoring, virtual consultations, and digital health interventions. Advances in home spirometry, wearable devices, and

mobile health applications have improved early detection of disease exacerbations, medication adherence, and patient self-management of chronic lung diseases. Telerehabilitation programs have demonstrated their efficacy in enhancing exercise capacity and quality of life in patients with chronic lung diseases. Despite these advancements, challenges such as disparities in digital access, patient engagement, costs, and regulatory frameworks limit widespread adoption. As telemedicine has become an integral component of respiratory care, further research is required to optimize its implementation, evaluate long-term clinical outcomes, and ensure equitable access to all patients. This review explores the current state of telemedicine in chronic lung disease management, highlights technological innovations, and discusses future directions for enhancing its role in improving patient outcomes.

Keywords: Home care services; Lung diseases; Pulmonary rehabilitation; Spirometry; Telemedicine.

12

Expert Rev Respir Med

. 2025 Dec 26:1-7.

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Mucus plugs in large airways are associated with adverse hospitalization outcomes in acute exacerbation of chronic obstructive pulmonary disease

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- PMID: 41427968
- DOI: 10.1080/17476348.2025.2608300

Abstract

Background: Acute exacerbations of chronic obstructive pulmonary disease (AECOPD) impose a substantial health-economic burden. Although mucociliary

dysfunction is a key pathophysiological feature linked to adverse outcomes, the implication of computed tomography (CT)-identified mucus plugs in hospitalized patients with AECOPD remains unclear.

Research design and methods: This retrospective cohort study included 508 patients. Mucus plugs were assessed on the first chest CT scans after admission. Logistic regression analyses were employed to investigate the association of mucus plugs and hospitalization outcomes. The predictive performance was evaluated using receiver operating characteristic (ROC) analysis.

Results: Mucus plugs were observed in 179 (35.20%) patients and were independently associated with both prolonged length of stay (LOS) (adjusted odds ratio [OR], 1.85; 95% CI, 1.14-3.03; $p < 0.05$) and increased hospitalization costs (adjusted OR, 1.63; 95% CI, 1.05-2.54; $p < 0.05$). It also demonstrated considerable predictive value, with area under the curve (AUC) values of 0.780 and 0.811 for the respective outcomes.

Conclusion: Mucus plugs are significantly associated with prolonged LOS and increased hospitalization costs in AECOPD, highlighting their utility as practical imaging biomarkers for risk stratification and clinical management.

Keywords: CT scans; Mucus plugs; acute exacerbation; adverse outcomes; chronic obstructive pulmonary disease; image biomarker.

13

Practice Guideline

Pulmonology

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. 2025 Dec 31;31(1):2598915.

doi: 10.1080/25310429.2025.2598915. Epub 2025 Dec 22.

Home mechanical ventilation in adults: Clinical practice recommendations from the Portuguese Respiratory Society home mechanical ventilation assembly

Carla Ribeiro [1 2], Rita Gomes [3], Alexandra Carreiro [4], Ana Luísa Vieira [5 6], Bárbara Seabra [7], Bebiana Conde [8 9 10], Carla Nogueira [1], Cristina Jácome [11], Joana Lages [5], Margarida Aguiar [12], Mónica Grafino [13], Paula Pamplona [14], Ana

Cysneiros [15 16], Célia Durães [17], Cidália Rodrigues [18], Cláudia Pimenta [19], Cristina Cristóvão [20], Daniela Rodrigues [21 22], Diva Ferreira [23], Filipe Gonçalves [24 25], Helena Ramos [26 27], João Cravo [28], João Paulo Silva [29], Karl Cunha [26 27], Lucía Méndez [3 30], Mafalda Van Zeller [31 32], Márcia Araújo [7], Margarida Barata [33], Margarida Raposo [20], Margarida Redondo [34], Maria Jacob [11 35], Maria João Araújo [17], Miguel R Gonçalves [36 37 38], Miguel Guia [39 40 41], Nuno Faria [42], Pedro Viegas [1], Sara Conde [1], Marta Drummond [31 32], Paula Pinto [39 40 41]

Affiliations Expand

- PMID: 41427502

- DOI: 10.1080/25310429.2025.2598915

Free article

Abstract

Background: The use of home mechanical ventilation (HMV) has been increasing worldwide, driven by widening of clinical applications and improved patient survival rates. In Portugal, recent data indicate an even faster growth, although national HMV recommendations have remained unchanged for 25 years. Research question: We aimed to provide an update in clinical practice guidelines for HMV in adults, applicable to the Portuguese context, grounded on the latest available evidence and experts' opinion. Study design and methods: A multidisciplinary panel with experience in HMV in the adult population was assembled. A comprehensive literature search was conducted during March 2023 regarding specific topics: equipment, ventilatory modes and interfaces, HMV initiation, follow-up and monitoring, disease specificities (neuromuscular diseases, obesity-hypoventilation syndrome, restrictive chest wall diseases; chronic obstructive pulmonary disease, and other diseases), home mechanical invasive ventilation, and palliative and end of life care. A 2-round Delphi process was conducted to establish consensus among panel members. A minimum agreement threshold of 80% was required. Results: Out of 88 recommendations initially included in the Delphi process, 61 were selected by consensus. Conclusion: Final recommendations grounded in the current level of evidence are outlined, and the key limitations and proposals for future research are discussed.

Keywords: Home mechanical ventilation; clinical practice; expert consensus; recommendations.

14

J Thorac Imaging

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. 2025 Dec 22.

doi: 10.1097/RTI.0000000000000867. Online ahead of print.

Quantitative CT and Artificial Intelligence in Chronic Lung Disease

Andrea S Oh [1], Stephen M Humphries [2], Augustine Chung [3], S Samuel Weigt [3], Matthew Brown [1], Grace Hyun J Kim [1], David Lee [1], John A Belperio [3], Jonathan G Goldin [1]

Affiliations Expand

- PMID: 41417666

- DOI: 10.1097/RTI.0000000000000867

Abstract

Computed tomography (CT) is routinely used in diagnosing and managing patients with chronic lung diseases such as chronic obstructive pulmonary disease (COPD) and fibrosing interstitial lung disease (ILD). Visual assessment of disease morphology/phenotype and extent correlates with lung function and patient prognosis, but it is limited by reader subjectivity and interobserver variability. Quantitative CT (QCT) techniques based on density and texture-based features of the lungs have shown stronger correlations with physiologic and survival outcomes in both COPD and ILD cohort studies. Moreover, recent advances in computer processing capabilities have led to the implementation of machine and deep learning-based approaches, allowing for greater robustness and reproducibility beyond visual assessment and density-based methods. This review focuses on QCT and artificial intelligence (AI) techniques for COPD, ILD, and bronchiolitis obliterans syndrome in lung and hematopoietic stem cell transplant recipients. Current challenges and limitations for adoption of these techniques and future directions of QCT and AI in thoracic imaging are also discussed.

Keywords: artificial intelligence; chronic obstructive pulmonary disease; interstitial lung disease; quantitative CT.

Conflict of interest statement

S.M.H. reports grants or contracts from NHLBI, Boehringer Ingelheim Pharmaceuticals and Perceptive, and US Patents 10,706,533; 11,4685,64; 11,494,902 and 11,922,626 (unlicensed and assigned to my institution). A.C. reports salary

support from Boehringer Ingelheim Pharmaceuticals. M.B. is a board member of Voiant Clinical, LLC. GHK reports grant support from Boehringer Ingelheim Pharmaceuticals. The remaining authors declare no conflicts of interest.

- 96 references

Full text links

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

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Nat Commun

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. 2025 Dec 26.

doi: 10.1038/s41467-025-67372-6. Online ahead of print.

A systematic review and meta-analysis of disease clusters in multimorbidity

Jennifer K Ferris [1 2], Lean K Fiedeldey [3], Boah Kim [4], Felicity Clemens [5], Michael A Irvine [5 6], Sogol Haji Hosseini [4], Kate Smolina [5 7], Andrew Wister [8]

Affiliations Expand

- PMID: 41453855

- DOI: 10.1038/s41467-025-67372-6

Abstract

There is a growing body of research on disease clusters in multimorbidity. Here we systematically review clustering methodologies and perform a meta-analysis of disease cluster stability across the literature, searching Medline and EMBASE from inception to June 5th, 2024, for studies of disease clusters in multimorbidity (including network approaches). Here we include 79 articles. 30% of studies had high risk of bias. Hierarchical cluster analysis was the most used clustering methodology (25% of analyses), followed by latent class analysis (20%) and K-center clustering (15%). Network-based approaches were used in 19% of studies. We perform a meta-analysis of 1226 disease clusters across 73 studies. Strong relationships emerged between neurological, autoimmune, musculoskeletal, and cardiovascular diseases. We identify six meta-analytic disease clusters with moderate stability (Jaccard index ≥0.51), these largely featured cardiometabolic conditions. No disease clusters had high stability (Jaccard ≥0.75) and very few

accounted for disease temporality. Multimorbidity disease clustering research is heterogeneous regarding disease definitions, the number of diseases included, and clustering methodologies. Despite this heterogeneity, moderately consistent disease clusters emerge. We provide suggestions to improve the performance and reporting of multimorbidity clustering research.

Conflict of interest statement

Competing interests: The authors declare no competing interests.

- 125 references

Supplementary info

Grants and fundingExpand

Full text links

Proceed to details

Cite

2

Ann Neurol

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. 2025 Dec 25.

doi: 10.1002/ana.78114. Online ahead of print.

Electronic Health Records to Test Multimorbidity Influences to Plasma Biomarker Interpretation for Alzheimer's Disease

Katheryn A Q Cousins [1], Rory Boyle [1], Colleen Morse [2], Anurag Verma [2], Christopher A Brown [1], Kyra S O'Brien [1], Marina Serper [3], Nadia Dehghani [1]; Penn Medicine BioBank [2]; Corey T McMillan [1], Edward B Lee [4], Leslie M Shaw [4], David A Wolk [1]

Affiliations Expand

- PMID: 41447112

- DOI: 10.1002/ana.78114

Abstract

Objective: Plasma biomarkers of Alzheimer's disease (AD) pathology are frequently tested in specialized research settings, which limits the generalizability of findings. Using electronic health records and banked plasma, we evaluated plasma biomarkers-phosphorylated tau 217 (p-tau$_{217}$), β-amyloid 1-42/1-40 (Aβ$_{42}$/Aβ$_{40}$) and p-tau$_{217}$/Aβ$_{42}$-in a real-world, diverse clinical population with multimorbidities.

Methods: Participants (n = 617; 44% Black/African American; 41% female) were selected from the University of Pennsylvania Medicine BioBank with plasma assayed using Fujirebio Lumipulse. International Classification of Diseases (ICD) Ninth and Tenth Revision codes determined AD dementia (ADD) (n = 43), mild-cognitive impairment (MCI) (n = 140), unspecified/non-AD cognitive impairment (CI) (n = 106), and cognitively normal cases (n = 328), and other medical histories. APOE ε4, body mass index (BMI), metrics of kidney function (eg, estimated glomerular filtration rate [eGFR]), and liver disease were derived from electronic health records. Multivariable models identified factors related to plasma levels. Previously established cutpoints classified AD status ("AD+," "AD-," or "Intermediate").

