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

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Observational Study

Medicine (Baltimore)

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. 2026 Jan 23;105(4):e47298.

doi: 10.1097/MD.0000000000047298.

Alpha-1 antitrypsin deficiency in bronchiectasis: Evidence for an overlooked entity beyond COPD: A retrospective observational study

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- **PMID: 41578478**

- **DOI: 10.1097/MD.0000000000047298**

Abstract

Alpha-1 antitrypsin deficiency (AATD) is an autosomal co-dominant condition caused by mutations in the SERPINA1 gene. Chronic obstructive pulmonary disease/emphysema, asthma, and bronchiectasis are lung diseases associated with AATD. This study was designed to identify AATD in patients with bronchiectasis

without emphysema and to demonstrate the frequency and distribution of AATD genotypes according to the type of bronchiectasis. The study was conducted as a single-center retrospective analysis between December 01, 2022 and December 31, 2024 in patients with bronchiectasis without emphysema. Patients' demographic characteristics (age, gender), smoking status (smoker, ex-smoker, nonsmoker), and types of bronchiectasis (cylindrical, varicose, cystic) according to the Reid classification were evaluated. Dried blood spot samples collected from fingertip pricks were used to screen for alpha-1 antitrypsin genotype deficiency. A total of 563 patients, 241 (42.8%) women, and 322 (57.2%) men, with bronchiectasis without emphysema were evaluated, with a mean age of 55.3 ± 14.9 years. An AATD mutation was detected in 16 patients (2.8%). Genotype deficiency was most commonly observed in the cylindrical type (n = 9). The most frequently identified genotypes were PI*M malton in 6 patients (1.1%), PI*P lowell in 4 patients (0.8%), and PI*I in 3 patients (0.6%). Additionally, 2 patients were found to have previously unidentified novel alpha-1 antitrypsin variants. One of these patients also had Kartagener syndrome. Our findings suggest an association between AATD and bronchiectasis, independent of emphysema, and suggest that alpha-1 antitrypsin genotypes should also be examined in cases of bronchiectasis without emphysema to determine its etiology.

Keywords: alpha-1 antitrypsin; bronchiectasis; genotype.

Conflict of interest statement

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

- 19 references

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

Cite

2

Nat Genet

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doi: 10.1038/s41588-025-02480-z. Online ahead of print.

Aberrant cellular communities underlying disease heterogeneity in chronic obstructive pulmonary disease

Yuening Zhang [#1], Huanhuan Wei [#1], Jessica Nouws [#1], Wenhao Jiang [1,2], Reginald M Brewster [1], Jenny P Nguyen [1], SiRu Liang [1], Samuel M Pass [1], Weiwei Wang [3], Florine Collin [3], Angela Taravella Oill [4], Sang-Hun Kim [1], Saul S Siller [5], Jinjiang Liu [6], Amy Y Zhao [1], Phillip Hansbro [7], Charles Dela Cruz [8], Clemente Britto [1], Jose Gomez [1], Suzanne M Cloonan [9,10], Erica L Herzog [1], TuKiet T Lam [4,11], Nicholas E Banovich [4], Micha Sam B Raredon [5], Xuchen Zhang [12], Stefano Mangiola [13], Robert J Homer [12], Naftali Kaminski [1], John McDonough [14], Francesca Polverino [15], Xiting Yan [1,16], Maor Sauler [17]

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- PMID: 41578022

- DOI: 10.1038/s41588-025-02480-z

Abstract

Chronic obstructive pulmonary disease (COPD) is clinically and molecularly heterogeneous. To investigate COPD heterogeneity, we profiled lung tissue by single-nucleus RNA sequencing from 141 study participants (1,516,727 nuclei) and identified shifts in cell composition and emergent cell states that correlated with lung function, emphysema and composite symptom scores. Epithelial regenerative states peaked in early COPD and declined thereafter, whereas inflamed nonimmune cells and profibrotic/remodeling states, together with select immune populations, expanded with disease progression. Clustering study participants by the proportion of pathologic cells coupled with spatial transcriptomics identified distinct patterns of cellular co-occurrence within spatially localized niches. Proteomic analyses identified plasma biomarkers of cell states and their impact on the extracellular matrix. Mediation and cell communication analyses revealed cell-autonomous and intercellular communication networks associated with disease. These data define the cellular landscape of COPD heterogeneity, revealing molecular drivers and biomarkers that could inform therapeutic strategies.

Conflict of interest statement

Competing interests: M.S. has received consulting fees and honorarium from Sanofi-Regeneron and has received grant funding from Genentech. He has a financial interest in Crosswalk Health. N.K. was a consultant to Pliant, AstraZeneca, CSL Behring, Galapagos, GSK, Merck, Thyron and Boehringer Ingelheim over the last 3 years, reports equity in Pliant and received research grants to his laboratory from Veracyte, Boehringer Ingelheim, BMS and AstraZeneca. He has patents on new therapies and biomarkers in pulmonary fibrosis. F.P. has received grants from Victory Houston and Boehringer Ingelheim, and consulting fees from Sanofi-Regeneron, Verona Pharma and Genentech for advisory board participation. The remaining authors declare no competing interests.

- 70 references

Full text links

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Cite

3

Int J Behav Med

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. 2026 Jan 23.

doi: 10.1007/s12529-025-10429-z. Online ahead of print.

Fatigue in COPD: a Longitudinal, Multidimensional Perspective

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Affiliations Expand

- PMID: 41577938

- DOI: 10.1007/s12529-025-10429-z

Abstract

Background: Fatigue is a pervasive, debilitating symptom of chronic obstructive pulmonary disease (COPD) that significantly impacts patients' overall health and quality of life. However, its underlying mechanisms and associations with physical, psychological, behavioral, and other health factors remain unclear. This study investigated longitudinal associations between fatigue and these factors in COPD.

Method: A total of 247 COPD patients (mean age, 67.3 ± 8.1 years; 60% male; mean forced expiratory volume in 1 s (FEV1) 57 ± 21% predicted) from primary and secondary care were enrolled in a longitudinal observational study. Two-wave autoregressive cross-lagged panel models (ARCLM) examined relationships between fatigue and associated factors at baseline and 1 year later.

Results: Severe fatigue was prevalent in 53% of participants at baseline, with no significant change at follow-up. ARCLM findings indicated that baseline physical activity was the only predictor of reduced fatigue after 1 year. Moreover, higher baseline fatigue predicted poorer health-related quality of life, more severe dyspnea,

and greater dyspnea-related emotional distress at follow-up. Although the initial focus was on fatigue, the analysis revealed a complex network of longitudinal relationships between multiple studied variables extending beyond fatigue.

Conclusion: Physical activity was the only direct predictor of fatigue, while fatigue directly influenced dyspnea, dyspnea-related emotions, and health-related quality of life. This study highlights the important role of fatigue within a complex network of physical, psychological, health status, and behavioral factors. The complexity of the interrelatedness of these factors suggests that single-target interventions are unlikely to be effective. Rather, integrated interventions, such as pulmonary rehabilitation, are needed.

Keywords: Behavioral factors; Chronic obstructive pulmonary disease; Fatigue; Health status; Multidimensional approach; Physical activity.

Conflict of interest statement

Declarations. Ethical Approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed Consent: Informed consent was obtained from all individual participants included in the study. Competing interests: Prof. dr. D. Janssen: Grants or Contracts: Funding received from Dutch Foundation for Asthma Prevention, Netherlands Respiratory Society (award), ZonMw research grant, and HORIZON-HLTH-2023-DISEASE-03 research grant, all paid to their institution. Payments or Honoraria: Received from Chiesi, Abbott, and AstraZeneca, with payments made to their institution for lectures, presentations, or educational events. Advisory & Safety Boards: Unpaid participation in Better B Steering Committee and Wolfson Palliative Care Research Centre Advisory Board. Dr. Bram van den Borst: Consulting Fees: Received from Sanofi, with payments made to their institution, unrelated to the submitted work. Payments or Honoraria: Received from AstraZeneca, with payments made to their institution, unrelated to the submitted work. Support for Meetings and Travel: Funding received from Chiesi Pharmaceuticals B.V. and AstraZeneca, with payments made to their institution, unrelated to the submitted work. The authors affirm that these disclosures have been fully declared in the Disclosure of Competing Interests statement.

- 53 references

Supplementary info

Grants and fundingExpand

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J Glob Health

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. 2026 Jan 23:16:04028.

doi: 10.7189/jogh.16.04028.

Multimodal data-driven multitask learning for enhanced identification and classification of chronic obstructive pulmonary disease: a retrospective study

Qian Wu, Hui Guo, Ruihan Li, Jinhuan Han, Zhen Zhang, Ayajiang Jingesi, Shuqin Kang

- PMID: 41572890

- DOI: 10.7189/jogh.16.04028

Abstract

Background: Chronic obstructive pulmonary disease (COPD), the third leading cause of death worldwide, demands prompt and precise identification and phenotyping for effective management. This study aims to develop a multimodal multi-task learning framework that concurrently performs automated detection and classification of COPD.

Methods: Retrospective multi-task model fusing computed tomography (CT) and clinical data (n = 2320) at a tertiary hospital. Predictive performance for lung-function metrics was assessed using the concordance correlation coefficient (CCC) and mean absolute error (MAE). Classification efficacy was evaluated via the area under the receiver operating characteristic curve (AUC), accuracy (ACC), precision, recall, and F1-score. Generalisability was further verified by replicating the experiments on three distinct backbone networks.

Results: This study included 1624 patients for model training, 348 patients for the validation set, and an additional 348 patients for the independent test set. The optimal model achieved a maximum CCC of 0.75 for forced vital capacity (FVC), corresponding to an MAE of 0.37, and a maximum CCC of 0.77 for forced expiratory volume in one second (FEV1), corresponding to an MAE of 0.33. For the binary classification task (COPD/Non-COPD), the highest AUC achieved through multi-task learning was 0.88, with a maximum ACC of 0.83. In the ternary classification task (COPD/preserved ratio impaired spirometry (PRISm)/Normal), the highest AUC reached 0.87, with a maximum ACC of 0.79.

Conclusions: Multitask-learning models that integrate chest CT images with basic clinical variables outperform their single-task counterparts in both the identification and classification of COPD. This approach supports evidence-based clinical decision-making and advances the delivery of precision medicine.

Conflict of interest statement

Disclosure of interest: The authors completed the ICMJE Disclosure of Interest Form (available upon request from the corresponding author) and disclose no relevant interests.

Supplementary info

MeSH termsExpand

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Cite

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Review

Respir Med

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. 2026 Jan 20:108664.

doi: 10.1016/j.rmed.2026.108664. Online ahead of print.

Efficacy of high-flow nasal cannula versus conventional oxygen therapy in high-risk patients undergoing bronchoscopy: a meta-analysis of RCTs

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Affiliations Expand

- PMID: 41570947

- DOI: 10.1016/j.rmed.2026.108664

Abstract

Background: Patients with underlying conditions such as chronic obstructive pulmonary disease (COPD) or obesity are at high risk for hypoxemia during bronchoscopy. Whether a high-flow nasal cannula (HFNC) is superior to

conventional oxygen therapy (COT) for preventing this complication is well-studied, but a focused synthesis in high-risk populations is needed.

Objectives: To compare the efficacy of HFNC versus COT in preventing intraprocedural hypoxemia and other complications in high-risk patients undergoing bronchoscopy.

Methods: We systematically searched PubMed, Embase, Cochrane Library, and Web of Science for RCTs up to October 2025. Methodological quality was assessed using the Cochrane Risk of Bias tool, and data were pooled with RevMan 5.3.

Results: Five RCTs (1054 patients) were included. Compared to COT, HFNC significantly reduced oxygen desaturation (OR 0.14, 95% CI 0.08-0.27; $P < 0.00001$; $I^2 = 62\%$) and procedure interruptions (OR 0.18, 95% CI 0.09-0.34; $P < 0.00001$; $I^2 = 21\%$). HFNC also increased the lowest SpO_2 (MD = 5.89%, 95% CI 3.19-8.58; $P < 0.0001$; $I^2 = 90\%$). No significant difference was found in procedure duration. Sensitivity analyses confirmed the robustness of the primary findings, and the certainty of evidence was moderate for most outcomes.

Discussion: HFNC significantly reduces the risk of hypoxemia and procedure interruptions compared with COT in high-risk patients undergoing bronchoscopy, supporting its use to improve procedural safety in this vulnerable population. Limitations include heterogeneity partly attributable to varying hypoxemia definitions and an inability to blind personnel.

Registration: PROSPERO CRD420251174924.

Keywords: bronchoscopy; conventional oxygen therapy; high-flow nasal cannula; oxygen desaturation.

Conflict of interest statement

Declaration of Competing Interest The authors declare that they have no conflicts of interest.

Supplementary info

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Respir Med

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. 2026 Jan 20:108665.

doi: 10.1016/j.rmed.2026.108665. Online ahead of print.

PA/A ratio >1 detected by CT-scan during Acute Exacerbation of Chronic Obstructive Pulmonary Disease: A Novel Prognostic Factor for Long-term Mortality Based on a Cohort study

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Affiliations Expand

- PMID: 41570946

- DOI: 10.1016/j.rmed.2026.108665

Abstract

Background: The pulmonary artery (PA) to aorta (A) (PA/A) ratio is a prognostic factor of many diseases, but the long-term prognostic value of PA/A during acute exacerbation of chronic obstructive pulmonary disease (AECOPD) has never been disclosed.

Aim: To investigate the long-term prognostic value of PA/A detected by CT-scan during AE stage of COPD inpatients.

Design: A non-interventional cohort study.

Methods: Patients surviving from AECOPD were prospectively enrolled from West China Hospital between September 2017 and July 2021 and followed-up till the fifth year after discharge. PA and A diameters were measured based on CT-scan during hospitalization. LASSO-COX analysis was used to identify the independent prognostic factors. Stratified analysis by sex, age groups were performed.

Results: Among the 1466 patients involved, 402 (27.4%) died during follow-up (median follow-up time: 41.0 months). Multivariate LASSO-COX analysis showed that PA/A >1 during exacerbation period was associated with increased long-term mortality risk [HR=1.498, 95% CI (1.120-2.004), P=0.007], especially in male and old subgroups. With the rise of PA/A ratio, mortality rate showed a significant upward trend. Kaplan-Meier analysis showed patients with PA/A >1 had significantly lower survival rate. After exacerbation, PA/A ratio showed a significant reduction in patients with PA/A ≤1 (exacerbation vs. stable stage: 0.79±0.11 vs. 0.76±0.11, P <0.001), while that remained stagnant in patients with PA/A >1 (1.13±0.12 vs. 1.13±0.16, P =0.592).

Conclusion: PA/A ratio >1 detected during AE stage was a steady and effective prognostic factor of long-term mortality in COPD patients. Further multicenter is warranted to validate the association.

Keywords: Acute exacerbation of chronic obstructive pulmonary disease; long-term mortality; pulmonary artery enlargement; pulmonary artery to aorta ratio.

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: Liqing Peng reports financial support was provided by Key Research & Development Project of Science and Technology of Sichuan Province. Qun Yi reports financial support was provided by Sichuan Science and Technology Program. Qun Yi reports financial support was provided by National Key Research Program of China. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Cite

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Adv Ther

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. 2026 Jan 22.

doi: 10.1007/s12325-025-03477-0. Online ahead of print.

Response to: Letter to the Editor Regarding "Comparative Effectiveness of FF/1 UMEC/VI and BUD/GLY/FORM in Patients with COPD Stepping Up From Dual Therapy"

Jadwiga A Wedzicha [1], Stephen G Noorduyn [2 3], Valentina Di Boscio [4], Olivier Le Rouzic [5], Anurita Majumdar [4], Rosirene Paczkowski [6], Stephen Weng [7], Guillaume Germain [8], François Laliberté [8], David Mannino [9 10]

Affiliations Expand

- PMID: 41569404

- DOI: 10.1007/s12325-025-03477-0

No abstract available

Keywords: Budesonide/glycopyrrolate/formoterol fumarate; Chronic obstructive pulmonary disease; Exacerbations; Fluticasone furoate/umeclidinium/vilanterol; Real-world comparative effectiveness study.

Conflict of interest statement

Declarations. Conflict of Interest: Jadwiga A. Wedzicha reports grants from AstraZeneca, Boehringer Ingelheim, Chiesi, GSK, and Novartis; consulting fees from AstraZeneca, EpiEndo Pharmaceuticals, GSK, Gilead, Novartis, Pfizer, Roche, and Empirico; honoraria for lectures, presentations, or educational events from AstraZeneca, Boehringer Ingelheim, Glenmark, GSK, Novartis, Recipharm, Roche, and Sanofi; and participation as the data safety monitoring board chair for Virtus. Stephen G. Noorduyn, Valentina Di Boscio, Anurita Majumdar, Rosirene Paczkowski, and Stephen Weng are employees of GSK and/or hold financial equities in GSK. Stephen G. Noorduyn is also a PhD candidate at McMaster University. Olivier Le Rouzic is a principal investigator of CSL Behring and Vertex studies and has received personal fees and/or congress support from AstraZeneca, Boehringer Ingelheim, Chiesi, CSL Behring, Grifols, GSK, LFB, and Sanofi outside the submitted work. Guillaume Germain and François Laliberté are employees of Groupe d'analyse which received funding from GSK to conduct this study but not for manuscript development. David Mannino is a consultant for AstraZeneca, the COPD Foundation, Genentech, GSK, Regeneron, and UpToDate. David Mannino is also an expert witness on behalf of people suing the tobacco and vaping industries. Ethical Approval: Not applicable.

- **6 references**

Supplementary info

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Scand J Public Health

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. 2026 Jan 22:14034948251404093.

doi: 10.1177/14034948251404093. Online ahead of print.

How eight health risks and chronic conditions relate: identifying associations and profiling characteristics of multiple health risk factors among 14 disease groups and 30 common chronic conditions in Denmark

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- PMID: 41568868

- DOI: 10.1177/14034948251404093

Abstract

Aims: To identify associations between chronic conditions and eight key health risks (stress, loneliness, sleep, obesity/body mass index, smoking, exercise, alcohol consumption, and fruit intake) and provide a practical descriptive profile of the distribution of health risks within chronic conditions.

Methods: The sample involved 56,988 Danish residents aged over 16 years from three national health surveys (2010/2013), one sociodemographic register, and seven national health registers. Linear and logistic regression models adjusting for socioeconomic variables were used to analyse associations with 14 disease groups and 30 common conditions.

Results: The regression analyses revealed that stress, obesity, and physical inactivity were the most consistently associated health risk factors across disease groups. We identified three groups of health risks with similar strengths of associations. Firstly, one group comprising obesity, stress, and sleep troubles, was significantly linked to 27, 23, and 22 chronic conditions, respectively. Secondly, a group of physical inactivity/loneliness showed moderate associations, linked to 19 and five chronic conditions, particularly mental health conditions; and thirdly, a group of smoking, drinking, and low fruit intake showed the weakest and fewest associations. A descriptive profile showed that anxiety, schizophrenia, attention deficit hyperactivity disorder, headaches and chronic obstructive pulmonary disease were conditions with high proportions of patients experiencing more than four health risks.

Conclusions: The current study provides comparable, hierarchical information on the strength of associations between eight health risks and chronic conditions adjusted for socioeconomic factors. The findings suggest that healthcare professionals, policymakers and public health strategies should place less emphasis on classic behavioural health risks such as smoking and more attention on psychological factors such as stress, sleep problems, and loneliness.

Keywords: BMI; Health risks; ICD-10; alcohol; chronic condition; chronic disease; exercise; fruit; health behaviours; health inequality; loneliness; obesity; physical activity; sleep; smoking; socioeconomic; stress.

Full text links

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Clin Sci (Lond)

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. 2026 Jan 20:CS20257442.

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Dysregulated iron metabolism associates with neutrophilic airway inflammation in COPD

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- PMID: 41568397

- DOI: 10.1042/CS20257442

Abstract

Pulmonary iron levels are increased in COPD, possibly due to increased red blood cell leakage from the microvasculature. Neutrophils cause endothelial cell damage which may cause vascular dysfunction and iron dysregulation in COPD. We investigate the relationships between neutrophilic inflammation, iron metabolism and vascular dysfunction in COPD. Using gene and protein analysis, associations between neutrophilic inflammation, iron dysregulation and vascular dysfunction were investigated in two COPD bronchoscopy cohorts: EvA (n=51) and Manchester (n=33). Patients were sub-grouped based on bronchoalveolar lavage (BAL) neutrophil percentage (neutrophilhigh≥3% and neutrophillow<3%). Heme was measured in BAL by LC-MS. BAL cell gene expression of neutrophilic inflammation markers such as C-X-C Motif Chemokine Ligand 8 (CXCL8) and Interleukin 6 Receptor (IL6R) were significantly increased in neutrophilhigh compared to neutrophillow patients in both cohorts; fold change (FC) differences 1.06 - 17. We found increased markers of iron and iron trafficking including Lactoferrin (LTF), Lipocalin-2 (LCN2) and Myoglobin (MB) in neutrophilhigh patients in both cohorts. BAL cell gene expression and BAL fluid protein levels of the vascular dysfunction marker, Vascular Endothelial Growth Factor (VEGF), were significantly higher in neutrophilhigh compared to neutrophillow patients. Fibrinogen and heme were significantly increased in neutrophilhigh BAL fluid. In vitro experiments revealed that blood neutrophils had significantly increased expression of LTF and VEGFA following LPS-stimulation and heme induces endothelial dysfunction. COPD patients with distal lung neutrophilic inflammation have dysregulated iron

metabolism which may be a consequence of increased vascular leakage into the airways.

