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

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Sci Rep

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. 2025 Nov 21;15(1):41209.

doi: 10.1038/s41598-025-25141-x.

Lung tissue T cells are activated in chronic obstructive pulmonary disease with non-small cell lung cancer patients

Mari Tone[1 2 3], Tomomi Isono[4], Yoko Yamamoto[4], Yoshito Takeda[2], Yasushi Shintani[4], Atsushi Kumanogoh[2 5 6 7 8 9], Hisashi Wada[3], Kota Iwahori[10 11 12]

Affiliations Expand

- **PMID: 41271981**

- **DOI: 10.1038/s41598-025-25141-x**

Abstract

Chronic obstructive pulmonary disease (COPD) is characterized by chronic inflammation of the respiratory tract and is associated with an increased risk of lung cancer. Non-small cell lung cancer (NSCLC) patients with COPD have been shown to exhibit favorable responses to anti-PD-1/PD-L1 therapy. In the present study, we investigated T cell profiles and functions in the lung tissues of NSCLC patients with or without COPD to provide the rationale for immunotherapy of NSCLC patients with COPD. Abundant PD-1^{+} and Tim-3^{+} T cells were detected in the lung tumor tissues of NSCLC patients with COPD. On the other hand, CD103^{+} tissue-resident memory T (T_{RM}) cells in non-tumor lung tissues were more abundant in NSCLC patients with than in those

without COPD. Furthermore, the abundance of CD103^{+} T_{RM} cells in non-tumor lung tissues correlated with IFN-γ production and COPD-related clinical parameters (pack-years smoking history and the FEV1/FVC ratio). In NSCLC patients with COPD, T cells were active participants in both the non-tumor and the lung tumor tissues, suggesting the potential response to immunotherapy.

Keywords: Chronic obstructive pulmonary disease; Immunotherapy; Lung cancer; T cells.

Conflict of interest statement

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

- 40 references

Supplementary info

MeSH terms, Substances, Grants and fundingExpand

Proceed to details

Cite

2

Respiration

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. 2025 Nov 21:1-18.

doi: 10.1159/000549626. Online ahead of print.

Impact of increased single-inhaler triple therapy use in appropriate patients on COPD exacerbations, mortality, and medical costs: PROMETHEUS Spain

Marta Marín-Oto, Jorge Mestre-Ferrándiz, Joaquín Sánchez-Covisa, Carmen Corregidor García, Néstor Martínez-Martínez, John Bell, Melissa Caplen, Prachi D Bhatt, Jennifer Carioto, Bruce Pyenson

- PMID: 41269929

- DOI: 10.1159/000549626

Abstract

Introduction: COPD is the third cause of death in Spain. The ETHOS (NCT02465567) and IMPACT (NCT02164513) RCTs showed reduced exacerbations and all-cause mortality for single-inhaler triple therapy (SITT), but no studies have evaluated the potential impact on COPD outcomes of higher SITT adoption in Spain.

Methods: We used literature-based data on patient characteristics, incidence, COPD severity changes, treatment distributions/transitions, mortality, exacerbations, and medical costs, to

inform a stochastic simulation of the Spanish COPD population for 2025-2034 under two scenarios: "Status Quo" and "Increased SITT", in which higher SITT use is driven by airflow limitation, exacerbation history (as per 2025 GOLD guidelines) and SITT replacing multiple-inhaler triple therapy (MITT). Additionally, we present results separately for the subset of patients that met the criteria for SITT use, referred to as "flagged population."

Results: In our 10-year simulation, increased SITT use in the flagged population could lead to 51,000 deaths avoided resulting in a 14.6% reduction in mortality rates and extended patient life by 1.2 years per COPD flagged patient. Additionally, increased SITT use in the flagged population reduced severe and moderate exacerbations by 62,000 (an 11.5% reduction) and 366,000 (an 11.6% reduction), respectively, resulting in total medical savings of €384 million.

Conclusion: Based on our simulation, increased use of SITT in the Spanish COPD population, consistent with the most recent 2025 GOLD guidelines' recommendations, could reduce mortality and exacerbations and their corresponding medical costs. Increasing SITT utilization in patients with COPD may constitute a long-term strategy with relevant clinical and economic benefits.

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Cite

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Review

Lasers Med Sci

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. 2025 Nov 21;40(1):491.

doi: 10.1007/s10103-025-04748-6.

Global trends and hotspots in AI applications for CT detection of chronic obstructive pulmonary disease: A bibliometric analysis from 2012 to 2024

Qi Yao[1], Ya-Kang Zhang[1], Li-You Zhou[1], Wen-Xiang Yang[2], Kai Wu[1]

Affiliations Expand

- PMID: 41269383

- DOI: 10.1007/s10103-025-04748-6

Abstract

Purpose: Chronic obstructive pulmonary disease (COPD) is a progressive inflammatory lung disease that significantly impacts global health. This study aims to comprehensively analyze

global trends and research hotspots in the application of artificial intelligence (AI) for computed tomography (CT) detection of COPD. METHODS: Publications related to AI applications for CT detection in COPD from 2012 to 2024 were retrieved from the Web of Science Core Collection (WoSCC) database. Bibliometric analysis was conducted using VOSviewer, CiteSpace, and the R package "bibliometrix".

Result: The field has experienced publications growth, with 189 publications and an annual growth rate of 37.83%. The United States led with 53 publications, followed by China (51) and Germany (13). The University of Iowa was the most prolific institution (69), followed by Harvard University (47) and Brigham and Women's Hospital (37). Hoffman Eric A. is the most prolific author with 16 publications, and journals such as Scientific Reports and Radiology were key contributors to the field. Emerging topics included "quantitative imaging", "low dose CT", "pulmonary disease", "body mass index", "subpopulations", and "prevalence", suggested growing interest in comprehensive patient assessment and population studies. CONCLUSION: This bibliometric analysis provides a comprehensive overview of research on AI applications for CT detection of COPD from 2012 to 2024, identifying key contributors, research hotspots, and emerging trends. Future research should focus on differentiating COPD from other lung diseases or COPD subpopulations for personalized treatment.

Clinical trial number: not applicable.

Keywords: Artificial intelligence; Bibliometric analysis; Chronic obstructive pulmonary disease; CiteSpace; Computed tomography; VOSviewer.

Conflict of interest statement

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

- **54 references**

Supplementary info

Publication types, MeSH termsExpand

Proceed to details

Cite

4

Respirology

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. 2025 Nov 20.

doi: 10.1002/resp.70169. Online ahead of print.

Airway Mucus Plugs in COPD: A Potential Treatable Trait

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Affiliations Expand

- PMID: 41266930

- DOI: 10.1002/resp.70169

No abstract available

Keywords: airway mucus plug; chronic obstructive pulmonary disease; computed tomography imaging; mucociliary clearance; therapeutic target.

- 24 references

Full text links

Proceed to details

Cite

5

Forum Health Econ Policy

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. 2025 Nov 21.

doi: 10.1515/fhep-2025-0007. Online ahead of print.

Estimating the Value of Ensifentrine in Addition to Background Maintenance Therapy for the Treatment of Chronic Obstructive Pulmonary Disease

Stella M Arndorfer[1], Elmar R Alizadeh[1], Kavita Aggarwal[2], Alex Jones[2], David C Grabowski[3]

Affiliations Expand

- PMID: 41261082

- DOI: 10.1515/fhep-2025-0007

Abstract

Chronic obstructive pulmonary disease (COPD) is a group of progressive lung diseases, leading to increased healthcare use, expenditures, and risk of mortality. In June 2024, the Institute for Clinical and Economic Review (ICER) released a traditional cost-effectiveness analysis (CEA) of ensifentrine + background maintenance therapy (BMT) for the treatment of moderate-to-severe COPD. This study's objective is to analyze the sensitivity of ICER's traditional CEA methods to various adjustments to their model, including Generalized Cost-Effectiveness Analysis (GCEA) elements such as generalized risk-adjusted cost-effectiveness (GRACE), dynamic pricing, and

stacked cohorts. A Markov model simulated the value of ensifentrine + BMT relative to BMT only for treating moderate-to-severe COPD, with patients transitioning across health states defined by levels of lung functionality. We estimated the annual value-based prices (VBPs) and incremental cost-effectiveness ratios of ensifentrine + BMT relative to BMT using traditional CEA and GCEA methods, including multiple scenario analyses. The VBP of ensifentrine + BMT is estimated at $61,008 when all GCEA elements are included. Relative to the traditional CEA static pricing scenario, GRACE increases VBPs by roughly 10 %, while dynamic pricing increases VBPs by 7-11 %. Stacked cohorts with dynamic pricing increases VBPs by 86-170 %. When including GCEA elements and adjustments to better reflect real-world COPD clinical pathways, ensifentrine + BMT is cost-effective below an annual price of $61,000 at a willingness-to-pay of $150,000 per quality-adjusted life-year.

Keywords: chronic obstructive pulmonary disease; cost-effectiveness; ensifentrine; generalized cost-effectiveness analysis; institute for clinical and economic review.

- 26 references

Full text links

Proceed to details

Cite

6

BMC Pulm Med

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. 2025 Nov 19;25(1):535.

doi: 10.1186/s12890-025-04009-w.

Effects of in utero tobacco exposure, age of smoking initiation, and environmental pollution on the risk of chronic obstructive pulmonary disease in adulthood: a large scale prospective cohort study

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Affiliations Expand

- **PMID: 41257811**

- **PMCID: PMC12628979**

- DOI: 10.1186/s12890-025-04009-w

Abstract

Background: There has been limited research to date comprehensively assessing the effects of in utero tobacco exposure, age of smoking initiation and environmental pollution on the incidence of chronic obstructive pulmonary disease (COPD).

Methods: The participants in the current study were drawn from the UK Biobank cohort. 274,330 participants were included for analyses of in utero tobacco exposure and incident risk of COPD, and 306,080 were analyzed for age of smoking initiation and incident risk of COPD. In utero tobacco exposure was determined by maternal smoking during pregnancy. According to smoking habits, participants were classified as non-smokers, late-onset smokers (age of smoking initiation ≥ 15 years), or early-onset smokers (age of smoking initiation < 15 years). Environmental pollution is classified into low, medium, and high Environmental Pollution Score (EPS) groups. A Cox proportional hazard regression model was used to evaluate the effects of in utero tobacco exposure, age of smoking initiation, and environmental pollution on COPD incidence. The combined effects and interactions among in utero tobacco exposure, age of smoking initiation, and environmental pollution on COPD incidence were also examined.

Results: Over a median follow-up period of 12.96 years, 9054 and 10,301 participants were diagnosed with COPD based on in utero tobacco exposure and age of smoking initiation, respectively. Hazard ratios (HRs; 95% confidence intervals [CIs]) of COPD risk among early-onset smokers with in utero tobacco exposure, participants with in utero tobacco exposure and high EPS, early-onset smokers with high EPS, and early-onset smokers with high EPS and in utero tobacco exposure were 3.92 (3.54, 4.31), 1.25 (1.15, 1.35), 3.49 (3.11, 3.91), and 3.81 (3.26, 4.46), compared with non-smokers without in utero tobacco exposure, participants without in utero tobacco exposure and low EPS, non-smokers with low EPS, and non-smokers with low EPS and without in utero tobacco exposure, respectively. Furthermore, additive interactions among late-onset smokers and intermediate/high EPS were observed [relative excess risk due to the interaction (95% CI): 0.26 (0.07, 0.45) and 0.34 (0.15, 0.52)].

Conclusions: Our findings suggest that in utero tobacco exposure, early-life smoking, and environmental pollution independently and jointly increase the incidence of COPD.

Clinical trial number: Not applicable.

Keywords: Age of smoking initiation; COPD; Environmental pollution; In utero tobacco exposure.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: The study protocol adhered to the ethical guidelines of the 1975 Declaration of Helsinki and the UK Biobank obtained ethics approval from the North West Multi-Centre Research Ethics Committee (11/NW/0382). All participants gave informed consent for data provision and linkage. Consent for publication: All authors of this paper have read and approved the final version submitted. Competing interests: The authors declare no competing interests.

- 63 references
- 3 figures

Supplementary info

MeSH termsExpand

Full text links

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Cite

7

Review

Ann Med

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. 2025 Dec;57(1):2587931.

doi: 10.1080/07853890.2025.2587931. Epub 2025 Nov 19.

Chronic obstructive pulmonary disease (COPD) and autoimmune diseases: unravelling complex interactions

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Affiliations Expand

- PMID: 41257445

- PMCID: PMC12632235

- DOI: 10.1080/07853890.2025.2587931

Abstract

Background: Chronic obstructive pulmonary disease (COPD) is a global healthcare problem, characterized by a progressive and irreversible decline in lung function, primarily due to airflow limitation caused by inflammation and emphysema. While smoking is the main risk factor, systemic inflammation also plays a significant role in the development and progression of the disease, particularly in relation to autoimmune conditions.

Research question: This literature review provides an overview of current evidence regarding the underlying pathophysiological mechanisms that link autoimmune inflammatory processes to COPD. It also examines the clinical relevance of these associations, with a focus on potential diagnostic and therapeutic implications.

Methods: To ensure a comprehensive perspective, a broad literature search was conducted in PubMed and Embase in March 2025, using a wide range of search terms related to COPD and multiple autoimmune conditions. Relevant studies of any design were included if they provided valuable insights into the interplay between autoimmune processes and COPD, while non-English publications and commentaries were excluded.