Results: Plasma p-tau$_{217}$/Aβ$_{42}$ had the strongest association with known AD-related factors-MCI, ADD, future progression to MCI/ADD, age, and APOE ε4-compared to p-tau$_{217}$ and Aβ$_{42}$/Aβ$_{40}$. Plasma p-tau$_{217}$/Aβ$_{42}$ was also associated with eGFR, diabetes, and history of hearing loss. Importantly, AD-related factors were most frequent/severe for AD+ classification by p-tau$_{217}$/Aβ$_{42}$, whereas medical morbidities were most frequent/severe for Intermediate classification. Exploratory analyses test p-tau$_{217}$/Aβ$_{42}$ adjusted for eGFR to eliminate its influence on plasma levels.

Interpretation: In this real-world dataset, we identified effects of multimorbidities on plasma biomarkers, especially kidney function. The p-tau$_{217}$/Aβ$_{42}$ ratio had low rates of Intermediate classification and may help to account for multimorbidity effects on plasma levels. ANN NEUROL 2025.

- 50 references

Full text links

Proceed to details

Cite

3

BMC Public Health

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. 2025 Dec 24;25(1):4301.

doi: 10.1186/s12889-025-25633-5.

Association between multimorbidity and young-onset dementia: a prospective study

Durong Chen [1], Meiling Zhang [2], Yalu Wen [3], Hongjuan Han [4], Yao Qin [1 5 6], Rong Zhang [1], Hongyan Cao [1 5 6], Hongmei Yu [7 8 9]

Affiliations Expand

- PMID: 41444544

- PMCID: PMC12729070

- DOI: 10.1186/s12889-025-25633-5

Abstract

Background: Multimorbidity contributes to an increased risk of late-onset dementia, but the multimorbidity effect on young-onset dementia (YOD, defined as dementia diagnosed before age 65) remains unclear. We aimed to explore the associations between multimorbidity (including its burden, pattern, and trajectory) and YOD.

Methods: We utilized the China Health and Retirement Longitudinal Study in China. Multimorbidity burden, patterns and trajectories were assessed based on 12 chronic diseases from 2011 to 2015. Patterns of multimorbidity were analysed by hierarchical clustering in 2015. Group-based trajectory modeling (GBTM) was utilized to identify the trajectories of the number of newly developed chronic conditions from 2011 to 2015. YOD and probable YOD were assessed by self-reported physician diagnosis of YOD and cognitive assessments from 2015 to 2020. Cox regression was used to estimate associations between multimorbidity and YOD.

Results: Among 4,874 participants in 2015, 47.21% had multimorbidity; overall, 189 individuals developed YOD. The number of chronic conditions was associated with incident YOD (hazard ratio (HR) = 1.42, 95% confidence interval (95% CI):1.32-1.53). Three distinct multimorbidity patterns were found to be associated with YOD: the cardiometabolic cluster (HR = 3.57, 95% CI: 2.40-5.31), the gastric-arthritis cluster (HR = 2.43, 95% CI: 1.66-3.54), and the mixed cluster (HR = 4.05, 95% CI: 2.76-5.94). Multimorbidity trajectories were classified as "no new condition", "slow growth", and "rapid growth" by the GBTM. Compared to the "no new condition" group, both the "slow growth" (HR = 1.42, 95% CI: 1.04-1.94) and "rapid growth" group (HR = 2.67, 95% CI: 1.76-4.04) were associated with YOD.

Conclusions: The multimorbidity burden, patterns, and growth trajectories were associated with the risk of YOD. The study highlights the importance of addressing multimorbidity in reducing YOD risk and improving public health outcomes.

Keywords: Healthy aging; Multimorbidity; Population-based study; Young-onset dementia.

Conflict of interest statement

Declarations. Ethical approval and consent to participate: The study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. The Biomedical Ethics Committee of Peking University approved CHARLS (IRB00001052-11015), and all participants gave written informed consent. Consent for publication: All authors approved the final manuscript for submission and gave consent for publication. Competing interests: The authors declare no competing interests.

- 45 references
- 2 figures

Supplementary info

MeSH termsExpand

Full text links

Cite

4

Review

Circulation

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. 2025 Dec 23;152(25):e494-e525.

doi: 10.1161/CIR.0000000000001387. Epub 2025 Nov 18.

Coronary Artery Revascularization in the Older Adult Population: A Scientific Statement From the American Heart Association

Abdulla A Damluji, Michael G Nanna, Peter Mason, Angela Lowenstern, Ariela R Orkaby, Jeffrey B Washam, Ahmed A Kolkailah, Theresa M Beckie, George Dangas, Jennifer S Lawton; American Heart Association Interventional Cardiovascular Care Committee of the Council on Clinical Cardiology; Council on Arteriosclerosis, Thrombosis and Vascular Biology; Council on Cardiovascular and Stroke Nursing; Council on Cardiovascular Surgery and Anesthesia; and Council on Quality of Care and Outcomes Research

- **PMID: 41250995**

- **DOI: 10.1161/CIR.0000000000001387**

Free article

Abstract

The United States is facing a demographic shift as the population of older adults grows rapidly, with the proportion of Americans ≥65 years of age projected to double by 2060. This aging trend will have far-reaching effects on health care systems, especially because aging is a primary risk factor for cardiovascular disease. Age-related cardiovascular changes, such as increased arterial stiffness, endothelial dysfunction, and reduced elasticity, increase the risk for hypertension, atherosclerosis, and other risk factors. Older adults often experience additional complications, including obesity, diabetes, and metabolic diseases, further increasing their cardiovascular risk. Every year, >720 000 Americans experience myocardial infarction or coronary artery disease-related deaths, with older adults disproportionately affected. Individuals ≥75 years of age account for 30% to 40% of all acute coronary syndrome hospitalizations, often presenting with complex coronary disease and associated geriatric syndromes, such as frailty, cognitive impairment, and multimorbidity, complicating revascularization strategies. American College of Cardiology/American Heart Association guidelines for coronary revascularization primarily focus on younger populations, leaving substantial gaps for older adults with geriatric complexities. This scientific statement highlights the need for individualized approaches that consider geriatric syndromes, patient preferences, cognitive function, and life expectancy. This scientific statement outlines key aims: to review age-related cardiovascular changes and geriatric syndromes, provide pragmatic revascularization strategies, and advocate for shared decision-making. Addressing these knowledge gaps is essential for optimizing cardiovascular care for older adults, ensuring that treatment aligns with patient goals and accounts for the unique risks they face.

Keywords: AHA Scientific Statements; acute coronary syndrome; aging; myocardial infarction; patient-centered care.

Supplementary info

Publication types, MeSH termsExpand

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

1

Respir Res

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. 2025 Dec 27.

doi: 10.1186/s12931-025-03451-y. Online ahead of print.

Asthma remission and its predictors in severe asthma: real-world study from the Korean severe asthma registry

Seung-Eun Lee [1], Byung-Keun Kim [2], Noeul Kang [3], Youngsoo Lee [4], Yoon-Seok Chang [5], Da Woon Sim [6], Hyo-In Rhyou [7], Jae-Woo Jung [8], Jae-Woo Kwon [9], Sujeong Kim [10], Taehoon Lee [11], Ga-Young Ban [12], Kyoung-Hee Sohn [13], Sang-Hoon Kim [14], An-Soo Jang [15], Sung-Yoon Kang [16], Min Suk Yang [17], So Ri Kim [18], Hyun Jung Jin [19], Young-Hee Nam [20], Ji Hyun Oh [21], Min-Hye Kim [22], Jin An [23], Hwa Young Lee [24], Han-Ki Park [25], Eun-Jung Jo [26], Ji-Ho Lee [27], Heung-Woo Park [28], Joo-Hee Kim [29], Woo-Jung Song [30], Sang-Heon Kim [31], So-Young Park [32] [33] [34]

Affiliations Expand

- PMID: 41454325

- DOI: 10.1186/s12931-025-03451-y

Abstract

Background: Remission has emerged as a therapeutic goal in asthma, but most studies in severe asthma have focused on biologic-treated patients in controlled settings. Real-world data from Asian populations are scarce. We aimed to evaluate the achievement and predictors of asthma remission in Korean patients with severe asthma using a nationwide prospective cohort.

Methods: We analyzed 405 patients with severe asthma from the Korean Severe Asthma Registry (KoSAR) who completed 12-month follow-up. Remission was classified at 12 and 24 months as complete clinical remission (CCR; ACT ≥ 20, no exacerbations, no oral corticosteroid [OCS] use, and FEV_1 ≥80% or improvement ≥ 100 mL), clinical remission (CR; first three criteria), partial remission (PR; ≥1 criterion), and no remission (NR; none). Ordinal logistic regression identified baseline predictors of higher remission.

Results: At 12 months, CCR, CR, PR, and NR were achieved in 5.9%, 18.3%, 67.9%, and 7.9% of participants. Among those with 24-month follow-up (n = 139), remission status was largely stable. Higher baseline ACT score (OR: 1.19, 95% CI 1.12-1.27) predicted remission, while maintenance OCS use (OR: 0.11, 95% CI 0.05-0.25) and chronic cough (OR: 0.39, 95% CI 0.17-0.89) were negatively associated. Remission groups had better baseline lung function, fewer exacerbations, and low WBC counts. Baseline biologic use was more common in CCR, CR groups, whereas NR patients more frequently received methylxanthines, macrolides, and OCS.

Conclusions: Clinical predictors, including asthma control, OCS use, and chronic cough may help guide remission-focused strategies in the treatment of severe asthma.

Keywords: Asthma; Biologics; Chronic cough; Remission; Severe asthma.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study was approved by the Institutional Review Board of Hanyang University Hospital (IRB No. HYUH-202010015), and by the institutional review boards of all participating centers. Written informed consent was obtained from all patients. The study was conducted in accordance with the Declaration of Helsinki. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

- **36 references**

Supplementary info

Grants and fundingExpand

Proceed to details

Cite

2

Nat Commun

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. 2025 Dec 26.

doi: 10.1038/s41467-025-67769-3. Online ahead of print.