Keywords: Chronic obstructive pulmonary disease; Endothelial dysfunction; Iron; Neutrophils; heme.

Full text links

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Eur J Med Res

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. 2026 Jan 21.

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Construction of a risk prediction model for in-hospital mortality in patients with acute exacerbation of chronic obstructive pulmonary disease

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Affiliations Expand

- PMID: 41566397

- DOI: 10.1186/s40001-026-03885-0

Free article

Abstract

Background: Exacerbations of chronic obstructive pulmonary disease (COPD) deteriorate patient outcomes and impose substantial burdens on healthcare systems and families. Given this, the present study aimed to develop a prediction model for in-hospital mortality in patients with acute exacerbation of COPD (AECOPD) using readily accessible clinical variables, with the goal of guiding clinical interventions.

Methods: A total of 878 consecutive AECOPD patients (807 non-death cases, 71 in-hospital death cases) were prospectively enrolled. Patients were randomly divided

into a training set (n = 616) and a validation set (n = 262) at a 7:3 ratio. Logistic regression analysis was performed on the training set to identify factors influencing in-hospital mortality, followed by construction of a nomogram. The model's discrimination, calibration, and clinical applicability were evaluated using the area under the receiver-operating characteristic curve (AUC), calibration curves, Hosmer-Lemeshow test, decision curve analysis (DCA), and clinical impact curve (CIC).

Results: The in-hospital mortality rate of AECOPD patients was 8.1%. Independent risk factors for in-hospital mortality included non-invasive mechanical ventilation, invasive mechanical ventilation, disease duration > 10 years, severe condition at admission, and comorbid heart failure (all $P < 0.05$). The nomogram showed an AUC of 0.909 (95% CI: 0.875-0.942) in the training set and 0.841 (95% CI: 0.742-0.939) in the validation set. Calibration curves and Hosmer-Lemeshow test (training set: $\chi^2 = 14.13$, $P = 0.12$; validation set: $\chi^2 = 7.83$, $P = 0.55$) confirmed good fit. DCA demonstrated higher net benefits of the model than "treat-all" or "treat-none" strategies within threshold probabilities of 5.0%-42.5% (training set) and 5.0%-42.0% (validation set). At the optimal threshold (0.082), the model's sensitivity, specificity, and accuracy were 0.885, 0.789, 0.797 (training set) and 0.632, 0.753, 0.744 (validation set), respectively.

Conclusion: The nomogram based on mechanical ventilation, disease duration, admission condition, cor pulmonale, and heart failure exhibits excellent predictive performance for in-hospital mortality in AECOPD patients, providing a valuable tool for clinical decision-making.

Keywords: Acute exacerbation; Chronic obstructive pulmonary disease; Mortality risk; Nomogram; Risk prediction model.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study was approved by the Ethics Committee of Hepu County People's Hospital (Approval No.: 202303). Written informed consent was obtained from all patients or their legal representatives. Consent for publication: Not applicable. Data availability: The datasets used during the current study are available from the corresponding author on reasonable request (to protect patient privacy). Competing interests: The authors declare no competing interests.

- 20 references

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Adv Ther

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. 2026 Jan 21.

doi: 10.1007/s12325-025-03476-1. Online ahead of print.

Letter to the Editor Regarding "Comparative Effectiveness of FF/UMEC/VI and BUD/GLY/FORM in Patients with COPD Stepping Up From Dual Therapy"

Jennifer Quint [1], Della Varghese [2], Hana Mullerova [3], Jonathan Marshall [4]

Affiliations Expand

- PMID: 41563709

- DOI: 10.1007/s12325-025-03476-1

No abstract available

Keywords: Budesonide/glycopyrronium/formoterol; COPD; Comparative effectiveness; Fluticasone furoate/umeclidinium/vilanterol; Triple therapy.

Conflict of interest statement

Declarations. Conflict of Interest: Jennifer Quint has been supported by institutional research grants from AstraZeneca, Boehringer Ingelheim, Health Data Research UK, Insmed, National Institute for Health and Care Research, and UK Research and Innovation, and received personal fees for advisory board participation, consultancy, or speaking fees from Boehringer Ingelheim and GSK. Della Varghese, Hana Mullerova, and Jonathan Marshall are employees of AstraZeneca and may hold stock and/or stock options in the company. Ethical Approval: Not applicable.

- 6 references

Supplementary info

Publication typesExpand

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12

Am J Physiol Lung Cell Mol Physiol

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doi: 10.1152/ajplung.00155.2025. Online ahead of print.

Early Detection of Small Airway Dysfunction in Smokers and People with COPD via Forced Oscillation Technique and its Association with Biomarkers: a Pilot Study

Prem Bhattarai [1], Maksim Grigorenko [1], Wenying Lu [1], Collin Chia [2], Steve Myers [1], Sukhwinder Singh Sohal [1], Andrew Williams [1]

Affiliations Expand

- PMID: 41556836

- DOI: 10.1152/ajplung.00155.2025

Abstract

Background: Early airflow changes associated with tobacco smoking often occur without observable obstruction or symptoms. Spirometry, the gold standard, has limitations in detecting early disease highlighting the need for sensitive diagnostic methods. We aimed to evaluate the utility of the forced oscillation technique (FOT) and biomarkers in detecting early airway abnormalities in smokers and patients with COPD, and to explore the correlation between FOT parameters, spirometry measures, and biomarkers of airway inflammation. Methods: A cross-sectional study was conducted on 71 participants divided into three groups: patients with COPD (CP, n=27), normal lung function smokers (NS, n=22), and healthy controls (HC, n=22). Lung function was assessed using spirometry and FOT, while biomarkers of inflammation (MMP-9, TIMP-1, TIMP-2) were measured. Statistical analyses included group comparisons and correlation between lung function parameters and biomarker levels. Results: Patients with COPD had significantly lower spirometry and higher FOT values compared to NS and HC ($p<0.01$). In contrast, NS participants had similar spirometry values to HC, except for FEF25-75% and PEF. The NS group exhibited significantly higher values for R5 compared to HC ($p<0.05$). FOT parameters, particularly R5, demonstrated comparable diagnostic accuracy to spirometry in smokers, and all other parameters showed excellent discriminatory ability in COPD patients. MMP-9 correlated positively with percentage predicted FOT parameters, R5-R20 and AX, and X5 ($r'=0.29,0.30, 0.31$; $p=0.02,0.04,0.02$ respectively) in the combined group of smokers and COPD patients and positively with percentage predicted Fres ($r'=0.30$; $p=0.01$) when all groups were analysed together. Conclusion: FOT may be a sensitive and complementary measure to detect early airway changes in smokers and patients with COPD. MMP-9 correlating with FOT further supports the role of FOT combined with biomarkers in detecting early airway abnormalities in smokers and earlier stages of COPD.

Keywords: COPD; Forced Oscillation Technique; Smokers; TIMP-1; small airway dysfunction.

Supplementary info

Grants and fundingExpand

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Review

Eur J Med Res

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. 2026 Jan 19;31(1):111.

doi: 10.1186/s40001-025-03782-y.

Effects of atorvastatin on inflammatory markers, lipid profile, liver enzymes, and pulmonary function in patients with lung diseases: a systematic review and meta-analysis of randomized controlled trials

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Affiliations Expand

- PMID: 41555409

- PMCID: PMC12825185

- DOI: 10.1186/s40001-025-03782-y

Abstract

Background: Pulmonary diseases are important causes of morbidity globally. Atorvastatin's pleiotropic effects, which include anti-inflammatory and lipid-lowering properties, may be beneficial for individuals with respiratory diseases. This meta-analysis evaluated the atorvastatin's effect on inflammatory biomarkers, lipid profile, liver enzymes, and pulmonary function in lung disease patients.

Methods: We systematically searched PubMed/MEDLINE, Scopus, Web of Science, Embase, CENTRAL, and Google Scholar for English-language RCTs until March

2025. The study evaluated inflammatory markers (CRP, IL-6, TNF-α), lipid profile (LDL, HDL, TC, TG), liver enzymes (ALT, AST), pulmonary function tests, and physical performance. Pooled weighted mean differences (WMDs) with 95% confidence intervals were calculated using random-effects models. Subgroup, heterogeneity, and publication bias analyses were conducted.

Results: Seventeen RCTs (22 datasets; n = 1,344) on asthma, COPD, COVID-19, pulmonary hypertension, and associated disorders were analyzed. Atorvastatin substantially decreased TNF-α (WMD: - 0.20 pg/mL; 95% CI - 0.28 to - 0.11), LDL cholesterol (WMD: - 21.48 mg/dL; 95% CI - 30.82 to - 12.14), and TC (WMD: - 15.24 mg/dL; 95% CI - 28.28 to - 2.20), while improving 6MWD (WMD: 0.71; 95% CI 0.24 to 1.17) and FEF25-75 in COPD subgroups. Evening peak expiratory flow (PEF) was considerably lower (WMD: - 8.72; 95% CI - 14.96 to - 2.47), indicating worsening in airway airflow throughout the evening. There were no significant overall effects for CRP, IL-6, triglycerides, HDL, FEV1, FVC, or oxygen saturation.

Conclusions: Atorvastatin demonstrates anti-inflammatory and lipid-lowering efficacy in pulmonary disease patients, with mild functional respiratory benefits and modest improvements in physical performance. Additional large-scale studies are needed to validate clinical benefits and effective treatment methods.

Keywords: Atorvastatin; Inflammatory biomarkers; Lipid profile; Meta-analysis; Pulmonary disease; Pulmonary function.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study protocol was reviewed and approved by the Nephrology and Urology Research Center, Clinical Sciences Institute, Baqiyatallah University of Medical Sciences, Tehran, the Islamic Republic of Iran, approval number [IR.BMSU.BAQ.REC.1404.002]. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

- 85 references
- 6 figures

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Cite

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BMJ Open Respir Res

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doi: 10.1136/bmjresp-2025-003254.

Association of life's essential 8 with chronic respiratory disease mortality and lung health: a national cohort study

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Affiliations Expand

- PMID: 41554626
- PMCID: PMC12820856
- DOI: 10.1136/bmjresp-2025-003254

Abstract

Background: This study aims to evaluate the association of Life's Essential 8 (LE8) with chronic lower respiratory disease (CLRD)-specific mortality and impaired lung health outcomes.

Methods: This population-based cohort study used data from the National Health and Nutrition Examination Survey (NHANES, 2007-2018), including adults aged 20-79 years (n=10 135), with lung function measurements available for a subset (n=3188). Multivariable Cox proportional hazards and restricted cubic spline models were employed to assess the associations between LE8 scores and CLRD-specific mortality. Logistic and linear regression models evaluated the associations between LE8 scores and lung health. All models were adjusted for sociodemographic variables (age, sex, race/ethnicity, education, income-to-poverty ratio), cardiovascular disease, respiratory disease and smoking history. Sensitivity analyses were conducted to assess the stability of the results. The primary outcome was CLRD-specific mortality, and the secondary outcome was lung health.

Results: Over a median follow-up of 7.83 years, 50 CLRD-specific deaths were recorded. Higher LE8 scores were associated with reduced risks of CLRD-specific mortality (adjusted HR (aHR), 0.56 (0.40-0.79)), with a linear dose-response relationship observed (P for non-linear=0.574). Furthermore, each 10-point increase in total LE8 score was associated with impaired lung health, including lower odds of asthma (adjusted OR (aOR), 0.88 (0.83-0.93)), chronic bronchitis (aOR, 0.81 (0.74-0.88)), emphysema (aOR, 0.59 (0.52-0.65)), chronic obstructive pulmonary disease (aOR, 0.63 (0.45-0.89)) and lower relative risk of a restrictive spirometry pattern (adjusted relative risk ratio (aRRR), 0.66 (0.56-0.79)). Positive correlations were

observed between total LE8 scores and lung function (p<0.001). The findings were robust in sensitivity analyses and consistent across key subgroups.

Conclusions: Higher LE8 scores were associated with reduced CLRD-specific mortality and improved lung health. Promoting LE8 adherence could significantly alleviate respiratory disease burdens and mortality.

Keywords: Asthma; COPD; Clinical Epidemiology; Emphysema; Respiratory Function Test.

Conflict of interest statement

Competing interests: None declared.

- 51 references
- 3 figures

Supplementary info

MeSH termsExpand

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Cite

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Adv Ther

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. 2026 Jan 19.

doi: 10.1007/s12325-025-03470-7. Online ahead of print.

FF/UMEC/VI and BUD/GLY/FORM in Patients with COPD Stepping Up from Dual Therapy Stratified by Exacerbations and Prior Dual Therapy: A Subgroup Analysis of a Comparative Effectiveness Study

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Affiliations Expand

- PMID: 41553713

- DOI: 10.1007/s12325-025-03470-7

Abstract

Introduction: Three previous publications have reported real-world comparative effectiveness of fluticasone furoate/umeclidinium/vilanterol (FF/UMEC/VI) and budesonide/glycopyrrolate/formoterol fumarate (BUD/GLY/FORM) in patients with chronic obstructive pulmonary disease (COPD) in the USA. This subgroup analysis assessed treatment with FF/UMEC/VI and BUG/GLY/FORM in patients with COPD who stepped up from dual therapy, stratified by number of prior exacerbations and class of prior dual therapy.

Methods: Propensity score (PS)-weighted patients identified within healthcare claims from the Komodo Research database were used to compare annualized rates and time to first moderate-severe COPD exacerbation between FF/UMEC/VI and BUD/GLY/FORM initiators stepping up from dual therapy, stratified by the type of dual therapy (long-acting muscarinic antagonist plus long-acting β_2-agonist [LAMA/LABA] or inhaled corticosteroid [ICS] plus LABA) and by prior (none or ≥ 1) COPD exacerbation. Results are presented as events per patient year (PPY) and rate ratio (RR) with 95% confidence intervals (CIs).

Results: Approximately 14,000 patients contributed to this analysis, 10,093 FF/UMEC/VI and 3926 BUD/GLY/FORM initiators. Baseline characteristics were well balanced following PS weighting. Step-up to FF/UMEC/VI was associated with a statistically significant reduction in moderate-severe exacerbations compared with step-up to BUD/GLY/FORM irrespective of exacerbation history: no prior exacerbation, n = 7235, 0.48 vs 0.56 PPY, RR [95% CI] 0.86 [0.77, 0.95], P = 0.003; ≥ 1 prior exacerbation, n = 6784, 1.14 vs 1.41 PPY, RR [95% CI] 0.81 [0.74, 0.87], P < 0.001. Step-up to FF/UMEC/VI was also associated with a statistically significant reduction in moderate-severe exacerbations compared with step-up to BUD/GLY/FORM across both subgroups of prior dual therapy: LAMA/LABA, n = 5717, 0.71 vs 0.95 PPY; RR [95% CI] 0.75 [0.67, 0.83], P < 0.001; ICS/LABA, n = 8302, 0.85 vs 0.99 PPY; RR [95% CI] 0.86 [0.79, 0.93], P < 0.001.

Conclusion: Patients newly initiating FF/UMEC/VI following prior treatment with ICS/LABA or LAMA/LABA experienced a significantly lower rate of moderate-severe COPD exacerbations than those newly initiating BUD/GLY/FORM irrespective of number of prior exacerbations or prior dual therapy class.

Keywords: All-cause mortality; Budesonide/glycopyrrolate/formoterol fumarate; Chronic obstructive pulmonary disease; Exacerbations; Fluticasone furoate/umeclidinium/vilanterol; Real-world comparative effectiveness study.

Conflict of interest statement

Declarations. Conflict of Interest: Jadwiga A. Wedzicha reports grants from AstraZeneca, Boehringer Ingelheim, Chiesi, GSK, and Novartis, consulting fees from AstraZeneca, EpiEndo Pharmaceuticals, GSK, Gilead, Novartis, Pfizer, Roche, and

Empirico, honoraria for lectures, presentations or educational events from AstraZeneca, Boehringer Ingelheim, Glenmark, GSK, Novartis, Recipharm, Roche, and Sanofi, and participation as the data safety monitoring board chair for Virtus. Stephen G. Noorduyn, Valentina Di Boscio, Anurita Majumdar, Rosirene Paczkowski, and Stephen Weng are employees of GSK and/or hold financial equities in GSK. Stephen G. Noorduyn is also a PhD candidate at McMaster University. Olivier Le Rouzic is a principal investigator of CSL Behring and Vertex studies and has received receiving personal fees and/or congress support from AstraZeneca, Boehringer Ingelheim, Chiesi, CSL Behring, Grifols, GSK, LFB, and Sanofi outside the submitted work. Guillaume Germain and François Laliberté are employees of Groupe d'analyse which received funding from GSK to conduct this study but not for manuscript development. David Mannino is a consultant for AstraZeneca, the COPD Foundation, Genentech, GSK, Regeneron, and UpToDate. David Mannino is also an expert witness on behalf of people suing the tobacco and vaping industries. Ethical Approval: The study complied with all applicable laws regarding patient privacy, as described in the Declaration of Helsinki. No direct patient contact or primary collection of individual human patient data occurred in this study. This study used existing, fully de-identified data that complied with the requirements of the Health Insurance Portability and Accountability Act and the patient(s) cannot be identified, directly or through identifiers. Study results were in tabular form and aggregate analyses that omit patient identification; therefore, informed consent and ethics committee or institutional review board approval were not required.

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Nicotine Tob Res

. 2026 Jan 19:ntaf209.

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In-Utero and Early-Life Exposure to Tobacco Smoke, Genetic Risk, and Chronic Obstructive Pulmonary Disease Incidence in Adulthood

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- PMID: 41553263

- DOI: 10.1093/ntr/ntaf209

Abstract

Introduction: This study aimed to evaluate whether in-utero and early-life tobacco exposure and genetic factors jointly contribute to incident chronic obstructive pulmonary disease (COPD).

Methods: A total of 412 050 participants without COPD at baseline were included. We assessed the associations of in-utero tobacco exposure, age of smoking initiation, and their interactions with joint COPD polygenic risk scores (PRS) with COPD risk using Poisson regression models.

Results: Participants with in-utero tobacco exposure exhibited a higher risk of COPD (adjusted relative risk [aRR], 1.29; 95% confidence intervals [CIs], 1.25-1.33) compared to participants without in-utero tobacco exposure. Compared with nonsmokers, the aRRs (95% CIs) of COPD risk for smoking initiation during adulthood, adolescence, and childhood were 4.23 (4.05-4.42), 5.17 (4.95-5.38), and 7.01 (6.68-7.36), respectively (Ptrend < 0.001). Significant interactions were observed between in-utero tobacco exposure, age of smoking initiation and the genetic risk. Participants with both in-utero tobacco exposure and smoking initiation during childhood had the highest risk of COPD (aRR, 9.04, 95% CI: 8.44-9.69; Pmult = 0.006, Padd < 0.001) compared to nonsmokers without in-utero tobacco exposure. Furthermore, compared to nonsmokers with low genetic risk, individuals with high genetic risk and childhood smoking initiation exhibited the greatest risk of COPD (aRR, 8.29, 95% CI, 7.65-8.99; Padd < 0.001).

Conclusions: Exposure to tobacco smoke in utero and during early life significantly increased the risk of COPD in adulthood, irrespective of genetic predisposition. Theses findings underscore the importance of early-life smoking prevention to mitigate the risk of developing COPD in adulthood.

. 2026 Jan 16:S0012-3692(26)00021-8.

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Exacerbation Risk by Chronic Proton Pump Inhibitor use in Obstructive Lung Diseases

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Affiliations Expand

- PMID: 41548651

- DOI: 10.1016/j.chest.2026.01.002

Free article

Abstract

Background: Previous studies have shown inconsistent results regarding the use of proton pump inhibitor (PPIs) and the risk on exacerbations in patients with chronic obstructive airway diseases.

Research question: Is chronic PPI use associated with exacerbation risk?

Methods: Using Belgian nationwide claims-based data of adult patients on chronic medication for obstructive airway diseases (COAD) between 2017 and 2022, we investigated the association between PPI use and exacerbation risk using multivariable Cox models. Based on defined daily doses (DDDs) dispensed during the prior year, dose-dependent associations were assessed by inverse probability of treatment weighted (IPTW) Cox regression models.