Results: Studies suggest a potential association between COPD and autoimmune processes, with chronic systemic inflammation playing a central role. The evidence points to immune dysregulation as a contributing factor to both COPD progression and its connection to autoimmune conditions.

Conclusion: The complex interactions between COPD and autoimmune diseases require further investigation. Gaining a better understanding of these interactions may provide new insights into managing patients with concurrent pulmonary and autoimmune conditions, emphasizing a growing area of clinical research.

Keywords: COPD; Chronic obstructive pulmonary disease; autoimmune diseases; autoimmunity.

Conflict of interest statement

The authors report there are no competing interests to declare.

- 227 references
- 1 figure

Supplementary info

Publication types, MeSH termsExpand

Full text links

Proceed to details

Cite

8

ERJ Open Res

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. 2025 Nov 17;11(6):00234-2025.

doi: 10.1183/23120541.00234-2025. eCollection 2025 Nov.

Heart rate, respiratory rate and airflow variability differences between stable and exacerbating COPD patients

Amar J Shah[1,2], Anita Saigal[1,2], Renard Pramono[3,4], Orsina Dessi[4], John R Hurst[1,2], Ali R Mani[5], Esther Rodriguez Villegas[3,4], Swapna Mandal[1,2]

Affiliations Expand

- **PMID: 41257182**

- **PMCID: PMC12621118**

- **DOI: 10.1183/23120541.00234-2025**

Abstract

Rationale: Earlier identification and treatment of COPD exacerbations leads to improved clinical outcomes. Wearable technology has the ability to measure physiological signal variability, which is likely to be different in states of stability and exacerbation. The objectives of the present study were to analyse signals, including heart rate, respiratory rate and airflow, from a novel small wearable device, AcuPebble RE100 and compare differences in a group of stable and exacerbating participants.

Methods: Groups of stable and exacerbating adult participants with COPD were asked to wear AcuPebble RE100, which records physiological signals including heart rate, respiratory rate and airflow. Linear and nonlinear variability analysis was conducted on each of these time-series to detect differences between groups.

Results: A total of 51 participants (33 stable and 18 exacerbating) were analysed. Stable participants used the device for a median (interquartile range) of 18 nights (10-26). The exacerbating participants had significantly higher heart rate variability measures and a significantly lower heart rate complexity measure compared with stable participants. Respiratory rate variability and complexity were significantly increased in the exacerbating participants. Detrended fluctuation analysis demonstrated two crossover points in both populations, with the exacerbating participants demonstrating a significantly lower median α3 (0.50 (0.47-0.56) *versus* 0.69 (0.65-0.79); p <0.001) compared with the stable population.

Conclusion: We have shown that significant differences exist in heart rate, respiratory rate and airflow variability measures between stable and exacerbating groups of COPD. This will help build exacerbation detection algorithms in the future.

Conflict of interest statement

Conflict of interest: A.J. Shah reports support for the present study from Acurable Ltd. A. Saigal, R. Pramono, O. Dessi and A.R. Mani have nothing to disclose. J.R. Hurst reports grants from AstraZeneca; consulting fees from AstraZeneca, Boehringer Ingelheim, Chiesi, GSK, Sanofi-Regeneron, Sanofi and Takeda; payment or honoraria for lectures, presentations, manuscript writing or educational events from AstraZeneca, Boehringer Ingelheim, Chiesi, GSK, Sanofi-Regeneron, Sanofi and Takeda; and support for attending meetings from AstraZeneca. E. Rodriguez Villegas reports support for the present study from UK Engineering and Physical Sciences Research Council grant EP/P009794/1 and Imperial College London; and stock or stock options with Acurable Ltd. S. Mandal reports support for the present study from Acurable Ltd.

- **31 references**

- **4 figures**

Full text links

Proceed to details

Cite

9

ERJ Open Res

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. 2025 Nov 17;11(6):00278-2025.

doi: 10.1183/23120541.00278-2025. eCollection 2025 Nov.

Cardiovascular disease as a prognostic factor for mortality in non-cystic fibrosis bronchiectasis: data from the Taiwan Bronchiectasis Research Collaboration

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Affiliations Expand

- PMID: 41257181

- PMCID: PMC12621131

- DOI: 10.1183/23120541.00278-2025

Abstract

Background: Non-cystic fibrosis bronchiectasis (NCFB) is linked to an increased incidence of cardiovascular disease (CVD), but its impact on mortality is unclear. This study aimed to assess the effect of CVD on mortality and its relationship with clinical characteristics in NCFB patients.

Methods: This multicentre retrospective study analysed baseline characteristics and outcomes of 2753 NCFB patients, including 648 with CVD. Univariate and multivariate analyses identified factors associated with CVD and mortality, comparing demographics, comorbidities and pulmonary function between patients with and without CVD.

Results: Patients with CVD were significantly older (76.4 *versus* 68.8 years, p<0.001), had higher body mass index (BMI) (22.9 *versus* 21.5 kg·m^{-2}, p<0.001) and more comorbidities. Age (hazard ratio (HR) 1.046, p<0.001), BMI (HR 1.089, p<0.001) and comorbidity score (HR 1.698, p<0.001) were independent risk factors for CVD. Mortality risk factors in NCFB patients included older age (HR 1.032, p=0.042), *Pseudomonas aeruginosa* infection (HR 3.353, p=0.002), emergency visits (HR 2.455, p<0.001), COPD (HR 2.563, p=0.005) and CVD (HR 2.146, p=0.015).

Conclusion: CVD in NCFB is associated with severe clinical profiles and poor outcomes. Older age, higher BMI and comorbidity burden significantly correlate with CVD presence. CVD is an independent risk factor for mortality, highlighting the importance of early identification and management of cardiovascular comorbidities in patients with NCFB.

Conflict of interest statement

Conflict of interest: The authors have nothing to disclose.

- 34 references
- 4 figures

Full text links

Proceed to details

Cite

10

Hosp Pract (1995)

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. 2025 Nov 19:2591593.

doi: 10.1080/21548331.2025.2591593. Online ahead of print.

Risk factors for vital sign deviations in acutely admitted medical patients - an exploratory analysis

Katja Kjær Grønbæk[1], Jesper Mølgaard[2], Kasper Mørk Sørensen[1], Emilie Sigvardt[1], Mikkel Elvekjær[1], Eske Kvanner Aasvang[2 3], Christian S Meyhoff[1 3]

Affiliations Expand

- **PMID: 41255272**

- **DOI: 10.1080/21548331.2025.2591593**

Abstract

Objectives: In acutely admitted patients, comorbidities, and other patient characteristics known at admission might be risk factors for physiological deterioration during hospitalization. Knowledge of specific risk factors could therefore help clinicians escalate or decrease monitoring practices for selected patient categories. We investigated the association between information obtained at admission and the risk of subsequent severe vital signs deviations in acutely admitted medical patients.

Methods: We analyzed data from three clinical trials using continuous monitoring of vital signs in adults during acute medical hospitalizations. The primary exposure variable was number of

comorbidities and were obtained from the medical record along with other potential risk factors at the time of admission. The primary outcome was cumulated duration of severe vital sign deviations (SpO2 < 85%, respiratory rate ≤5 min^{-1} or > 24 min^{-1}, heart rate < 30 min^{-1} or > 130 min^{-1}, or systolic blood pressure < 91 mmHg or > 219 mmHg).

Results: We included data from 553 patients (51% female, median age 72 years), of whom 96% were admitted with respiratory symptoms. Patients with two or more comorbidities had severe vital sign deviations lasting 145 minutes/24 hours as compared with 90 minutes/24 hours in patients with none or one comorbidity, $p = 0.07$. Patients with severe tachypnea upon arrival (> 30 brpm) had long duration of deviations (241 minutes per 24 hours [IQR 132;421]) as well as patients with increased CRP > 100 mg/L whose durations of deviations were 175 minutes per 24 hours [IQR 60;339].

Conclusion: Comorbidity burden, tachypnea, and increased level of CRP upon arrival were to some extent risk factors for subsequent vital sign deviations. Information obtained at acute admissions can be useful in establishing and escalating patient monitoring level.

Keywords: COVID-19; Clinical deterioration; chronic obstructive pulmonary disease; continuous monitoring; desaturation; emergency medicine; national early warning score; tachypnea; vital signs.

Cite

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Tuberc Respir Dis (Seoul)

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. 2025 Nov 19.

doi: 10.4046/trd.2025.0173. Online ahead of print.

Expert Consensus Statement on the Disease Burden and Vaccination for Respiratory Syncytial Virus (RSV) Infection in Adults

Joon Young Choi [1], Chin Kook Rhee [2], Yong-Il Hwang [3], Ji-Yong Moon [4], Kwang Ha Yoo [4], Hyoung Kyu Yoon [5]

Affiliations Expand

- PMID: 41255075

- DOI: 10.4046/trd.2025.0173

Free article

Abstract

Respiratory syncytial virus (RSV) is a leading cause of acute respiratory infection in adults, with higher morbidity and mortality in older adults and those with COPD or asthma. Despite the burden, disease awareness remains low and treatment is limited to supportive care. Recent advances have led to the approval of multiple vaccines and updated guideline recommendations. We reviewed current literature, surveillance data, and international guidelines to assess the burden of RSV in adults and to evaluate evidence for vaccination in high-risk groups. Globally, RSV accounts for millions of infections and substantial hospitalizations and deaths among adults ≥60 years. COPD and asthma patients show disproportionately high risks of RSV-related hospitalization, exacerbations, and mortality. South Korean studies confirm RSV as a major contributor to pneumonia, COPD and asthma exacerbations, and bronchiectasis. As of 2025, three RSV vaccines (Arexvy, Abrysvo, mRESVIA) have FDA approval; only Arexvy is approved in Korea for older adults. ACIP now recommends vaccination for all adults ≥75 years and high-risk adults aged 50-74 years, while GOLD, GINA, and Korean COPD guidelines endorse RSV vaccination for chronic respiratory disease patients. RSV is underrecognized yet imposes significant disease and healthcare burdens in older adults and those with chronic respiratory diseases. In the absence of effective antivirals, vaccination is a key preventive strategy. Expanding vaccination uptake, improving awareness, and integrating RSV vaccines into national immunization programs could substantially reduce RSV-related morbidity and mortality.

Keywords: Acute respiratory infection; Asthma; COPD; Respiratory syncytial virus (RSV); Vaccine.

12

Respir Res

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. 2025 Nov 18;26(1):323.

doi: 10.1186/s12931-025-03405-4.

Alterations in clot microstructure in acute exacerbations of COPD

Suresh Pillai[1 2], Matthew Lawrence[3], Jun-Cezar Zaldua[3], Karl Hawkins[4], Keith Morris[5], Janet Whitley[3], Phillip A Evans[3]

Affiliations Expand

- **PMID: 41254616**

- PMCID: PMC12625250

- DOI: 10.1186/s12931-025-03405-4

Abstract

Background: Chronic Obstructive Pulmonary Disease (COPD) patients are prone to thrombogenic events, particularly during exacerbations. Fractal dimension (d_f), a functional biomarker of clot microstructure is useful in assessing thrombogenicity in other diseases. The aim of this study was to compare the changes in d_f during acute exacerbation of COPD with stable disease.

Methods: This prospective study recruited 30 patients with stable disease from the chest clinic and 85 patients with acute exacerbations from the Emergency Department. The stable group had blood samples taken at one time point, whilst the exacerbation group were sampled at four time points (0 hours, 4-6 hours, 24 hours and 3-7 days). Biomarkers of inflammation, haemostasis and rheology were determined.

Results: At presentation, the acute exacerbation group had significantly elevated d_f when compared to the stable group (1.71 ± 0.06 vs 1.69 ± 0.05, p=0.03) but with no significant changes in d_f over the four time points (p=0.28) sampled. The patients who died in the acute exacerbation group had significantly elevated d_f when compared to those who survived (1.76 ± 0.03 vs 1.71 ± 0.06, p=0.02) with additional logistic regression analysis confirming that $d_f$was a significant predictor of mortality (p=0.024).

Conclusions: Clot microstructural analysis demonstrates that COPD patients during acute exacerbation are more thrombogenic when compared to those with stable disease. This thrombogenic state is not aggravated with appropriate treatment on admission. Patients who died during exacerbations were in a significantly enhanced thrombogenic state when compared to those who survived as demonstrated by significantly elevated d_f.

Keywords: Acute exacerbation; Biomarkers; COPD; Clot microstructure; Mortality.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: The study had full ethical approval from Wales Research Ethics Committee 6 (REC reference- 17/WA//0123) and was conducted in accordance with the Declaration of Helsinki. Patients who had capacity signed a consent form and for those who did not have capacity, a consultee declaration form was obtained from the direct care team or legal representative. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

- 32 references

- 3 figures

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

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Cite

13

Published Erratum

Pulm Ther

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. 2025 Nov 18.

doi: 10.1007/s41030-025-00332-z. Online ahead of print.

Correction: Dupilumab Versus Mepolizumab for COPD: Evaluating Efficacy Outcomes Using Placebo-Adjusted Indirect Treatment Comparison

Surya P Bhatt[1], Nick Freemantle[2], Mena Soliman[3], Jigna Heble[4], Yann Cabon[5], Ernesto Mayen Herrera[4], Joe Yang[3 6], Yingxin Xu[7]

Affiliations Expand

- PMID: 41254309

- DOI: 10.1007/s41030-025-00332-z

Free article

No abstract available

Erratum for

- Dupilumab Versus Mepolizumab for COPD: Evaluating Efficacy Outcomes Using Placebo-Adjusted Indirect Treatment Comparison.