Evidence for Interleukin-17C governing interleukin-17A pathogenicity and promoting asthma endotype switching in bronchiectasis

Yu-Wei Zhang [#1 2 3], Yu-Hua Wen [#3], Ling Yang [#3], Ying-Zhou Xie [3], Dong Weng [3], Xi-Yue Shen [3], Jing-Ge Ma [3], Hai-Wen Lu [3], Xiao-Li Sun [3], Shu-Yi Gu [3], Bei Mao [3], Ai Ge [3], Yue Su [3], Fang Jiang [4], You-Cun Qian [5], Jin-Fu Xu [6 7 8 9]

Affiliations Expand

- **PMID: 41453857**

- **DOI: 10.1038/s41467-025-67769-3**

Abstract

The management of bronchiectasis-asthma overlap (BAO) is an important clinical issue to be addressed. Little is known regarding the endotype of BAO. Here we recruit patients with a primary diagnosis of bronchiectasis and co-existing asthma. The levels of interleukin (IL)-17C are positively correlated with the levels of IL-17A or group 3 innate lymphoid cells (ILC3s) in peripheral blood samples from patients with BAO. An in vivo mouse model of Pseudomonas aeruginosa chronic lower respiratory tract infection followed by ovalbumin-induced asthma shows that IL-17C

potentiates IL-17A expression via interacting with IL-17 receptor E in ILC3s. Additionally, ablation of Il17re in mice attenuates ILC3 responses and IL-17A-mediated asthma endotype switching towards neutrophilic asthma driven by P. aeruginosa chronic lower respiratory tract infection. Lastly, impaired epithelial barrier integrity by P. aeruginosa exposure is associated with IL-17C production in vitro. Collectively, our study implicates evidence for IL-17C governing IL-17A pathogenicity and promoting asthma endotype switching in bronchiectasis, implicating IL-17C as a potential therapeutic target for individuals with BAO.

Conflict of interest statement

Competing interests: The authors declare no competing interests.

- 67 references

Supplementary info

Grants and fundingExpand

Proceed to details

Cite

3

Review

Acad Pediatr

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. 2025 Dec 24:103217.

doi: 10.1016/j.acap.2025.103217. Online ahead of print.

Influenza Vaccination Among Children with Asthma: Challenges and Future Directions

Kimberley H Geissler [1], Kye E Poronsky [2], Meng-Shiou Shieh [2], Peter K Lindenauer [3], Arlene S Ash [4], Sarah L Goff [5]

Affiliations Expand

- PMID: 41453607

- DOI: 10.1016/j.acap.2025.103217

No abstract available

Keywords: Asthma; Influenza Vaccines; Medicaid; Pediatrics; Vaccination Hesitancy.

Conflict of interest statement

Declaration of Competing Interest None to disclose.

Supplementary info

Publication typesExpand

Proceed to details

Cite

4

Editorial

J Allergy Clin Immunol

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. 2025 Dec 24:S0091-6749(25)02193-1.

doi: 10.1016/j.jaci.2025.12.996. Online ahead of print.

2025: The year in review

Zuhair K Ballas [1]

Affiliations Expand

- **PMID: 41453451**

- **DOI: 10.1016/j.jaci.2025.12.996**

No abstract available

Keywords: Artificial intelligence; asthma; atopic dermatitis; biologics; chronic rhinosinusitis; immune dysregulation; immune skin disorders; inherited errors of immunity; transcriptomics.

Supplementary info

Publication typesExpand

Proceed to details

Cite

5

Environ Epidemiol

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. 2025 Dec 23;10(1):e443.

doi: 10.1097/EE9.0000000000000443. eCollection 2026 Feb.

Individual and combined effects of indoor home exposures and ambient $PM_{2.5}$ during early life on childhood asthma in us birth cohort studies

Akihiro Shiroshita [1], Antonella Zanobetti [2], Brent A Coull [3], Patrick H Ryan [4 5], Soma Datta [6], Jeffrey Blossom [7], Emily Oken [8], James E Gern [9], Heike Luttmann-Gibson [2], Eneida A Mendonça [10], Sima K Ramratnam [9], Sheryl L Rifas-Shiman [8], Joanne E Sordillo [8], Veronica A Wang [2], Paloma I Beamer [11], Daniel J Jackson [9], Christine C Johnson [12], Gurjit K Khurana Hershey [4 13], Fernando D Martinez [11], Rachel L Miller [14], Katherine Rivera-Spoljaric [15], Edward M Zoratti [16], Tina V Hartert [1 17 18], Diane R Gold [2 19]; ECHO Cohort Consortium

Collaborators, Affiliations Expand

- **PMID: 41450756**

- **PMCID: PMC12737862**

- **DOI: 10.1097/EE9.0000000000000443**

Abstract

Background: Children encounter multiple indoor and outdoor environmental exposures in early life. We assessed the independent effects of indoor home exposures and ambient particulate matter with an aerodynamic diameter ≤2.5 μm ($PM_{2.5}$) on early childhood asthma diagnosis.

Methods: We included 6,413 children born 1987-2016 from nine United States prospective birth cohorts from the Environmental Influences on Child Health Outcomes consortium, with complete covariate and outcome data. Exposures were (1) average ambient $PM_{2.5}$ levels during the first 3 years of life, and (2) indoor home exposures, including water damage/home dampness during infancy/childhood, dogs/cats at home during infancy, dust mite allergen during infancy/childhood. Asthma was defined as caregiver-reported or doctor-diagnosed asthma anytime from birth to age 5. We applied Cox proportional hazards models, adjusting for individual-level and neighborhood-level confounders. Cohort-specific effects were implemented as fixed effects.

Results: By age 5 years, 10.3%-50.3% of children had developed asthma across general-risk and high-risk cohorts. We found a significant detrimental association of $PM_{2.5}$ and water damage/home dampness, and a protective association of dogs in the home with risk of childhood asthma, regardless of $PM_{2.5}$ adjustment. The effect of having both water damage/home dampness and high $PM_{2.5}$ on asthma diagnosis was greater than that of no water damage/home dampness and having low $PM_{2.5}$ (hazard ratio: 1.95 [95% confidence interval = 1.19, 3.20]). There were no significant associations with household cats or dust mites.

Conclusion: Multiple early exposures, such as $PM_{2.5}$, home dampness, and absence of dogs in the home, should be considered together as risk factors for childhood asthma.

Keywords: Air pollution; Asthma; Childhood asthma; PM2.5; Pets; Water damage/home dampness.

Conflict of interest statement

A.Z. reported grants from the National Institutes of Health (NIH) during the conduct of the study and grants from the National Institute on Aging outside the submitted work. B.A.C. reported grants from NIH during the conduct of the study, and from Apple, Inc., outside the submitted work. P.H.R., C.C.J., R.L.M., D.R.G., and E.M.Z. reported grants from NIH during the conduct of the study. J.E.G. reported grants from NIH during the conduct of the study, personal fees from Arrowhead Pharmaceuticals, AstraZeneca, and Meissa Vaccines, Inc., and stock options for Meissa Vaccines, Inc. outside the submitted work. S.K.R. reported receiving consulting fees from Sanofi. P.I.B. reported grants from NIH during the conduct of the study and grants from NIH and the Environmental Protection Agency outside the submitted work. D.J.J. reported grants from NIH during the conduct of the study and grants and/or personal fees from Areteia, Astra Zeneca, Avillion, GlaxoSmithKline, Sanofi, Regeneron, Genentech, Pfizer, Upstream Bio, outside the submitted work. F.D.M. reported consultancy fees from OM PHARMA. T.V.H. reported grants from NIH and the World Health Organization during the conduct of the study and personal fees from the American Thoracic Society, speaker honorarium from the American Academy of Allergy, Asthma and Immunology, the Parker B. Francis Foundation Scientific Advisory Board, and Pfizer outside the submitted work. Other authors had nothing to disclose.

- **32 references**
- **2 figures**

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. 2025 Dec 25;12(1):e003455.

doi: 10.1136/bmjresp-2025-003455.

Unravelling the exposome of severe exacerbations of obstructive respiratory diseases in France

Colas Tcherakian [1], Julien Cottet [2 3], Isabella Annesi-Maesano [4 5], Christiane Pochulu [5 6], Lea Antoniali [7], Aurélie Chekroun Martinot [8], Fayssoil Fouad [8], Rosa Falotico [9], Floriane Huret [7], Marcade Fulcrand Veronique [7], Mathieu Rosé [10], Thomas Sejourne [11], Priscille de la Tour [7], Nicolas Molinari [4]

Affiliations Expand

- PMID: 41448795
- PMCID: PMC12742079
- DOI: 10.1136/bmjresp-2025-003455

Abstract

Introduction: Understanding the influence of environmental and socioeconomic factors, collectively known as the exposome, on severe exacerbation risks in chronic obstructive pulmonary disease (COPD) and asthma is crucial for enhancing patient care.

Methods: We assessed the impact of the exposome on COPD and asthma severe exacerbations in France between 2018 and 2022, combining data from the French National Hospital Discharge Programme de Médicalisation des Systèmes d'Information database and open data for multiple environmental exposition. Using a retrospective matched case-control design, 473 990 patients with COPD and 187 332 patients with asthma were matched for sex, birth year and date of first hospitalisation. Conditional logistic regressions were performed to quantify ORs of exacerbations within the studied population.

Results: In a multivariate model, exposure to extreme cold temperatures and exceeding WHO standards for nitrogen dioxide (NO_2), fine particulate matter and ozone increased the odds of COPD exacerbation. Only exceeding NO_2 was related to an increased risk of asthma exacerbation. Patients with COPD or asthma living in urban or artificial areas or near livestock farms were much more likely to have a severe exacerbation, whereas those living near water, wetlands or green spaces were protected from this risk. Higher poverty rates and long-term tobacco smoking were linked to a greater likelihood of COPD exacerbations.

Conclusions: The study highlights how exposome factors influence bronchial diseases and underscores the benefit of open-access data for advancing research. COPD and asthma exacerbations account for numerous deaths and cost billions

and will increase with global warming, identifying modifiable environmental risk factors, improving patient care and helping shape valuable public health policies.

Keywords: Asthma; Asthma Epidemiology; COPD Exacerbations; COPD epidemiology; Pulmonary Disease, Chronic Obstructive; Respiratory Infection.

Conflict of interest statement

Competing interests: CT served as the French medical expert. He works as a pulmonologist in the Foch Hospital, Suresnes. JC served as the French medical expert. He works as an allergist in Chartres. IA-M served as the French medical expert. She works as the director of research at Inserm and professor of environmental epidemiology at the University of Montpellier. CP served as the COPD expert patient. LA, FH, MFV, TS and PdlT are employees at Sanofi and may hold shares and/or stock options in the company. ACM and FF served as the consultant data scientist, Alira Health, Paris, France. RF served as the consultant data scientist, Alira Health, Milan, Italy. MR served as an epidemiologist, Alira Health, Barcelona, Spain, and is currently an employee at Sanofi. NM served as the French medical expert. He works as a university professor and hospital practitioner in biostatistics at the University of Montpellier.

- 39 references
- 3 figures

Supplementary info

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Respir Med

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. 2025 Dec 23:251:108605.

doi: 10.1016/j.rmed.2025.108605. Online ahead of print.