Results: Among 932,135 included COAD patients, 416,087 (44.6%) were PPI-users, of whom 57,540 (13.8%) had 1-28 DDDs of PPIs, 128,017 (30.8%) 29-180 DDDs, 127,981 (30.8%) 181-365 DDDs, and 102,549 (24.6%) >365 DDDs in the previous year. Beyond age, sex, smoking, socio-economic status, exacerbation history, short-acting bronchodilator use, frailty and comorbidities, PPI use was associated with an increased risk of exacerbations (aHR 1.18, 95%CI 1.17-1.19). Moreover, compared to non-users, the risk of exacerbations increased with cumulative DDD ($HR_{\leq 28DDDs}$ 1.09, 95%CI 1.07-1.10; $HR_{\leq 180DDDs}$ 1.15, 95%CI 1.14-1.16; $HR_{\leq 365DDDs}$ 1.19, 95%CI 1.18-1.20; and $HR_{>365DDDs}$ 1.24, 95%CI 1.23-1.26). Sensitivity analyses indicated that the association with exacerbation risk was most pronounced in patients without gastroesophageal reflux disease (GERD), with asthma, under 50 years, non-frail patients, and those with increased PPI plasma concentrations.

Conclusion: Cumulative PPI use in patients with obstructive lung diseases was associated with an increase in exacerbation risk. This highlights to carefully consider PPI use in clinical respiratory practice.

Keywords: Asthma; Chronic Obstructive Pulmonary Disease; Exacerbations; List: Chronic Obstructive Airway diseases; Proton Pump Inhibitors.

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BMJ Open

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Mitigating chronic respiratory disease through the lens of multimorbidity: the MARES mixed-methods study protocol

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Affiliations Expand

- **PMID: 41545050**
- **PMCID: PMC12815162**
- **DOI: 10.1136/bmjopen-2025-109950**

Abstract

Introduction: Chronic respiratory diseases (CRDs), such as asthma and chronic obstructive pulmonary disease (COPD), are among the leading non-communicable diseases (NCDs) worldwide. However, diagnosing CRDs in low-income and middle-income countries (LMICs) remains challenging due to limited access to spirometry and trained professionals. Aggravating the burden, CRDs often coexist with other

NCDs, increasing healthcare costs, reducing quality of life and elevating mortality. These challenges highlight the need for simple case-finding approaches for CRDs, such as the COPD in Low-Income and Middle-Income Countries Assessment (COLA-6) questionnaire, to support prompt identification and appropriate care within NCD services in LMICs.

Objective: To evaluate the discriminative accuracy, feasibility and implementation of the COLA-6 questionnaire in identifying and managing CRDs in Brazilian Primary Healthcare (PHC) services for NCDs.

Methods and analysis: The Multimorbidity Approach for REspiratory Solutions (MARES) study consists of three work packages to be conducted in PHC services in São Carlos/SP and São Paulo/SP, Brazil.MARES-1: A cross-sectional observational study enrolling 859 individuals with at least one NCD receiving care in PHC. The COLA-6 questionnaire will be administered by the research team and compared with quality-assured spirometry. The Chronic Airways Assessment Test (CAAT), Asthma Control Questionnaire (ACQ-7) and fractional exhaled nitric oxide (FeNO) will also be assessed. The diagnostic performance of COLA-6 for identifying CRDs-including COPD, asthma, preserved ratio impaired spirometry, restriction and overlaps-will be assessed using area under receiver operating characteristic curves and 95% CIs.MARES-2: A cross-sectional observational study enrolling 20 healthcare professionals (physicians, physiotherapists, community health agents and nurses) from five PHC services. These professionals will apply the COLA-6 during routine NCD care to a total sample of 1000 patients. Qualitative interviews will be conducted to explore barriers and facilitators to the implementation of COLA-6, using deductive thematic analysis.MARES-3: A longitudinal, prospective observational study in which patients from MARES-1 and MARES-2 will be reassessed at 6-month follow-up. A total sample of 473 participants with abnormal spirometry, a diagnosis of CRD or high risk for CRDs is expected. Participants will undergo spirometry, and a subset will be interviewed to explore their healthcare experiences through qualitative thematic analysis. Access to diagnostic and treatment services in Brazil will be assessed. Changes in spirometry values, FeNO, CAAT and ACQ-7 scores from baseline to 6 months in patients from MARES-1 will be analysed.

Ethics and dissemination: This study has been approved by the Ethics Committees of Federal University of São Carlos and University of Santo Amaro (UNISA). Ethical approval was also granted by the University College London. Results will be disseminated through peer-reviewed medical journals and presentations at international conferences. Results will improve identification of CRDs, addressing a significant gap in current PHC settings.

Trial registration number: NCT07050823/NCT07093021/NCT07134855.

Keywords: Multimorbidity; Primary Health Care; Pulmonary Disease, Chronic Obstructive.

Conflict of interest statement

Competing interests: None declared.

- **48 references**

- 2 figures

Supplementary info

MeSH terms, Associated dataExpand

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Eur Respir J

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. 2026 Jan 22;67(1):2500523.

doi: 10.1183/13993003.00523-2025. Print 2026 Jan.

Lower lobe mucus plug distribution and future respiratory exacerbations in tobacco-exposed individuals with and without COPD

Emily S Wan [1 2], Ruchita Borgaonkar [3], Sofia Mettler [3], Pietro Nardelli [3], Monica Iturrioz-Campo [3], Padma P Manapragada [4], Mostafa Abozeed [4], Muhammad Usman Aziz [4], Mohd Zahid [4], Scott Grumley [4], Andrew Yen [5], Sushilkumar Sonavane [6], Wei Wang [3], Michael H Cho [2], Raul San José Estépar [3], Alejandro A Diaz [3]

Affiliations Expand

- PMID: 41309271

- DOI: 10.1183/13993003.00523-2025

No abstract available

Conflict of interest statement

Conflict of interest: E.S. Wan reports participation on a scientific advisory board with Verona Pharma and in CME activities for MJHealth, outside the current work. A. Yen reports support for the present study from NIH. M.H. Cho reports grants from Bayer and consultancy fees from Apogee Therapeutics and BMS. R. San José Estépar reports grants from NHLBI, Gossamer and Boehringer Ingelheim, participation on a data safety monitoring board or advisory board with CRIS Cancer Foundation, and stock (or stock options) with Quantitative Imaging Solutions. R. San José Estépar is a co-founder of Quantitative Imaging Solutions. The remaining authors have no potential conflicts of interest to disclose.

Supplementary info

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Thorax

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. 2026 Jan 16:thorax-2024-222823.

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Mobile health pulmonary rehabilitation (m-PR): a randomised controlled equivalence trial

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Affiliations Expand

- PMID: 40992935

- DOI: 10.1136/thorax-2024-222823

Abstract

Background: Mobile health (mHealth) is a novel model of care that may overcome barriers to pulmonary rehabilitation (PR) access. This study determined if mHealth PR was equivalent to centre-based PR (CB-PR) in improving exercise capacity and health status in people with chronic obstructive pulmonary disease (COPD).

Method: Single-blinded, multicentre, randomised controlled equivalence trial using an intention-to-treat analysis. Participants completed 8 weeks of either mHealth PR, using the mobile PR (m-PR) application and supported by telephone calls, or CB-PR. Co-primary outcomes, measured at baseline and end-intervention, were change in 6 minute walk distance (6MWD) and COPD assessment test (CAT) score, with an equivalence margin of 30 m and 2 points, respectively.

Results: 90 participants were randomised (mean (SD), m-PR n = 44: age 75 (7) years; forced expiratory volume in one second (FEV_1) 58 (15) % predicted; CB-PR n = 46:

age 75 (6) years; FEV_1 55 (14) % predicted) with 38 m-PR participants and 42 CB-PR participants completing at least one primary outcome. At end-intervention, there was no between-group difference in 6MWD (mean difference (MD) 13 m, 95% CI -6 to 31), indicating equivalence of m-PR to CB-PR. There was a significant between-group difference in CAT score (MD -4.9 points, 95% CI -7.2 to -2.6), with both limits of the CI exceeding the equivalence margin, indicating superiority of m-PR.

Conclusion: An mHealth PR programme resulted in equivalent improvements in exercise capacity and superior improvements in health status when compared with CB-PR in people with COPD. mHealth PR could be effective as a management option for people with COPD with adequate digital literacy.

Trial registration number: ACTRN12619001253190.

Keywords: COPD Exacerbations; Emphysema; Exercise; Pulmonary Rehabilitation.

Conflict of interest statement

Competing interests: ZJM is the managing director of the Better Breathing Foundation, which has contributed PhD scholarship funding to SEB. All other authors declare that they have no competing interests.

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J Infect Dis

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. 2026 Jan 17;233(1):153-163.

doi: 10.1093/infdis/jiaf381.

Human Metapneumovirus-, Respiratory Syncytial Virus-, and Influenza-Associated Pneumonia Hospitalizations in Colorado Adults Aged ≥50 Years, 2016-2023

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Affiliations Expand

- PMID: 40690544

- DOI: 10.1093/infdis/jiaf381

Abstract

Background: The study objectives were to identify the frequency and risk factors for intensive care unit (ICU) admission and mortality associated with respiratory syncytial virus (RSV), influenza, and human metapneumovirus (HMPV) pneumonia hospitalizations and to compare these rates with patients admitted with other acute respiratory infections (ARIs) caused by these viruses.

Methods: This study identified hospitalization encounters of adults aged 50-88 years with RSV, influenza, and HMPV pneumonia between 2016 and 2023 in the Colorado Hospital Association database. Multivariate logistic regression was used to estimate the odds of ICU admission and mortality.

Results: Of 2210 hospitalized patients with RSV pneumonia, 780 (35%) were admitted to ICU and 205 (9.3%) died. Similar proportions were observed for HMPV pneumonia (27.5% and 5.9%) and influenza pneumonia (32.5% and 7.6%) ICU admissions and mortality, respectively. Dementia had the highest odds for ICU admission in patients with RSV pneumonia (adjusted odds ratio [aOR], 4.2 [95% confidence interval {CI}, 1.34-13.18]); chronic pulmonary disease (CPD) for influenza pneumonia (aOR, 2.99 [95% CI, 2.45-3.66]), and chronic obstructive pulmonary disease (COPD) without asthma for HMPV pneumonia (aOR, 5.04 [95% CI, 2.92-8.7]). Increasing age was associated with increased mortality for RSV and influenza. CPD and COPD had >2-fold greater odds of mortality in patients with pneumonia for all 3 viruses. Increasing numbers of comorbidities significantly increased ICU admission and mortality in all 3 groups.

Conclusions: Pneumonia is a severe manifestation of ARI with RSV, influenza, and HMPV, with differing risk factors for ICU admission and mortality.

Keywords: acute lower respiratory infection; epidemiology; human metapneumovirus; public health; respiratory syncytial virus.

Conflict of interest statement

Potential conflicts of interest. E. A. F. S. reports grants to the institution from AstraZeneca and Icosavax, Enanta Pharmaceuticals, Merck & Co, and Pfizer; advisory board participation for AbbVie, the Gates Foundation, GlaxoSmithKline, and Moderna; support and/or payment for travel, meetings, and presentation from AstraZeneca and Pfizer; and consulting fees paid to the institution from Adagio Therapeutics, Cidara Therapeutics, Enanta, GlaxoSmithKline, Icosavax, Merck, Nuance Pharmaceuticals, Pfizer, Sanofi Pasteur, and Shionogi. D. V. R. reports support for attending meetings and/or travel to the Research Society for Study on Diabetes in India conference at Jaipur; and consulting fees from Ardent Clinical Research India, Indus Biotech Ltd India, IZIEL Ltd India, and MAHAN Trust India. R. J. S. reports no potential conflicts. All authors have submitted the ICMJE Form for

Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

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

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J Pain Symptom Manage

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. 2026 Jan 17:S0885-3924(26)00007-2.

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Process and Cost Evaluation of a Successful Palliative Telecare Team Intervention in Heart and Lung Disease

Lyndsay DeGroot [1], Amanda Glickman [2], Kevin Wells [3], Jennifer D Portz [4], Debra P Ritzwoller [5], Evan Carey [6], Brianne Morgan [3], Michelle L Upham [7], Kelly Blanchard [3], David B Bekelman [6]

Affiliations Expand

- **PMID: 41554347**

- **DOI: 10.1016/j.jpainsymman.2026.01.005**

Abstract

Context: In a multi-site randomized clinical trial, a nurse and social worker telecare team intervention (ADAPT) improved quality of life, disease-specific health status, depression, and anxiety among high-risk patients with chronic obstructive pulmonary disease (COPD), heart failure (HF), or interstitial lung disease (ILD).

Objectives: Examine the content, processes, and cost of delivering the ADAPT intervention.

Methods: Analysis of prospectively collected data from the ADAPT randomized clinical trial, including intervention session frequency/duration, team recommendations, and per-patient cost to deliver the intervention using time-driven activity-based costing.

Results: Mean length of the intervention was 115.1 (SD 33.4) days. Participants (n=153) averaged 10.0 (SD 3.3) sessions with the nurse and 9.5 (SD 3.4) sessions with the social worker; 80.4% completed all required social work sessions and all

required nurse sessions. The team discussed each participant an average of 3.7 (SD 1.8) times and made 7 (SD 3.8) recommendations per participant. Common recommendations included referrals/consults (79.7%, e.g., mental health, sleep, PT/OT, other specialists), medication additions (58.1%) or changes (31.8%), and tests (33.1%) The mean cost to implement and deliver the intervention per patient was $1,139.68 (SD $368.15).

Conclusion: In a successful nurse and social work telecare team intervention, there was high participation in nurse and social worker sessions, individualized medical and behavioral interventions, and connecting of participants to existing medical and community resources. The intervention produced clinically meaningful changes in multiple quality of life outcomes for a relatively low cost.

Keywords: Quality of life; chronic obstructive pulmonary disease; heart failure; interstitial lung disease; multimorbidity; older adults; palliative care.

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Clin Res Cardiol

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Prevalence and prognosis of multimorbidity in heart failure with mildly reduced ejection fraction

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Affiliations Expand

- **PMID: 41553476**

- **DOI: 10.1007/s00392-025-02840-z**

Abstract

Background and objective: Related to ongoing demographic, the number of patients with cardiac and non-cardiac comorbidities increases. Heart failure with mildly reduced ejection fraction (HFmrEF) represents a heterogeneous population with diverse clinical profiles. The study investigates the prevalence and prognostic impact of multimorbidity in patients hospitalized with HFmrEF.

Methods: Consecutive patients with HFmrEF were retrospectively included at one institution from 2016 to 2022 and divided into four groups based on the number of concomitant comorbidities taking into account 12 comorbidities (i.e., 0-1, 2-3, 4-5, ≥ 6 comorbidities). The prognostic impact of the number of comorbidities was investigated with regard to the primary endpoint all-cause mortality at 30 months.

Results: From 2,184 patients hospitalized with HFmrEF, 37% presented with 4-5 comorbidities, 17% with ≥ 6 comorbidities. Compared to patients with 4-5, 2-3, 0-1 comorbidities, patients with ≥ 6 comorbidities were more frequently discharged with beta-blockers (83.6% vs. 78.7% vs. 77.6% vs. 64.7%; p = 0.001) and mineralocorticoid receptor antagonists (MRA) (17.2% vs. 15.7% vs. 12.8% vs. 7.9%; p = 0.004). The risk of all-cause mortality at 30 months was higher in patients with ≥ 6 comorbidities compared to patients with less comorbidities (i.e., 4-5, 2-3, 0-1) (59.5% vs. 38.6% vs. 17.0% vs. 7.9%, p = 0.001). Both cardiovascular (HR = 1.106; 95% CI 1.030 - 1.188; p = 0.006) and non-cardiovascular (HR = 1.564; 95% CI 1.470 - 1.664; p = 0.001) comorbidities predicted the risk of long-term all-cause mortality.

Conclusion: In patients hospitalized with HFmrEF, more than 50% had at least 4 comorbidities. Both cardiovascular and non-cardiovascular comorbidities predicted the risk of long-term all-cause mortality in HFmrEF.

Keywords: Comorbidities; HFmrEF; Heart failure with mildly reduced ejection fraction; Mortality; Multimorbidity.

Conflict of interest statement

Declarations. Conflict of interests: No conflict of interest for all authors.

- 49 references

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Med Clin (Barc)

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. 2026 Jan 17;166(2):107314.

doi: 10.1016/j.medcli.2025.107314. Online ahead of print.

Prognostic value of the PROFUND index in patients with chronic obstructive pulmonary disease after exacerbation

[Article in English, Spanish]

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Affiliations Expand

- PMID: 41548331

- DOI: 10.1016/j.medcli.2025.107314

Abstract

Objective: To evaluate the prognostic value of the PROFUND index for predicting all-cause mortality during hospitalization or within three months after discharge in patients hospitalized due to COPD exacerbation, as well as predicting readmissions within three months.

Method: An observational, retrospective, single-center study that included all patients hospitalized between January and December 2022 due to COPD exacerbation.

Results: The analysis included 172 patients. Half of the patients (50.6%) were multimorbid. These patients were older, had greater baseline dyspnea, a higher degree of obstruction, greater dependency for basic daily living activities, a higher PROFUND index, and were at higher risk of readmission within three months and in-hospital mortality (P<.05). There was a 35.98% readmission rate within three months, mostly due to a new COPD exacerbation (86%), an in-hospital mortality rate of 3.4%, and a three-month mortality rate of 5.2%. A high PROFUND index (≥7) was significantly associated with increased mortality during hospitalization or within the first 3 months after discharge (OR: 33; 95% CI: 3.9-273.4; P=.001) and a higher risk of hospital readmission for any cause (OR: 4.91; 95% CI: 1.99-12.13; P=.0003). The variables most influencing mortality were severe dyspnea, anemia, confusional syndrome, and functional impairment (Barthel index <60).

Conclusion: The PROFUND index could be a good predictor of mortality and readmission risk in patients hospitalized due to a COPD exacerbation.

Keywords: Chronic obstructive pulmonary disease (COPD); Enfermedad pulmonar obstructiva crónica (EPOC); Mortalidad; Mortality; Multimorbidity; PROFUND Index; Pluripatología; Prognosis; Pronóstico; Readmission; Reingreso; Índice PROFUND.

Cite

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BMJ Open

. 2026 Jan 16;16(1):e109950.

doi: 10.1136/bmjopen-2025-109950.

Mitigating chronic respiratory disease through the lens of multimorbidity: the MARES mixed-methods study protocol

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Affiliations Expand

- PMID: 41545050
- PMCID: PMC12815162
- DOI: 10.1136/bmjopen-2025-109950

Abstract

Introduction: Chronic respiratory diseases (CRDs), such as asthma and chronic obstructive pulmonary disease (COPD), are among the leading non-communicable diseases (NCDs) worldwide. However, diagnosing CRDs in low-income and middle-income countries (LMICs) remains challenging due to limited access to spirometry and trained professionals. Aggravating the burden, CRDs often coexist with other NCDs, increasing healthcare costs, reducing quality of life and elevating mortality. These challenges highlight the need for simple case-finding approaches for CRDs, such as the COPD in Low-Income and Middle-Income Countries Assessment (COLA-6) questionnaire, to support prompt identification and appropriate care within NCD services in LMICs.

Objective: To evaluate the discriminative accuracy, feasibility and implementation of the COLA-6 questionnaire in identifying and managing CRDs in Brazilian Primary Healthcare (PHC) services for NCDs.

Methods and analysis: The Multimorbidity Approach for REspiratory Solutions (MARES) study consists of three work packages to be conducted in PHC services in São Carlos/SP and São Paulo/SP, Brazil.MARES-1: A cross-sectional observational study enrolling 859 individuals with at least one NCD receiving care in PHC. The COLA-6 questionnaire will be administered by the research team and compared with quality-assured spirometry. The Chronic Airways Assessment Test (CAAT), Asthma Control Questionnaire (ACQ-7) and fractional exhaled nitric oxide (FeNO) will also be assessed. The diagnostic performance of COLA-6 for identifying CRDs-including COPD, asthma, preserved ratio impaired spirometry, restriction and overlaps-will be assessed using area under receiver operating characteristic curves and 95% CIs.MARES-2: A cross-sectional observational study enrolling 20 healthcare professionals (physicians, physiotherapists, community health agents and nurses) from five PHC services. These professionals will apply the COLA-6 during routine NCD care to a total sample of 1000 patients. Qualitative interviews will be conducted to explore barriers and facilitators to the implementation of COLA-6, using deductive thematic analysis.MARES-3: A longitudinal, prospective observational study in which patients from MARES-1 and MARES-2 will be reassessed at 6-month follow-up. A total sample of 473 participants with abnormal spirometry, a diagnosis of CRD or high risk for CRDs is expected. Participants will undergo spirometry, and a subset will be interviewed to explore their healthcare experiences through qualitative thematic analysis. Access to diagnostic and treatment services in Brazil will be assessed. Changes in spirometry values, FeNO, CAAT and ACQ-7 scores from baseline to 6 months in patients from MARES-1 will be analysed.