Bhatt SP, Freemantle N, Soliman M, Heble J, Cabon Y, Mayen Herrera E, Yang J, Xu Y.Pulm Ther. 2025 Sep 26. doi: 10.1007/s41030-025-00322-1. Online ahead of print.PMID: 41004068

Supplementary info

Publication typesExpand

Full text links

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Cite

14

BMJ Open Respir Res

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. 2025 Nov 17;12(1):e002594.

doi: 10.1136/bmjresp-2024-002594.

The advance care planning in respiratory rehabilitation of chronic obstructive pulmonary disease (COPD) patients

Yaëlle Devigon[1], Jean-Christophe Rambert[2]

Affiliations Expand

- **PMID: 41253407**
- **PMCID: PMC12625847**
- **DOI: 10.1136/bmjresp-2024-002594**

Abstract

Introduction: Despite a severely degraded quality of life in the advanced stages, chronic obstructive pulmonary disease (COPD) patients rarely discuss end-of-life issues and have little access to palliative care. After knowing this fact, some organisations recommend advance care planning integrated into the respiratory rehabilitation. Considering the important role played by physiotherapists in this rehabilitation, the aim of this study is to understand the professional practices of physiotherapists regarding this planning during rehabilitation and the factors influencing these practices.

Methods: The research consisted of a qualitative study with physiotherapists practising in France and conducting respiratory rehabilitation with COPD patients. Semi-structured interviews were conducted, followed by a thematic analysis.

Results: This study shows that discussions relating to the end of life are very frequent during respiratory rehabilitation. This high prevalence appears to be influenced both by the context in which respiratory rehabilitation is completed and by the trusting relationship established between the physiotherapist and their patients. Nevertheless, these discussions are merely a draft of advance care planning, which is a broader concept. It appears that a lack of knowledge about advance care planning itself, combined with insufficient training in palliative care among professionals, as well as a lack of rigour in therapeutic education, hinders the implementation of advance care planning.

Conclusion: In spite of the limited training in palliative care and sometimes the imprecise therapeutic education, physiotherapists appear to play an important role in addressing end-of-life issues during respiratory rehabilitation. However, physiotherapists are not the only professionals who should raise these topics. This is especially important in the French

healthcare system, where fewer than half of COPD patients have access to rehabilitation with a physiotherapist.

Keywords: COPD Pathology; Palliative Care; Pulmonary Rehabilitation.

Conflict of interest statement

Competing interests: None declared.

- 26 references

Supplementary info

MeSH termsExpand

Full text links

Proceed to details

Cite

15

Eur J Med Res

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. 2025 Nov 18;30(1):1133.

doi: 10.1186/s40001-025-03301-z.

Associations of mucus plugging, small airway dysfunction, and airway wall thickening in cough-variant asthma versus asthma

Kongqiu Wang[#1,2], Donghai Ma[#1,3], Jiayi Liu[#4], Yaling Zeng[2], Qi Zhou[1], Shaofeng Zhang[2], Jia Jiang[2], Wei Lei[2], Siqin Chen[2], Gongqi Chen[1,2], Jin Huang[1,3], Jing Liu[5,6], Qiang Xiao[7,8]

Affiliations Expand

- PMID: 41250256

- PMCID: PMC12625180

- DOI: 10.1186/s40001-025-03301-z

Abstract

Background: Mucus plugs have been implicated in airflow obstruction in asthma and chronic obstructive pulmonary disease (COPD). However, the role of mucus plugs in cough-variant asthma (CVA) remains understudied, and their associations with classic asthma (CA), CVA, and small airway dysfunction (SAD) are poorly defined. This retrospective cohort study aimed to evaluate the relationship between mucus plugs and lung function in CA and CVA patients, and to investigate their correlations with quantitative CT-derived airway wall thickness parameters.

Methods: A total of 109 CVA patients and 65 CA patients were enrolled. Clinical characteristics, laboratory parameters, quantitative CT data, and pulmonary function metrics were systematically collected. Airway structural measurements, including airway wall thickness (WT), wall area percentage (WA%), and wall thickness-to-outer diameter ratio (T/OR), were derived from chest CT scans. Multivariable regression models were employed to assess the associations of mucus plugs with airway structural features, lung function, and clinical profiles.

Results: Although the prevalence of mucus plugs in CVA was lower than in CA (20% [22/109] vs. CA), CVA patients with mucus plugs exhibited significantly worse WA%, spirometric indices (FEV1/FVC, PEF%pred, MMEF%pred, MEF75%pred, MEF50%pred), and impulse oscillometry (IOS) parameters (X5) compared to CA patients. In CVA, mucus plug scores demonstrated significant positive correlations with WA%, spirometric metrics (FEV1/FVC, PEF%pred, MMEF%pred, MEF75%pred, MEF50%pred), and X5. Multivariable logistic regression identified disease duration, peripheral blood eosinophil count (Eos), WA%, and SAD parameters as independent risk factors for mucus plug formation in CVA.

Conclusions: Mucus plugs are present in CVA patients, albeit at a lower prevalence than in classic asthma. Their severity correlates positively with WA% and small airway dysfunction, underscoring their potential role in CVA pathophysiology.

Keywords: CT scan; Classic asthma; Cough-variant asthma; Mucus plugs; Small airway dysfunction.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: The study project was approved by the institutional ethics committee of the Fifth Affiliated Hospital of Sun Yat-sen University (approval code: K226-1). The board waived the requirement for patient consent due to the study's retrospective nature. Competing interests: The authors declare no competing interests.

- **39 references**
- **6 figures**

Supplementary info

MeSH terms, Grants and fundingExpand

Full text links

Proceed to details

Cite

16

Editorial

Respirology

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. 2025 Nov 16.

doi: 10.1002/resp.70163. Online ahead of print.

Seeing the Unseen: Cell Population Data Reveal Distinct Inflammatory Phenotypes in Severe COPD

Makoto Ishii[1]

Affiliations Expand

- PMID: 41242708

- DOI: 10.1002/resp.70163

No abstract available

Keywords: biomarkers; cell population data (CPD) phenotyping; chronic obstructive pulmonary disease (COPD); haematology analyser; inflammation; precision medicine.

- 8 references

Supplementary info

Publication typesExpand

Full text links

Proceed to details

Cite

17

Med J Aust

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. 2025 Nov 17:223 Suppl 10:S3-S8.

doi: 10.5694/mja2.70093.

CURE Asthma: a unique opportunity for Australia

Anthony Flynn [1], Wendy Edmondson [1], Alan James [2 3], Caroline Lodge [4], Vanessa M McDonald [5], Christine R Jenkins [6 7], John Blakey [2 8], Gary P Anderson [9]

Affiliations Expand

- PMID: 41241857

- DOI: 10.5694/mja2.70093

No abstract available

Keywords: Artificial intelligence; Asthma; Chronic disease; Chronic obstructive pulmonary disease; Indigenous health; Treatment outcome.

- 69 references

Full text links

Proceed to details

Cite

18

Review

Expert Rev Respir Med

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. 2025 Nov 17:1-10.

doi: 10.1080/17476348.2025.2590785. Online ahead of print.

COPD and rheumatoid arthritis: shared inflammatory pathways and clinical implications

Mohamed Abdulkadir [1], Catherine Greene [2]

Affiliations Expand

- PMID: 41237088

- DOI: 10.1080/17476348.2025.2590785

Abstract

Introduction: Rheumatoid Arthritis (RA) and Chronic Obstructive Pulmonary Disease (COPD) are chronic, progressive inflammatory conditions that may coexist, contributing to greater morbidity and complexity in clinical management. The overlap between these two conditions remains under-recognized despite growing evidence of shared pathogenic mechanisms and risk factors.

Areas covered: This review explores the emerging evidence linking RA and COPD, focusing on shared inflammatory pathways, genetic susceptibility, and environmental influences such as smoking and air pollution. A comprehensive literature search was conducted using PubMed and Scopus databases with keywords including 'rheumatoid arthritis,' 'COPD,' 'pulmonary involvement,' and 'inflammatory overlap.' Key findings highlight diagnostic challenges stemming from symptom overlap, the underdiagnosis of COPD in RA patients, and the clinical impact of dual disease burden. The review also discusses the importance of multidisciplinary collaboration, optimal use of spirometry, imaging, and symptom-based questionnaires as screening tools, and strategies for balancing immunosuppressive therapy with respiratory health.

Expert opinion: Greater awareness of COPD as a pulmonary manifestation of RA is essential. Early recognition through systematic screening and integrated care models may significantly improve patient outcomes and reduce disease burden.

Keywords: COPD; Rheumatoid arthritis; chronic conditions; comorbidity; inflammation; pathophysiology; pulmonology; rheumatology.

19

Cell Rep Med

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. 2025 Nov 18;6(11):102367.

doi: 10.1016/j.xcrm.2025.102367. Epub 2025 Sep 19.

Phenotypic heterogeneity of type 2 diabetes and risks of all-cause and cause-specific mortality

Zixin Qiu[1], Frank Qian[2], Jun Liu[3], Rui Li[1], Hancheng Yu[1], Yue Wang[4], Xiao Zhang[5], Tingting Geng[6], Xuefeng Yu[7], Oscar H Franco[8], An Pan[9], Maigeng Zhou[10], Kai Huang[11], Gang Liu[12]

Affiliations Expand

- **PMID: 40975065**

- DOI: 10.1016/j.xcrm.2025.102367

Free article

Abstract

Type 2 diabetes (T2D) is a heterogeneous condition, but its phenotypic variation and links with mortality are unclear. We apply the discriminative dimensionality reduction with trees (DDRTree) algorithm to seven clinical variables in 10,091 adults with newly diagnosed T2D from a nationally representative Chinese cohort. Distinct mortality patterns are observed across phenotypes. Cardiovascular mortality is highest in the most hypertensive and obese individuals, while diabetic ketoacidosis/coma mortality is largely driven by the combination of hyperglycemia and dyslipidemia. Additionally, chronic obstructive pulmonary disease mortality is higher in those with elevated high-density lipoprotein (HDL) and total cholesterol levels. These patterns are similar in UK Biobank, though cardiovascular mortality is highest in those with dyslipidemia and obesity. Predictive models incorporating these variables show good performance and an online tool is provided for individual risk prediction. Overall, this study visualizes phenotypic variation in T2D and its impact on mortality, underscoring the need for personalized treatment strategies.

Keywords: mortality; phenotype; prospective study; type 2 diabetes.

Conflict of interest statement

Declaration of interests The authors declare no competing interests.

Supplementary info

MeSH termsExpand

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

1

Eur J Cancer Prev

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. 2025 Nov 18.

doi: 10.1097/CEJ.0000000000000998. Online ahead of print.

Cancer as a main contributor to multimorbidity in the UK Biobank: analysis of risk factors using conventional statistical modelling and machine learning

Linia Patel[1], Silvia Mignozzi[1], Margherita Pizzato[1], Giovanni Corso[2,3], Carlo La Vecchia[1], Gianfranco Alicandro[4,5]

Affiliations Expand

- **PMID: 41247703**

- **DOI: 10.1097/CEJ.0000000000000998**

Abstract

Cancer frequently co-occurs with other chronic conditions, contributing substantially to disease burden. Multimorbidity is an increasing public health concern, resulting from complex interactions between sociodemographic, lifestyle, and environmental factors. The study aimed to identify the main predictors of multimorbidity using both conventional statistical models and machine learning approaches. We analysed data from 138 126 UK Biobank participants aged 39-73 years. Twenty potential risk factors were assessed using Fine and Gray competing risk regression and random survival forests (RSF). Over the five-year follow-up period, 4384 individuals developed multimorbidity, with cancer present in 52.3% of cases. Five-year cumulative incidence was 3.9% in males and 2.6% in females. Increased waist circumference [males - hazard ratio: 1.15, 95% confidence interval (CI): 1.00-1.31; females - hazard ratio: 1.29, 95% CI: 1.09-1.54] and smoking (per 5 pack-years: males - hazard ratio: 1.06, 95% CI: 1.05-1.07; females - hazard ratio: 1.08, 95% CI: 1.06-1.10) significantly increased risk. Both insufficient and prolonged sleep were linked to a higher risk, especially among females (hazard ratio for prolonged sleep: 1.68, 95% CI: 1.17-2.40). Compared with moderate drinkers, former drinkers, lifelong abstainers, and heavy drinkers showed elevated risks. RSF found smoking, waist circumference, and sleep duration as key predictors in men, while alcohol use, smoking, and waist circumference were most important in women. Available dietary information, physical activity, and air pollution were not major predictors. Smoking, obesity, alcohol, and sleep duration are key risk factors to target in midlife to reduce the future burden of multimorbidity.

Keywords: lifestyle; multimorbidity; risk factors; sleep duration; smoking; waist circumference.

- **42 references**

Full text links

Proceed to details

Cite

2

BMC Prim Care

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. 2025 Nov 17;26(1):370.

doi: 10.1186/s12875-025-03082-8.

Decision aids for the care of patients with multimorbidity: a systematic review

Yuanxin Chen [1], Rui He [1], Zhiyi Chen [1], Yang Bai [1], Chen Yang [2]

Affiliations Expand

- PMID: 41249906
- PMCID: PMC12625029
- DOI: 10.1186/s12875-025-03082-8

Abstract

Background: Patients with multimorbidity face complex decision-making needs, including decreasing polypharmacy burden, maintaining physical functioning and prolonging life. Patient decision aids (DAs) have been developed and implemented as clinical tools to support complex decision-making in the management of multimorbidity in primary care.