Allergic sensitization in asthma and COPD in the NOVELTY study

Christer Janson [1], Andrei Malinovschi [2], Magnus Borres [3], Rosa Faner [4], Rod Hughes [5], Anastasios Mangelis [6], Xiaomeng Ma [5], Hana Mullerova [5], Alberto Papi [7], Helen Reddel [8], Jose Maria Olaguibel [9]

Affiliations Expand

- PMID: 41448282

- DOI: 10.1016/j.rmed.2025.108605

Abstract

Background: Allergic sensitization is a hallmark of asthma, linked to increased disease burden. However, its role in chronic obstructive pulmonary disease (COPD) and asthma + COPD remains less understood.

Objective: This cross-sectional study evaluates the prevalence of allergic sensitization and its associations with disease severity, lung function, exacerbations and health status across these conditions in the multinational observational NOVELTY cohort.

Methods: Allergic sensitization was assessed from specific IgE (sIgE) to11 common aeroallergens. Physician-assessed severity, post-bronchodilator FEV1 % predicted, exacerbation history, and health status were evaluated. Mixed-effects multivariable regression models were used to assess associations, adjusted for age, sex, BMI, smoking history, and geographical region.

Results: Baseline sIgE data were available from n = 5389 participants (asthma:2707; asthma + COPD:773; COPD:1909). Allergic sensitization prevalence was 56 % in asthma, 36 % in asthma + COPD, and 19 % in COPD. In asthma, sensitization to any allergen, mites or molds was associated with more severe disease (odds ratios (OR) 1.46 to 2.91) and lower post-BD FEV_1 % predicted (coefficients -1.88 % to -8.94 %). Conversely, in COPD, sensitization was associated with higher FEV_1 and milder severity. Women were less likely than men to be sensitized across all diagnostic groups. Regional differences were evident, with higher sensitization rates in North America and Europe compared to Asia.

Conclusion: Allergic sensitization shows divergent clinical associations across asthma and COPD, being linked to more severe disease in asthma but higher lung function and milder severity in COPD.

Clinical implication: These findings emphasize the phenotypic heterogeneity of allergic sensitization in airway diseases and support its use in guiding personalized diagnostic and therapeutic strategies.

Keywords: Allergy; Asthma; COPD; IgE; Lung function; Severity.

Conflict of interest statement

Declaration of competing interest The authors declare the following financial interests/personal relationships which may be considered as potential competing

interests: The NOVELTY study is funded by AstraZeneca. The sponsor participated in the design of the study, data analysis, and preparation of the manuscript. Disclosure of potential conflicts of interest: C.J. has received personal fees from AstraZeneca, Boehringer Ingelheim, Chiesi, GSK, Novartis, and Teva outside of the submitted work. AM has received lecture and/or advisory board fees from Boehringer Ingelheim and Chiesi outside the submitted study as well as in-kind support in form of nitric oxide sensors from NIOX (a producer of FeNO devices) and reagents for allergy testing and inflammation biomarkers from Thermo Fisher Scientific, both within a frame of investigator-initiated studies, MB is an employee of Thermo Fisher, RN, RH, AM, XMand HM are employees of AstraZeneca. A.P. has received personal fees for consultation or board membership or lecturing for AstraZeneca, Boehringer Ingelheim, ChiesiFarmaceutici, Edmond Pharma, GSK, Mundipharma, Novartis, Sanofi/Regeneron, Teva, and Zambon. His Institution has received industry-sponsored grants from AstraZeneca, Chiesi Farmaceutici, Boehringer Ingelheim, and GSK. HKR has participated in advisory boards for AstraZeneca, Chiesi, GlaxoSmithKline, Novartis and Sanofi Genzyme; and has received honoraria from AstraZeneca, Boehringer Ingelheim, Chiesi, Cipla, GlaxoSmithKline, Sanofi and Teva Pharmaceuticals for independent medical educational presentations; consulting for Novartis and AstraZeneca; and independent research funding from Astra-Zeneca, GlaxoSmithKline, and Sanofi. She is Chair of the Global Initiative for Asthma Science Committee.

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Allergy

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. 2025 Dec 24.

doi: 10.1111/all.70191. Online ahead of print.

Five-Grass-Pollen Sublingual Immunotherapy Drops Are Efficacious and Well Tolerated in Adults: The RHAPSODY Phase III Trial

Alain Didier [1], Ruta Gronskyte Juhl [2], Terrie Dalgaard [2], Antoine Chartier [3], Philippe Devillier [4]

Affiliations Expand

- **PMID: 41444697**

- DOI: 10.1111/all.70191

Abstract

Background: Tablet formulations of allergen extracts are widely recommended over other formulations for the sublingual immunotherapy (SLIT) of respiratory allergies. However, with adequate clinical trial evidence, SLIT (liquid) drop formulations may be a relevant allergy treatment option.

Methods: The RHAPSODY multinational, Phase III, parallel-group, double-blind, placebo-controlled, randomised clinical study of adults with moderate-to-severe, grass-pollen-induced allergic rhinoconjunctivitis (ARC) with or without asthma was conducted at 45 investigating centres in six European countries. Participants received 26 months of continuous treatment with active 5-grass-pollen SLIT drops or placebo. The primary efficacy endpoint was the average daily total combined score (TCS, comprising a symptom score and a rescue medication score) during the second peak grass pollen season (PGPS).

Results: Of the 445 randomised patients (mean ± standard deviation (range) age: 32.6 ± 9.9 (18-63); males: 55.1%), 389 completed the trial. The primary efficacy endpoint showed a statistically significant difference in favour of active treatment versus placebo (average difference in the daily TCS: 1.88 (95% CI: 0.60-3.17); relative difference 26.51% (95% CI: 9.42-40.55); p = 0.0036). The difference (0.17 points) in the average weekly Rhinitis Quality of Life Questionnaire score during the second PGPS in favour of the active treatment was clinically relevant but not statistically significant. The differences in efficacy were generally driven by the medication score, rather than the symptom score. Most adverse events were mild and local.

Conclusions: RHAPSODY was the first well-powered clinical trial to show the positive risk-benefit ratio of 5-grass-pollen SLIT drops in adult participants with moderate-to-severe grass-pollen-induced ARC.

Keywords: 5-grass-pollen mix; adults; allergic rhinoconjunctivitis; drops; sublingual immunotherapy.

- 48 references

Supplementary info

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Sci Rep

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. 2025 Dec 24.

doi: 10.1038/s41598-025-32977-w. Online ahead of print.

Clustering lung function and symptom profiles for asthma risk stratification

Alex Cucco [1 2], Angela Simpson [3], Clare Murray [3], Graham C Roberts [4 5 6 7], John W Holloway [5 7], S Hasan Arshad [4 5 6], Adnan Custovic [8], Sara Fontanella [9]

Affiliations Expand

- PMID: 41444365

- DOI: 10.1038/s41598-025-32977-w

Free article

No abstract available

Keywords: Asthma; Bayesian profile regression; Birth cohorts; Childhood; Disease subtyping.

Conflict of interest statement

Declarations. Competing interests: Dr Custovic reports personal fees outside the submitted work from Sanofi, Stallergenes Greer, AstraZeneca, GSK, and La Roche-Posay. Dr Custovic also reported grants or contracts from MRC, EPSRC, and Welcome Trust and declared a leadership role in the World Allergy Organization. Clare Murray reports personal fees from Sanofi and GSK. Graham Roberts declared a leadership role in the British Society for Allergy & Clinical Immunology (BSACI). Angela Simpson reported grants or contracts from NIHR. Other authors declare no conflict of interest. This work forms part of a submitted PhD thesis, which will be publicly available in the Imperial College repository, Spiral, under a CC BY-NC license after a minimum 2-year embargo period (extendable).

- 51 references

Supplementary info

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Adv Ther

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. 2025 Dec 24.

doi: 10.1007/s12325-025-03442-x. Online ahead of print.

Evaluating Asthma Clinical Remission with Inhaled Therapy: Post Hoc Analyses of CAPTAIN

John Oppenheimer [1], Ian D Pavord [2 3], Tom Corbridge [4], Jodie Crawford [5], Steven Gould [6], Mohamed Hamouda [7], Peter Howarth [6], Emmeline Burrows [4], Alison Moore [8], Stephen G Noorduyn [9 10], David Slade [11], Stephen Weng [12], Njira Lugogo [13]

Affiliations Expand

- PMID: 41442024

- DOI: 10.1007/s12325-025-03442-x

Abstract

Introduction: Clinical remission (CR) is an emerging treatment goal in asthma. However, evidence showing whether CR is achievable with inhaled therapy is lacking. This post hoc analysis of CAPTAIN evaluated attainability of a composite CR endpoint with inhaled fluticasone furoate/umeclidinium/vilanterol (FF/UMEC/VI) or FF/VI.

Methods: CAPTAIN (GSK 205715) was a Phase IIIA, randomized, controlled, 24-52-week trial comparing once-daily single-inhaler FF/UMEC/VI versus FF/VI in adults with uncontrolled moderate-to-severe asthma despite ICS/LABA. CR was defined as a composite endpoint comprising no systemic corticosteroids, no severe exacerbations, ACQ-5 total score < 1.50, and either change from baseline in FEV_1 ≥ 0 ml (lung function stabilization) or ≥ 100 ml (lung function optimization), assessed for patients meeting the CR endpoint at Week 24 (W24) and achieving CR at W52 with FF/UMEC/VI (100/62.5/25, 200/62.5/25 µg) versus FF/VI (100/25, 200/25 µg). Additional analyses assessed the CR endpoint at W24/W52 using ACQ-5 ≤ 0.75 and ≤ 1.00 thresholds. Adjusted odds/risk ratios for CR were calculated for W24.

Results: More patients met the CR endpoint (lung function stabilization/optimization) with FF/UMEC/VI versus FF/VI at W24 (stabilization: 42-47% vs 31-36%; optimization: 31-36% vs 19-26%) and W52 (stabilization: 43-47% vs 33-34%; optimization: 30-38% vs 21-24%). Using more stringent ACQ-5 thresholds, fewer patients met the CR endpoint with ACQ ≤ 0.75 versus < 1.50 across treatment arms and timepoints. The odds and probability of meeting the CR endpoint versus not meeting the CR endpoint at W24 were greater with FF/UMEC/VI versus FF/VI, regardless of FF dose.

Conclusion: The results of this post hoc analysis demonstrate that CR is achievable with inhaled therapy in moderate-to-severe asthma and is more likely with FF/UMEC/VI than FF/VI. CR should be considered an attainable treatment goal for patients with asthma, irrespective of disease severity or treatment history.

Trial registration: ClinialTrials.gov identifier, NCT02924688.

Keywords: Clinical remission; Fluticasone furoate/vilanterol/umeclidinium; Inhalation therapy; Moderate-to-severe asthma; Single-inhaler triple therapy.