Ethics and dissemination: This study has been approved by the Ethics Committees of Federal University of São Carlos and University of Santo Amaro (UNISA). Ethical approval was also granted by the University College London. Results will be disseminated through peer-reviewed medical journals and presentations at international conferences. Results will improve identification of CRDs, addressing a significant gap in current PHC settings.

Trial registration number: NCT07050823/NCT07093021/NCT07134855.

Keywords: Multimorbidity; Primary Health Care; Pulmonary Disease, Chronic Obstructive.

Conflict of interest statement

Competing interests: None declared.

- **48 references**
- **2 figures**

Supplementary info

MeSH terms, Associated dataExpand

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J Clin Endocrinol Metab

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. 2026 Jan 21;111(2):e390-e397.

doi: 10.1210/clinem/dgaf425.

Thyroid Function and All-cause Mortality in the Context of Multimorbidity: Results From 2 Population-based Studies

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- PMID: 40709437
- PMCID: PMC12819875
- DOI: 10.1210/clinem/dgaf425

Abstract

Background: Thyroid dysfunction is common in aging populations and associated with increased noncommunicable disease risk. Complex disease interactions in multimorbidity may influence this association. We aimed to examine the association between thyroid function and all-cause mortality in the context of multimorbidity.

Methods: We included participants with thyroid function measurements and recorded disease status from the PREVEND and the Rotterdam studies and categorized them into 3 groups (no disease, 1 disease, and multimorbidity). We used Cox proportional hazards models for the associations between thyroid function and all-cause mortality. Hazard ratios (HRs) were expressed per 1-unit increment in thyroid function Z-scores.

Results: A total of 5537 participants (mean age, 53.0 years) from PREVEND and 9080 participants (mean age, 64.9 years) from the Rotterdam Study were included. Higher free T4 concentrations were associated with a higher all-cause mortality risk in the

Rotterdam Study, with HRs per 1-unit increase in a Z-score of 1.07 (1.03-1.12), 1.09 (1.04-1.15), 1.21 (1.11-1.31) for individuals with no disease, 1 disease, and multimorbidity, respectively (P for trend <.001), whereas a similar but nonsignificant trend was observed in PREVEND. We show a lower mortality risk for higher free T3 concentrations among individuals with 1 disease (HR per 1-unit increase in Z-score: 0.82, 0.70-0.97) and multimorbidity (HR, 0.80; 0.61-1.05) (P for trend = .002).

Conclusion: We show an association between higher free T4 and mortality for individuals with multimorbidity, whereas lower free T3 was associated with poor survival in individuals with multimorbidity. Our results extend findings from patient populations to people with multimorbidity from the general population. Future research is needed to investigate whether these findings extend to levothyroxine users.

Keywords: free thyroxine; free triiodothyronine; mortality; multimorbidity; thyroid function.

- 35 references
- 1 figure

Supplementary info

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

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Editorial

Expert Opin Pharmacother

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Corticosteroids in acute asthma care in children: what, why, and when

Jose A Castro-Rodriguez [1]

Affiliations Expand

- PMID: 41577434

- DOI: 10.1080/14656566.2026.2622484

No abstract available

Keywords: acute asthma exacerbation; children; inhaled corticosteroids; oral corticosteroids; systemic corticosteroids.

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Ann Emerg Med

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. 2026 Jan 22:S0196-0644(25)01451-9.

doi: 10.1016/j.annemergmed.2025.12.010. Online ahead of print.

Dexamethasone Treatment Regimen and Clinical Outcomes in Children With Asthma Exacerbations

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Affiliations Expand

- PMID: 41575401

- DOI: 10.1016/j.annemergmed.2025.12.010

Abstract

Study objectives: To detail variation in the number of doses of dexamethasone used to treat children with asthma exacerbations discharged from the emergency department (ED) and to assess whether treatment with 1 dose versus 2 doses was associated with different clinical outcomes. We hypothesized that clinical outcomes would not differ between groups.

Methods: We conducted a retrospective cohort study of children aged 2 to 20 years discharged from either of 2 EDs after treatment with dexamethasone for an asthma

exacerbation. The primary outcome was an ED revisit, and the secondary outcome was a hospitalization, each measured within 14 days. The primary exposure was prescription of a second dose of dexamethasone at discharge. Propensity score adjustment with inverse probability of treatment weighting was used to mitigate confounding.

Results: Among 2,063 children included, 1,277 (61.9%) were prescribed a second dose of dexamethasone. In the propensity score-weighted cohort, the risk of an ED revisit was 5.2% for children who received 1 dose and 5.7% for children who received 2 doses (risk difference, 0.45%, 95% confidence interval [CI]: -1.4% to 2.3%). The risk of hospitalization was 0.85% in the 1-dose group and 0.83% in the 2-dose group (risk difference 0.02%, 95% CI: -0.93% to 0.89%).

Conclusion: Nearly two-thirds of children with asthma exacerbations were treated with 2 doses of dexamethasone rather than a single dose, even though treatment with 2 doses was not associated with improved outcomes. These results suggest that 1 dose of dexamethasone may be sufficient to treat many children with asthma exacerbations discharged from the ED.

Keywords: Asthma; Dexamethasone; Evidence-based medicine; Optimal dosing.

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BMJ Public Health

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. 2026 Jan 19;4(1):e002032.

doi: 10.1136/bmjph-2024-002032. eCollection 2026.

Exploring syndemic vulnerability among adolescents living in urban cities in the Netherlands: a latent class analysis

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- **PMID: 41573088**

- PMCID: PMC12820875

- DOI: 10.1136/bmjph-2024-002032

Abstract

Background: The increase of adolescent multimorbidity in welfare states is a major concern for current and future population health. However, current health interventions remain insufficient. Syndemic research among adolescents in high-income countries could improve understanding of mechanisms contributing to social and health inequalities.This study explores the existence of clustered health conditions among adolescents aged 10-19 registered at general practices in two average Dutch cities: The Hague and Leiden. We examine which social and contextual factors are associated with these clustered health conditions and to what extent these clusters relate to healthcare use and costs.

Methods: This cross-sectional study used general practitioner registration data on diagnoses from the Extramural Leiden University Medical Centrum Academic Network database to explore multimorbidity based on the 2-year prevalence of 20 health conditions among adolescents (n=10 841). Latent class analysis was applied to distinguish multimorbidity classes. Statistics Netherlands provided information on factors at the individual (eg, country of origin), family (eg, divorced parents) and household (eg, income) levels. Multinomial logistic regression analysis was applied to identify multimorbidity class differences in these social contextual factors, healthcare use and costs.

Results: In 2018 and 2019, 25.7% (n=2781) of adolescents had at least two health conditions. We identified four classes characterised by a high probability of health conditions: 'asthma-skin conditions' (n=442), 'skin conditions-pain' (n=794), 'externalising behavioural disorders and skin conditions' (n=565) and 'gastrointestinal conditions, internalising disorders and pain' (n=980). Adolescents in classes characterised by externalising or internalising conditions combined with physical and somatic health conditions were most often linked to several more prominent adverse social contextual factors, such as early school dropout. Increased healthcare use and costs across all classes indicated a higher disease burden for adolescents with clustered health conditions compared with those with one or no health conditions.

Conclusions: Disease clusters are prevalent in adolescents living in Dutch cities, driven by social contextual factors at the individual, household and parental levels, and show increased healthcare use and costs. Our results support the need for integrated preventative strategies focusing on multi-level aspects.

Keywords: Adolescent; Comorbidity; Cross-Sectional Studies; Public Health; Syndemic.

Conflict of interest statement

None declared.

- 68 references

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Pulm Pharmacol Ther

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. 2026 Jan 19:92:102409.

doi: 10.1016/j.pupt.2026.102409. Online ahead of print.

Echocardiographic effects of dupilumab in patients with severe type 2 asthma

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Affiliations Expand

- PMID: 41564969

- DOI: 10.1016/j.pupt.2026.102409

Abstract

Background: Severe asthma is characterized by impaired lung function and elevated cardiovascular risk. Type 2 inflammation, primarily mediated by IL-4 and IL-13, contributes to both airway and cardiac remodeling. Dupilumab, an IL-4Rα antagonist, has shown efficacy in improving respiratory outcomes; however, its impact on cardiac function remains insufficiently studied.

Objective: To assess the 12-month effects of dupilumab on echocardiographic parameters and evaluate its potential association with clinical remission in patients with severe type 2 asthma.

Methods: This single-centre observational study enrolled 24 patients with severe type 2 asthma receiving dupilumab. Echocardiographic assessments and lung function tests were conducted at baseline and after 12 months. Clinical remission

was defined by meeting all of the following: zero exacerbations, zero OCS use, ACT score ≥20, and pre-bronchodilator FEV_1 ≥ 80 % predicted.

Results: Twelve-month dupilumab therapy led to significant improvements in both cardiac and respiratory parameters. LV-GLS improved from -17.00 % to -19.00 % and RV-GLS from -17.33 % to -19.11 % (both $p < 0.0001$). TAPSE and TAPSE/S-PAP ratio also increased significantly ($p < 0.0001$). Lung function showed notable gains in FEV_1 and FEF25-75, alongside reductions in residual volume and airway resistance. Clinical remission was achieved by 45.83 % of patients. Baseline LV-GLS emerged as a strong predictor of remission (AUC = 0.832), unlike RV-GLS (AUC = 0.545).

Conclusions: Dupilumab markedly improved cardiac and pulmonary function and may promote clinical remission. Baseline LV-GLS may serve as a predictive marker, supporting cardiovascular assessment in asthma management.

Keywords: Clinical remission; Dupilumab; Echocardiography; Global longitudinal strain; Severe asthma.

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:C Pelaia has received lecture fees and advisory board fees from AstraZeneca, GlaxoSmithKline, and Sanofi-Regeneron. A Vatrella has received honoraria for speaking, advisory committees, or research grants from AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Guidotti, Lusofarmaco, Menarini, Novartis, Sanofi-Regeneron. G Pelaia has received lecture fees and advisory board fees from AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Guidotti, Insmed, Lusofarmaco, Menarini, Neopharmed Gentili, Novartis, Sanofi-Regeneron, Zambon. The authors have no other relevant affiliations or financial involvements with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript apart from those disclosed.

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ERJ Open Res

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. 2026 Jan 19;12(1):00565-2025.

doi: 10.1183/23120541.00565-2025. eCollection 2026 Jan.

Real-world effectiveness of biologic therapies in severe asthma patients ineligible for phase 3 randomised controlled trials of biologics: an analysis from the UK Severe Asthma Registry

Paul E Pfeffer [1 2], Jola Karaj [1], Thomas Brown [3], Hassan Burhan [4], Rekha Chaudhuri [5], Kathryn Prior [6], Salman Siddiqui [7], Liam Heaney [8], David J Jackson [9 10], Mitesh Patel [11], Pujan H Patel [12 13], Hitasha Rupani [14], John Busby [15]

Affiliations Expand

- PMID: 41561108

- PMCID: PMC12813675

- DOI: 10.1183/23120541.00565-2025

Abstract

Background: Most patients in real-world severe asthma populations would not be eligible for biologic randomised controlled trials (RCTs), although observational evidence has confirmed the effectiveness of biologics in real-world populations. We therefore investigated whether satisfying specific RCT inclusion/exclusion criteria affects biologic response in the real world.

Methods: Inclusion and exclusion criteria from 11 pivotal phase 3 asthma biologics RCTs were reviewed to identify criteria themes, and median stringency within each characterised. Patients within the UK Severe Asthma Registry (UKSAR) with at least one year of follow-up on biologics were assessed as to whether they would satisfy inclusion/exclusion for each theme. Regression models were undertaken to assess whether the proportion of patients achieving a composite biologic response, defined as a ≥50% reduction in exacerbations or maintenance oral corticosteroids, was noninferior in patients ineligible by each theme. Superiority analyses and domain-specific responses were also analysed.

Results: 1421 adult patients with severe asthma from 13 specialist centres were included in this analysis. Noninferiority of composite response was demonstrated for all eligibility criteria except medication adherence. In superiority analyses, patients ineligible by adherence theme had a significantly lower odds ratio (OR) for composite response of 0.37 (95% CI 0.20-0.68), whilst patients ineligible by (low) baseline asthma symptom score had a significantly higher OR for response of 2.09 (1.31-3.32).

Conclusions: Ineligibility by typical RCT inclusion/exclusion themes was generally not associated with inferior biologic composite response. Asthma biologics are effective in a broad range of patients, many of whom would not have met clinical trial eligibility criteria.

Conflict of interest statement

Conflict of interest: P.E. Pfeffer has attended advisory boards for AstraZeneca (AZ), GlaxoSmithKline (GSK) and Sanofi; has given lectures at meetings/webinars, with/without honoraria, supported by AZ, Chiesi and GSK; has attended international conferences with AZ; has taken part in clinical trials sponsored by AZ, GSK, Novartis, Regeneron and Sanofi; and is conducting research funded by GSK for which his institution receives remuneration and quality improvement activity at his institution supported by AZ. J. Karaj has no conflicts of interest to declare. T. Brown has received speaker fees from GSK, AZ, Teva, Chiesi and Sanofi; honoraria for advisory board meetings from AZ, Sanofi and Teva; sponsorship to attend international scientific meetings from Chiesi, Teva, Novartis and Sanofi; and fees as an external expert for the AZ Pathway Programme. H. Burhan has attended advisory boards for AZ, GSK and Sanofi; and has received speaking fees and support to attend conferences with support from AZ, Chiesi and GSK and Sanofi. R. Chaudhuri has received lecture fees from GSK, AZ, Teva, Chiesi, Sanofi and Novartis; honoraria for advisory board meetings from GSK, AZ and Celltrion; sponsorship to attend international scientific meetings from Chiesi, Sanofi and GSK; and a research grant to her institute from AZ for a UK multicentre study. K. Prior has received lecture fees and support to attend conferences from AZ and Chiesi. S. Siddiqui has received fees for advisory services/speaker fees from AZ, Chiesi, GSK, Areteia Therapeutics, CSL Behring and Medscape. L. Heaney has received grant funding, participated in advisory boards and given lectures at meetings supported by Amgen, AZ, Boehringer Ingelheim, Chiesi, Circassia, Hoffmann la Roche, GSK, Novartis, Theravance, Evelo Biosciences, Sanofi and Teva; has received grants from MedImmune, Novartis UK, Roche/Genentech Inc., GSK, Amgen, Genentech/Hoffman la Roche, AZ, MedImmune, Aerocrine and Vitalograph; has received sponsorship for attending international scientific meetings from AZ, Boehringer Ingelheim, Chiesi, GSK and Napp Pharmaceuticals; has also taken part in asthma clinical trials sponsored by AZ, Boehringer Ingelheim, Hoffmann la Roche and GSK for which his institution received remuneration; and is the Academic Lead for the Medical Research Council Stratified Medicine UK Consortium in Severe Asthma, which involves industrial partnerships with a number of pharmaceutical companies including Amgen, AZ, Boehringer Ingelheim, GSK, Hoffmann la Roche and Janssen. D.J. Jackson has received advisory board fees and speaker fees from AZ, GSK, Sanofi Regeneron, Chiesi, Teva and Boehringer Ingelheim, and research grants from AZ and GSK. M. Patel has no conflicts of interest to declare. P.H. Patel has attended advisory boards for AZ, Celltrion Healthcare, GSK and Sanofi; has given lectures at meetings/webinars, with/without honoraria, supported by AZ, GSK, Novartis and Sanofi; has attended international conferences with AZ and Chiesi; and has taken part in clinical trials sponsored by AZ, GSK, Regeneron and Sanofi. H. Rupani is an Associate Editor for this journal; and reports speaker fees from GSK, AZ, Chiesi, Sanofi and Boehringer Ingelheim, conference support from AZ, grant funding to her institution from AZ and GSK, and participation on advisory boards for AZ and GSK. J. Busby has received research funding from AZ, paid to his institution.

- **46 references**
- **2 figures**

Full text links

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ERJ Open Res

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doi: 10.1183/23120541.00949-2025. eCollection 2026 Jan.

Cost-effectiveness of as-needed budesonide-formoterol in adults with mild asthma: the Novel START trial

William Leung [1 2 3], Helen K Reddel [4 5 6], Tiffany Hung [7], Mark Weatherall [1], Ilka Pelzer [8], Mark Holliday [3], Trudy Sullivan [9], Tim Harrison [10 11], Ian D Pavord [12], Michael G Baker [1], Stefan Ebmeier [3 13], Alberto Papi [14], Richard Beasley [3 15], Robert J Hancox [9 16]

Affiliations Expand

- PMID: 41561098
- PMCID: PMC12813674
- DOI: 10.1183/23120541.00949-2025

Abstract

Background: The Global Initiative for Asthma recommends as-needed combination inhaled corticosteroid-formoterol reliever for mild asthma. Its cost-effectiveness is uncertain outside double-blind regulatory trials. The study objectives were to assess the cost-effectiveness of as-needed budesonide-formoterol *versus* maintenance budesonide plus as-needed salbutamol, and *versus* as-needed salbutamol, in averting exacerbations in adults with mild asthma during 12-month follow-up of the New Zealand participants (n=551) of the open-label Novel START multicountry clinical trial.

Methods: New Zealand health-system and societal perspectives were adopted using 2025 resource costs. Healthcare utilisation comprised electronically monitored inhaler use (with multiple imputation for missing data), asthma-related pharmaceuticals, primary-care visits, emergency-department visits and

hospitalisations. Regression methods were used for cost-effectiveness analysis. Scenarios included generic substitution and prescription-charge exemption.

Results: As-needed budesonide-formoterol, compared with maintenance budesonide plus as-needed salbutamol, is more effective at reducing severe exacerbations and provides an annual health-system cost saving of NZD 12 (95% CI 0-28) per patient, increasing to NZD 22 (95% CI -15-58) if a societal perspective is adopted. Compared with as-needed salbutamol alone, as-needed budesonide-formoterol costs the health system NZD 38 and NZD 111, respectively, to prevent an exacerbation and a severe exacerbation. From a societal perspective it is cost-saving NZD 70 (95% CI 2-134). Findings were robust to scenario analyses.

Conclusion: For patients with mild asthma, as-needed budesonide-formoterol 200/6 µg is cost-saving from health-system, patient and societal perspectives, while improving outcomes, dominating maintenance budesonide plus as-needed salbutamol. Compared with as-needed salbutamol, as-needed budesonide-formoterol is cost-effective from a health-system perspective and dominates from a societal perspective.

Conflict of interest statement

Conflict of interest: A. Papi has received research funding from Chiesi, AstraZeneca, GlaxoSmithKline, Sanofi and Agenzia Italiana del Farmaco (AIFA), and personal fees from Chiesi, AstraZeneca, GlaxoSmithKline, Menarini, Novartis, Zambon, Mundipharma, Sanofi, Edmond Pharma, Iqvia, Avillion and Elpen Pharmaceuticals, all outside the submitted work. H.K. Reddel has received research funding from AstraZeneca, GlaxoSmithKline, Sanofi and Perpetual Philanthropy, and personal fees from Alkem, AstraZeneca, Boehringer Ingelheim, Chiesi, Cipla, Getz, GlaxoSmithKline, Novartis and Teva all outside the submitted work. I.D. Pavord has received research funding from Chiesi, and personal fees from Chiesi, Aerocrine, Almirall, AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline, Menarini, Merck, Novartis, Sanofi/Regeneron and Teva, all outside the submitted work. R. Beasley has received institutional research funding from Genentech, AstraZeneca, Teva, Health Research Council New Zealand, Perpetual Guardian (Barbara Basham Medical Charitable Trust) and CureKids (NZ), and personal fees from AstraZeneca, Cipla, Avillion and Teva, all outside the submitted work. T. Harrison has received research funding from AstraZeneca, and personal fees from AstraZeneca, all outside the submitted work; and is an employee and shareholder of AstraZeneca. R.J. Hancox has received research funding and personal fees from AstraZeneca and GlaxoSmithKline. W. Leung, T. Hung, M. Weatherall, I. Pelzer, T. Sullivan, M. Holliday, S. Ebmeier and M.G. Baker have no conflicts of interest.

- 29 references
- 4 figures

Full text links

Cite

7

Review

Respir Res

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. 2026 Jan 21.

doi: 10.1186/s12931-026-03501-z. Online ahead of print.