Aim: This study aimed to identify DAs developed for patients with multimorbidity, describe their characteristics, and assess their quality, feasibility, and effectiveness.

Methods: Citations from searches of nine databases were screened by title and abstract, and then full text articles were subsequently identified and screened. Any article utilising a DA for patients with multimorbidity was eligible. The International Patient Decision Aid Standards (IPDAS) checklist was used to assess the quality of DAs. The characteristics, quality, feasibility and effectiveness of DAs were summarized using descriptive methods.

Results: In total, 10 articles including six DAs were included. The DAs were categorised as targeting either general multimorbidity or specific disease-combined multimorbidity. All included DAs need to be discussed and used together by general practitioners (GPs) and patients with multimorbidity. Four DAs focused on goal setting or preparing for physician-patient conversation in primary care settings. According to IPDAS evaluations, only one DA was rated as high-quality; the others were considered substandard, largely due to a lack of detail on decision trade-offs. Two DAs demonstrated good feasibility, but one showed feasibility only among clinicians and the other only among patients. For the effectiveness of DAs, two DAs was evaluated. One based on the quality of communication and collaboration in encounter and adherence to prescription medication, and the other the other based on the overall level of SDM or in patient-reported outcomes (such as decisional conflict). The evidence of effectiveness was very limited in the current studies.

Conclusions: This study identified six DAs for patients with multimorbidity, five of which lacked descriptions of the consequences of the options and their positive and negative features. The evidence for feasibility and effectiveness of current DAs is limited. High-quality experimental research should be conducted in the future to verify effectiveness.

Keywords: Decision aids; Multimorbidity; Patient-centred care; Shared decision making.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: NA. Consent for publication: NA. Competing interests: The authors declare no competing interests.

- **57 references**
- **1 figure**

Supplementary info

Publication types, MeSH terms, Grants and fundingExpand

Full text links

Proceed to details

Cite

3

Randomized Controlled Trial

JMIR Aging

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. 2025 Nov 20:8:e79767.

doi: 10.2196/79767.

Implementation of the German Clinical Practice Guideline for Multimorbidity Using a Digital Tool in Primary Care: Pilot Cluster Randomized Clinical Trial

Julia Nothacker[1], Valentina Paucke[1], Susanne Lezius[2], Antonia Zapf[2], Dagmar Lühmann[1], Martin Scherer[1], Ingmar Schäfer[1]

Affiliations Expand

- **PMID: 41263476**

- **DOI: 10.2196/79767**

Free article

Abstract

Background: Clinical practice guidelines (CPGs) summarize the best available evidence in a specific field. To improve patient-centered outcomes, guidelines have to be implemented, using, for example, information and communications technology. Although there are CPGs addressing multimorbidity, there is still a lack of studies investigating their implementation.

Objective: This study aimed to evaluate whether the implementation of a CPG for multimorbidity using a digital tool is feasible and explore possible effects of this intervention.

Methods: A pilot cluster randomized clinical trial based on telephone interviews was conducted from October 25, 2023, to September 8, 2024. Patients enrolled in any disease management program who were aged ≥65 years and had at least 2 additional chronic conditions were randomly selected from 20 general practitioner (GP) practices and contacted for informed consent. Each practice was randomized after baseline interviews of all participating patients in the practice were finished. The use of a web application facilitating collection and documentation of treatment-relevant data in accordance with the German CPG for multimorbidity was compared with treatment as usual. The primary outcome was time spent in hospital. As a secondary outcome, the number of patients with at least one hospital admission was calculated. Further secondary outcomes included outpatient health care use, quality of life, patient satisfaction, and quality of care. Feasibility assessment included examination of sample size, participation rate, and compliance with the study protocol. Outcome measures were analyzed using linear, logistic, and negative binomial regressions with random intercepts for practices.

Results: Of 384 patients who were contacted, 123 (32%) agreed to participate, and 120 (31.3%, including 54/120, 45% in the intervention group and 66/120, 55% in the control group) completed baseline and follow-up assessments. Mean age was 75.4 (SD 6.6) years, and 51.7% (62/120) were women. The compliance rate, or the proportion of patients who were treated per protocol, was 89% (48/54). In our data, the incidence rate of hospital days was comparable in both groups (incidence rate ratio [IRR] 0.94, 95% CI 0.09-9.42; P=.96), but the odds of hospital admission were almost reduced by half in the intervention group (odds ratio 0.51, 95% CI 0.17-1.54; P=.23). Our data also suggest a higher incidence rate of GP contacts (IRR 1.13, 95% CI 0.83-1.53; P=.43) and lower incidence rate of contacts with outpatient specialists (IRR 0.79, 95% CI 0.54-1.15; P=.24) in the intervention group compared to usual care. Moreover, patients and GPs reported a better quality of care (mean difference 0.51, 95% CI -0.12 to 1.14; P=.12 and mean difference 1.19, 95% CI 0.13-2.25; P=.03, respectively) in the intervention group.

Conclusions: Implementation of the CPG using a digital tool was feasible. Our data suggest that the probability of hospital admissions and contacts with outpatient specialists might be reduced and quality of care might be improved.

Trial registration: ClinicalTrials.gov NCT06061172; https://clinicaltrials.gov/study/NCT06061172.

Keywords: clinical practice guidelines; hospitalizations; implementation; multimorbidity.

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. 2025 Nov 21:106586.

doi: 10.1016/j.ejim.2025.106586. Online ahead of print.

Exporting integration: The southern European internist in the age of specialization

Mayka Freire [1], Bernardo Sopeña [2], Emilio Casariego-Vales [1]

Affiliations Expand

- **PMID: 41271525**

- **DOI: 10.1016/j.ejim.2025.106586**

No abstract available

Keywords: Health care fragmentation; Internal medicine; Multimorbidity; Patient-centered care; Spain.

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: Bernardo Sopena Perez-Arguelles reports a relationship with University Clinic Hospital of Santiago de Compostela that includes: board membership. 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.

Proceed to details

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Sci Rep

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. 2025 Nov 21;15(1):41393.

doi: 10.1038/s41598-025-25285-w.

Multimorbidity, disease clusters and risk of all-cause and cause-specific mortality: a population-based prospective cohort study

Thomas J Littlejohns [1 2], Wenyu Liu [3 4], Catherine M Calvin [5], Lei Clifton [6], Jennifer A Collister [5], Elżbieta Kuźma [7], David J Hunter [5 8]

Affiliations Expand

- PMID: 41272128

- DOI: 10.1038/s41598-025-25285-w

Abstract

The number of people living with ≥ two health conditions, termed multimorbidity, is increasing. We investigated the impact of multimorbidity on all-cause and cause-specific mortality risk in 502,370 UK Biobank participants aged 40 to 70 years. Participants attended an assessment centre between 2006 and 2010 and self-reported medical conditions during a nurse-led verbal interview. The presence of ≥ 2 long-term conditions from a preselected list of 43 conditions was used to define multimorbidity. In a training sample (80% of participants with multimorbidity), disease clusters were identified in four groups: women aged (1) 40-59 or (2) 60-70, and men aged (3) 40-59 or (4) 60-70. Mortality was ascertained from linkage to death records. Multivariate Cox proportional-hazards regression models were used to assess the association between multimorbidity and mortality adjusted for age, sex, ethnicity, socioeconomic status and education. Over a 16-year follow-up period (median = 13 years) dose-response associations were observed between number of multimorbid conditions and risk of all-cause mortality (n = 44,399 deaths), and particularly strong dose-response associations with cause-specific deaths due to cardiovascular and respiratory conditions. For women, a mental health/cancer/pain-related conditions cluster at ages 40-59 (Hazard Ratio [HR] = 2.61, 95% Confidence Interval [CI] 2.33-2.93), and a respiratory and pain-related conditions cluster at ages 60-70 (HR = 2.03, 95% CI 1.0-2.17), were associated with the greatest risk of mortality. For men, clusters of cardiometabolic conditions at ages 40-59 (HR = 3.43, 95% CI 3.14-3.74) and 60-70 (HR = 2.24, 95% CI 2.13-2.35) were associated with greater mortality risk. These findings suggest that understanding the impact of multimorbidity, and especially clusters of disease, is important for tailoring healthcare approaches for mortality risk reduction.

Conflict of interest statement

Declarations. Consent to participate: UK Biobank received ethical approval from the National Health Service North West Centre for Research Ethics Committee (Ref: 11/NW/0382). All participants gave written informed consent before enrolment in the study, which was conducted in accordance with the principles of the Declaration of Helsinki. Consent to publication: Yes. Ethics approval: The UK Biobank study received ethical approval from the North West Multi-centre Research Ethics Committee (REC reference: 11/NW/03820). All participants gave written informed consent before enrolment in the study, which was conducted in accordance with the principles of the Declaration of Helsinki. Patient and community involvement. The analyses presented here are based on existing data from the UK Biobank cohort study, and the authors were not involved in participant recruitment. No patients were asked to advise on interpretation or writing these results. Results from UK Biobank are routinely disseminated to study participants via the study website and social media outlets. Competing interests: The authors declare no competing interests.

- 40 references

Supplementary info

MeSH terms, Grants and fundingExpand

Proceed to details

Cite

6

BMC Public Health

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. 2025 Nov 21.

doi: 10.1186/s12889-025-25500-3. Online ahead of print.

The association between multimorbidity and intrinsic capacity decline among older adults: the mediating role of frailty

Lulu Xiao[1], Jiacheng Dong[#2], Ershuo Zhao[#3], Na Hu[#4], Junyan Zeng[1], Zhen Wu[1], Yiying Yang[1], Jiaqin Wang[4], Qing Xu[3], Hongge Shi[#5], Zhe Jin[#6], Linlin Hu[#7], Yan Dong[8]

Affiliations Expand

- PMID: 41272643

- DOI: 10.1186/s12889-025-25500-3

Abstract

Background: Intrinsic capacity (IC) proposed by the World Health Organization (WHO) is the core indicator of healthy aging, directly affecting functional ability and quality of life in older adults. Both multimorbidity and frailty are linked to poor health outcomes. Although pairwise associations between these factors have been examined, their comprehensive interrelationship remains unexplored. This study aims to explore the mediating role of frailty in the association between multimorbidity and IC decline.

Methods: This population-based cross-sectional study included 468 individuals from community settings and nursing homes in Lianyungang city, Jiangsu Province (the WHO ICOPE Pilot in China). Age, gender, education, marital status, and nursing home residence were assessed at baseline. Multimorbidity was assessed based on clinical experience, the Charlson Comorbidity Index (CCI) and the Cumulative Illness Rating Scale for Geriatrics (CIRS-G). Frailty was evaluated using the FRAIL scale. IC was measured using the WHO ICOPE screening tool (including assessments of cognitive function, motor function, nutritional status, sensory ability, and depressive symptoms). Binary logistic regression was employed to calculate the associations between multimorbidity, frailty, and IC decline. Mediation analysis was conducted to explore the mediating role of frailty in the multimorbidity-IC decline relationship.

Results: After adjusting for all covariates (age, gender, marital status, education level and residence in community or nursing home), multimorbidity was found to be positively correlated with IC decline. Subjects with ≥ 3 multimorbidity exhibited a 1.6-fold higher risk of IC impairment than those without multimorbidity. Subgroup analyses revealed that the multimorbidity and IC decline relationship was robust. The direct effect of multimorbidity on IC decline was significant

(β = 0.154, 95% CI: 0.064, 0.243, p < 0.001). Frailty significantly mediated the relationship between multimorbidity and IC decline (β = 0.058, 95% CI: 0.029, 0.092, p < 0.001; mediation proportion: 27.5%). The total effect of multimorbidity on IC decline was also significant (β = 0.211, 95% CI: 0.123, 0.300, p < 0.001).

Conclusions: This study first found frailty as partially mediating the multimorbidity-IC decline relationship, explaining 27.5% of the effect. The results underscore the necessity of integrated multimorbidity and frailty management to prevent and delay IC decline in older adults.

Keywords: Frailty; ICOPE; Intrinsic capacity; Multimorbidity; Older adults.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: The Medical Ethics Committee of The First People's Hospital of Lianyungang reviewed and approved the study protocol ("Clinical Application of Integrated Care for the Elderly People in Geriatrics and Guidance for the Establishment of a Continuous Elderly Care Service System," Grant No. QT-20221118001–02) on December 9, 2022. All participants provided written informed consent before being enrolled. All participants gave informed consent, following the Declaration of Helsinki. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

- 55 references

Supplementary info

Grants and fundingExpand

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

1

Meta-Analysis

Arch Dis Child

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. 2025 Nov 19;110(12):962-968.

doi: 10.1136/archdischild-2024-327452.

Use of intravenous short-acting beta-2 agonist in addition to standard first-line treatment versus placebo in children and adolescents with acute severe asthma exacerbation: a systematic review and meta-analysis

Ibtihal Siddiq Abdelgadir[1], Ali Hamud[2], Khalid Mudawi[3], Adham Alhaji[4], Aiman Zou Zou[4], Amjad Tonbari[4], Naim Alnasif[4], Ramadan Salem[4], Salah Alsaleh[4], Abdul Kareem Pullattayil[5 6], Colin Powell[7]

Affiliations Expand

- **PMID: 40562456**

- **DOI: 10.1136/archdischild-2024-327452**

Abstract

Importance: The role of intravenous short-acting beta-2 agonist (SABA) in acute asthma in childhood is unclear.