Conflict of interest statement

Declarations. Conflicts of Interest: John Oppenheimer has served on adjudication committees or data and safety monitoring boards for AstraZeneca, GSK, Novartis, and Sanofi-Regeneron; received consultancy fees from AstraZeneca, GSK, and Sanofi; and received grants and personal fees from GSK. Ian D Pavord has received speaker's fees, payments for organizing education events, honoraria for attending advisory panels, sponsorship to attend international scientific meetings, research grants, or payments to support FDA approval meetings from Aerocrine, Almirall, AstraZeneca, Boehringer Ingelheim, Chiesi, Circassia, GSK, Knopp, Merck, Novartis, Roche-Genentech, Sanofi-Regeneron, and Teva; acted as an expert witness for a patent dispute involving AstraZeneca and Teva; is a co-patent holder for the Leicester Cough Questionnaire, and received payments for use of the Leicester Cough Questionnaire in clinical trials from Bayer, Insmed, and Merck. Tom Corbridge, Jodie Crawford, Steven Gould, Mohamed Hamouda, Peter Howarth, Emmeline Burrows, Alison Moore, Stephen G Noorduyn, David Slade, and Stephen Weng are employed by GSK and hold financial equities in GSK. Stephen G Noorduyn is a PhD candidate at McMaster University, Hamilton, ON, Canada. Njira Lugogo has received consulting fees from Amgen, AstraZeneca, Avillion, Genentech, GSK, Niox, Novartis, Regeneron, Sanofi, and Teva; honoraria for non-speaker's bureau presentations from GSK and AstraZeneca; and travel support from AstraZeneca; her institution received research support from Amgen, AstraZeneca, Avillion, Evidera, Genentech, Gossamer Bio, GSK, Janssen, Novartis, Regeneron, Sanofi, and Teva. She is an honorary faculty member of the Observational and Pragmatic Research Institute (OPRI) but does not receive compensation for this role. Ethics Approval: CAPTAIN was performed in accordance with the Declaration of Helsinki, International Conference on Harmonisation Good Clinical Practice, and applicable country-specific regulatory requirements, and received United States central ethics approval from the Chesapeake Institutional Review Board (now Advarra; IRB: 00000971, IORG: 0000635). This was a multinational, multicenter study; a full list of the ethics committees that approved the study are included in Table S1. Written informed consent was obtained from all patients before participation.

- **57 references**

Supplementary info

Associated data, Grants and fundingExpand

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Adv Ther

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. 2025 Dec 24.

doi: 10.1007/s12325-025-03433-y. Online ahead of print.

Challenges in Evaluating Clinical Remission in Severe Asthma: Insights from the Mayo Clinic

Kaiser Lim [1], Arijita Deb [2], Thomas Corbridge [3], Lydia Lee [2], Judy Kelloway [4], Safak Simsek [5], Mithun Manoharan [5], Hannah Barman [5], Tyler Wagner [5]

Affiliations Expand

- PMID: 41442023

- DOI: 10.1007/s12325-025-03433-y

Abstract

Introduction: Clinical remission (CR) is an ambitious and achievable treatment goal for many patients with severe asthma. This study evaluated real-life care of patients in the U.S. using CR criteria defined by the American Thoracic Society; American College of Allergy, Asthma, and Immunology; and American Academy of Allergy, Asthma & Immunology.

Methods: This retrospective cohort study (GSK ID: 219744) utilized data from the Mayo Clinic's electronic health record database (January 1, 2014-March 31, 2023). Eligible adults had severe asthma, ≥ 1 respiratory biologic initiated, and ≥ 12 months of clinical activity post-index date. The primary objective quantified the proportion of patients with documented CR component criteria 12-months post-biologic initiation. Criteria included asthma exacerbations, systemic corticosteroid use for asthma, missed work/school due to asthma, ≥ 2 pulmonary function tests, controller medication use for asthma, ≥ 2 asthma control tests, and rescue medication use for asthma.

Results: Of 4623 patients receiving respiratory biologics, 707 were eligible. Documentation was available for ≥ 1 component in 94.2% of patients; none had all criteria documented. Overall, 90.2%, 83.2%, 55.4%, and 33.0% of patients had documented controller medication use, rescue medication use, systemic

corticosteroid use, and asthma exacerbations, respectively. For patients with documentation, 91.2% achieved ≥ 1 criterion. However, the proportion achieving remission decreased with the number of components; 0.6% of patients achieved ≥ 5 criteria. Of 141 (19.9%) patients receiving mepolizumab, documentation was available for ≥ 1 component in all patients; none had all criteria documented. The proportion of patients with documentation, and who achieved ≥ 1 to ≥ 4 criteria, was higher versus the overall population.

Conclusion: This study demonstrated infrequent documentation of the CR components in routine practice, thereby limiting the comprehensive evaluation of CR. Standardized assessment protocols encompassing all domains are needed to enable accurate assessment of CR, and for treatment targets to provide clear goals for clinicians and patients.

Keywords: Asthma; Biologic; Biologic therapy; Clinical remission; Electronic health record; Outcome assessment; Real-world evidence; Retrospective study.

Conflict of interest statement

Declarations. Conflict of Interest: Kaiser Lim was a consultant for nference, which received payment from GSK to conduct this study. Arijita Deb, Thomas Corbridge, and Judy Kelloway are employed by GSK and hold financial equities in GSK. Lydia Lee was a fellow at GSK at the time of study and is currently employed by Boehringer Ingelheim (Boehringer Ingelheim has no connection to this study). Safak Simsek was employed by nference when this study was conducted, which received payment from GSK to conduct this study. Mithun Manoharan, Hannah Barman, and Tyler Wagner are employees of nference, which received payment from GSK to conduct this study. Ethical Approval: Aggregated data that omit patient identification were used, informed consent and ethics committee approval was not required, and authorization by the Institutional Review Board was waived. Conference had access to patient data through a partnership with the Mayo Clinic; therefore, permission was not required to access the database.

- 37 references

Supplementary info

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Allergy

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. 2025 Dec 24.

doi: 10.1111/all.70205. Online ahead of print.

Dupilumab Effectiveness in Biologic-Naïve and Switched Severe Asthma in Real Life

Catherine Moermans [1 2], Mare Sabbe [1 2], Adrien Onssels [1], Noémie Bricmont [1], Romane Bonhiver [1], France Regnier [2], Sophie Graff [2], Sara Gerday [1], Makon-Sébastien Njock [1 2], Adeline Rosu [1], Virginie Paulus [2], Françoise Guissard [2], Stéphanie Ziant [2], Carole Sanchez [2], Marie Ernst [3], Christophe Desmet [4], Renaud Louis [1 2], Florence Schleich [1 2 5]

Affiliations Expand

- PMID: 41437843

- DOI: 10.1111/all.70205

No abstract available

Keywords: asthma; biologics; eosinophils.

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Review

J Transl Med

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. 2025 Dec 23;23(1):1411.

doi: 10.1186/s12967-025-07441-y.

The airway mycobiome in chronic respiratory diseases: current advances and future frontiers

Wenliang Zhu [# 1], Feng Li [# 2], Dingnan Lin [1], Lixian Cai [1], Chunmei Dai [1], Haiyue Liu [3], Yihua Lin [4]

Affiliations Expand

- PMID: 41437272
- PMCID: PMC12723897
- DOI: 10.1186/s12967-025-07441-y

Abstract

The airway mycobiome is an important component of the respiratory microbiome and of clinical relevance, but has been largely underappreciated. Recent studies have characterized fungal community composition in the airways and elucidated its associations with the pathogenesis and progression of chronic respiratory diseases (CRDs), including chronic obstructive pulmonary disease (COPD), asthma, bronchiectasis and cystic fibrosis (CF). A systematic understanding of the composition and dynamic changes of fungal microbiota in the airways, as well as their currently known interactions with the host in CRDs, may provide comprehensive insights into the pathological mechanisms of CRDs and improve diagnostic and therapeutic strategies. In this review, we synthesize current evidence on the role of the respiratory mycobiome in CRDs, focusing on mycobiome dysbiosis during disease pathogenesis, host-fungal interactions, and associated immune modulation. Additionally, we explore future research directions, key challenges, and potential therapeutic strategies targeting the fungal microbiota. This review redefines the contribution of fungi to the pathophysiology of CRDs based on current evidence and insights.

Supplementary information: The online version contains supplementary material available at 10.1186/s12967-025-07441-y.

Keywords: Chronic respiratory diseases; Fungi; Microbiome; Mycobiome.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: Not applicable. Consent for publication: Not applicable. Competing interests: There is no confict of interests.

- 135 references
- 4 figures

Supplementary info

Publication typesExpand

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Sci Rep

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. 2025 Dec 23;15(1):44392.

doi: 10.1038/s41598-025-28143-x.

A baseline study of interpretable machine learning using GC-MS breath VOCs for classifying asthma, bronchiectasis, and COPD

Eun-Ji Ko [#1], Si-On Bae [#1], Daesung Kang [2]

Affiliations Expand

- PMID: 41436514
- PMCID: PMC12728165
- DOI: 10.1038/s41598-025-28143-x

Abstract

Accurate differentiation among asthma, bronchiectasis, and chronic obstructive pulmonary disease (COPD) remains a critical challenge due to overlapping clinical symptoms and limitations of conventional diagnostic tools. This study establishes a transparent, reproducible baseline using gas chromatography-mass spectrometry (GC-MS) data derived from exhaled breath to classify asthma, bronchiectasis, and COPD. Using a publicly available clinical dataset comprising 121 breath samples and 76 shared volatile organic compounds (VOCs), we evaluated seven supervised classifiers under nested cross-validation. Among the classifiers, XGBoost achieved the highest performance, with a mean accuracy of 95.83% and macro-averaged AUC of 0.998. To enhance clinical interpretability, we applied Shapley Additive exPlanations (SHAP) to identify the most influential VOCs for each disease class. This analysis revealed several candidate biomarkers with disease-specific or cross-disease relevance, such as 2-pentylfuran and hexadecane. This integrative approach demonstrates the potential of breathomics combined with explainable AI as a scalable and non-invasive tool for respiratory disease classification and biomarker discovery. By providing this reproducible baseline, our work offers a

reference point for future methodological advances and clinical validation using breathomics data.

Keywords: Breathomics,; Machine learning; Respiratory diseases classification; Shapley additive explanations (SHAP); Volatile organic compounds (VOCs).

Conflict of interest statement

Declarations. Competing interests: The authors declare no competing interests.

- 51 references
- 4 figures

Supplementary info

MeSH terms, SubstancesExpand

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Cite

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Clin Infect Dis

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. 2025 Dec 23:ciaf710.

doi: 10.1093/cid/ciaf710. Online ahead of print.

Long-term clinical outcomes after hospitalization for acute respiratory illness due to respiratory syncytial virus (RSV)

David Singer [1], Yan Wang [2], Elizabeth M La [1], Susan I Gerber [1], Aozhou Wu [2], Keith A Betts [2]

Affiliations Expand

- PMID: 41432364

- DOI: 10.1093/cid/ciaf710

Abstract

Background: Acute respiratory illnesses (ARI) can be severe in older adults and adults with chronic conditions. We compared long-term outcomes of United States patients aged ≥50 years with ≥1 hospitalized acute-respiratory illness due to respiratory syncytial virus (RSV-ARI cohort) versus controls without ARI (control cohort) and patients with ≥1 hospitalized influenza-ARI (influenza-ARI cohort).