Effectiveness of biologics for reducing occlusive mucus plugs in patients with severe asthma: a systematic review

Helena Aegerter [1,2], Christopher E Brightling [3], Eleanor M Dunican [4], Bart N Lambrecht [1], Njira L Lugogo [5], John D Newell Jr [6], Celeste Porsbjerg [7], Sarah Svenningsen [8,9], Deborah Clarke [10], Andrew W Lindsley [11], Lars Nordenmark [12], Christopher S Ambrose [13], Mario Castro [14]

Affiliations Expand

- PMID: 41559746

- DOI: 10.1186/s12931-026-03501-z

Free article

Abstract

Asthma is a heterogeneous disease characterized by chronic airway inflammation and reversible airflow obstruction. Particularly in severe asthma, airway mucus plugs can contribute to substantial and persistent airflow obstruction, despite inhaled corticosteroid and bronchodilator treatment. Consequently, it is important that clinicians assess and treat mucus plugs. Increased mucus production and airway eosinophilia caused by type 2 (T2) inflammation contributes to mucus plug formation and persistence. Several biologics are available to target T2 inflammation in asthma and studies have described their effects on airway mucus plugs using mucus plug scoring derived from computed tomography scans. However, the outcomes, designs and populations of the various studies have not been comprehensively summarized. A literature search was performed to identify primary publications examining the effects of biologics on mucus plugs in patients with moderate-to-severe asthma, organizing studies by design and study population. Three placebo-controlled randomized controlled trials (RCTs) were identified; one RCT of tezepelumab in patients across baseline blood eosinophil counts (BECs) and fractional exhaled nitric oxide (FeNO) levels and two RCTs of dupilumab in

those with elevated BECs or sputum eosinophils and/or elevated FeNO levels. Across these RCTs, biologic treatment decreased mucus plug scores compared with placebo. In the tezepelumab RCT, greater effects were observed in patients with T2-high asthma, highlighting the association between mucus plugging and T2 inflammation. Among T2-high populations, effects were of a similar magnitude across biologics studied. Other biologics (benralizumab, mepolizumab, omalizumab and reslizumab) were evaluated in observational studies without a placebo control, demonstrating reductions in mucus plug scores after treatment. In several studies, decreases in mucus plugs with biologic treatment were associated with improvements in functional outcomes, including pre-bronchodilator forced expiratory volume in 1 second (pre-BD FEV_1), air trapping, ventilation defects assessed by magnetic resonance imaging, asthma control and health-related quality of life. All studies showed residual plugs after biologic intervention, demonstrating a need for further understanding of how best to quantify and characterize mucus plugs to predict their response to treatment and develop optimal, individualised treatment strategies. This review highlights the relevance of assessing and targeting mucus plugs in clinical practice to help optimise patient outcomes.

Keywords: Benralizumab; Biologics; Dupilumab; Mepolizumab; Mucus plugs; Omalizumab; Severe asthma; Tezepelumab.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: Not applicable. Ethics approval is not applicable as this article did not involve human or non-human animal participants. Consent for publication: Not applicable. Competing interests: This study was funded by AstraZeneca and Amgen Inc. HA is supported by a grant from the Research Foundation Flanders (FWO) and has received speaker fees from AstraZeneca and GSK. CEB has received grants and consultancy fees from 4D Pharma, Areteia Therapeutics, AstraZeneca, Chiesi, Genentech, Global Access Diagnostics (formerly Mologic), GSK, Novartis, Regeneron Pharmaceuticals, Roche and Sanofi. MC has received grants/research support from the American Lung Association, AstraZeneca, Gala Therapeutics, Genentech, GSK, National Institutes of Health (NIH), Novartis, Patient-Centered Outcomes Research Institute, PULMATRiX, Sanofi-Aventis, Shionogi and Theravance Biopharma; has received consultancy fees from Allakos, Amgen, Arrowhead Pharmaceuticals, AstraZeneca, Genentech, Merck, Novartis, OM Pharma, Pioneering Medicines, Regeneron Pharmaceuticals, Sanofi and Teva Pharmaceuticals; and has received royalties from Aer Therapeutics. EMD has nothing to disclose. BNL is supported by grants from the European Research Council, Flanders Institute of Biotechnology (VIB), Ghent University and Research Foundation Flanders (FWO). He has received consulting fees from Argenx, AstraZeneca, GSK and Sanofi. NLL has received consultancy fees from AbbVie, Amgen, Apogee, AstraZeneca, Avillion, Foresee, Genentech, GSK, Niox, Novartis, Regeneron, Sanofi and Teva; honoraria for non-speaker bureau presentations from GSK, Teva Pharmaceuticals, Sanofi/Regeneron and AstraZeneca; and travel support from AstraZeneca, Sanofi, Teva Pharmaceuticals, Regeneron and GSK; her institution has received research support from Amgen, AstraZeneca, Avillion, Bellus, Evidera, Gossamer Bio, Genentech, GSK, Janssen, Regeneron, Roche, Sanofi, Novartis and Teva Pharmaceuticals. She is an honorary faculty member of the Observational and Pragmatic Research Institute (OPRI) but

does not receive compensation for this role. JDN Jr. is a medical adviser for VIDA Diagnostics; has received consultancy fees from VIDA Diagnostics; is supported by grants from the National Institutes of Health (NIH) through the University of Iowa; and has received book royalties from Elsevier Publishing. CP has received grants and consultancy fees from ALK-Abelló, AstraZeneca, Chiesi, GSK, Novartis, Sanofi and Teva Pharmaceuticals. SS has received grants/research support from Cyclomedica, Genentech and Trudell Medical; and has received consulting and/or speaker fees from Cyclomedica, AstraZeneca, Novartis, GSK, Sanofi and Polarean Imaging. DC and CSA are employees of AstraZeneca and may own stock or stock options in AstraZeneca. AWL is an employee of Amgen and owns stock in Amgen. LN was an employee of AstraZeneca at the time of writing this review and may own stock or stock options in AstraZeneca. Clinical trial number: Not applicable.

- **54 references**

Supplementary info

Publication typesExpand

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Cite

8

Ann Allergy Asthma Immunol

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. 2026 Jan 18:S1081-1206(26)00023-2.

doi: 10.1016/j.anai.2026.01.006. Online ahead of print.

LABA Use in Asthmatics is Not Associated with an Increased Severity of OFC Reactions

Kyle Robillard [1], James L Crooks [2], Donald Leung [3], Jessica W Hui-Beckman [3], Bruce J Lanser [3]

Affiliations Expand

- **PMID: 41558625**

- **DOI: 10.1016/j.anai.2026.01.006**

No abstract available

Keywords: LABA; anaphylaxis; asthma; food allergy; long-acting beta agonist; oral food challenge; pediatric.

9

Review

Eur J Med Res

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. 2026 Jan 19;31(1):111.

doi: 10.1186/s40001-025-03782-y.

Effects of atorvastatin on inflammatory markers, lipid profile, liver enzymes, and pulmonary function in patients with lung diseases: a systematic review and meta-analysis of randomized controlled trials

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Affiliations Expand

- **PMID: 41555409**
- **PMCID: PMC12825185**
- **DOI: 10.1186/s40001-025-03782-y**

Abstract

Background: Pulmonary diseases are important causes of morbidity globally. Atorvastatin's pleiotropic effects, which include anti-inflammatory and lipid-lowering properties, may be beneficial for individuals with respiratory diseases. This meta-analysis evaluated the atorvastatin's effect on inflammatory biomarkers, lipid profile, liver enzymes, and pulmonary function in lung disease patients.

Methods: We systematically searched PubMed/MEDLINE, Scopus, Web of Science, Embase, CENTRAL, and Google Scholar for English-language RCTs until March 2025. The study evaluated inflammatory markers (CRP, IL-6, TNF-α), lipid profile (LDL, HDL, TC, TG), liver enzymes (ALT, AST), pulmonary function tests, and physical performance. Pooled weighted mean differences (WMDs) with 95% confidence intervals were calculated using random-effects models. Subgroup, heterogeneity, and publication bias analyses were conducted.

Results: Seventeen RCTs (22 datasets; n = 1,344) on asthma, COPD, COVID-19, pulmonary hypertension, and associated disorders were analyzed. Atorvastatin substantially decreased TNF-α (WMD: - 0.20 pg/mL; 95% CI - 0.28 to - 0.11), LDL cholesterol (WMD: - 21.48 mg/dL; 95% CI - 30.82 to - 12.14), and TC (WMD: - 15.24 mg/dL; 95% CI - 28.28 to - 2.20), while improving 6MWD (WMD: 0.71; 95% CI 0.24 to 1.17) and FEF25-75 in COPD subgroups. Evening peak expiratory flow (PEF) was considerably lower (WMD: - 8.72; 95% CI - 14.96 to - 2.47), indicating worsening in airway airflow throughout the evening. There were no significant overall effects for CRP, IL-6, triglycerides, HDL, FEV1, FVC, or oxygen saturation.

Conclusions: Atorvastatin demonstrates anti-inflammatory and lipid-lowering efficacy in pulmonary disease patients, with mild functional respiratory benefits and modest improvements in physical performance. Additional large-scale studies are needed to validate clinical benefits and effective treatment methods.

Keywords: Atorvastatin; Inflammatory biomarkers; Lipid profile; Meta-analysis; Pulmonary disease; Pulmonary function.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study protocol was reviewed and approved by the Nephrology and Urology Research Center, Clinical Sciences Institute, Baqiyatallah University of Medical Sciences, Tehran, the Islamic Republic of Iran, approval number [IR.BMSU.BAQ.REC.1404.002]. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

- 85 references
- 6 figures

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

BMJ Open Respir Res

. 2026 Jan 19;13(1):e003254.

doi: 10.1136/bmjresp-2025-003254.

Association of life's essential 8 with chronic respiratory disease mortality and lung health: a national cohort study

Yunling Wu [1], Yonghong Feng [2], Zirui Dai [3], Jun Li [4], Minghui Zhu [5], Huimin Chen [6], Chao Cao [7], Kunlong Xiong [7]

Affiliations Expand

- PMID: 41554626
- PMCID: PMC12820856
- DOI: 10.1136/bmjresp-2025-003254

Abstract

Background: This study aims to evaluate the association of Life's Essential 8 (LE8) with chronic lower respiratory disease (CLRD)-specific mortality and impaired lung health outcomes.

Methods: This population-based cohort study used data from the National Health and Nutrition Examination Survey (NHANES, 2007-2018), including adults aged 20-79 years (n=10 135), with lung function measurements available for a subset (n=3188). Multivariable Cox proportional hazards and restricted cubic spline models were employed to assess the associations between LE8 scores and CLRD-specific mortality. Logistic and linear regression models evaluated the associations between LE8 scores and lung health. All models were adjusted for sociodemographic variables (age, sex, race/ethnicity, education, income-to-poverty ratio), cardiovascular disease, respiratory disease and smoking history. Sensitivity analyses were conducted to assess the stability of the results. The primary outcome was CLRD-specific mortality, and the secondary outcome was lung health.

Results: Over a median follow-up of 7.83 years, 50 CLRD-specific deaths were recorded. Higher LE8 scores were associated with reduced risks of CLRD-specific mortality (adjusted HR (aHR), 0.56 (0.40-0.79)), with a linear dose-response relationship observed (P for non-linear=0.574). Furthermore, each 10-point increase in total LE8 score was associated with impaired lung health, including lower odds of asthma (adjusted OR (aOR), 0.88 (0.83-0.93)), chronic bronchitis (aOR, 0.81 (0.74-0.88)), emphysema (aOR, 0.59 (0.52-0.65)), chronic obstructive pulmonary disease (aOR, 0.63 (0.45-0.89)) and lower relative risk of a restrictive spirometry pattern

(adjusted relative risk ratio (aRRR), 0.66 (0.56-0.79)). Positive correlations were observed between total LE8 scores and lung function (p<0.001). The findings were robust in sensitivity analyses and consistent across key subgroups.

Conclusions: Higher LE8 scores were associated with reduced CLRD-specific mortality and improved lung health. Promoting LE8 adherence could significantly alleviate respiratory disease burdens and mortality.

Keywords: Asthma; COPD; Clinical Epidemiology; Emphysema; Respiratory Function Test.

Conflict of interest statement

Competing interests: None declared.

- 51 references
- 3 figures

Supplementary info

MeSH termsExpand

Full text links

Proceed to details

Cite

11

Review

Expert Rev Respir Med

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. 2026 Jan 19.

doi: 10.1080/17476348.2026.2615193. Online ahead of print.

Recent updates on thymic stromal lymphopoietin as a therapeutic target for asthma

Ravneet K Hansi [1], Christiane E Whetstone [1], Maral Ranjbar [1], Wafa Hassan [1], Gail M Gauvreau [1]

Affiliations Expand

- PMID: 41552846

- DOI: 10.1080/17476348.2026.2615193

Abstract

Introduction: Thymic stromal lymphopoietin (TSLP) is an epithelial-derived cytokine shown to bridge innate and adaptive immunity, and orchestrates airway inflammation across both type 2 (T2)-high and T2-low asthma. Emerging evidence suggests that by functioning as an alarmin upstream of airway immune cells, TSLP integrates epithelial and immune signaling to initiate inflammation and structural remodeling, positioning it as a pivotal therapeutic target in asthma pathogenesis.

Areas covered: This review summarizes the current understanding of TSLP biology and its roles in both T2- high and T2-low inflammation. Clinical data from tezepelumab treatment and emerging next-generation anti-TSLP agents, including bispecific antibodies, receptor antagonists and inhaled formulation, are evaluated for their potential to transform asthma management.

Expert opinion: Targeting TSLP represents a paradigm shift in asthma therapy, offering efficacy across diverse inflammatory endotypes, however with greater benefit in T2-high patients. Next-generation anti-TSLP agents aim to enhance potency, durability and tissue specificity, and combine with other agents for bi-specific therapy. Despite this progress in clinical development, key challenges remain, including understanding isoform-specific functions, improving biomarker-based patient stratification and assessing long-term safety of TSLP inhibition. As research advances, TSLP inhibition is expected to evolve from the strategy of single cytokine blockade into a personalized multi-pathway approach.

Keywords: Anti-TSLP therapy; TSLP; Thymic stromal lymphopoietin; asthma; biologic therapy; type 2 inflammation; type 2-low inflammation.

. 2026 Jan 19.

doi: 10.1186/s12890-025-04077-y. Online ahead of print.

Abnormalities on chest high-resolution computed tomography in patients with cough-variant asthma

Wenping Mao [1], Shuye Wang [2], Wanlu Sun [1], Wenjun Wang [1], Zhaomei Wang [1], Zhenyu Pan [2], Jing Wang [3]

Affiliations Expand

- PMID: 41549274

- DOI: 10.1186/s12890-025-04077-y

Free article

No abstract available

Keywords: Asthma; Chest; Cough variant asthma; High-resolution computed tomography (HRCT).

Conflict of interest statement

Declarations. Ethics approval and consent to participate: The Institutional Review Board for Beijing Chao-Yang Hospital approved the study with a waiver of informed consent (2023-ke-260), which was conducted in accordance with the Declaration of Helsinki. All the data were anonymized and maintained with confidentiality. The patients with identifiable information in our manuscript provided informed consent and the subject agreed that the results might be published in a journal. Consent for publications. Not applicable. Competing interests: The authors declare no competing interests.

- 46 references

13

BMJ Open

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. 2026 Jan 16;16(1):e109950.

doi: 10.1136/bmjopen-2025-109950.

Mitigating chronic respiratory disease through the lens of multimorbidity: the MARES mixed-methods study protocol

Renata Gonçalves Mendes [1], Naiara Tais Leonardi [2], Viviane Castello-Simões [2], Débora Mayumi de Oliveira Kawakami [2], João Victor Rolim Souza [2 3], Nathany Souza Schafauser-Segundo [2], Rodrigo Polaquini Simões [2], Fernanda Gabriely Pinto [2], Gustavo Henrique Guimarães Araujo [2], Marcela Maria Carvalho da Silva [3 4], Cristiane Shinohara Moriguchi [2], Francisco José Barbosa Zörrer Franco [5], Valéria A Pires Di Lorenzo [2], Rachel Jordan [6], Sonia Martins [7], Trishul Siddharthan [8], Saleh Al Sharmah [9], Julie Barber [10], John R Hurst [9]

Affiliations Expand

- PMID: 41545050

- PMCID: PMC12815162

- DOI: 10.1136/bmjopen-2025-109950

Abstract

Introduction: Chronic respiratory diseases (CRDs), such as asthma and chronic obstructive pulmonary disease (COPD), are among the leading non-communicable diseases (NCDs) worldwide. However, diagnosing CRDs in low-income and middle-income countries (LMICs) remains challenging due to limited access to spirometry and trained professionals. Aggravating the burden, CRDs often coexist with other NCDs, increasing healthcare costs, reducing quality of life and elevating mortality. These challenges highlight the need for simple case-finding approaches for CRDs, such as the COPD in Low-Income and Middle-Income Countries Assessment (COLA-6) questionnaire, to support prompt identification and appropriate care within NCD services in LMICs.

Objective: To evaluate the discriminative accuracy, feasibility and implementation of the COLA-6 questionnaire in identifying and managing CRDs in Brazilian Primary Healthcare (PHC) services for NCDs.

Methods and analysis: The Multimorbidity Approach for REspiratory Solutions (MARES) study consists of three work packages to be conducted in PHC services in São Carlos/SP and São Paulo/SP, Brazil.MARES-1: A cross-sectional observational study enrolling 859 individuals with at least one NCD receiving care in PHC. The COLA-6 questionnaire will be administered by the research team and compared with quality-assured spirometry. The Chronic Airways Assessment Test (CAAT), Asthma Control Questionnaire (ACQ-7) and fractional exhaled nitric oxide (FeNO) will also be assessed. The diagnostic performance of COLA-6 for identifying CRDs-including COPD, asthma, preserved ratio impaired spirometry, restriction and overlaps-will be assessed using area under receiver operating characteristic curves and 95% CIs.MARES-2: A cross-sectional observational study enrolling 20 healthcare professionals (physicians, physiotherapists, community health agents and nurses) from five PHC services. These professionals will apply the COLA-6 during routine

NCD care to a total sample of 1000 patients. Qualitative interviews will be conducted to explore barriers and facilitators to the implementation of COLA-6, using deductive thematic analysis.MARES-3: A longitudinal, prospective observational study in which patients from MARES-1 and MARES-2 will be reassessed at 6-month follow-up. A total sample of 473 participants with abnormal spirometry, a diagnosis of CRD or high risk for CRDs is expected. Participants will undergo spirometry, and a subset will be interviewed to explore their healthcare experiences through qualitative thematic analysis. Access to diagnostic and treatment services in Brazil will be assessed. Changes in spirometry values, FeNO, CAAT and ACQ-7 scores from baseline to 6 months in patients from MARES-1 will be analysed.

Ethics and dissemination: This study has been approved by the Ethics Committees of Federal University of São Carlos and University of Santo Amaro (UNISA). Ethical approval was also granted by the University College London. Results will be disseminated through peer-reviewed medical journals and presentations at international conferences. Results will improve identification of CRDs, addressing a significant gap in current PHC settings.

Trial registration number: NCT07050823/NCT07093021/NCT07134855.

Keywords: Multimorbidity; Primary Health Care; Pulmonary Disease, Chronic Obstructive.

Conflict of interest statement

Competing interests: None declared.

- **48 references**
- **2 figures**

Supplementary info

MeSH terms, Associated dataExpand

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iScience

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. 2025 Dec 8;29(1):114383.

doi: 10.1016/j.isci.2025.114383. eCollection 2026 Jan 16.

Ambient temperature exposure on inflammatory blood proteins-A longitudinal self-sampling survey in young Swedish adults

Zhebin Yu [1], Sophia Björkander [2], Annika Bendes [3], Federica Nobile [1 4], Jiawei Zhang [2 5], Simon Kebede Merid [2], Natalia Hernandez-Pacheco [2], Shizhen He [1], Maura M Kere [2], Susanna Klevebro [2 6], Petter Ljungman [1 7], Massimo Stafoggia [1 4], Tom Bellander [1 8], Göran Pershagen [1], Anna Bergström [1], Inger Kull [2 6], Anne-Sophie Merritt [1 9], Niclas Roxhed [10 11], Olena Gruzieva [1 9], Jochen M Schwenk [3 6], Erik Melén [2 6]

Affiliations Expand

- PMID: 41541696

- PMCID: PMC12800436

- DOI: 10.1016/j.isci.2025.114383

Abstract

The mechanisms by which temperature exposure affects health outcomes remain unclear. In this study, we conducted three repeated measurements (2020-2022) by collecting self-sampled volumetric dry blood spots (DBSs) from 807 participants from the Swedish BAMSE cohort (mean age 25.9 years). By estimating individual-address level daily temperature using a high-resolution spatiotemporal model, we found that 58 (16%) of the 365 studied inflammation-related proteins were significantly associated with short-term exposure to ambient temperatures. The impact of temperature exposure was modified by sex, smoking, asthma, and concurrent exposure to air pollution. The temperature-associated proteins were linked to lung function, blood pressure, and HbA1c with validations in the UK Biobank. Furthermore, peak temperature exposure (both cold and heat) was associated with significantly increased proteomic age acceleration. Our findings suggest that ambient temperature exposure may cause adverse health effects through perturbating inflammation-related proteins.

Keywords: health sciences; medicine.

Conflict of interest statement

N.R. is a co-founder and shareholder of the microsampling companies Capitainer AB and Samplimy Medical AB, and an inventor of several patents on microsampling solutions. J.M.S. is a Scientific Advisor for ABC Labs and has, unrelated to this work, received travel or speaker support from AlamarBioscience, Illumina, Luminex, Olink, and Oxford Nanopore, and via KTH, conducted contract research for Capitainer and Luminex. E.M. declares Advisory Board fees from ALK and

AstraZeneca and lecture payments from Chiesi and Sanofi outside the submitted work.