Objectives: To assess the safety and efficacy of intravenous SABA versus placebo for acute asthma.

Data selection and extraction: We searched MEDLINE, Embase, the Cochrane Central Register of Controlled Trials, the Web of Science and the Cumulative Index to Nursing and Allied Health Literature up to May 2024. We included only randomised controlled trials (RCTs) and followed the international guidelines for conducting systematic reviews. Outcomes measured were morbidity, escalation of care, length of hospital stay, adverse events, mortality and changes in lung functions.

Results: Four RCTs were included (total participants=183). Intravenous SABA group had better asthma severity scores (risk ratio (RR)=0.38, 95% CI 0.19 to 0.78, p=0.009), similar need for mechanical ventilation (RR=0.13, 95% CI 0.01 to 2.42, p=0.17), similar escalation of intravenous treatment (RR=1.51, 95% CI 0.60 to 3.82, p=0.38), shorter duration of hospital stay (hours) (mean difference (MD)=-18.68, 95% CI -36.76 to -0.61) and less duration of oxygen supplementation (days) (MD=-1.73, 95% CI -3.01 to -0.45, p=0.008). Adverse events were tachycardia, hypotension and hypokalaemia. One study reported a single participant with arrhythmia and a non-significant increase in troponin I among the intravenous SABA group.

Conclusion: This review found low-to-moderate certainty evidence that intravenous SABA would improve acute asthma severity with infrequent adverse events reported. However, this evidence is limited due to the limited number of included studies.

Prospero registration number: CRD42023405119.

Keywords: Child Health; Paediatric Emergency Medicine; Respiratory Medicine.

Conflict of interest statement

Competing interests: None declared.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

Proceed to details

Cite

2

Meta-Analysis

Arch Dis Child

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. 2025 Nov 19;110(12):948-954.

doi: 10.1136/archdischild-2024-327838.

Second-line treatment option for children aged 18 years and under with an acute severe asthma exacerbation: a systematic review and meta-analysis of randomised controlled trials

Ibtihal Siddiq Abdelgadir [1], Khalid Mudawi [2], Ali Hamud [3], Amjad Tonbari [4], Adham Alhaji [5], Ramadan Salem [5], Naim Alnasif [6], Salah Alsaleh [7], Aiman Zou Zou [6], Abdul Kareem Pullattayil [8 9], Colin Powell [10]

Affiliations Expand

- PMID: 40562457

- DOI: 10.1136/archdischild-2024-327838

Abstract

Importance: Evidence regarding second-line treatment for severe asthma is limited.

Objectives: To evaluate the safety and efficacy of intravenous aminophylline, intravenous short-acting beta agonist (SABA), intravenous magnesium sulphate, intravenous ketamine or subcutaneous adrenaline as a second-line treatment for severe asthma.

Methods: We included only randomised controlled trials (RCTs) and followed the international guidelines for conducting systematic reviews. We performed a comprehensive literature search up to May 2024. Outcomes included morbidity, escalation of care, length of hospital stay, adverse events, mortality and changes in lung functions.

Results: Nine RCTs were included (total participants=546). Compared with other treatments, intravenous aminophylline showed no significant difference in the duration of hospital stay in hours, except for critically ill ventilated patients who had a shorter stay (mean difference (MD)=-12.99, 95% CI -33.13 to 7.15). The need for additional intravenous medications (RR=2.17, 95% CI 0.48 to 9.71) and asthma severity scores postinterventions (MD=0.97, 95% CI -0.91 to 2.85) was similar. More nausea and emesis were observed in the intravenous aminophylline group. The intravenous SABA group showed no difference in hospital stay (MD=-10.12, 95% CI -45.74 to 25.49) or need for ventilation (RR=0.25, 95% CI 0.03 to 2.21). There were no frequent serious adverse events. The intravenous magnesium sulphate group had a lower hospitalisation rate

(RR=1.52, 95% CI 1.26 to 1.84), reduced need for additional intravenous medication (RR=6.30, 95% CI 2.62 to 15.17) and a rapid improvement in asthma severity scores (p<0.05).

Conclusion: There is low-to-very-low certainty evidence demonstrating the superiority of any intravenous second-line treatment options for acute asthma.

Prospero registration number: CRD42023405226.

Keywords: Child Health; Paediatric Emergency Medicine; Respiratory Medicine.

Conflict of interest statement

Competing interests: None declared.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

Proceed to details

Cite

3

Meta-Analysis

Arch Dis Child

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. 2025 Nov 19;110(12):969-976.

doi: 10.1136/archdischild-2024-327492.

Use of intravenous aminophylline in addition to the standard first-line treatment in children and adolescents with an acute asthma exacerbation: a systematic review and meta-analysis of randomised controlled trials

Khalid Mudawi [1], Ali Hamud [1], Colin Powell [2], Naim Alnasif [3], Amjad Tonbari [1], Aiman Zou Zou [3], Adham Alhaji [4], Ramadan Salem [4], Salah Alsaleh [4], Abdul Kareem Pullattayil [5 6], Ibtihal Siddiq Abdelgadir [7]

Affiliations Expand

- PMID: 40562458

- DOI: 10.1136/archdischild-2024-327492

Abstract

Importance: The role of intravenous aminophylline in acute asthma in childhood is unclear.

Objectives: To assess the safety and efficacy of intravenous aminophylline for asthma in children.

Methods: From 1966 to May 2024, we searched MEDLINE, Embase, CINAHL, Web of Science and the Cochrane Central Register of Controlled Trials. We included only randomised controlled trials testing standard treatment in combination with aminophylline and followed the international guidelines for conducting systematic reviews. The outcomes measured were morbidity, escalation of care, length of hospital stay, adverse events, mortality and lung functions. We used the random-effects model for data analysis and the fixed-effects model to evaluate heterogeneity.

Results: Nine studies (466 participants) fulfilled our a priori eligibility criteria. No significant difference was found in post-treatment asthma severity score (mean difference (MD)=0.13, 95% CI -0.79 to 1.06, I^2=0 %), hospitalisation rate (risk ratio (RR)=0.66, 95% CI 0.27 to 1.59, I^2=0%), paediatric intensive care unit admission (RR=0.73, 95% CI 0.51 to 1.05, I^2=0%), intubation rate (RR=0.09, 95% CI 0.01 to 1.64, p=0.1) or length of hospital stay (MD=-3.62, 95% CI -13.05 to 5.82, I^2=31%). Emesis (RR=3.52, 95% CI 2.04 to 6.06, I^2=0%) and nausea (RR=4.92, 95% CI 2.41 to 10.06, I^2=0%) occurred more in the aminophylline group. One study showed improved lung function in the aminophylline group, while others showed no difference.

Conclusion: This review showed limited evidence of the benefit of intravenous aminophylline in managing asthma in most preventilation severity parameters. However, lowering the intubation rate and improving lung function deserve more attention.

Prospero registration number: CRD42023405234.

Keywords: child health; intensive care units, paediatric; paediatric emergency medicine; paediatrics; respiratory medicine.

Conflict of interest statement

Competing interests: None declared.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

Proceed to details

Cite

4

Meta-Analysis

Arch Dis Child

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. 2025 Nov 19;110(12):955-961.

doi: 10.1136/archdischild-2024-327486.

Use of intravenous magnesium sulfate in addition to standard first-line treatment with inhaled/nebulised short-acting beta 2 agonist and systemic steroids in the management of acute asthma exacerbations in children: a systematic review and meta-analyses of randomised controlled trials

Ali Abdalla Hamud [1], Khalid Mudawi [2], Colin Powell [3], Salah Alsaleh [1], Ramadan Salem [1], Naim Alnasif [1], Amjad Tonbari [1], Aiman Zou Zou [1], Adham Alhaji [1], Abdul Kareem Pullattayil [4 5], Ibtihal Siddiq Abdelgadir [6]

Affiliations Expand

- PMID: 40562459

- DOI: 10.1136/archdischild-2024-327486

Abstract

Background: The role of intravenous magnesium sulfate in asthma exacerbation is unclear.

Aims: To determine the efficacy and safety of intravenous magnesium sulfate in managing asthma exacerbation in children.

Methods: We searched MEDLINE, EMBASE, CINAHL, the Cochrane Central Register of Controlled Trials and the Web of Science up to May 2024. We included randomised controlled trials and followed the international guidelines for conducting systematic reviews. Outcomes included morbidity, escalation of care, length of hospital stay, lung functions, adverse events, and mortality.

Results: Nine studies (total participants=473) were included. Hospitalisation rate and the need for non-invasive ventilation were less among the intravenous magnesium sulfate group (mean difference (MD)=0.70, 95% CI 0.54 to 0.90, I^2 7%, n=115) and (risk ratio (RR)=0.17, 95% CI 0.15 to 0.54, p=0.003, n=143), respectively. Asthma severity scores (MD=-0.18, 95% CI -1.35 to 0.98, I^2 2%, n=115), length of hospital stay (MD=-78.86, 95% CI -200.37 to 42.66, I^2 99%, n=284) and the need for invasive ventilation (RR=0.35, 95% CI 0.11 to 1.17, I^2 0%, n=237) were similar. There was no difference in the Paediatric Intensive Care Unit (PICU) admission rate (p=0.43 n=61). Peak expiratory flow improved in the intravenous magnesium group (p<0.001, n=20). No serious adverse events were reported.

Conclusion: We found low-certainty evidence that intravenous magnesium sulfate results in a lower hospitalisation rate and less need for non-invasive ventilation. Asthma scores, PICU admission, invasive ventilation and length of hospital stay were similar. While the evidence base

is weak, the favourable safety profile suggests that intravenous magnesium sulfate can be considered a treatment for asthma exacerbations.

Prospero registration number: CRD42023405261.

Keywords: Child Health; Emergency Service, Hospital; Paediatric Emergency Medicine; Paediatrics; Respiratory Medicine.

Conflict of interest statement

Competing interests: None declared.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Cite

5

Editorial

Arch Dis Child

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. 2025 Nov 19;110(12):939.

doi: 10.1136/archdischild-2025-329295.

[Acute asthma systematic review series]

[Colin Powell][1]

Affiliations Expand

- **PMID: 40670111**

- **DOI: [10.1136/archdischild-2025-329295]**

No abstract available

Keywords: Emergency Service, Hospital; Respiratory Medicine.

Conflict of interest statement

Competing interests: None declared.

Supplementary info

Publication typesExpand

Full text links

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Cite

6

Med J Aust

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. 2025 Nov 17:223 Suppl 10:S32-S35.

doi: 10.5694/mja2.70089.

Finding cures for asthma: new paradigms for drug discovery and therapy

Aowen Zhuang[1], Dennis Thomas[2 3], Caroline Lodge[4], Jane E Bourke[5], John W Upham[6 7], Vanessa M McDonald[2], Peter Ab Wark[8 9], Gary P Anderson[1]

Affiliations Expand

- **PMID: 41241853**

- **DOI: 10.5694/mja2.70089**

No abstract available

Keywords: Asthma.

- 19 references

Full text links

Proceed to details

Cite

7

Review

Med J Aust

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. 2025 Nov 17:223 Suppl 10:S24-S31.

doi: 10.5694/mja2.70086.

Evidence from Australian cohort studies about asthma trajectories and transitions across the life course: a narrative review

Caroline Lodge[1], Xin Dai[1], Ingrid A Laing[2 3], Michael P Menden[4 5], Anthony Flynn[6], Gary P Anderson[5], Sarath Ranganathan[7 8], Shyamali C Dharmage[1]

Affiliations Expand

- **PMID: 41241855**

- **DOI: 10.5694/mja2.70086**

Abstract

Asthma affects more than 300 million people worldwide and is frequently associated with other medical conditions in adults, including chronic obstructive pulmonary disease, ischaemic heart disease, and stroke. Despite the huge burden, there has been little progress toward prevention and cure, possibly related to a one-size-fits-all approach. The recent identification of various asthma trajectories over the life course suggests that identifying biomarkers of lifetime transitions could advance progress to prevention and cure. This will require combining data, including for biological samples, from large cohort studies, for analysis using integrated computational biological approaches. We summarise key articles on Australian cohort studies that have characterised asthma trajectories across childhood and adulthood in order to inform research focused on curative approaches. Five Australian cohorts have provided information on childhood and adulthood asthma trajectories and their relationships with early life factors, later life outcomes, and underlying biological mechanisms. Twelve other cohort studies undertaken in Australia could also contribute valuable information. Australian asthma cohort studies have collected a wealth of information across the life course on the drivers, outcomes, and biological mechanisms of asthma. Integrating these resources into harmonised, functionally useful databases will make their data and biospecimens accessible for analysis and research. Australia is well placed for advancing progress in the prevention and cure of asthma.

Keywords: Asthma; Biomarkers; Computing methodologies; Epidemiology; Longitudinal studies; Preventive medicine.

- **38 references**

Supplementary info

Publication types, MeSH termsExpand

Full text links

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Cite

8

Med J Aust

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. 2025 Nov 17:223 Suppl 10:S19-S23.

doi: 10.5694/mja2.70085.

Who gets asthma, and why?

Denby J Evans[1 2], Peter D Sly[3], Paul Foster[4], Chantal Donovan[4 5]

Affiliations Expand

- **PMID: 41241856**

- **DOI: 10.5694/mja2.70085**

No abstract available

Keywords: Asthma; Lung diseases; Molecular biology; Respiratory system.