Methods: This retrospective study used October 1, 2015-June 30, 2023 claims data to evaluate clinical outcomes across the three cohorts. The index date was defined as the start of an ARI episode. Cumulative incidence functions assessed risks of readmission, all-cause mortality, myocardial infarction, asthma and chronic obstructive pulmonary disease (COPD) exacerbation, and hospitalization due to heart failure; adjusted risks were compared using multivariable regression models.

Results: A total of 14,759, 77,468, and 73,795 patients were selected into the RSV-ARI, influenza-ARI, and control cohorts, respectively. The RSV-ARI cohort had a substantially higher adjusted risk of all-cause mortality than controls, with the highest adjusted hazard ratio (95% confidence interval) 0-30 days post-index (10.772 [9.190, 12.627]). Myocardial infarction risk followed a pattern similar to all-cause mortality. Adjusted risks of asthma exacerbation, COPD exacerbation, and hospitalization for heart failure were significantly higher in the RSV-ARI cohort than controls, and similar between RSV-ARI and influenza-ARI cohorts.

Conclusions: RSV-ARI had considerable long-term impact on clinical outcomes, with measurable increases in outcomes associated with RSV-ARI when compared with controls, and similar outcomes compared to influenza-ARI. These findings can inform RSV prevention efforts and support future research on the long-term impact of RSV.

Keywords: Respiratory syncytial virus; acute respiratory illness; clinical outcomes; hospitalization; older adults.

Plain language summary

Acute respiratory illnesses (ARI) can be particularly severe for older adults and those with chronic health conditions. This study used a large database of United States (US) health insurance claims to compare long-term health outcomes across three groups of adults aged ≥50 years: (1) 14,759 adults who were hospitalized with ARI caused by respiratory syncytial virus (RSV), (2) 77,468 adults who were hospitalized with ARI caused by influenza, and (3) a control group of 73,795 adults who did not have any recent ARI. Over time, both the RSV-ARI and influenza-ARI groups had similar risks of heart attack (myocardial infarction) and death due to any cause. Adults with RSV-ARI had a higher risk of death within 30 days of hospitalization compared with adults with no recent ARI. Adults with RSV-ARI also had a higher risk of worsening asthma, worsening chronic obstructive pulmonary disease (COPD), and hospitalization for heart failure compared with the control group, and their risk of these events was similar to risks in the influenza-ARI group. RSV has a significant long-term impact on the health outcomes of older patients, reinforcing the importance of preventing RSV among adults aged ≥50 years.

Full text links

16

Review

Allergy

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. 2025 Dec 23.

doi: 10.1111/all.70197. Online ahead of print.

The Role of Biologics in Reducing Mucous Plug Burden in Asthma

Remo Poto [1,2], Rory Chan [3], Corrado Pelaia [4], G Walter Canonica [5,6], J Christian Virchow [7], Gilda Varricchi [1,8]

Affiliations Expand

- PMID: 41432089

- DOI: 10.1111/all.70197

Abstract

Asthma is a chronic inflammatory respiratory disease, affecting hundreds of millions of individuals worldwide. Mucous hypersecretion, which leads to the formation of mucous plugs within the airways, is a key pathophysiological feature associated with severe asthma and airway remodeling. Persistent airflow obstruction due to mucous plugging has been recognized as a contributor to poor symptom control in patients with asthma. This phenomenon is driven by type 2 inflammation, mediated by elevated levels of IL-5 and IL-13, as well as eosinophilic infiltration, which collectively promote the formation and persistence of mucous plugs. The presence of mucous plugging has been linked to the frequency and severity of exacerbations, as well as airflow obstruction. Imaging modalities such as high-resolution computed tomography (HRCT), hyperpolarized ^{129}Xe MRI, and optical coherence tomography (OCT) have provided insights into the extent of mucous plugging and its association with airflow limitation. Over the past decade, biological therapies targeting specific pathways of type 2 inflammation have emerged as highly effective treatment options for patients with severe asthma. These therapies have conferred substantial improvements in lung function, reduction in exacerbation rates, and decreased oral glucocorticoid use. One of their

mechanisms of action might be due to removal of persistent mucous plugs not achieved by conventional anti-asthmatic therapies such as inhaled corticosteroids (ICS) and oral corticosteroids (OCS). This comprehensive review summarizes the effects of biologics on mucous plugging in severe asthma, focusing on their mechanisms of action, clinical efficacy, and potential implications for optimizing treatment strategies.

Keywords: airway remodeling; asthma; benralizumab; biologics; dupilumab; mucous plugs; tezepelumab; type 2 inflammation.

- 99 references

Supplementary info

Publication typesExpand

Full text links

Proceed to details

Cite

17

Korean J Intern Med

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. 2025 Dec 23.

doi: 10.3904/kjim.2025.081. Online ahead of print.

Telemedicine in chronic lung disease management: progress and prospects

Hee-Young Yoon [1], Jin Woo Song [2]

Affiliations Expand

- PMID: 41429145

- DOI: 10.3904/kjim.2025.081

Free article

Abstract

Chronic lung diseases, including asthma, chronic obstructive pulmonary disease, and interstitial lung disease, contribute significantly to morbidity and mortality worldwide. Telemedicine has emerged as a promising approach for addressing these challenges by enabling remote patient monitoring, virtual consultations, and digital health interventions. Advances in home spirometry, wearable devices, and mobile health applications have improved early detection of disease exacerbations, medication adherence, and patient self-management of chronic lung diseases. Telerehabilitation programs have demonstrated their efficacy in enhancing exercise capacity and quality of life in patients with chronic lung diseases. Despite these advancements, challenges such as disparities in digital access, patient engagement, costs, and regulatory frameworks limit widespread adoption. As telemedicine has become an integral component of respiratory care, further research is required to optimize its implementation, evaluate long-term clinical outcomes, and ensure equitable access to all patients. This review explores the current state of telemedicine in chronic lung disease management, highlights technological innovations, and discusses future directions for enhancing its role in improving patient outcomes.

Keywords: Home care services; Lung diseases; Pulmonary rehabilitation; Spirometry; Telemedicine.

Full text links

Proceed to details

Cite

18

Review

Expert Rev Respir Med

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. 2025 Dec 24:1-20.

doi: 10.1080/17476348.2025.2607151. Online ahead of print.

A review of the safety of antibody therapy in severe eosinophilic asthma

Maria Gabriella Matera [1], Vito De Novellis [1], Paola Rogliani [2], Mario Cazzola [2]

Affiliations Expand

- **PMID: 41412959**

- DOI: 10.1080/17476348.2025.2607151

Abstract

Introduction: Severe eosinophilic asthma (SEA) is characterized by persistent type 2 airway inflammation and frequent exacerbations despite maximal conventional therapy. The advent of biologics targeting interleukin-5, its receptor, and upstream mediators has markedly changed disease management, offering new therapeutic opportunities for patients with uncontrolled disease.

Areas covered: This review evaluates the safety profiles of currently approved biologics for SEA, including mepolizumab, reslizumab, benralizumab, dupilumab, and tezepelumab. Evidence was synthesized from randomized controlled trials, open-label extension studies, real-world data, and pharmacovigilance reports. Mepolizumab demonstrates consistent safety with mainly mild adverse events, while reslizumab is effective but rarely associated with myalgia, creatine phosphokinase elevations, and anaphylaxis. Benralizumab shows excellent tolerability, with a low incidence of injection reactions and no excess of serious adverse events. Dupilumab is well tolerated, though blood eosinophilia and conjunctivitis may occur. Tezepelumab approval was supported by favorable safety signals, with mild infections and headache as the most frequent events.

Expert opinion: Current evidence indicates that biologic therapies for SEA are safe and well tolerated, with serious adverse events being rare. Nevertheless, long-term and comparative safety data remain limited, and ongoing pharmacovigilance and post-marketing surveillance are essential to fully define risk profiles.

Keywords: Severe eosinophilic asthma; benralizumab, dupilumab; mepolizumab; monoclonal antibodies; reslizumab; safety; tezepelumab.

Supplementary info

Publication typesExpand

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

1
Review

Cytokine
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. 2025 Dec 26:198:157101.
doi: 10.1016/j.cyto.2025.157101. Online ahead of print.

Group 2 innate lymphoid cells (ILC2s) in childhood allergic diseases: A review of the mechanisms and therapeutic advances

Yun Zhang [1], Yaling Wu [1], Yingying Wang [1], Haoquan Zhou [2]
Affiliations Expand

- **PMID: 41455133**

- DOI: 10.1016/j.cyto.2025.157101

Abstract

Recent advances in pediatric immunology have clarified the pivotal role of group 2 innate lymphoid cells (ILC2s) in the pathophysiology of childhood allergic diseases. As key components of the innate immune system, ILC2s mediate the initiation and progression of these disorders. Their activation is triggered primarily by epithelial-derived cytokines, whose expression is highly elevated in children with allergies. Upon activation, ILC2s rapidly secrete type 2 cytokines, driving disease-specific pathogenesis. In allergic asthma, airway ILC2 expansion exacerbates eosinophilic inflammation, airway hyperresponsiveness, and remodeling; in allergic rhinitis, nasal mucosal ILC2 activation induces typical symptoms; and in food allergies, intestinal mucosal ILC2s cause epithelial damage and increased permeability, promoting allergic progression. These mechanistic insights have underpinned the development of innovative therapies. Clinical trials have confirmed the efficacy of treatments targeting ILC2-derived cytokines or their receptors: anti-IL-5 monoclonal antibodies (targeting the IL-5 ligand), anti-IL-13 monoclonal antibodies (targeting the IL-13 ligand), and anti-IL-4Rα monoclonal antibodies (targeting IL-4 receptor α and blocking IL-4/IL-13 signaling) are promising treatments for specific childhood allergic diseases. Emerging strategies targeting ILC2 activation pathways and modulating the microbiome to regulate ILC2 activity are under active investigation. Collectively, the past five years of research have improved the understanding of the mechanisms underlying childhood allergic diseases and established new treatment paradigms, with great potential to optimize clinical management and improve the outcomes of pediatric patients with allergies.

Keywords: Allergic diseases; Cytokine; Group 2 innate lymphoid cells (ILC2s); Immune response; Therapeutic targets.

Conflict of interest statement

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

Supplementary info

Publication typesExpand

Proceed to details

Cite

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J Allergy Clin Immunol Pract

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. 2025 Dec 24:S2213-2198(25)01223-1.

doi: 10.1016/j.jaip.2025.11.041. Online ahead of print.