- 46 references
- 5 figures

Full text links

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Cite

15

J Asthma

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. 2026 Jan 19:1-2.

doi: 10.1080/02770903.2026.2614959. Online ahead of print.

Re: Real-world use of dual biological therapy in severe asthma: insights from four cases

Nav La [1], Schawanya K Rattanapitoon [2], Patpicha Arunsan [3], Nathkapach K Rattanapitoon [2]

Affiliations Expand

- **PMID: 41518598**
- **DOI: 10.1080/02770903.2026.2614959**

No abstract available

Full text links

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Cite

16

Occup Environ Med

. 2026 Jan 21;82(11):527-533.

doi: 10.1136/oemed-2025-110183.

Atopy, asthma symptoms and eosinophilic airway inflammation in British woodworkers

Ruth Eleanor Wiggans [1 2], Jade Sumner [3], Edward W Robinson [3], Charlotte Young [3], Andrew Simpson [3], Timothy Yates [3], David Fishwick [3], Christopher M Barber [3 4]

Affiliations Expand

- PMID: 41320474

- DOI: 10.1136/oemed-2025-110183

Free article

Abstract

Objectives: Despite reducing exposures to wood dust, woodworkers remain at increased risk of asthma. There have been no recent studies of wood dust exposure, respiratory symptoms or asthma in British woodworkers. This cross-sectional study examined factors associated with asthma in British woodworkers across exposure groups.

Methods: Participants answered a reporter-delivered work and respiratory questionnaire, and underwent fractional exhaled nitric oxide (FE_{NO}), spirometry and specific IgE measurements. Wood dust exposure was assigned through a job-exposure matrix. Multiple regression evaluated associations between asthma and factors including exposure, atopy and current asthma symptoms (CAS).

Results: A total of 269 woodworkers participated. Median wood dust exposure was 2.00 mg/m^3 (IQR 1.14 mg/m^3). CAS, work-related respiratory symptoms (WRRS) and eosinophilic airway inflammation (FE_{NO}>40 ppb) were common, present in 46%, 11% and 19% of the cohort, respectively. Atopic woodworkers were more likely to have nasal symptoms (OR 2.13, 95% CI 1.18 to 3.85, p<0.05), WRRS (OR 2.78, 95% CI 1.11 to 6.92, p<0.05), asthma (OR 3.40, 95% CI 1.49 to 7.81, p<0.01) and FE_{NO}>40 ppb (OR 2.00, 95% CI 1.03 to 3.88, p<0.05). No effect was seen for airflow obstruction. Symptomatic workers were more likely to have WRRS and asthma (OR 4.29, 95% CI 2.12 to 8.69, p<0.001) but not FE_{NO}>40 ppb or airflow obstruction. A dose-response effect with wood dust exposure was not seen.

Conclusions: Asthma symptoms were prevalent among British woodworkers, even at low exposure levels. Atopy was associated with asthma, particularly among symptomatic woodworkers. Further studies should phenotype woodworkers at risk of asthma and inform approaches to reduce risk.

Keywords: allergy and immunology; asthma; respiratory function tests; wood; workers.

Conflict of interest statement

Competing interests: None declared.

Supplementary info

MeSH terms, SubstancesExpand

Full text links

Proceed to details

Cite

17

Postgrad Med J

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. 2026 Jan 23;102(1204):109-111.

doi: 10.1093/postmj/qgaf121.

The impact of inhaler on the environment and climate change: past, present, and future

Elizabeth Man Chin Ng [1], Wang Chun Kwok [2]

Affiliations Expand

- **PMID: 40755152**

- **DOI: 10.1093/postmj/qgaf121**

No abstract available

Keywords: asthma; chronic airways disease; thoracic medicine; thoracic medicine; respiratory medicine.

Full text links

Cite

18

J Infect Dis

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. 2026 Jan 17;233(1):153-163.

doi: 10.1093/infdis/jiaf381.

Human Metapneumovirus-, Respiratory Syncytial Virus-, and Influenza-Associated Pneumonia Hospitalizations in Colorado Adults Aged ≥50 Years, 2016-2023

Eric A F Simões [1 2], Robert J Suss [1], Dhananjay V Raje [3]

Affiliations Expand

- PMID: 40690544

- DOI: 10.1093/infdis/jiaf381

Abstract

Background: The study objectives were to identify the frequency and risk factors for intensive care unit (ICU) admission and mortality associated with respiratory syncytial virus (RSV), influenza, and human metapneumovirus (HMPV) pneumonia hospitalizations and to compare these rates with patients admitted with other acute respiratory infections (ARIs) caused by these viruses.

Methods: This study identified hospitalization encounters of adults aged 50-88 years with RSV, influenza, and HMPV pneumonia between 2016 and 2023 in the Colorado Hospital Association database. Multivariate logistic regression was used to estimate the odds of ICU admission and mortality.

Results: Of 2210 hospitalized patients with RSV pneumonia, 780 (35%) were admitted to ICU and 205 (9.3%) died. Similar proportions were observed for HMPV pneumonia (27.5% and 5.9%) and influenza pneumonia (32.5% and 7.6%) ICU admissions and mortality, respectively. Dementia had the highest odds for ICU admission in patients with RSV pneumonia (adjusted odds ratio [aOR], 4.2 [95% confidence interval {CI}, 1.34-13.18]); chronic pulmonary disease (CPD) for influenza pneumonia (aOR, 2.99 [95% CI, 2.45-3.66]), and chronic obstructive pulmonary disease (COPD) without asthma for HMPV pneumonia (aOR, 5.04 [95% CI, 2.92-8.7]). Increasing age was associated with increased mortality for RSV and influenza. CPD and COPD had >2-fold greater odds of mortality in patients with pneumonia for all 3 viruses. Increasing numbers of comorbidities significantly increased ICU admission and mortality in all 3 groups.

Conclusions: Pneumonia is a severe manifestation of ARI with RSV, influenza, and HMPV, with differing risk factors for ICU admission and mortality.

Keywords: acute lower respiratory infection; epidemiology; human metapneumovirus; public health; respiratory syncytial virus.

Conflict of interest statement

Potential conflicts of interest. E. A. F. S. reports grants to the institution from AstraZeneca and Icosavax, Enanta Pharmaceuticals, Merck & Co, and Pfizer; advisory board participation for AbbVie, the Gates Foundation, GlaxoSmithKline, and Moderna; support and/or payment for travel, meetings, and presentation from AstraZeneca and Pfizer; and consulting fees paid to the institution from Adagio Therapeutics, Cidara Therapeutics, Enanta, GlaxoSmithKline, Icosavax, Merck, Nuance Pharmaceuticals, Pfizer, Sanofi Pasteur, and Shionogi. D. V. R. reports support for attending meetings and/or travel to the Research Society for Study on Diabetes in India conference at Jaipur; and consulting fees from Ardent Clinical Research India, Indus Biotech Ltd India, IZIEL Ltd India, and MAHAN Trust India. R. J. S. reports no potential conflicts. All authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

Supplementary info

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

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Clin Exp Allergy
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Early Detection of Lower Adherence to Long-Term e-Diary Recording: A Checkpoint to Target Early Educational Intervention in Seasonal Allergic Rhinitis?

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Abstract
Background: Digital symptom monitoring via e-Diary apps can support the diagnosis and management of chronic diseases with trigger-induced exacerbations such as pollen allergies. Attrition is a major challenge for continuous e-Diary usage with an unsupervised approach.
Objective: To investigate adherence to e-Diary reporting, its early determinants and predictors in a blended care setting among pollen allergic patients with heterogeneous cultural backgrounds.
Methods: The @IT.2020 observational multicenter study recruited patients with diagnosed seasonal allergic rhinitis from seven Southern European/Mediterranean countries. Baseline characteristics were investigated through questionnaires, skin prick tests and serum specific IgE measurements. The study doctors asked patients to record their allergy symptoms via e-Diary (AllergyMonitor, TPS) daily during the clinically relevant season of pollination and increased mould concentrations.
Results: Among 815 patients (467 adults, 348 children), the average prescribed e-Diary recording period was 106 (SD 47.1) days, with an average completion rate of 75.2% (SD 21.2%). Children (≥ 10 years) filled 73.8% (95% CI 68.1-79.4) of prescribed days without parental support. We identified a stable 'higher' and a more variable 'lower' adherence cluster. Adherence was weakly associated with disease severity, but not with age, gender, country, education or digital literacy. Short-term (first 3 weeks) adherence was strongly associated with long-term adherence (partial R^2 = 0.387, $p < 0.001$), with 87.6% of lower adherent patients remaining poorly adherent beyond 3 weeks.
Conclusion: In a blended care setting, adherence to e-Diary compilation among pollen allergic patients is high, irrespective of age and cultural background. Early identification of lower adherence is possible and might inform early interventions to improve patient adherence.

Keywords: adherence; allergic rhinitis; allergy symptoms; chronic diseases; e-diary; patient education; patient-reported outcomes; remote monitoring; reporting behaviour.

- 42 references
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Review

Allergy

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Allergic Sensitization to Inhalant Allergens in the Upper Respiratory Tract-the B Cell Side

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Abstract

Allergic diseases are on the rise worldwide, driven by respiratory epithelial barrier dysfunction that promotes sensitization to inhalant allergens such as pollen, dust mites, pet dander, and fungal spores. These antigens trigger IgE-mediated immune responses that lead to diseases such as allergic rhinitis (AR) and asthma. B cells play a central role by producing allergen-specific IgE, presenting antigens, releasing cytokines, and forming memory B cells (MBCs). Their differentiation into IgE-secreting plasma cells (PCs) mainly relies on T cell help, germinal center (GC) reactions, and/or extrafollicular responses and class switch recombination (CSR), which makes them important therapeutic targets. The nasal mucosa, as the first point of contact for allergens, acts both as a barrier and as an immunological site. In AR, IL-13-driven goblet cell hyperplasia and overproduction of mucus compromise the integrity of the barrier. Although the nasal microbiome can influence the immune response, its role in atopy remains unclear. Local B cell activity, including extrafollicular IgE production and ectopic GCs, enhances mucosal immunity. Epithelial cells detect allergens via pattern recognition receptors (PRRs) and release alarmins (IL-25, IL-33, TSLP), which can trigger type 2 inflammation. Proteases from allergens such as house dust mites (HDM) disrupt epithelial junctions, while pollutants, smoke, microplastics, and allergen-derived metabolites further modulate immune activation. Allergens are transported to the lymph nodes by the passive flow to follicular dendritic cells (FDCs) or by active uptake by interferon regulatory factor (IRF) 4-dependent conventional type 2 DCs, which activate T follicular helper (TFH) cells to drive IgE responses. Advanced lymphoid organoids that mimic the microenvironment of GCs offer promising models for the study of allergic sensitization but require improved standardization.

Keywords: B cells; IgE plasma cells; allergen transport; epithelial barrier; nasal mucosa; organoids.

- 165 references

Supplementary info

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Allergic Rhinitis and Its Impact on Asthma (ARIA)-EAACI Guidelines-2024-2025 Revision: Part I-Guidelines on Intranasal Treatments

Bernardo Sousa-Pinto [1,2], Jean Bousquet [3,4,5], Rafael José Vieira [1,2], Holger J Schünemann [4,6,7], Torsten Zuberbier [3,4,6], Antonio Bognanni [6,7], Alkis Togias [8], Boleslaw Samolinski [9], Arunas Valiulis [10,11], Sian Williams [12], Anna Bedbrook [5], Wienczyslawa Czarlewski [5,13], Maria Jose Torres [14], Mohamed H Shamji [15], Mário Morais-Almeida [16], G Walter Canonica [7,17], Leticia de Las Vecillas [18], Mark S Dykewicz [19], Cristina Jacomelli [20], Ludger Klimek [21,22], Lucas Leemann [23], Olga Lourenço [24], Yuliia Palamarchuk [25], Nikolaos G Papadopoulos [26], Ana Margarida Pereira [1,27,28], Marine Savouré [29,30,31], Sanna K Toppila-Salmi [32,33], Maria Teresa Ventura [34,35], Juan José Yepes-Nuñez [36,37], Alvaro A Cruz [38], Giorgio Ciprandi [39], Bilun Gemicioglu [40], Mattia Giovannini [41,42], Brigita Gradauskiene [43], Tuomas Jartti [44], Miloš Jeseňák [45,46,47], Piotr Kuna [48], Violeta Kvedariene [49,50], Désirée E Larenas-Linnemann [51], Amir Ha Latiff [52], Yousser Mohammad [53,54], Ken Ohta [55], Padukudru A Mahesh [56], Isabella Pali-Schöll [57], Oliver Pfaar [58], Frederico S Regateiro [59,60,61,62], Nicolas Roche [63,64,65], Luís Taborda-Barata [62,66], Charlotte Suppli Ulrik [67,68], Marylin Valentin Rostan [69], Giovanni Viegi [70], Luo Zhang [71], Tari Haahtela [72], Ivan Cherrez-Ojeda [73,74], Juan Carlos Ivancevich [75], Nikolai Khaltaev [76], Arzu Yorgancioglu [77], Baharudin Abdullah [78], Mona Al-Ahmad [79], Maryam Ali Al-Nesf [80], Rita Amaral [1,2,81,82], Julijana Asllani [83], Karl-C Bergmann [3,4], Jonathan A Bernstein [84], Michael S Blaiss [85], Fulvio Braido [86,87], Paulo Camargos [88], Pedro Carreiro-Martins [89,90], Thomas Casale [91], Lorenzo Cecchi [92], Alessandro Fiocchi [93], Antonio F M Giuliano [94], George Christoff [95], Ieva Cirule [96], Jaime Correia de Sousa [97], Elisio M Costa [98], Stefano Del Giacco [99], Philippe Devillier [100], Dejan Dokic [101], Elham Hossny [102], Tomohisa Iinuma [103], Carla Irani [104], Zhanat Ispayeva [105], Kaja Julge [106], Igor Kaidashev [107], Kazi S Bennoor [108], Helga Kraxner [109], Inger Kull [110,111], Marek Kulus [112], Maciej Kupczyk [48], Andriy Kurchenko [113], Stefania La Grutta [114], Neven Miculinic [115], Lan Le Thi Tuyet [116], Michael Makris [117], Branislava Milenkovic [118], Sang Min Lee [119], Stephen Montefort [120], Andre Moreira [121,122,123], Joaquim Mullol [124,125], Rachel Nadif [65,126], Alla Nakonechna [127,128], Hugo E Neffen [129], Marek Niedoszytko [130], Dieudonné Nyembue [131], Robyn E O'Hehir [132], Ismail Ogulur [133], Yoshitaka Okamoto [134,135], Heidi Olze [136], Oscar Palomares [137], Petr Panzner [138], Vincenzo Patella [139,140,141], Ruby Pawankar [142], Constantinos Pitsios [143], Todor A Popov [144], Francesca Puggioni [145], Santiago Quirce [18], Agné Ramonaité [146,147], Marysia Recto [148], Maria Susana Repka-Ramirez [149], Graham Roberts [150,151,152], Karla Robles-Velasco [73,74,153], Menachem Rottem [154,155], Marianella Salapatas [156], Joaquin Sastre [157], Nicola Scichilone [158], Juan-Carlos Sisul [159], Dirceu Solé [160], Manuel E Soto-Martinez [161], Milan Sova [162], Pongsakorn Tantilipikorn [163], Ana Todo-Bom [164], Vladyslav Tsaryk [113], Ioanna Tsiligianni [165,166], Marilyn Urrutia-Pereira [167], Erkka Valovirta [168], Tuula Vasankari [169,170], Dana Wallace [171], De Yun Wang [172], Margitta Worm [173], Osman M Yusuf [174], Mihaela Zidarn [175,176], Sara Gil-Mata [1,2], Manuel Marques-Cruz [1,2], Bassam Mahboub [177,178], Ignacio J Ansotegui [179], Antonino Romano [180,181], Werner Aberer [182], Maria Cristina Artesani [93], Elena Azzolini [17], Bruno Barreto [183], Joan Bartra [184,185], Sven Becker [186], Bianca Beghe [187], Attilio Boner [188], Ewa Borowiack [189,190], Jacques Bouchard [191], Melisande Bourgoin-Heck [192,193,194], Luisa Brussino [195,196], Roland Buhl [197], José Antonio Castillo-Vizuete [198,199], Denis Charpin [200], Niels H Chavannes [201,202], Marta Chełmińska [203], Lei Cheng [204], Ekaterine Chkhartishvili [205], Seong H Cho [206], Herberto Jose Chong-Neto [207], Deepa

Choudhury [208], Derek K Chu [6 209], Cemal Cingi [210], Enrico Compalati [211], Raquel Albuquerque Costa [1], Olga Mariana Cunha [212], Biljana Cvetkovski [213], Victoria Cardona-Dahl [214 215], Gennaro D'Amato [216], Janet Davies [217 218], Danilo Di Bona [219], Sandra N Gonzalez Diaz [220], Maria V Dimou [26], Maria Doulaptsi [221], Renato Ferreira-da-Silva [1 2], Radoslaw Gawlik [222], Mario Calvo-Gil [223], Ozlem Goksel [224], Maximiliano R Gómez [225], Maia Gotua [226], Christos Grigoreas [227], Ineta Grisle [228], Maria Antonieta Guzman [229], Rachel House Tan [230 231], Michael Hyland [232], Despo Ierodiakonou [233], Aspasia Karavelia [234], Paul Keith [235], Marta Kisiel [236], Tanja Soklic Kosak [237], Mitja Kosnik [238 239], Ilgim Vardaloglu Koyuncu [240], Vicky Kritikos [241 242], Justyna Litynska [189 190], Carlo Lombardi [243], Gilles Louis [244 245], Matteo Martini [246 247], Cem Meço [248 249 250], Eris Mesonjesi [251], Florin Mihaltan [252], Marcin Moniuszko [253], Robert N Naclerio [254], Kari C Nadeau [255], Sophia Neisinger [3 4], Markus Ollert [256 257], Michal Ordak [258], Giovanni Paoletti [7 145], Hae-Sim Park [259], Elena Parmelli [17 260], Edgar Arturo Perdomo-Flores [261], José Miguel Fuentes Pérez [262], Nhan Pham-Thi [263 264 265], Emmanuel Prokopakis [221], Inês Ribeiro-Vaz [1 2], Giovanni Rolla [195], Jan Romantowski [130], Philippe Rombaux [266], Philip W Rouadi [267 268], Maia Rukhadze [269], Dermot Ryan [270], Ewelina Sadowska [189 190], Daiju Sakurai [271], Laila Salameh [272], Faradiba Serpa Sarquis [273], Elie Serrano [274], Jane Da Silva [275 276], Michael Soyka [277], Krzysztof Specjalski [130], Vesna Tomic-Spiric [278 279], Katarina Stevanovic [3 4], Abirami Subramaniam [280], Maria Do Ceu Teixeira [281 282], Tuuli Thomander [1 283 284], Martina Vachova [285 286], Marianne van Hage [287 288 289], Pakit Vichyanond [290 291], Martin Wagenmann [292], Fanny Wai San Ko [293], Pascal Werminghaus [294], Paraskevi Vicky Xepapadaki [26], Yi-Kui Xiang [3 4 295], Qintai Yang [296], Daniela Rivero Yeverino [297], Jaron Zuberbier [136], João A Fonseca [1 2]

Affiliations Expand

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- **DOI: 10.1111/all.70131**

Abstract

Background: Allergic rhinitis (AR) impacts quality of life, work and school productivity. Over the last years, an important body of evidence resulting from mHealth data has led to a better understanding of AR. Such advances have motivated an EAACI-endorsed update of the Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines (ARIA 2024-2025). This manuscript presents the ARIA 2024-2025 recommendations for intranasal treatments, one of the mainstays for AR management.

Methods: The ARIA 2024-2025 guideline panel issued recommendations following the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) evidence-to-decision framework. Several sources of evidence were used to inform panel judgments and recommendations, including systematic reviews, evaluation of mHealth and pharmacovigilance data, as well as a survey of experts on costs.

Results: Eleven guideline questions concerning intranasal treatments for AR were prioritized, leading to recommendations. Overall, these questions concern the choice between different classes of intranasal medications-most notably, intranasal corticosteroids (INCS), antihistamines (INAH), fixed combinations of INAH+INCS and decongestants-or between different individual medications within each class. Four questions had not been evaluated in previous ARIA guidelines, while for the other three there was a change in the strength or directionality of recommendations.

Overall, recommendations point to the suggested use of INAH+INCS over INAH or INCS and INCS over INAH.
Conclusion: This ARIA 2024-2025 article supports patients, their caregivers, and healthcare professionals in choosing an intranasal treatment. However, decisions on AR treatment should consider the clinical variability of the disease, patients' values, and the affordability of medications.
Keywords: allergic rhinitis; guidelines; intranasal antihistamines; intranasal corticosteroids.