- **31 references**

Full text links

Proceed to details

Cite

9

Med J Aust

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. 2025 Nov 17:223 Suppl 10:S3-S8.

doi: 10.5694/mja2.70093.

CURE Asthma: a unique opportunity for Australia

Anthony Flynn[1], Wendy Edmondson[1], Alan James[2 3], Caroline Lodge[4], Vanessa M McDonald[5], Christine R Jenkins[6 7], John Blakey[2 8], Gary P Anderson[9]

Affiliations Expand

- PMID: 41241857

- DOI: 10.5694/mja2.70093

No abstract available

Keywords: Artificial intelligence; Asthma; Chronic disease; Chronic obstructive pulmonary disease; Indigenous health; Treatment outcome.

- 69 references

Full text links

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Cite

10

Review

Med J Aust

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. 2025 Nov 17:223 Suppl 10:S36-S41.

doi: 10.5694/mja2.70084.

Technological advances in the search for a CURE for asthma

Sara Quon[1], Timothy M Johanson[1], Ridhima Wadhwa[2], Alen Faiz[3], Anthony Flynn[4], Gary P Anderson[5], Amanda J Cox[6], Nicholas P West[6 7], Michael P Menden[5 8], Rhys S Allan[1]

Affiliations Expand

- PMID: 41241859

- DOI: 10.5694/mja2.70084

Abstract

Asthma is a chronic respiratory disease that affects more than 250 million people. It is a heterogeneous disease with a variety of symptoms, severity, and underlying mechanisms. Long term remission has been achieved for small subgroups of people with asthma treated with targeted biologic therapy. Accurately defining asthma subgroups is therefore of upmost importance for further reducing the prevalence of asthma. The rapid rise in technologies that enable profiling of a spectrum of analytes provides the opportunity to accurately classify asthma subtypes and to elucidate the underlying causes of disease. Combining these technologies with artificial intelligence will enable more accurate disease prediction, precision diagnoses, and personalised treatments. A major challenge is the prioritisation and effective implementation of these technologies in clinical practice.

Keywords: Artificial intelligence; Asthma; Biomarkers; Molecular biology; Proteomics.

- **57 references**

Supplementary info

Publication types, MeSH termsExpand

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Cite

11

Med J Aust

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. 2025 Nov 17:223 Suppl 10:S9-S15.

doi: 10.5694/mja2.70094.

The CURE Asthma roadmap

Gary P Anderson [1], Anthony Flynn [2], Phil G Bardin [3], John D Blakey [4 5], Shyamali C Dharmage [6], Paul Foster [7], Peter G Gibson [8 9 10], Adam Jaffe [11], Alan James [4 12], Christine R Jenkins [13 14], Sundram Sivamalai [2], Peter D Sly [15], Guy B Marks [7 16], Vanessa M McDonald [8], Judy Wetttenhall [17]

Affiliations Expand

- **PMID: 41241860**

- **DOI: 10.5694/mja2.70094**

No abstract available

Keywords: Artificial intelligence; Asthma; Chronic disease; Epidemiologic measurements; Immunology; Immunotherapies; Indigenous health; Inflammation; Molecular medicine; Regenerative medicine; Respiratory tract infections; Virus diseases.

- 37 references

Full text links

Proceed to details

Cite

12

Med J Aust

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. 2025 Nov 17:223 Suppl 10:S16-S18.

doi: 10.5694/mja2.70088.

Defining "cure" for the asthmas

Dennis Thomas[1,2], Vanessa M McDonald[1], Peter G Gibson[1,2,3], Richard Y Kim[1,4,5]

Affiliations Expand

- **PMID: 41241861**

- **DOI: 10.5694/mja2.70088**

No abstract available

Keywords: Asthma.

- 15 references

Full text links

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Cite

13

BMJ Open Respir Res

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. 2025 Nov 18;12(1):e003431.

doi: 10.1136/bmjresp-2025-003431.

Don't ask, don't tell (DADT): under-recognition of breathlessness in clinical care-a national survey

Slavica Kochovska[1 2], Sungwon Chang[2], Diana Ferreira[3], Vanessa Brunelli[3], Tim Luckett[2], Lucy Morgan[4], Jessica Macdonald[3], Thomas Altree[5], Miriam J Johnson[6], Magnus Ekström[7], David Currow[8]

Affiliations Expand

- PMID: 41253412
- PMCID: PMC12636879
- DOI: 10.1136/bmjresp-2025-003431

Abstract

Introduction: The recognition of breathlessness in clinical practice appears suboptimal, despite its prevalence and impact. This study aimed to explore the content of clinical conversations about breathlessness and patients' level of self-reported openness when discussing their breathlessness.

Methods: A cross-sectional, online survey of Australian adults (≥18 years) stratified to the 2016 National Census for age, sex, state/territory of residence and rurality. Assessments based on self-report included *demographics*, *breathlessness* (modified Medical Research Council (mMRC) breathlessness scale), *breathlessness duration* (months/years) and *underlying condition* (multiple-choice question), *breathlessness-related topics discussed* (multiple-choice question) and *patients' openness about breathlessness* (multiple-choice question).

Results: Of 4245 respondents with mMRC ≥1 2311 (54%) reported discussing breathlessness with their clinician. The majority were patient-initiated conversations (94%; n=2179) where the proportion discussing >1 topic was higher with each mMRC level (34% mMRC1; 40% mMRC2; 50% mMRC3-4) in contrast with clinician-initiated conversations (32% mMRC1; 5% mMRC2; 22% mMRC3-4).Patient-initiated conversations prioritised discussing the topics 'how the person feels' (mMRC1) and 'breathlessness' impacts' (mMRC2-4); clinician-initiated consultations prioritised 'breathlessness' impacts' (mMRC1-2) and 'how the person feels' and 'doubts/fears' (mMRC3-4).Compared with clinician-initiated conversations, patient-initiated ones had a higher proportion of respondents reporting being *completely open* (73% vs 56%, mMRC1; 58% vs 7%, mMRC2; 75% vs 22%, mMRC3-4). Increasing openness was associated with increasing age, gender (women), smoking status (non-smokers) and underlying condition (lung disease).

Conclusions: Many patients are willing to discuss multiple aspects of their breathlessness but may not disclose the full extent of the symptom's presence or impacts.

Keywords: Perception of Asthma/Breathlessness; Surveys and Questionnaires.

Conflict of interest statement

Competing interests: The funder had no involvement in the study design, data collection/analysis/interpretation, writing of the report nor the decision to submit the paper for publication. The founder did not influence the results/outcomes of the study despite author affiliations with the funder. Unrelated to this work, DCC is an unpaid member of an advisory board for Helsinn Pharmaceuticals and Specialist Therapeutics and has consulted to, and received intellectual property payments from Mayne Pharma. The other authors declare no competing interests.

- **38 references**
- **3 figures**

Supplementary info

MeSH termsExpand

Full text links

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Cite

14

BMJ Open Respir Res

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. 2025 Nov 17;12(1):e003378.

doi: 10.1136/bmjresp-2025-003378.

Anti-inflammatory reliever therapy for asthma using inhaled budesonide/formoterol as-needed with or without maintenance in South African children (AIR-SA 001): a description of a randomised clinical trial protocol

S T Hlophe[1], N N Ndimande[1], N Ngobese[2], E Mkwanazi[2], K Bird[2], J Mbonigaba[3], K Otwombe[4], L Lebina[2], K Mortimer[1 5], R Masekela[6 2]

Affiliations Expand

- **PMID: 41253413**
- **PMCID: PMC12636877**

- DOI: 10.1136/bmjresp-2025-003378

Abstract

Background: Asthma is the most common non-communicable disease among children, with increasing prevalence. The current standard of care in high-income countries in adults and adolescents includes the use of combination inhaled corticosteroids (ICSs) with rapid-onset long-acting ß$_2$ agonists (LABA) for all severities of asthma. The primary objective of this trial is to assess the efficacy of a budesonide/formoterol inhaler used 'both as required, and regularly' to reduce asthma exacerbations compared with the standard of care for asthma in children and adolescents.

Methods: Children and adolescents aged 6-18 years with a diagnosis of asthma with at least one asthma exacerbation in the previous 12 months will be randomised to receive either budesonide/formoterol inhaler or the standard of care, which includes ICS and short-acting ß$_2$ agonist (SABA). The primary outcome will be the number of severe asthma exacerbations over 1-year follow-up period. Secondary objectives will include evaluating the quality of life, lung function and health economic outcomes.

Discussion: The current standard of care in South Africa recommends use of separate ICSs and SABA inhalers for asthma management in children with no recommendation for ICS/LABA in children under the age of 12 years for non-severe asthma. Budesonide/formoterol has transformed asthma treatment in high-income countries for use 'as needed' as anti-inflammatory reliever and for maintenance and reliever in adolescence, 12-18 years and adults. This strategy has been shown to reduce asthma exacerbations and hospitalisations. This trial will bridge the gap for the efficacy of budesonide/formoterol in children <12 years of age and address the economic arguments and safety of this approach for implementation in the lower to middle income countries. If this trial demonstrates positive results in the study population, it could provide strong scientific evidence and policy relevance to be adopted by policymakers for clinical implementation.

Trial registration number: This study has been registered and approved by the South African Health Regulatory Authority 20231016, on 14 December 2023, KwaZulu Natal Health Research Committee KZ_202304_008 on 11 January 2024, University of KwaZulu Natal Biomedical Research Ethics Committee BREC/0000/5663/2023 on 6 February 2024, South African Clinical Trials Register DOH-27-032024-4778 on 14 March 2024, ClinicalTrial.gov NCT06429475 on 20 May 2024 and Pan African Clinical Trial Registry on 27 February 2025; the unique identification number for the registry is PACTR202502547023775.

Keywords: Asthma; Paediatric asthma.

Conflict of interest statement

Competing interests: None declared.

- 32 references
- 3 figures

Supplementary info

Publication types, MeSH terms, Substances, Associated dataExpand

Full text links

Proceed to details

Cite

15

BMJ Open Respir Res

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. 2025 Nov 17;12(1):e003129.

doi: 10.1136/bmjresp-2024-003129.

The impact of the eosinophil on the risk of acute exacerbation in asthma patients

Chao-Hsien Chen[#1,2], Ya-Hui Wang[#3], Chih-Cheng Lai[4,5], Cheng-Yi Wang[6], Hao-Chien Wang[7,8]

Affiliations Expand

- PMID: 41253414

- PMCID: PMC12636944

- DOI: 10.1136/bmjresp-2024-003129

Abstract

Background: Acute exacerbations profoundly influence asthma prognosis, yet large-scale data linking baseline blood eosinophil counts to both short-term and long-term exacerbation risk remain limited. We therefore examined this association in one of the largest nationwide cohorts.

Methods: Using Taiwan's asthma pay-for-performance database linked to nationwide claims, we conducted a retrospective cohort study of adults with asthma (2015-2020). Baseline peak eosinophil counts defined two groups: high (≥300 cells/µL) and low (<300 cells/µL). Propensity-score matching (1:1) yielded two balanced subcohorts. Multivariable Cox models estimated adjusted HRs (aHRs) for moderate (outpatient, steroid-treated) and severe (Emergency Department visit or hospitalisation) exacerbations within 1 year and over the entire follow-up, controlling for age, sex, Charlson comorbidity score and propensity score.

Results: Among 407 725 and 961 268 asthma patients in the high and low eosinophil groups, respectively, matched subgroups of 50 360 patients each were analysed. The high eosinophil group had higher rates of severe acute exacerbations (SAEs) within 1 year (14.67 vs 10.950 per 100 person-years) with an adjusted HR of 1.392. Similar trends were observed for moderate acute

exacerbations (AEs) (HR 1.548) and all AEs (HR 1.373) within 1 year. These associations persisted after adjustment for age, gender, Charlson comorbidity score and propensity score.

Conclusions: In this first nationwide, propensity-matched cohort exceeding 100 000 adults, elevated blood eosinophil counts independently predicted both short-term and long-term moderate-to-severe asthma exacerbations across all age and sex strata. Peak eosinophil measurement thus offers a practical biomarker for early identification of high-risk patients who may benefit from intensified anti-eosinophilic or inhaled corticosteroid/long-acting beta agonist-based strategies.

Keywords: Asthma.

Conflict of interest statement

Competing interests: None declared.

- 19 references
- 1 figure

Supplementary info

MeSH termsExpand

Full text links

Proceed to details

Cite

16

Tuberc Respir Dis (Seoul)

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. 2025 Nov 19.

doi: 10.4046/trd.2025.0173. Online ahead of print.