Validation of the Visual Analog Scale in Perennial Allergic and Non-Allergic Rhinitis: Association with Symptom Severity and Quality of Life

Chamard Wongsa [1], Pakpoom Wongyikul [2], Piyaporn Chokevittaya [1], Anapat Nititammaluk [1], Mongkhon Sompornrattanaphan [1], Kawita Atipas [3], Navarat Kasemsuk [3], Dichapong Kanjanawasee [4], Triphoom Suwanwech [3], Pongsakorn Tantilipikorn [3], Wannada Laisuan [5], Phichayut Phinyo [6], Jonathan A Bernstein [7], Torpong Thongngarm [8]

Affiliations Expand

- PMID: 41453688

- DOI: 10.1016/j.jaip.2025.11.041

Abstract

Background: Although the visual analog scale (VAS) is recommended in guidelines for assessing perennial allergic rhinitis (PAR), its validity in non-allergic rhinitis (NAR) remains unclear.

Objective: To evaluate the concurrent validity of the VAS in assessing symptom severity and its association with quality-of-life (QoL) outcomes in PAR and NAR.

Methods: This cross-sectional study prospectively included adults with moderate-to-severe PAR and NAR, all of whom had experienced symptoms for >6 months and underwent skin prick and/or specific IgE testing. Individual nasal symptoms, total nasal symptom score (TNSS), VAS, and Rhinoconjunctivitis Quality of Life-36 (RCQ-36) scores were compared between groups. VAS validity was assessed via Spearman's correlation with TNSS. Participants were dichotomized at the median VAS to examine associations with RCQ-36 and symptom profiles.

Results: Among 445 patients (298 PAR, 147 NAR), TNSS was lower in NAR, but VAS global scores and RCQ-36 domains were similar, except for a trend toward higher eye symptom burden in PAR. VAS correlated moderately with TNSS in PAR (Spearman correlation = 0.49, 95% CI: 0.40-0.57) but weakly in NAR (0.35, 95% CI: 0.20-0.49). Patients with VAS ≥70 mm (median cutoff) had significantly worse RCQ-36 in both groups, along with higher VAS for eye itching, postnasal drip, nasal voice, facial pressure, hyposmia, and cough. Greater nasal obstruction and rhinorrhea severity strongly correlated with poorer QoL.

Conclusion: VAS demonstrates comparable validity in PAR and NAR, effectively categorizing disease severity and QoL impairment. Nasal congestion and rhinorrhea severity are key drivers of reduced QoL in both conditions.

Keywords: allergic rhinitis; chronic rhinitis; non-allergic rhinitis; perennial; prevalence; quality of life; total nasal symptom score; visual analog scale.

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

1

J Prim Health Care

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. 2025 Dec 22;17(4):330-337.

doi: 10.1071/HC25114.

'It's more than just kale (cough)'. New Zealand Sāmoan attitudes to living with chronic cough and healthcare access

Sarah Mooney [1], Jessee Tanu Fia'Ali'i [2], Eti Televave [3], Angela Upsdell [2]

Affiliations Expand

- **PMID: 41291990**

- **DOI: 10.1071/HC25114**

Free article

Abstract

Introduction: Chronic cough is burdensome for individuals and healthcare providers and is a symptom common to a number of health conditions, including bronchiectasis. The prevalence of respiratory conditions, particularly bronchiectasis, is disproportionately high among Pacific people residing in Counties Manukau. Barriers to healthcare access and engagement, both practical and cultural, contribute to delayed presentation and advanced illness.

Aim: This study aims to explore attitudes to cough and healthcare access by Sāmoan adults living in Counties Manukau.

Methods: Semi-structured interviews guided by Talanoa, a Pacific-specific method, were conducted focusing on cough duration and characteristics, treatment-seeking behaviours, and healthcare experiences. Data were analysed thematically and framed using the Fonofale Model of Health.

Results: Two overarching themes were constructed from seven Talanoa: 'Understanding my cough' and 'healing, curing and coping with cough'. Chronic kale/cough was found to impact on all pou (posts) of the Fonofale health model. Kale/cough management strategies were drawn from Sāmoan and Western health paradigms, perceived as complementary. Access to specialist services was valued and extended participants' coping repertoire further. Respect and trust shaped relationships with healthcare providers and influenced engagement.

Discussion: Models such as the Fonofale health model provide a framework for healthcare providers to better understand the multi-dimensional impact of cough. Recognising the cultural perspectives of populations underrepresented in the health workforce provides valuable insights to re-frame healthcare practice and service to optimise engagement with on-going symptoms such as cough and to support chronic conditions.

Keywords: Fonofale health model; Sāmoan; attitudes; bronchiectasis; chronic cough; healthcare access; impact.

Supplementary info

MeSH termsExpand

Full text links

2

Randomized Controlled Trial

Clin Infect Dis

. 2025 Dec 24;81(5):e401-e409.

doi: 10.1093/cid/ciaf284.

Risk of Tuberculosis Infection in Young Children Exposed to Multidrug-resistant Tuberculosis in the TB-CHAMP Multi-site Randomized Controlled Trial

Susan E Purchase [1], Joanna Brigden [2], James A Seddon [1 3], Neil A Martinson [4 5], Lee Fairlie [6], Suzanne Staples [7], Thomas Wilkinson [8], Trinh Duong [2], H Simon Schaaf [1], Anneke C Hesseling [1]

Affiliations Expand

- PMID: 40440402
- PMCID: PMC12728287
- DOI: 10.1093/cid/ciaf284

Abstract

Background: Young children have a high risk of developing tuberculosis (TB) disease following infection with Mycobacterium tuberculosis in the absence of preventive treatment. Infection prevalence and risk factors for infection impact delivery of prevention strategies. We aimed to determine the prevalence of infection in child household contacts aged <5 years exposed to adults with confirmed pulmonary multidrug-resistant (MDR)-TB and to determine risk factors for infection.

Methods: TB-CHAMP was a trial of MDR-TB prevention that recruited children younger than age 5 years, regardless of M. tuberculosis infection status. All children enrolled had an interferon-gamma release assay (IGRA) at baseline. We described M. tuberculosis infection prevalence, developed directed acyclic graphs

to clarify causal relationships, and used modified Poisson regression models to assess the relationship between risk factors and IGRA positivity.

Results: Of 785 included children, 160 (20.4%) had a positive IGRA. Duration of cough and drug misuse in the index patient, age of the child, relationship between the child and the index patient, and study site were significantly associated with risk of infection.

Conclusions: The prevalence of infection was lower than observed in previous studies. This may be related to improved diagnosis and treatment of MDR-TB in the study setting and/or test limitations and has implications for TB preventive treatment. When considering TB preventive treatment for child contacts, healthcare providers should be especially concerned about any young child exposed to an adult index patient who is his/her parent/primary caregiver, has a chronic cough, and/or a history of drug misuse.

Keywords: Poisson regression; directed acyclic graphs; interferon-gamma release assays; levofloxacin; preventive treatment; risk factors.

Conflict of interest statement

Potential conflicts of interest. The authors: No reported conflicts of interest. All authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest.

- **27 references**
- **3 figures**

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

1

Nat Commun

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. 2025 Dec 26.

doi: 10.1038/s41467-025-67769-3. Online ahead of print.

Evidence for Interleukin-17C governing interleukin-17A pathogenicity and promoting asthma endotype switching in bronchiectasis

Yu-Wei Zhang [# 1 2 3], Yu-Hua Wen [# 3], Ling Yang [# 3], Ying-Zhou Xie [3], Dong Weng [3], Xi-Yue Shen [3], Jing-Ge Ma [3], Hai-Wen Lu [3], Xiao-Li Sun [3], Shu-Yi Gu [3], Bei Mao [3], Ai Ge [3], Yue Su [3], Fang Jiang [4], You-Cun Qian [5], Jin-Fu Xu [6 7 8 9]

Affiliations Expand

- PMID: 41453857

- DOI: 10.1038/s41467-025-67769-3

Abstract

The management of bronchiectasis-asthma overlap (BAO) is an important clinical issue to be addressed. Little is known regarding the endotype of BAO. Here we recruit patients with a primary diagnosis of bronchiectasis and co-existing asthma. The levels of interleukin (IL)-17C are positively correlated with the levels of IL-17A or group 3 innate lymphoid cells (ILC3s) in peripheral blood samples from patients with BAO. An in vivo mouse model of Pseudomonas aeruginosa chronic lower respiratory tract infection followed by ovalbumin-induced asthma shows that IL-17C potentiates IL-17A expression via interacting with IL-17 receptor E in ILC3s. Additionally, ablation of Il17re in mice attenuates ILC3 responses and IL-17A-mediated asthma endotype switching towards neutrophilic asthma driven by P. aeruginosa chronic lower respiratory tract infection. Lastly, impaired epithelial barrier integrity by P. aeruginosa exposure is associated with IL-17C production in vitro. Collectively, our study implicates evidence for IL-17C governing IL-17A pathogenicity and promoting asthma endotype switching in bronchiectasis, implicating IL-17C as a potential therapeutic target for individuals with BAO.

Conflict of interest statement

Competing interests: The authors declare no competing interests.

- 67 references

Supplementary info

Grants and fundingExpand

Proceed to details

Cite

2

J Cyst Fibros

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. 2025 Dec 24:S1569-1993(25)02544-5.

doi: 10.1016/j.jcf.2025.12.013. Online ahead of print.

Real-life use of bronchodilators and inhaled corticosteroids in cystic fibrosis and non-CF bronchiectasis, Do guidelines matter?

Miguel Angel Martinez Garcia [1], Patrick A Flume [2]

Affiliations Expand

- PMID: 41448972

- DOI: 10.1016/j.jcf.2025.12.013

No abstract available

Keywords: Bronchiectasis; Bronchodilators; Cystic fibrosis; Inhaled corticosteroids.

Conflict of interest statement

Declaration of competing interest All authors has any financial and personal relationships with other people or organizations that could inappropriately influence (bias) this work.

Full text links

Proceed to details

Cite

3

Respir Med

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. 2025 Dec 22:251:108607.

doi: 10.1016/j.rmed.2025.108607. Online ahead of print.

Exacerbation risk in patients with bronchiectasis receiving DPP-1 inhibitors vs placebo: A meta-analysis of RCTs

Giulia Carvalhal [1], Júlia Moreira Diniz [2], Larissa Calixto Hespanhol [1], David Curi Barbosa Izoton Cabral [3], Jafar Aljazeeri [4]

Affiliations Expand

- PMID: 41443427

- DOI: 10.1016/j.rmed.2025.108607

Abstract

Background: No therapies have been approved to alter bronchiectasis progression. Dipeptidyl peptidase-1 (DPP-1) inhibitors, which target neutrophil serine protease activation, are under investigation as potential disease-modifying agents.

Methods: We conducted a systematic review and meta-analysis of randomized controlled trials (RCTs) comparing DPP-1 inhibitors versus placebo in patients with non-cystic fibrosis bronchiectasis. PubMed, Cochrane, EMBASE, Web of Science, Scopus, ClinicalTrials.gov, and ICTRP were searched from inception until April 26, 2025. Primary outcomes included time to first exacerbation and proportion of patients remaining exacerbation-free. Secondary outcomes included post-bronchodilator % Forced Expiratory Volume in 1 s (FEV_1), Quality of Life-Bronchiectasis (QoL-B) questionnaire scores, and rate of adverse events. Time-to-event outcome was analyzed using Kaplan-Meier (KM)-estimated individual patient data (IPD), whereas random-effects meta-analyses were performed for remaining outcomes.