- 36 references

Supplementary info
Grants and fundingExpand

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

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Health Psychol Behav Med

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'Cough and sneeze into your elbow': a field study testing the effects of persuasive messages on compliance with behavioral measures to prevent the spread of respiratory viruses

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- DOI: 10.1080/21642850.2026.2616931

Abstract

Background: Effective persuasive messages can contribute to enhancing pandemic preparedness and public health. An essential requirement for this is an excellent understanding of the effects of exposure to persuasive messages on compliance

with behavioral measures against the spread of respiratory viruses. This field study tested the effects of persuasive messages on compliance with two behavioral measures to prevent the spread of viruses that cause respiratory infections such as COVID-19 and the flu: coughing/sneezing into the elbow and staying home when ill with respiratory infection symptoms.

Materials and methods: A field study with an observational pre-post design was conducted at four educational institutions representing all common post-secondary school educational levels in the Netherlands. Data were collected among students and employees via online questionnaires before (n = 2096) and after (n = 1098) exposure to a set of persuasive messages with six different message framings. Two-way MANOVA, logistic regression analysis and repeated measures ANOVA were conducted.

Results: Exposure frequency, behavioral measure type, demographic characteristics, trust in government, prosocial orientation, perceived health, educational institution, and student/employee status showed significant multivariate main effects and univariate main and/or interaction effects on the outcomes (intention to comply, attitude, social norms, moral norm, self-efficacy, response-efficacy, and risk perception; $p < .05$). The odds of compliance with staying home when ill were lower than the odds of compliance with coughing/sneezing into the elbow, regardless of exposure frequency ($p < .001$).

Conclusion: In conclusion, messages positively influenced behavioral determinants - a critical prerequisite for behavior change and compliance. Findings also highlight that people are likely more willing to comply with measures that have less adverse personal and social impact. To enhance compliance more is needed, for instance explanations of the relevance and effectiveness of measures, and practical support to enact the measures. Practical and theoretical implications are discussed.

Keywords: COVID-19; Persuasive communication; health communication; pandemic preparedness; respiratory infections.

Conflict of interest statement

No potential conflict of interest was reported by the author(s).

- 28 references
- 3 figures

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Mucociliary and cough clearance in primary ciliary dyskinesia as affected by mutations in *RSPH1* or *DNAH5*

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Abstract

Background: Primary ciliary dyskinesia (PCD) is a rare disease caused by mutations in >50 genes that impair the function of motile cilia. The clinical phenotype is heterogeneous and recent studies have begun to investigate genotype-phenotype relationships to better understand disease pathogenesis and develop improved treatments. The major cause of morbidity and mortality among individuals with PCD is the lack of mucociliary clearance (MCC) that results in chronic respiratory infections and leads to bronchiectasis. Here we examine the relationship between MCC and genotype in two groups of PCD individuals; one with mutations in a gene (*DNAH5*) that causes PCD with mostly immotile cilia and one with mutations in a gene (*RSPH1*) that cause PCD with cilia that beat with a near-normal frequency, but an abnormal, sometimes circular waveform.

Methods: Patients with known pathogenic variants in *DNAH5* (n=8) or *RSPH1* (n=7), along with healthy controls (n=8), were assessed for clearance of an inhaled radioactive tracer by mucociliary and cough clearance as measured by gamma scintigraphy.

Results: Neither *DNAH5* nor *RSPH1* subjects showed clear evidence of MCC under either baseline or albuterol stimulated conditions. Unexpectedly, subjects with *RSPH1* mutations demonstrated cough clearance (median 9.7%, IQR 6.2-17%) that was significantly higher than subjects with *DNAH5* mutations (4.2% (0.94-5.1%); p=0.015) and was not significantly different from healthy control subjects (8.3% (4.2-16%); p=0.88).

Conclusions: The results confirm impaired MCC in people with PCD of both genotypes. However, in this small cohort, the results suggest cough clearance may differ between these two genotypes.

Conflict of interest statement

Conflict of interest: All authors have confirmed that they have no conflicts of interest to declare.

- 43 references
- 4 figures

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Clinical characteristics of diffuse idiopathic pulmonary neuroendocrine cell hyperplasia

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Abstract

Rationale: Diffuse idiopathic pulmonary neuroendocrine cell hyperplasia (DIPNECH) is characterised by diffuse bronchial hyperplasia of pulmonary neuroendocrine cells, which are situated within the walls of bronchi and bronchioles. Presenting symptoms are nonspecific and the clinical course varies, making diagnosis challenging. We sought to describe the clinical characteristics of patients with DIPNECH in a large multinational case series to guide and inform future care and research.

Methods: Data were collated from 18 international centres. Information collected included disease presentation, pulmonary function testing, histopathology, radiological patterns and outcomes. The relationship between clinical features, radiology and symptoms were explored in parametric and nonparametric group-wise analyses, univariate linear regressions, and multivariate binomial logistic regression.

Results: The mean±sd age of the 258 patients in this study was 63.3±10.6 years and 93.4% were female. Diffuse pulmonary nodules (98.8%) and mosaic attenuation (59.1%) were the most common radiological findings and 29.5% had obstructive spirometry with a mean±sdforced expiratory volume in 1 s (FEV_1) % pred of 69.0±23.7%. There was a significant association between the number of nodules and a reduction in FEV_1 % pred ($p<0.001$), while the presence of bronchial wall thickening on imaging was most closely associated with cough (OR 4.97, p=0.001) dyspnoea (OR 3.14, p=0.003) and bronchodilator responsiveness (OR 3.09, p=0.013). Approximately half of patients treated with inhaled beta agonist and corticosteroids (46.3%) or somatostatin analogue (54.1%) reported improvement in symptoms.

Conclusions: The presence of radiological bronchial wall thickening is associated with the presence of symptoms, while mosaic attenuation is correlated with airflow obstruction; hence, the presence of these radiological findings has the potential to guide possible treatment decisions.

Conflict of interest statement

Author contributions: C. McCarthy conceived the study. M. O'Callaghan, S.H. Forde, A.N. Franciosi and C. McCarthy wrote the first draft. All authors edited the manuscript. M. O'Callaghan, M. Penugonda, R. Diesler, H. O'Brien, W. Buikhuisen, H. Almeamar, B.F. Samhouri, J.H. Ryu, M. Veltkamp, N. Gupta, F.X. McCormack, E.D. Manali, A. Lazaratou, S.A. Papiris, F. Bonella, L. Carr, V. Cottin, C. Taille, F.M. Lococo, J. Strosberg, S. Harari, G. Pelosi, R. Papa, D. Bouros, L. Kolilekas, Z. Daniil, I. Dimeas, F. Hernandez-Gonzalez, J. Sellares, P. Spagnolo, R.K. Crowley, D. O'Toole, D. O'Shea, A. Fabre, S. Quinn, D.J. Murphy, L. Fournel, M.P. Keane and C. McCarthy collated the clinical data. S.H. Forde, A.N. Franciosi and A.J. Byrne carried

out data analysis. C. McCarthy supervised the study. All authors have read and agreed to the published version of the manuscript.Conflict of interest: M. O'Callaghan, S.H. Forde, M. Penugonda, R. Diesler, H. O'Brien, W. Buikhuisen, H. Almeamar, B.F. Samhouri, J.H. Ryu, M. Veltkamp, N. Gupta, F.X. McCarthy, A. Lazaratou, V. Cottin, F.M. Lococo, J. Strosburg, G. Pelosi, R. Papa, D. Bouros, L. Kolilekas, F. Hernandez-Gonzalez, R.K. Crowley, D. O'Toole, D. O'Shea, A. Fabre, S. Quinn, D.J. Murphy and M.P. Keane have no conflicts of interest to declare. A.N. Franciosi has received consulting fees from Consilient Health, GSK and AstraZeneca; has participated on data safety monitoring board for Roche; and is a Director of COPD Support Ireland. S. Harari has received grants from Boehringer Ingelheim and AstraZeneca; and consulting fees from Roche Ltd, Boehringer Ingelheim and Aerovate. L. Carr received consulting fees from AI Therapeutics. A.J. Byrne has received consulting fees from Ammax Bio, Gri Bio, DevPro Inc. and Ionis Pharma. L. Fournel has received consulting fees from BMS, MSD, Ethicon and Medtronic. P. Spagnolo has received grants from PPM Services, Roche, Boehringer Ingelheim and Chiesi; consulting fees from PPM Services, Novartis and Boehringer Ingelheim; and participated on data safety monitoring boards for AstraZeneca, Trevi, Merck, Novartis and Structure Therapeutics. I. Dimeas has received consulting fees from Boehringer Ingelheim. Z. Daniil has received consulting fees from and participated on data safety monitoring board for Boehringer Ingelheim. F. Bonella has received consulting fees from Boehringer Ingelheim, Sanofi, BMS and Savara Pharma; has received financial support of attending meetings from Boehringer Ingelheim, AstraZeneca, Atyr and Savara Pharma; and has participated on data safety monitoring boards for Boehringer Ingelheim, Sanofi and BMS. C. Taille has received consulting fees from AstraZeneca, GSK, Sanofi, Novartis, Stallergenes, Chiesi and Leo Pharma. J. Sellares has received consulting fees from Boehringer Ingelheim, Aflofarm and Neuroxpharma. E.D. Manali has received consulting fees from Boehringer Ingelheim, Elpen Hellas and Demo Hellas. S.A. Papiris has received consulting fees from Boehringer Ingelheim and Elpen Hellas. C. McCarthy has received grants and speaker fees from Boehringer Ingelheim; speaker fees from Roche Ltd; and consulting fees from Partners Therapeutics Inc; is on the scientific advisory boards of the LAM Foundation and the European Pulmonary Fibrosis Federation; and has a consulting contract with Savara Pharmaceuticals as part of their clinical advisory board.

COPD

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Smartphone-Enabled Cough Detection in Severely Exacerbated COPD: An Exploratory Pilot Study

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Affiliations Expand

- PMID: 41558973

- DOI: 10.1080/15412555.2026.2614152

Free article

Abstract

Introduction: Chronic obstructive pulmonary disease (COPD) shows rising incidence worldwide. Progressive decline in lung function is characteristic for the disease and results in various signature COPD symptoms. A significant part of COPD-associated morbidity and mortality is due to acute exacerbations, which often require hospital usage, thus disproportionately impacting healthcare expenses. Novel digital health technologies allowing remote patient monitoring are desirable to improve COPD management by tailoring treatment- and follow-up strategies.

Methods: We here tested the feasibility and biomarker potential of smartphone-enabled cough monitoring during and after AECOPD in hospitalized patients. The study was designed as a single-center, prospective, longitudinal, observational cohort study and enrolled 23 subjects. A contact-free, near real-time, smartphone-enabled cough detection system was used for automated cough detection and quantification based on audio recordings. Cough counts were correlated to various clinical and biochemical markers.

Results: Cough levels were highest at study enrollment (approx. 15 coughs per hour) and gradually declined over time toward recovery (to below 5 coughs per hour) (incidence rate ratio (IRR): 0.97 [0.95-0.98], $p < 0.001$). There was a high degree of intra- and inter-patient variation of cough frequency and evolution. In addition, cough counts underlay significant diurnal regulation, with higher counts during daytime. Cough counts were inversely associated with oxygen saturation (IRR: 0.9 [0.87-0.95], $p < 0.001$) and correlated positively with body temperature (IRR: 2.00 [1.47-2.73], $p < 0.001$).

Discussion: Automated, contact-free, smartphone-enabled cough detection was feasible in COPD patients hospitalized for AECOPD. Cough counts declined over time and were associated with relevant clinical and biochemical markers. Our approach enables telemonitoring of AECOPD in near real-time and warrants further development to possibly establish cough count as an early digital biomarker for emerging AECOPD, allowing swift intervention and associated cost reductions.

Keywords: Cough detection; acute exacerbation; chronic obstructive pulmonary disease; digital biomarker; smartphone.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

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Cite

5

BMC Pulm Med

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. 2026 Jan 19.

doi: 10.1186/s12890-025-04077-y. Online ahead of print.

Abnormalities on chest high-resolution computed tomography in patients with cough-variant asthma

Wenping Mao [1], Shuye Wang [2], Wanlu Sun [1], Wenjun Wang [1], Zhaomei Wang [1], Zhenyu Pan [2], Jing Wang [3]

Affiliations Expand

- **PMID: 41549274**
- **DOI: 10.1186/s12890-025-04077-y**

Free article

No abstract available

Keywords: Asthma; Chest; Cough variant asthma; High-resolution computed tomography (HRCT).

Conflict of interest statement

Declarations. Ethics approval and consent to participate: The Institutional Review Board for Beijing Chao-Yang Hospital approved the study with a waiver of informed consent (2023-ke-260), which was conducted in accordance with the Declaration of Helsinki. All the data were anonymized and maintained with confidentiality. The patients with identifiable information in our manuscript provided informed consent and the subject agreed that the results might be published in a journal. Consent for publications. Not applicable. Competing interests: The authors declare no competing interests.

- **46 references**

Full text links

Proceed to details

Cite

6

JAMA

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. 2026 Jan 20;335(3):204.

doi: 10.1001/jama.2025.20026.

GLP-1 Drugs Linked With Chronic Cough

Samantha Anderer

- **PMID: 41417480**

- **DOI: 10.1001/jama.2025.20026**

No abstract available

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

Observational Study

Medicine (Baltimore)

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. 2026 Jan 23;105(4):e47298.

doi: 10.1097/MD.0000000000047298.

Alpha-1 antitrypsin deficiency in bronchiectasis: Evidence for an overlooked entity beyond COPD: A retrospective observational study

Levent Özdemir [1], Ahmet Cemal Pazarli [2], Savaş Gegin [3], Burcu Özdemir [4], Esra Arslan Aksu [1], Mahcube Çubukçu [4]

Affiliations Expand

- **PMID: 41578478**

- **DOI: 10.1097/MD.0000000000047298**

Abstract

Alpha-1 antitrypsin deficiency (AATD) is an autosomal co-dominant condition caused by mutations in the SERPINA1 gene. Chronic obstructive pulmonary disease/emphysema, asthma, and bronchiectasis are lung diseases associated with AATD. This study was designed to identify AATD in patients with bronchiectasis without emphysema and to demonstrate the frequency and distribution of AATD genotypes according to the type of bronchiectasis. The study was conducted as a single-center retrospective analysis between December 01, 2022 and December 31, 2024 in patients with bronchiectasis without emphysema. Patients' demographic characteristics (age, gender), smoking status (smoker, ex-smoker, nonsmoker), and types of bronchiectasis (cylindrical, varicose, cystic) according to the Reid classification were evaluated. Dried blood spot samples collected from fingertip pricks were used to screen for alpha-1 antitrypsin genotype deficiency. A total of 563 patients, 241 (42.8%) women, and 322 (57.2%) men, with bronchiectasis without emphysema were evaluated, with a mean age of 55.3 ± 14.9 years. An AATD mutation was detected in 16 patients (2.8%). Genotype deficiency was most commonly observed in the cylindrical type (n = 9). The most frequently identified genotypes were PI*M malton in 6 patients (1.1%), PI*P lowell in 4 patients (0.8%), and PI*I in 3 patients (0.6%). Additionally, 2 patients were found to have previously unidentified novel alpha-1 antitrypsin variants. One of these patients also had Kartagener syndrome. Our findings suggest an association between AATD and bronchiectasis, independent of emphysema, and suggest that alpha-1 antitrypsin genotypes should also be examined in cases of bronchiectasis without emphysema to determine its etiology.

Keywords: alpha-1 antitrypsin; bronchiectasis; genotype.

Conflict of interest statement

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

- 19 references

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

Proceed to details

Cite

2

AMB Express

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. 2026 Jan 22.

doi: 10.1186/s13568-026-02012-w. Online ahead of print.

Myeloperoxidase-DNA complex: a marker and combined target for Pseudomonas aeruginosa-associated bronchiectasis

Shaochu Zheng [1], Jinling Tang [1], Xiaopu Wu [1], Cao Qing [1], Yun Jiang [1], Wei Lu [1], Chongxi Bao [1], Kangkang Hong [2], Jing Luo [# 3], Jinliang Kong [# 4]

Affiliations Expand

- PMID: 41571945

- DOI: 10.1186/s13568-026-02012-w

No abstract available

Keywords: Bronchiectasis; Chronic respiratory diseases (CRDs); MPO-DNA complex; Neutrophil extracellular trap (NETs); Pseudomonas aeruginosa.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Ethics Committee of the First Affiliated Hospital of Guangxi Medical University (Approval Number: 2024-E339-01, 2025-E0932). All participants had informed consent to the study and signed an informed consent form. The use of experimental animals complied with the National Regulations for the Administration of Experimental Animals and was approved by the Animal Ethics Committee of the First Affiliated Hospital of Guangxi Medical University (2025-D0486). Our Study was reported according to the ARRIVE guidelines. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

- **30 references**

Supplementary info

Grants and fundingExpand

Full text links

Proceed to details

Cite

3

Editorial

Eur Respir J

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. 2026 Jan 22;67(1):2501859.

doi: 10.1183/13993003.01859-2025. Print 2026 Jan.

Early origins of chronic lung diseases: bronchiectasis takes the lead

Oleksandr Mazulov [1]

Affiliations Expand

- **PMID: 41571329**

- **DOI: 10.1183/13993003.01859-2025**

No abstract available

Conflict of interest statement

Conflict of interest: The author has no potential conflicts of interest to disclose.

Comment on

- **Greater disease severity in adults with paediatric-onset *versus* adult-onset bronchiectasis: a multicentre EMBARC registry study.**

Khalaili L, Aliberti S, Viligorska K, Blasi F, Stein N, Cohen R, Zoubi R, Adir Y, De Angelis A, New BJ, Marshall L, Chalmers JD, Shteinberg M.Eur Respir J. 2026 Jan 22;67(1):2500665. doi: 10.1183/13993003.00665-2025. Print 2026 Jan.PMID: 40610053 Free PMC article.

Supplementary info

Publication typesExpand

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Comment

Eur Respir J

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. 2026 Jan 22;67(1):2501968.

doi: 10.1183/13993003.01968-2025. Print 2026 Jan.

Reply: Methodological clarifications of AI-powered research trend analytics in bronchiectasis

Jayanth Kumar Narayana [1], Sanjay H Chotirmall [2 3]

Affiliations Expand

- **PMID: 41571328**

- **DOI: 10.1183/13993003.01968-2025**

No abstract available

Conflict of interest statement

Conflict of interest: S.H. Chotirmall reports participation on a data safety monitoring board or advisory board with CSL Behring, Pneumagen Ltd, Zaccha Pte Ltd, Boehringer Ingelheim, GSK, Sanofi, Inovio Pharmaceuticals and Imam Abdulrahman Bin Faisal University, and has received personal fees from CSL Behring, Boehringer Ingelheim, AstraZeneca and Chiesi Farmaceutici. J.K. Narayana reports no potential conflicts of interest.

Comment on

- **Characterising research trends in bronchiectasis through AI-powered analytics.**

Narayana JK, Koo Wei Ling Y, Mac Aogáin M, Chotirmall SH.Eur Respir J. 2025 Dec 4;66(6):2500894. doi: 10.1183/13993003.00894-2025. Print 2025 Dec.PMID: 40876962 Free PMC article. Review.

Supplementary info

Publication typesExpand

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Comment

Eur Respir J

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. 2026 Jan 22;67(1):2501843.

doi: 10.1183/13993003.01843-2025. Print 2026 Jan.

AI-powered analysis of bronchiectasis research trends: methodological considerations

Zekai Yu [1]

Affiliations Expand

- **PMID: 41571326**

- DOI: 10.1183/13993003.01843-2025

No abstract available

Conflict of interest statement

Conflict of interest: Z. Yu has no potential conflicts of interest to disclose.

Comment on

- Characterising research trends in bronchiectasis through AI-powered analytics.

Narayana JK, Koo Wei Ling Y, Mac Aogáin M, Chotirmall SH.Eur Respir J. 2025 Dec 4;66(6):2500894. doi: 10.1183/13993003.00894-2025. Print 2025 Dec.PMID: 40876962 Free PMC article. Review.

Supplementary info

Publication typesExpand

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Cite

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Clin Med (Lond)

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. 2026 Jan 20:100558.

doi: 10.1016/j.clinme.2026.100558. Online ahead of print.

A descriptive study of patients diagnosed with cystic fibrosis or a CF-related disorder in adulthood

Colm Kennedy [1], Alan Anderson [1], Simon Doe [1], Aleksandra Duffy [1], Carlos Echevarria [1], Stephen J Bourke [2]

Affiliations Expand

- PMID: 41570920

- DOI: 10.1016/j.clinme.2026.100558

Free article

Abstract

Of 370 patients at our cystic fibrosis (CF) Centre 49 (13.2%) were diagnosed in adulthood at a mean age of 42 (18-71) years. The main prior diagnosis was bronchiectasis. Disease severity was less than that of typical CF patients; mean FEV1 was 68% (range11-123%) predicted and only 17 (35%) had pancreatic insufficiency; 46 (94%) had at least one variant detected on the standard 50-variant gene assay suggesting that this is a useful initial test, but extended testing was needed to identify 20 rare variants; 47 (97%) had variants treatable by CF modulator drugs. A further 24 (6.4%) patients were diagnosed with a CF-related disorder as sinusitis, pancreatitis, diabetes, or male infertility. Accurate diagnosis of CF and CF-related disorders by clinical assessment, sweat tests and gene testing provides an explanation of the patient's symptoms, has implications for reproductive choices and allows specific treatment including CF modulator drugs.