Expert Consensus Statement on the Disease Burden and Vaccination for Respiratory Syncytial Virus (RSV) Infection in Adults

Joon Young Choi [1], Chin Kook Rhee [2], Yong-Il Hwang [3], Ji-Yong Moon [4], Kwang Ha Yoo [4], Hyoung Kyu Yoon [5]

Affiliations Expand

- PMID: 41255075

- DOI: 10.4046/trd.2025.0173

Free article

Abstract

Respiratory syncytial virus (RSV) is a leading cause of acute respiratory infection in adults, with higher morbidity and mortality in older adults and those with COPD or asthma. Despite the burden, disease awareness remains low and treatment is limited to supportive care. Recent advances have led to the approval of multiple vaccines and updated guideline recommendations. We reviewed current literature, surveillance data, and international guidelines to assess the burden of RSV in adults and to evaluate evidence for vaccination in high-risk groups. Globally, RSV accounts for millions of infections and substantial hospitalizations and deaths among adults ≥60 years. COPD and asthma patients show disproportionately high risks of RSV-related hospitalization, exacerbations, and mortality. South Korean studies confirm RSV as a major contributor to pneumonia, COPD and asthma exacerbations, and bronchiectasis. As of 2025, three RSV vaccines (Arexvy, Abrysvo, mRESVIA) have FDA approval; only Arexvy is approved in Korea for older adults. ACIP now recommends vaccination for all adults ≥75 years and high-risk adults aged 50-74 years, while GOLD, GINA, and Korean COPD guidelines endorse RSV vaccination for chronic respiratory disease patients. RSV is underrecognized yet imposes significant disease and healthcare burdens in older adults and those with chronic respiratory diseases. In the absence of effective antivirals, vaccination is a key preventive strategy. Expanding vaccination uptake, improving awareness, and integrating RSV vaccines into national immunization programs could substantially reduce RSV-related morbidity and mortality.

Keywords: Acute respiratory infection; Asthma; COPD; Respiratory syncytial virus (RSV); Vaccine.

Full text links

Proceed to details

Cite

17

Allergy

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. 2025 Nov 19.

doi: 10.1111/all.70153. Online ahead of print.

Long-Term Effect of Allergen Immunotherapy in Responder Local Allergic Rhinitis Patients: Symptom Control, and Prevention of Asthma and Allergic Sensitizations

Almudena Testera-Montes[1,2], Laura Zubiaga-Fernandez[1,2], Carlos J Aranda[2], Irene Garcia-Esteban[2], Trinidad Ilda Gaitan-Nievas[1], Dulce Sanchez-Torralvo[1], Cristobalina Mayorga[1,2], Maria J Torres[1,2,3], Ibon Eguiluz-Gracia[1,2], Carmen Rondon[1,2]

Affiliations Expand

- PMID: 41258979

- DOI: 10.1111/all.70153

Abstract

Background: Clinical trials (CTs) have shown that allergen immunotherapy (AIT) is effective for local allergic rhinitis (LAR) while treatment is ongoing. However, its long-term effects remain unknown. This study investigates the long-term clinical and preventive effect of AIT in responder LAR patients.

Methods: LAR patients obtaining a clinical benefit from 1-year CT of subcutaneous AIT were enrolled in this 10-year follow-up study (AIT cohort). All completed a full 3-year AIT course and were followed for additional 7 years. A matched group of LAR patients who did not receive AIT (non-AIT cohort) was followed over the same period. Primary outcomes included nasal-ocular symptom scores (visual analogue scale, VAS), reliever medication use and medication-free days (MFD). Secondary outcomes were asthma incidence, asthma control (asthma control test, ACT), lung function (FEV_1), quality of life (QoL), emergency visits, new sensitizations detected by nasal allergen challenge (NAC), and the analysis of the minimal clinically important difference (MCID). Assessments were conducted at baseline and at years 1, 3, 5, 7, and 10.

Results: Sixty-six patients were included (AIT n = 32; non-AIT n = 34). The AIT cohort showed a sustained reduction in nasal-ocular symptoms from year 1 ($p < 0.001$) and significantly more MFD from year 3 ($p < 0.001$). Asthma developed in 40.7% of non-AIT vs. 8.0% of AIT patients ($p = 0.021$). New sensitizations occurred in 38.2% of non-AIT and 6.3% of AIT patients ($p = 0.002$).
FEV_1 improved in the AIT cohort and declined in non-AIT ($p < 0.001$). QoL and emergency visits also favored AIT.

Conclusion: AIT induces a sustained clinical improvement and prevents the onset of asthma and local sensitizations in responder LAR patients.

Keywords: allergen immunotherapy; asthma; local allergic rhinitis; long-term effect; prevention.

- 40 references

Supplementary info

Grants and fundingExpand

Full text links

Proceed to details

Cite

18

Int Arch Allergy Immunol

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. 2025 Nov 19:1-14.

doi: 10.1159/000549441. Online ahead of print.

Tracking systemic inflammation in allergic rhinitis with immune-inflammation markers

Mustafa Ilker Inan, Yasemin Akgul Balaban, Fevzi Demirel, Ezgi Sonmez, Fikriye Kalkan, Sait Yesillik, Cem Ozgonul, Erdim Sertoglu, Ozgur Kartal

- PMID: 41259278

- DOI: 10.1159/000549441

Abstract

Introduction: Allergic rhinitis (AR) is an inflammatory disorder of the nasal mucosa in allergen-sensitized individuals. Beyond local inflammation, AR also promotes systemic inflammatory responses. This study aimed to evaluate biomarkers reflecting systemic inflammation like neutrophil-to-lymphocyte ratio (NLR), platelet-to-lymphocyte ratio (PLR), systemic immune-inflammation index (SII), pan-immune-inflammation value (PIV), and serum SCUBE levels in the diagnosis and treatment monitoring of AR.

Methods: In this prospective, controlled study, 88 patients with AR and 50 healthy controls were enrolled. All AR patients received nasal corticosteroid (NCS) therapy; however, only 42 patients returned for follow-up. Symptom severity was assessed using the Visual Analogue Scale (VAS) and the Control of Allergic Rhinitis and Asthma Test (CARAT). Laboratory measurements included NLR, PLR, SII, PIV, and serum SCUBE1 and SCUBE2 levels. Intergroup and pre-post treatment comparisons were performed.

Results: Compared with controls, AR patients exhibited significantly higher PLR, SII, and PIV values ($p<0.05$ for all), whereas SCUBE1 or SCUBE2 levels showed no difference. Following treatment, significant clinical improvement was observed in VAS and CARAT scores ($p<0.001$). In addition, NLR, PLR, and SII values significantly decreased compared with baseline ($p<0.05$ for all). The area under the curve (AUC) values were 0.655 (95% CI:0.562-0.747) for PIV, 0.611 (95% CI:0.512-0.711) for SII, and 0.607 (95% CI:0.512-0.702) for PLR.

Conclusion: PLR, SII, and PIV were significantly elevated in patients with AR, while NLR, PLR, and SII improved following one month of NCS therapy. These findings highlight that the systemic inflammatory burden of AR should not be underestimated and suggest that novel, easily accessible biomarkers such as SII and PIV may provide additional value in the assessment and monitoring of inflammation in AR.

Full text links

Proceed to details

Cite

19

Review

Expert Rev Respir Med

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. 2025 Nov 19.

doi: 10.1080/17476348.2025.2593632. Online ahead of print.

Advances in the management of severe therapy-resistant pediatric asthma

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Affiliations Expand

- PMID: 41259667

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Abstract

Introduction: Severe therapy-resistant pediatric asthma (STRA) is an uncommon but high-impact form of childhood asthma, affecting 2-5% of patients yet causing disproportionate morbidity, healthcare use, and corticosteroid exposure. It is defined by uncontrolled disease despite optimized high-dose inhaled corticosteroids plus additional controllers, after exclusion and correction of modifiable factors. Accurate distinction from difficult-to-treat asthma is essential to avoid unnecessary treatment escalation and enable timely advanced interventions.

Areas covered: This narrative review summarizes current knowledge on STRA pathophysiology, diagnosis, and management in children, with a focus on precision medicine. Mechanistic insights include epithelial barrier dysfunction, distinct inflammatory endotypes, early airway remodeling, and microbial - immune interactions. Biomarker-guided endotyping supports individualized care. The article evaluates the efficacy, safety, and positioning of approved biologics, while noting gaps in treating non-T2 phenotypes and in predicting biologic response.

Expert opinion: STRA management is shifting from empirical escalation to endotype-driven strategies. Biologics benefit biomarker-selected patients by reducing exacerbations, improving lung function, and lowering steroid dependence, sometimes addressing comorbid allergies.

Future priorities include expanding options for non-T2 and mixed phenotypes, validating predictive biomarkers, integrating digital monitoring, and reducing global inequities in access to advanced therapy.

Keywords: Biomarkers; Difficult-to-treat asthma; Severe pediatric asthma; Therapy-resistant asthma; biologic therapy; precision medicine.

Supplementary info

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Eur J Intern Med

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Tezepelumab for severe asthma - an "all round" player

Ophir Freund [1], Hitasha Rupani [2], Brian Lipworth [3], Rory Chan [4]

Affiliations Expand

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- **DOI: 10.1016/j.ejim.2025.106598**

No abstract available

Keywords: Asthma; Exacerbations; Lung function; Symptoms; Tezepelumab.

Conflict of interest statement

Declaration of competing interest OF reports other support (conferences accommodation) from AstraZeneca, Sanofi/Regeneron, Kamada, and GSK. BL reports grants, personal fees (consulting, talks and advisory board), other support (attending ATS and ERS) from AstraZeneca; grants, personal fees (talks and consulting) from Sanofi/Regeneron, personal fees (consulting, talks and advisory board) from NIOX in relation to the submitted work; grants, personal fees (consulting, talks, advisory board), other support (attending ERS) from Teva, personal fees (talks and consulting), grants and other support (attending ERS and BTS) from Chiesi, personal fees (consulting and talks) from Lupin, personal fees (consulting) from Glenmark, personal fees

(consulting, talks, advisory board), other support (attending BTS) from Boehringer Ingelheim; and the son of BJL is presently an employee of AstraZeneca. HR has received advisory board and speaker fees from AstraZeneca, GSK, Chiesi, Sanofi and Boehringer Ingelheim; conference support from AstraZeneca and Sanofi; grant funding to her institution from AstraZeneca and GSK. RC reports institutional grants awarded from Asthma+Lung UK, Chiesi, AstraZeneca and GSK; serving on advisory boards for AstraZeneca and Vitalograph; personal fees (talks and/or drafting educational material) from AstraZeneca, Chiesi, Thorasys and Vitalograph; and support attending meetings from AstraZeneca, Chiesi, NIOX, Sanofi-Regeneron and Vitalograph.

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J Asthma

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Letter to the Editor Regrading "Efficacy of tiotropium bromide on spirometric measurements and controlof asthma in real life: data from a 1-year clinical follow-up"

Liping Li [1], Weigang Jia [1], Xingxing Yuan [1]

Affiliations Expand

- PMID: 41263766

- DOI: 10.1080/02770903.2025.2592235

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22

Editorial

Allergy

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Healthy Planet, Healthier People: EAACI's Integrated Planetary Health Strategy for Asthma, Allergies and Immune Diseases

André Moreira [1], Isabella Annesi Maesano [2], Jolanta Walusiak-Skorupa [3], Jooeun Han [4 5], Janice A Layhadi [4 5], Cezmi Akdis [6], María M Escribese [7], Mohamed H Shamji [4 5], Maria J Torres [8]

Affiliations Expand

- PMID: 41268612

- DOI: 10.1111/all.70164

No abstract available

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23

Allergy

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doi: 10.1111/all.70100. Online ahead of print.

Methodology for the Development of the Allergic Rhinitis and Its Impact on Asthma (ARIA)-EAACI 2024-2025 Guidelines: From Evidence-to-Decision Frameworks to Digitalised Shared Decision-Making Algorithms