Results: 2523 patients from four RCTs were included, of whom 1689 (66.9 %) received DPP-1 inhibitors. Compared with placebo, DPP-1 inhibitors prolonged the time to first exacerbation (HR 0.79; 95 % CI: 0.71 to 0.88) and increased the proportion of patients remaining exacerbation-free (RR 1.33; 95 % CI 1.12 to 1.58). A slower decline in post-bronchodilator % FEV1 was observed (MD 1.1 %; 95 % CI 0.05 to 2.15), but no difference in QoL-B scores (MD 1.35; 95 % CI -0.72 to 3.42). The safety profile of DPP-1 inhibitors was acceptable and comparable to placebo. Moderate certainty was found across endpoints.

Conclusions: DPP-1 inhibitors prolong time to first exacerbation and reduce exacerbation rates in patients with bronchiectasis, with an acceptable safety profile. These findings support their potential as a disease-modifying strategy.

Registration: PROSPERO (CRD420251042542).

Keywords: Bronchiectasis; DPP-1 inhibitor; Dipeptidyl-peptidases and tripeptidyl-peptidases; Meta-analysis; Randomized controlled trials; Systematic review.

Conflict of interest statement

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

Full text links

4

ERJ Open Res

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. 2025 Dec 22;11(6):00670-2025.

doi: 10.1183/23120541.00670-2025. eCollection 2025 Nov.

Prevalence and types of treatable traits in bronchiectasis: a multicentre, cross-sectional study

Marianna Cicchetti [1 2], Alessandro De Angelis [3 4 2], Edoardo Simonetta [4], Andrea Gramegna [5 6], Paola Faverio [7 8], Martina Contarini [5], Francesco Amati [3 4], Vincenzo Alberto Artuso [3 4], Angela Tramontano [4], Mattia Nigro [3 4], Paola Scarano [4], Veronica Polelli [9], Giovanna Elisiana Carpagnano [1], Fabrizio Luppi [7 8], Francesco Blasi [5 6], Stefano Aliberti [3 4]

Affiliations Expand

- PMID: 41438858

- PMCID: PMC12720143

- DOI: 10.1183/23120541.00670-2025

Abstract

Treatable traits in bronchiectasis are diverse and reflect patient heterogeneity. Identifying these traits can guide personalised care, improve outcomes and optimise resource allocation in real-world clinical practice. https://bit.ly/3TqDgun.

Conflict of interest statement

Conflict of interest: P. Faverio reports personal fees from Insmed for support to attend a meeting, unrelated to the submitted work. G.E. Carpagnano reports grants or contracts from AstraZeneca, Chiesi, Glaxo, Sanofi and Grifols; payment or honoraria for lectures, presentations, manuscript writing or educational events from Glaxo, Sanofi and AstraZeneca; and support for travel from AstraZeneca, Menarini and Chiesi, all unrelated to the submitted work. F. Blasi reports grants from AstraZeneca, Chiesi and Insmed; consultancy fees from Menarini; and personal fees for lectures or advisory boards from AstraZeneca, Chiesi, Boehringer Ingelheim, GSK, Guidotti, Grifols, Insmed, Menarini, Novartis, OM Pharma, Pfizer, Sanofi, Vertex and Zambon, outside the submitted work. S. Aliberti reports grants from GSK (to his institution) and consultancy fees from Insmed, Zambon, AstraZeneca,

Menarini, CSL Behring, Pfizer, Moderna, Boehringer Ingelheim, Chiesi, MSD, Vertex, BRAHMS, Physioassist, AN2 Therapeutics, GSK and Verona Pharma; payment or honoraria for lectures, presentations, manuscript writing or educational events from GSK, Menarini, INSMED, Boehringer Ingelheim, Zambon and Vertex Pharmaceuticals; and participation on a data safety monitoring board or advisory board with INSMED, AstraZeneca, MSD and Verona Pharma, outside the submitted work. All other authors declare no conflicts of interest related to this work.

- 13 references
- 1 figure

Supplementary info

Publication typesExpand

Full text links

Proceed to details

Cite

5

Sci Rep

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. 2025 Dec 23;15(1):44392.

doi: 10.1038/s41598-025-28143-x.

A baseline study of interpretable machine learning using GC-MS breath VOCs for classifying asthma, bronchiectasis, and COPD

Eun-Ji Ko [#1], Si-On Bae [#1], Daesung Kang [2]

Affiliations Expand

- PMID: 41436514
- PMCID: PMC12728165
- DOI: 10.1038/s41598-025-28143-x

Abstract

Accurate differentiation among asthma, bronchiectasis, and chronic obstructive pulmonary disease (COPD) remains a critical challenge due to overlapping clinical symptoms and limitations of conventional diagnostic tools. This study establishes a

transparent, reproducible baseline using gas chromatography-mass spectrometry (GC-MS) data derived from exhaled breath to classify asthma, bronchiectasis, and COPD. Using a publicly available clinical dataset comprising 121 breath samples and 76 shared volatile organic compounds (VOCs), we evaluated seven supervised classifiers under nested cross-validation. Among the classifiers, XGBoost achieved the highest performance, with a mean accuracy of 95.83% and macro-averaged AUC of 0.998. To enhance clinical interpretability, we applied Shapley Additive exPlanations (SHAP) to identify the most influential VOCs for each disease class. This analysis revealed several candidate biomarkers with disease-specific or cross-disease relevance, such as 2-pentylfuran and hexadecane. This integrative approach demonstrates the potential of breathomics combined with explainable AI as a scalable and non-invasive tool for respiratory disease classification and biomarker discovery. By providing this reproducible baseline, our work offers a reference point for future methodological advances and clinical validation using breathomics data.

Keywords: Breathomics,; Machine learning; Respiratory diseases classification; Shapley additive explanations (SHAP); Volatile organic compounds (VOCs).

Conflict of interest statement

Declarations. Competing interests: The authors declare no competing interests.

- 51 references
- 4 figures

Supplementary info

MeSH terms, SubstancesExpand

Full text links

nature portfolio

Proceed to details

Cite

6

Review

Qual Life Res

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. 2025 Dec 23;35(1):8.

doi: 10.1007/s11136-025-04130-7.

Patient report outcome measures for Spanish-speaking adults with bronchiectasis: systematic review of measurement properties

Yasmina Hamam-Alcober [1], Cristina Cimarras-Otal [1], Juan Antonio Sáez-Pérez [1], Beatriz Herrero-Cortina [2 3]

Affiliations Expand

- PMID: 41432977
- PMCID: PMC12727851
- DOI: 10.1007/s11136-025-04130-7

Abstract

Purpose: Patient reported outcome measures (PROMs) are key tools for monitoring and evaluating treatment effectiveness in people with bronchiectasis. However, most are developed for Anglophone contexts, limiting their applicability to non-English-speaking populations. This systematic review aimed to evaluate the measurement properties of PROMs for Spanish-speaking individuals with bronchiectasis.

Methods: A search of major databases was conducted up to August 2024, targeting studies that assessed the measurement properties (validity, reliability, and responsiveness) of any PROMs available for Spanish-speaking adults with bronchiectasis. The methodological quality of the included studies, as well as the quality of the measurement properties was evaluated according to the COSMIN (Consensus-Based Standards for the Selection of Health Status Measurement Instruments) guidelines.

Results: Of 3752 articles, four studies were included. The PROMs were the Leicester Cough Questionnaire (LCQ), Quality of Life Questionnaire for Bronchiectasis (QoL-B), COPD Assessment Test (CAT), and St. George's Respiratory Questionnaire (SGRQ).Content validity was rated as sufficient with low or very low-quality evidence. Structural validity was assessed only for the SGRQ, rated inadequate with very low evidence. Cross-cultural validity could not be evaluated. Convergent validity was sufficient for all PROMs, highest for LCQ and QoL-B. Internal consistency was indeterminate across PROMs, though limited by lack of structural validity. Test-retest reliability was high for LCQ and moderate for QoL-B and CAT. Responsiveness was sufficient for all three PROMs assessed, with evidence quality from very low to moderate.

Conclusion: Few PROMs exist for Spanish-speaking adults with bronchiectasis. Content, structural and cultural validity, and responsiveness are the least studied properties, limiting treatment monitoring and assessment.

Registration: PROSPERO International register of systematic reviews, CRD42023388173.

Keywords: Bronchiectasis; Patient-reported outcome measures; Quality of life; Spanish; Symptoms.

Conflict of interest statement

Declarations. Conflict of interest: The authors declare that they have no financial or non-financial conflicts of interest. Ethics approval and consent to participate: As this is a systematic review, neither informed consent nor ethics committee approval is required.

- **31 references**
- **1 figure**

Supplementary info

Publication types, MeSH termsExpand

Full text links

Proceed to details

Cite

7

J Prim Health Care

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. 2025 Dec 22;17(4):330-337.

doi: 10.1071/HC25114.

'It's more than just kale (cough)'. New Zealand Sāmoan attitudes to living with chronic cough and healthcare access

Sarah Mooney [1], Jessee Tanu Fia'Ali'i [2], Eti Televave [3], Angela Upsdell [2]

Affiliations Expand

- **PMID: 41291990**
- **DOI: 10.1071/HC25114**

Free article

Abstract

Introduction: Chronic cough is burdensome for individuals and healthcare providers and is a symptom common to a number of health conditions, including bronchiectasis. The prevalence of respiratory conditions, particularly bronchiectasis, is disproportionately high among Pacific people residing in Counties Manukau. Barriers to healthcare access and engagement, both practical and cultural, contribute to delayed presentation and advanced illness.

Aim: This study aims to explore attitudes to cough and healthcare access by Sāmoan adults living in Counties Manukau.

Methods: Semi-structured interviews guided by Talanoa, a Pacific-specific method, were conducted focusing on cough duration and characteristics, treatment-seeking behaviours, and healthcare experiences. Data were analysed thematically and framed using the Fonofale Model of Health.

Results: Two overarching themes were constructed from seven Talanoa: 'Understanding my cough' and 'healing, curing and coping with cough'. Chronic kale/cough was found to impact on all pou (posts) of the Fonofale health model. Kale/cough management strategies were drawn from Sāmoan and Western health paradigms, perceived as complementary. Access to specialist services was valued and extended participants' coping repertoire further. Respect and trust shaped relationships with healthcare providers and influenced engagement.

Discussion: Models such as the Fonofale health model provide a framework for healthcare providers to better understand the multi-dimensional impact of cough. Recognising the cultural perspectives of populations underrepresented in the health workforce provides valuable insights to re-frame healthcare practice and service to optimise engagement with on-going symptoms such as cough and to support chronic conditions.

Keywords: Fonofale health model; Sāmoan; attitudes; bronchiectasis; chronic cough; healthcare access; impact.

Supplementary info

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