Keywords: Absent Vas Deferens; Bronchiectasis; Cystic Fibrosis; Pancreatitis; Sinusitis.

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.

7

Respir Investig

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. 2026 Jan 21;64(2):101376.

doi: 10.1016/j.resinv.2026.101376. Online ahead of print.

Clinical characteristics and severity of primary ciliary dyskinesia caused by large homozygous deletion including exons 1-4 of DRC1: A multicenter retrospective cohort study

Masashi Ito [1], Atsuko Nakano [2], Yukiko Arimoto [2], Mitsuko Kondo [3], Yusuke Matsuda [4], Miki Abo [5], Takashi Kido [6], Masashi Morishita [7], Takeshige

Honma [8], Hisashi Nishimori [9], Yuzaburo Inoue [10], Keisuke Iwamoto [11], Yuichiro Hashida [12], Kazuhiko Takeuchi [13], Miyabayashi Akiko [14], Keiko Wakabayashi [14], Hiroyuki Yamada [15], Minako Hijikata [14], Naoto Keicho [16], Kozo Morimoto [17]

Affiliations Expand

- PMID: 41570615

- DOI: 10.1016/j.resinv.2026.101376

Abstract

Background: Approximately half of primary ciliary dyskinesia (PCD) patients in Japan carry a large homozygous deletion encompassing exons 1-4 of DRC1 gene. However, the clinical manifestations of PCD patients with DRC1 variants remain poorly characterized.

Methods: We conducted a multicenter retrospective cohort study at 12 hospitals across Japan. Patients with DRC1 variants were included, and their clinical characteristics, disease severity, and radiological features were compared with those of patients with outer dynein arm (ODA) defects.

Results: A total of 43 patients with DRC1 variants and 21 with ODA defects were included. The median age at PCD diagnosis was 27 years (IQR: 17-41) for patients with DRC1 variants and 26 years (IQR: 8-31) for those with ODA defects. The median PICADAR score was significantly lower in patients with DRC1 variants than those with ODA defects (4 vs. 8, $p < 0.001$). The radiological severity and distribution of bronchiectasis did not differ between the two groups, while the median mucous plugging score (bronchiolitis/tree-in-bud) was significantly higher in patients with DRC1 variants (5, IQR: 4-6 vs. 3, IQR: 2-4, $p = 0.044$). In patients with DRC1 variants, the FEV_1 z score was negatively correlated with age ($r = -0.37$, $p = 0.028$), and the modified Reiff score was positively correlated with age ($r = 0.47$, $p = 0.010$).

Conclusions: Although the sensitivity of the PICADAR score was low in these patients, most clinical and radiological features of DRC1-related PCD were relatively typical of PCD. Given that DRC1-related PCD appears to worsen with age, early diagnosis and timely intervention are crucial.

Keywords: Bronchiectasis; DNAH5; DRC1; PICADAR; Primary ciliary dyskinesia.

Conflict of interest statement

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

Cite

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ERJ Open Res

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. 2026 Jan 19;12(1):00681-2025.

doi: 10.1183/23120541.00681-2025. eCollection 2026 Jan.

Mucociliary and cough clearance in primary ciliary dyskinesia as affected by mutations in *RSPH1* or *DNAH5*

Lawrence E Ostrowski [1 2], Sara Abu-Nasser [1], Kirby L Zeman [3], Margaret W Leigh [1 2], Maimoona A Zariwala [1 2 4], Kenneth N Olivier [5], Thomas W Ferkol [1], Corinne N Taylor [1], Agathe S Ceppe [2 5], Michael R Knowles [2 5], William D Bennett [3]

Affiliations Expand

- PMID: 41561107

- PMCID: PMC12813685

- DOI: 10.1183/23120541.00681-2025

Abstract

Background: Primary ciliary dyskinesia (PCD) is a rare disease caused by mutations in >50 genes that impair the function of motile cilia. The clinical phenotype is heterogeneous and recent studies have begun to investigate genotype-phenotype relationships to better understand disease pathogenesis and develop improved treatments. The major cause of morbidity and mortality among individuals with PCD is the lack of mucociliary clearance (MCC) that results in chronic respiratory infections and leads to bronchiectasis. Here we examine the relationship between MCC and genotype in two groups of PCD individuals; one with mutations in a gene (*DNAH5*) that causes PCD with mostly immotile cilia and one with mutations in a gene (*RSPH1*) that cause PCD with cilia that beat with a near-normal frequency, but an abnormal, sometimes circular waveform.

Methods: Patients with known pathogenic variants in *DNAH5* (n=8) or *RSPH1* (n=7), along with healthy controls (n=8), were assessed for clearance of an inhaled radioactive tracer by mucociliary and cough clearance as measured by gamma scintigraphy.

Results: Neither *DNAH5* nor *RSPH1* subjects showed clear evidence of MCC under either baseline or albuterol stimulated conditions. Unexpectedly, subjects

with *RSPH1* mutations demonstrated cough clearance (median 9.7%, IQR 6.2-17%) that was significantly higher than subjects with *DNAH5* mutations (4.2% (0.94-5.1%); p=0.015) and was not significantly different from healthy control subjects (8.3% (4.2-16%); p=0.88).

Conclusions: The results confirm impaired MCC in people with PCD of both genotypes. However, in this small cohort, the results suggest cough clearance may differ between these two genotypes.

Conflict of interest statement

Conflict of interest: All authors have confirmed that they have no conflicts of interest to declare.

- 43 references
- 4 figures

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Thorax

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. 2026 Jan 20:thorax-2025-223839.

doi: 10.1136/thorax-2025-223839. Online ahead of print.

Stretching the diagnosis: tracheobronchomegaly in alpha-1 antitrypsin deficiency or coexisting Mounier-Kuhn syndrome?

Jaime Andres Alvarado Castillo [1], Gregor Herrmann Krasagakis [2], Prerana Agarwal [3], Andreas Hoheisel [2], Daiana Stolz [2]

Affiliations Expand

- PMID: 41558969
- DOI: 10.1136/thorax-2025-223839

No abstract available

Keywords: Alpha1 Antitrypsin Deficiency; Bronchiectasis; Bronchoscopy; Imaging/CT MRI etc.

Conflict of interest statement

Competing interests: None declared.

Full text links

Proceed to details

Cite

10

Thorac Res Pract

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. 2026 Jan 20.

doi: 10.4274/ThoracResPract.2025.2025-5-4. Online ahead of print.

The Necessity of Bronchiectasis Registries - The Turkish Registry of Bronchiectasis

Deniz Kızılırmak [1], Miguel Angel Martinez-Garcia [2], Sedat Çiçek [3], Ayşın Şakar Coşkun [1], Oğuz Kılınç [4], Ebru Çakır Edis [5]

Affiliations Expand

- **PMID: 41555634**

- **DOI: 10.4274/ThoracResPract.2025.2025-5-4**

Free article

No abstract available

Keywords: Bronchiectasis; bronchiectasis database; national registry.

Conflict of interest statement

No conflict of interest was declared by the authors.

Full text links

Proceed to details

Cite

11

J Clin Gastroenterol

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. 2026 Jan 19.

doi: 10.1097/MCG.0000000000002327. Online ahead of print.

Increased Prevalence of Pulmonary Diseases in Patients With Inflammatory Bowel Disease: A Retrospective Multicenter Study

Shaina Ailawadi [1], Trishna Parikh [1], Elleson Harper [2], Jaime Perez [2], Gregory Cooper [3], Preetika Sinh [4], Vu Nguyen [3], Jeffry Katz [3], Fabio Cominelli [3], Miguel Regueiro [5], Emad Mansoor [3]

Affiliations Expand

- PMID: 41549813

- DOI: 10.1097/MCG.0000000000002327

Abstract

Background: Inflammatory bowel disease (IBD) is a multisystem illness with intestinal and extraintestinal manifestations. We aimed to analyze the association of developing pulmonary diseases (PDs) in patients with IBD.

Methods: In this retrospective cohort study, TriNetX was used to identify patients with IBD who were prescribed at least one IBD-specific medication or advanced therapy. Patients with an inpatient visit and no IBD comprised the control group. Propensity score matching (PSM) was used to balance cohorts. The odds ratio (OR) of developing PDs all-cause mortality were determined.

Results: After PSM, there were 155,668 patients (46.6±17.5 y, 50.9% female) in each group. Patients with IBD had an increased prevalence of developing all assessed PDs except for pyothorax (P=0.087), lung abscesses (P=0.411), pleural disease (OR: 0.89 [0.80-0.98], P=0.013), and pneumothorax (OR: 0.67 [0.62-0.73], P<0.001) compared with the control group. There were at least 2-fold increased prevalence of developing asthma (OR: 2.17 [2.09-2.26]), bronchiectasis (OR: 2.35 [2.12-2.61]), chronic bronchitis (OR: 2.40 [2.11-2.72]), and vasculitis (OR: 2.33 [1.99-2.72]) compared with the control group (all P<0.001).

Conclusion: Given the increased association of developing PDs, clinicians should engage in proactive monitoring and risk reduction strategies to mitigate the development of various PDs in the IBD patient population.

Keywords: gut-lung axis; inflammatory bowel disease; pulmonary diseases.

- 10 references

Full text links

Proceed to details

Cite

12

Respir Med

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. 2026 Jan 16:252:108655.

doi: 10.1016/j.rmed.2026.108655. Online ahead of print.

Prognosis of patients with bronchiectasis receiving long-term oxygen therapy

Kazuki Ono [1], Masashi Ito [2], Risako Harada [1], Takashi Ohe [3], Koji Furuuchi [3], Keiji Fujiwara [3], Tatsuya Kodama [4], Mitsuru Tabusadani [1], Kozo Morimoto [5]

Affiliations Expand

- PMID: 41548762

- DOI: 10.1016/j.rmed.2026.108655

Abstract

Objectives: Long-term oxygen therapy (LTOT) for bronchiectasis is recommended using the same eligibility criteria as for chronic obstructive pulmonary disease (COPD); however, the evidence supporting LTOT in bronchiectasis is limited, and no studies have evaluated the prognosis of the disease in these patients. The aim of the present study was to investigate the characteristics and prognosis of bronchiectasis in patients receiving LTOT.

Methods: This retrospective cohort study included patients with bronchiectasis and COPD who started LTOT between April 2011 and September 2022. Patients with interstitial lung disease (ILD) who started LTOT after June 2020 while receiving antifibrotic therapy were also included. We compared baseline characteristics and survival times among patients with bronchiectasis, COPD, and ILD. Furthermore, among patients with bronchiectasis, we compared these parameters between those

with nontuberculous mycobacteria (NTM) culture-positive and NTM culture-negative results.

Results: A total of 93 consecutive patients with bronchiectasis were newly initiated on LTOT. Compared with patients with COPD and ILD, those with bronchiectasis had a significantly lower BMI, %FVC and %FEV. Survival was significantly shorter in patients with bronchiectasis (664 [372-1078] days) than in those with COPD (1008 [590-1722] days), whereas no significant difference was observed compared to ILD (669 [208-989] days). Patients who were NTM culture-positive (405 [156-646] days) had a significantly shorter survival than those who were NTM culture-negative (946 [573-1380] days).

Conclusions: The prognosis of bronchiectasis in patients was extremely poor, worse than that of COPD and comparable to that of ILD.

Keywords: Bronchiectasis; Chronic obstructive pulmonary disease; Hypoxemia; Interstitial lung disease; Long-term oxygen therapy; Nontuberculous mycobacteria.

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.

Cite

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BMC Pulm Med

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. 2026 Jan 16.

doi: 10.1186/s12890-026-04111-7. Online ahead of print.

Postoperative pulmonary complications in patients with bronchiectasis following non-cardiothoracic surgery: a retrospective cohort analysis

Jing Yang [1], Jingjing Zhong [2], Feng Qiu [3], Shanni Ma [3]

Affiliations Expand

- PMID: 41545953

- DOI: 10.1186/s12890-026-04111-7

Free article

No abstract available

Keywords: Bronchiectasis; Non-cardiothoracic surgery; Postoperative pulmonary complication.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study was conducted in accordance with the Declaration of Helsinki. This study was approved by the local Ethics Committee of First Affiliated Hospital of Ningbo University, Ningbo, China (approval number 2024-109RS-01). As the study design was retrospective, we used the currently existing samples collected during routine medical care and did not pose any additional risks to the patients. The informed consent was waived by Ethics Committee of First Affiliated Hospital of Ningbo University. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

- 29 references

14

mSystems

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. 2026 Jan 20;11(1):e0151425.

doi: 10.1128/msystems.01514-25. Epub 2025 Dec 5.

Genomic diversity and adaptive resistance mechanisms in *Pseudomonas aeruginosa* from bronchiectasis

Yanghua Xiao [1,2], Jingwen Zhang [1,2], Feng Nie [1,2], Tingxiu Peng [1,2], Ping Li [1,2], Keyi Li [1,2], Xingyu Tao [1,2], Dandan Wei [3], Fanglin Zheng [1,2], Rui Zhao [3], Wei Zhang [1,2]

Affiliations Expand

- PMID: 41347780

- PMCID: PMC12817961

- DOI: 10.1128/msystems.01514-25

Abstract

Pseudomonas aeruginosa **is a predominant colonizer of airways in non-cystic fibrosis bronchiectasis (NCFB), yet its adaptive mechanisms remain poorly understood. This study investigates the genetic characteristics, virulence variation, and resistance mechanisms of 66 *P. aeruginosa* isolates derived from NCFB patients. Whole-genome sequencing revealed extensive genetic diversity, encompassing 53 sequence types and a predominance of the O6 serotype (30/66, 45.5%). Phylogenetic analysis indicated that most NCFB isolates were acquired independently, with limited evidence of transmission. Extensive loss-of-function mutations were identified, with *mucA* mutations present in 90.6% (29/32) of mucoid and 67.6% (23/34) of non-mucoid isolates. Most *mucA* mutations were frameshift variants, predominantly at codon 144 (Ala144fs), indicating the selective advantage of this site in driving alginate overproduction during chronic airway infection. Virulence gene profiling demonstrated a highly conserved core repertoire but considerable variability in type VI secretion and pyoverdine systems. Notably, mucoid isolates exhibited significantly higher cefiderocol MICs compared to non-mucoid isolates ($P = 0.0073$), along with enhanced biofilm formation ($P < 0.0001$) but reduced virulence in the *Galleria mellonella* infection model. Mechanistic studies revealed that cefiderocol resistance in mucoid *P. aeruginosa* was driven by synergistic interactions between alginate overproduction and mutations in iron-uptake regulatory genes, particularly Gly132 frameshift in *pirR*. Disruption of alginate biosynthesis (Δ*algD*) and complementation of *pirR* in mucoid strains markedly restored cefiderocol susceptibility. These findings highlight the remarkable genomic diversity and adaptive resistance mechanisms of *P. aeruginosa* in NCFB, providing important insights into its persistence and therapeutic challenges in chronic airway infection.IMPORTANCEUnderstanding the adaptive mechanisms of *Pseudomonas aeruginosa* in non-cystic fibrosis bronchiectasis (NCFB) is critical for improving treatment strategies. This study reveals substantial genomic diversity and highlights alginate overproduction as a key feature of chronic adaptation. Notably, we uncover a novel resistance mechanism involving synergistic interactions between alginate production and mutations in iron-uptake regulators, particularly *pirR*. These findings underscore the complex evolutionary pressures shaping *P. aeruginosa* persistence in NCFB and provide valuable insights into its resistance and virulence balance, offering potential targets for more effective therapeutic interventions.**

Keywords: Pseudomonas aeruginosa; adaptation; bronchiectasis; genome; resistance; virulence.

Conflict of interest statement

The authors declare no conflict of interest.

- 61 references

- 6 figures

Supplementary info

MeSH terms, Substances, Grants and fundingExpand

Full text links

Proceed to details

Cite

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Comparative Study

Eur Respir J

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. 2026 Jan 22;67(1):2500665.

doi: 10.1183/13993003.00665-2025. Print 2026 Jan.

Greater disease severity in adults with paediatric-onset *versus* adult-onset bronchiectasis: a multicentre EMBARC registry study

Luai Khalaili [1 2], Stefano Aliberti [3 4], Kateryna Viligorska [5], Francesco Blasi [6 7], Nili Stein [8], Raya Cohen [1], Rafea Zoubi [1], Yochai Adir [1], Alessandro De Angelis [4], Benjamin Jaaming New [5], Lewis Marshall [5], James D Chalmers [5], Michal Shteinberg [9 2]

Affiliations Expand

- **PMID: 40610053**
- **PMCID: PMC12824631**
- **DOI: 10.1183/13993003.00665-2025**

Abstract

Background: Young adults with paediatric-onset bronchiectasis (POBE) represent a minority of bronchiectasis patients and are poorly characterised. We aimed to compare the characteristics and severity of adults with POBE to adult-onset bronchiectasis (AOBE).

Methods: Data from four EMBARC (European Multicentre Bronchiectasis Audit and Research Collaboration) centres were analysed. POBE was defined as patient-reported symptom onset before the age of 18 years, while AOBE was defined as symptom onset at or after the age of 18 years. We compared POBE to AOBE and used multivariable models to identify factors associated with disease severity, including lung function, *Pseudomonas aeruginosa* infection, exacerbations and hospitalisations.

Results: Among 1422 patients, 249 (17.5%) had POBE (mean onset age: 6.5 years) and 1173 had AOBE (mean onset age: 55.4 years). POBE patients were younger at enrolment (50.3 *versus* 66 years), had longer disease duration (43.3 *versus* 10.8 years), worse lung function (forced expiratory volume in 1 s (FEV_1): 70.8% *versus* 84.2% predicted), greater radiological extent (Reiff score: 6.0 *versus* 4.4), higher bacterial infection rates (72.3% *versus* 54.6%) and more exacerbations (median: 2 *versus* 1 per year) compared to AOBE ($p<0.001$ across all comparisons). Symptom duration was independently associated with *P. aeruginosa* infection, hospitalisation, exacerbations and reduced FEV_1 % pred. Congenital aetiologies, such as primary ciliary dyskinesia and primary immunodeficiencies, further contributed to disease severity.

Conclusions: Adults with POBE exhibit greater disease severity than those with AOBE, likely due to prolonged symptom duration and congenital aetiologies. Conventional bronchiectasis severity scores may underestimate severity in young people with POBE. Optimised care, including structured transition to adult care, may mitigate progression in POBE patients.

Conflict of interest statement

Conflict of interest: S. Aliberti reports grants from GlaxoSmithKline, consultancy fees from Insmed Incorporated, Insmed Italy, Insmed Ireland Ltd, Insmed Netherlands BV, Zambon Spa, AstraZeneca, Menarini, CSL Behring GmbH, Pfizer, Fondazione Internazionale Menarini, Moderna Italy, Moderna TX, Boehringer Ingelheim, Chiesi Farmaceutica Spa, MSD Italia Srl, Vertex Pharmaceuticals, BRAHMS GmbH, Physioassist SAS, AN2 Therapeutics, GlaxoSmithKline Spa and Verona, payment or honoraria for lectures, presentations, manuscript writing or educational events from GlaxoSmithKline Spa, Fondazione Internazionale Menarini, Insmed Italy, Insmed Ireland Ltd, Boehringer Ingelheim, Zambon and Vertex Pharmaceuticals, and participation on a data safety monitoring board or advisory board with Insmed Incorporated, Insmed Italy, AstraZeneca UK Ltd, MSD Italia Srl and Verona Pharma Plc. F. Blasi reports grants from AstraZeneca, Chiesi and Insmed, consultancy fees from Menarini, and payment or honoraria for lectures, presentations, manuscript writing or educational events from AstraZeneca, Chiesi, Boehringer Ingelheim, GlaxoSmithKline, Guidotti, Grifols, Insmed, Menarini, Novartis, OM Pharma, Pfizer, Sanofi, Viatris, Vertex and Zambon. R. Cohen, A. De Angelis and L. Marshall report support for attending meetings from the Israeli League Against Tuberculosis and leadership roles with the Israeli Society for TB and NTM. J.D. Chalmers is Chief Editor of the European Respiratory Journal and reports grants from AstraZeneca, Genentech, Boehringer Ingelheim, Gilead, Chiesi, Grifols, Insmed and Trudell, and consultancy fees from AstraZeneca, Chiesi, GlaxoSmithKline, Insmed, Grifols, Novartis, Boehringer Ingelheim, Pfizer, Janssen, Antabio and Zambon. M. Shteinberg reports grants from Tel Aviv League for Lung

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Comment in

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- **40 references**
- **6 figures**

Supplementary info