Jean Bousquet [1 2 3], Bernardo Sousa-Pinto [4 5], Rafael José Vieira [4 5], Holger J Schünemann [2 6 7], Torsten Zuberbier [1 2 6], Antonio Bognanni [6], Alkis Togias [8], Boleslaw Samolinski [9], Arunas Valiulis [10 11], Sian Williams [12], Anna Bedbrook [3], Wienczyslawa Czarlewski [3 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[4,27,28], Marine Savouré[29,30,31], Sanna K Toppila-Salmi[32,33], Maria Teresa Ventura[34,35], Juan Jose 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 H A 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], Mikhail Sofiev[25], Luís Taborda-Barata[24,66,67], Charlotte Suppli Ulrik[68,69], Marylin Valentin Rostan[70], Giovanni Viegi[71], Luo Zhang[72], Josep M Antó[30,31,73], Tari Haahtela[74], Ivan Cherrez-Ojeda[1,2,75,76], Juan Carlos Ivancevich[77], Nikolai Khaltaev[78], Arzu Yorgancioglu[79], Baharudin Abdullah[80], Mona Al-Ahmad[81], Maryam Ali Al-Nesf[82], Rita Amaral[4,5,83,84], Julijana Asllani[85], Karl-C Bergmann[1,2], Jonathan A Bernstein[86], Michael S Blaiss[87], Fulvio Braido[88,89], Paulo Camargos[90], Pedro Carreiro-Martins[91,92], Thomas Casale[93], Lorenzo Cecchi[94], Alessandro G Fiocchi[95], Antonio F M Giuliano[96], George Christoff[97], Ieva Cirule[98], Jaime Correia-de-Sousa[99], Elisio M Costa[100], Stefano Del Giacco[101], Philippe Devillier[102], Dejan Dokic[103], Elham Hossny[104], Tomohisa Iinuma[105], Carla Irani[106], Zhanat Ispayeva[107], Kaja Julge[108], Igor Kaidashev[109], Kazi S Bennoor[110], Helga Kraxner[111], Inger Kull[112,113], Marek Kulus[114], Maciej Kupczyk[46], Andriy Kurchenko[115], Stefania La Grutta[116], Neven Miculinic[117], Lan Le Thi Tuyet[118], Michael Makris[119], Branislava Milenkovic[120], Sang Min Lee[121], Stephen Montefort[122], André Moreira[123,124,125], Joaquim Mullol[126], Rachel Nadif[127,128], Alla Nakonechna[129,130], Hugo E Neffen[131], Marek Niedoszytko[132], Dieudonné Nyembue[133], Robyn O'Hehir[134], Ismail Ogulur[135], Yoshitaka Okamoto[136,137], Heidi Olze[138], Oscar Palomares[139], Petr Panzner[140], Vincenzo Patella[141,142,143], Ruby Pawankar[144], Constantinos Pitsios[145], Todor A Popov[146], Francesca Puggioni[147], Santiago Quirce[18], Agné Ramonaité[148,149], Marysia Recto[150], Maria Susana Repka-Ramirez[151], Graham Roberts[152,153,154], Karla Robles-Velasco[31,74,155], Menachem Rottem[156,157], Marianella Salapatas[158], Joaquin Sastre[159], Nicola Scichilone[160], Juan Carlos Sisul[161], Dirceu Solé[162], Manuel E Soto-Martinez[163], Milan Sova[164], Pongsakorn Tantilipikorn[165], Ana Todo-Bom[166], Vladyslav Tsaryk[113], Ioanna Tsiligianni[167,168], Marilyn Urrutia-Pereira[169], Erkka Valovirta[170], Eric Van Ganse[171], Tuula Vasankari[172,173], Dana Wallace[174], De Yun Wang[175], Margitta Worm[176], Osman M Yusuf[177], Mihaela Zidarn[178,179], Sara Gil-Mata[4,5], Manuel Marques-Cruz[4,5], Bassam Mahboub[180,181], Ignacio J Ansotegui[182], Antonino Romano[183,184], Maria Cristina Artesani[95], Bruno Barreto[185], Sven Becker[186], Bianca Beghe[187], Jacques Bouchard[188], Melisande Bourgoin-Heck[189,190,191], Luisa Brussino[192,193], Roland Buhl[194], Mario Calvo-Gil[195], Victoria Cardona Dahl[196,197], José Antonio Castillo Vizuete[198,199], Denis Charpin[200], Niels H Chavannes[201], Marta Chełmińska[202], Lei Cheng[203], Ekaterine Chkhartishvili[204], Herberto Jose Chong-Neto[205], Deepa Choudhury[206], Derek Chu[207,208], Cemal Cingi[209], Enrico Compalati[210], Biljana Cvetkovski[211], Jane Da Silva[212,213], Gennaro D'Amato[214], Janet Davies[215,216], Danilo Di Bona[217], Maria V Dimou[26], Maria Do Ceu Teixeira[218,219], Maria Doulaptsi[220], José Miguel Fuentes Pérez[221], Radoslaw Gawlik[222], Ozlem Goksel[223], Maximiliano R Gómez[224], Sandra N Gonzalez Diaz[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], Marta Kisiel[235], Mitja Kosnik[178,179], Vicky Kritikos[236,237], Carlo Lombardi[238], Matteo Martini[239,240], Cem Meço[241,242,243], Eris Mesonjesi[244], Florin Mihaltan[245], Marcin Moniuszko[246], Robert Naclerio[247], Sophia Neisinger[1,2], Michal Ordak[248], Giovanni Paoletti[7,147], Edgar Arturo Perdomo-Flores[249], Nhan Pham-Thi[250,251,252], Emmanuel Prokopakis[220], Daniela Rivero Yeverino[253], Giovanni Rolla[192], Jan Romantowski[132], Philip W Rouadi[254,255], Maia Rukhadze[256], Daiju Sakurai[257], Laila Salameh[258], Faradiba Serpa Sarquis[259], Tanja Soklic Kosak[260], Michael Soyka[261], Olga Sozinova[262], Krzysztof Specjalski[132], Vesna Tomic-Spiric[263,264], Martina Vachova[265,266], Marianne

van Hage[267 268 269], Ilgim Vardaloglu Koyuncu[270], Pakit Vichyanond[271 272], Martin Wagenmann[273], Fanny Wai San Ko[274], Pascal Werminghaus[275], Vicky Paraskevi Xepapadaki[26], Yi-Kui Xiang[1 2 276], João A Fonseca[4 5]

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- PMID: 41268627

- DOI: 10.1111/all.70100

Abstract

The Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines produced their first edition in 1999, with subsequent revisions in 2008, 2010, 2016 and 2019. A new iteration of ARIA-ARIA 2024-2025-in collaboration with EAACI is currently being developed, focusing on the management of allergic rhinitis. ARIA 2024-2025 follows the GRADE framework and is endorsed by the European Academy of Allergy and Clinical Immunology (EAACI). A set of approaches has been used to develop guideline questions, including surveying key opinion leaders and using artificial intelligence (AI)-based tools to analyse web searches on allergic rhinitis and to generate questions. Each prioritised guideline question is assessed through an Evidence-to-Decision (EtD) framework. EtDs support the systematic and transparent formulation of recommendations, comprising 12 criteria for which the best available evidence should be sought. In the context of ARIA-EAACI 2024-2025, such evidence is derived not only from randomised controlled trials but also-among others-from patient-generated data sources that better reflect the affected individuals' perspectives. Moreover, ARIA-EAACI 2024-2025 incorporates evidence on planetary health. Developed guideline recommendations will support the creation of digitalised decision algorithms and care pathways. This paper describes the methodology used to develop the person-centred, digitally enabled and AI-assisted ARIA-EAACI 2024-2025. Among others, it describes (i) the development and prioritisation of guideline questions, (ii) sources of evidence for EtDs and (iii) the development of digitalised decision algorithms and care pathways.

Keywords: ENT (rhinitis, sinusitis, nasal polyps...); allergic rhinitis; asthma; guidelines.

- 87 references

Supplementary info

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24

Lancet Respir Med

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. 2025 Nov 18:S2213-2600(25)00427-8.

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Telling "stories of breath" to make asthma visible

Peter Ranscombe

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Respir Med

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. 2025 Nov 19:108528.

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Machine learning for prediction of eosinophilic asthma using clinical indicators as an alternative to induced sputum

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Affiliations Expand

- PMID: 41270939

- DOI: 10.1016/j.rmed.2025.108528

Abstract

Background: Induced sputum differential cell counts can help classify asthma into eosinophilic and non-eosinophilic types. The collection of induced sputum is time-consuming. The aim of this study was to develop a machine learning model to identify eosinophilic asthma (EA) with clinical indicators.

Methods: The data from 103 asthma patients were collected and divided into training cohort (83 patients) and validation cohort (20 patients). Five AI algorithms, namely logistic regression, support vector machine (SVM), k-Nearest Neighbor, neural network and Naive Bayes, were employed to establish predictive models using clinical indicators and were evaluated using the validation cohort. The threshold parameter of SVM was selected by balancing accuracy, true

positive, and false positive rates. And two hyperparameters of SVM, c and γ, were optimized by k-fold cross-validation and grid search methods.

Results: The SVM model presented good discrimination of EA, and the Area Under the Curve(AUC) and accuracy were 0.93 and 81.58%, respectively. The top six clinically important predictors were Fraction of exhaled Nitric Oxide, blood eosinophils, immunoglobulin E, allergy, Asthma Control Questionnaire -7 and Asthma Control Test. Considering the model performance and generalization ability, the threshold of SVM was selected as 0.5, and the c and γ hyperparameters were set as 1 and 1, respectively. The evaluation results of the validation cohort showed that the SVM model achieved an AUC of 0.77, indicating a favorable ability to identify EA.

Conclusion: Machine learning for prediction of eosinophilic asthma using clinical indicators can be an alternative to induced sputum.

Keywords: Clinical indicators; Eosinophilic asthma; Induced sputum; Machine learning; Prediction.

Conflict of interest statement

Declaration of Competing Interest The authors have declared no conflict of interest

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

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Epidemiology of nummular eczema - methodological approaches and outcomes from nationwide claims data analyses

Kristina Hagenström[1], Katharina Müller[1], Theresa Klinger[1], Charlotte Willers[1], Kilian Eyerich[2], Matthias Augustin[1]

Affiliations Expand

- PMID: 41243467

- DOI: 10.1111/ddg.15932

Abstract

Background and objectives: Nummular eczema (NE) is a chronic skin condition with limited epidemiologic data. This study estimates its prevalence, incidence and severity in Germany.

Methods: A cross-sectional analysis (2016-2022) used German insurance claims data to identify NE cases (ICD-10 L30.0) and assess severity (hospitalization, work disability, systemic treatment) and comorbid skin conditions, including atopic dermatitis (AD).

Results: In 2022, the prevalence of NE ranged from 0.07% to 0.26%. The incidence was 0.16%-0.17%. The mean age was 47.5 years, and 57.4% of the patients were male. Older males had a higher prevalence, while children younger than six years (0.34%), especially those younger than 2 years (0.56%-0.57%), were more affected. Severe NE was found in 14.8% of the patients. AD co-occurred in 18% of NE cases. NE patients had an increased risk of lichen simplex chronicus (RR 9.71), irritant contact dermatitis (RR 9.60), pruritus (RR 5.71), allergic rhinitis (RR 1.78), and allergic asthma (RR 1.49).

Conclusions: Despite differences in methodological approaches leading to some variation, the prevalence of NE in the German population can be reasonably estimated at approximately 0.26%. Overlaps and miscoding may have occurred, particularly with other forms of eczema, underscoring the need for reliable diagnostics and standardized coding.

Keywords: Atopic dermatitis; frequency of illness; incidence; prevalence; severity; statutory health insurance data; validation.

- **21 references**

Full text links

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Allergy

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doi: 10.1111/all.70163. Online ahead of print.

Gut Microbiome Alterations by Allergen Sensitisation and Symptom Severity in Paediatric Allergic Rhinitis

Kunio Miyake[1], Daisuke Watanabe[2], Sanae Otawa[3], Megumi Kushima[3], Hideki Yui[3], Ryoji Shinohara[3], Daiju Sakurai[2], Zentaro Yamagata[3]

Affiliations Expand

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No abstract available

Keywords: IgE; epidemiology; microbiome; paediatrics; rhinitis.

Supplementary info

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3

Int Arch Allergy Immunol

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. 2025 Nov 18:1-17.

doi: 10.1159/000549547. Online ahead of print.

Phenotypes and Natural Course of Atopic Dermatitis: A pathway to the Atopic March

Cagla Karavaizoglu, Kazım Okan Dolu, Ayse Suleyman, Esra Yucel, Esra Altıntas, Zeynep Hizli Demirkale, Sevgi Sipahi Cimen, Cevdet Ozdemi, Zeynep Ulker Altinel

- PMID: 41252343

- DOI: 10.1159/000549547

Abstract

Introduction Atopic dermatitis (AD) is a chronic inflammatory skin disorder that may progress to asthma and/or allergic rhinitis (AR) in children, a progression known as the "atopic march." Methods This study aimed to evaluate the natural history of AD, its clinical phenotypes, and the risk of progression to atopic march over a 10-year period. A retrospective review of medical records was performed for children diagnosed with AD and those with respiratory allergies who had prior AD. Patients were categorized into early transient, early persistent, and late-onset phenotypes based on eczema onset age and disease course. Disease progression, atopic march development, and related risk factors were analyzed Results The study included 894 children

(375 females, 519 males) with a mean presentation age of 3.54 ± 3.31 years, mean follow-up of 3.65 ± 2.84 years. Based on clinical phenotypes, 61% (n=545) were early transient, 15.2% (n=136) early persistent, and 23.8% (n=213) late-onset. Asthma and AR rates were 8.6-11.2% in early transient, 14.0-22.8% in early persistent, and 16.0-24.9% in late-onset phenotypes respectively. Overall, 29.9% (n=267) exhibited the atopic march; 56.3% (n=503) were in remission and 43.7% (n=391) had persistent AD. Aeroallergen sensitization was significantly associated with persistent disease (p=0.016) and atopic march progression (p=0.001). Family history of atopy correlated with disease persistence (p=0.033) Conclusion Nearly one-third of children with AD are at risk of developing additional allergic diseases constituting the atopic march. Children with AD who exhibit aeroallergen sensitization should be closely monitored for the development of respiratory allergies.

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Allergy

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. 2025 Nov 19.

doi: 10.1111/all.70153. Online ahead of print.

Long-Term Effect of Allergen Immunotherapy in Responder Local Allergic Rhinitis Patients: Symptom Control, and Prevention of Asthma and Allergic Sensitizations

Almudena Testera-Montes[1,2], Laura Zubiaga-Fernandez[1,2], Carlos J Aranda[2], Irene Garcia-Esteban[2], Trinidad Ilda Gaitan-Nievas[1], Dulce Sanchez-Torralvo[1], Cristobalina Mayorga[1,2], Maria J Torres[1,2,3], Ibon Eguiluz-Gracia[1,2], Carmen Rondon[1,2]

Affiliations Expand

- PMID: 41258979

- DOI: 10.1111/all.70153

Abstract

Background: Clinical trials (CTs) have shown that allergen immunotherapy (AIT) is effective for local allergic rhinitis (LAR) while treatment is ongoing. However, its long-term effects remain unknown. This study investigates the long-term clinical and preventive effect of AIT in responder LAR patients.

Methods: LAR patients obtaining a clinical benefit from 1-year CT of subcutaneous AIT were enrolled in this 10-year follow-up study (AIT cohort). All completed a full 3-year AIT course and were followed for additional 7 years. A matched group of LAR patients who did not receive AIT (non-AIT cohort) was followed over the same period. Primary outcomes included nasal-ocular symptom scores (visual analogue scale, VAS), reliever medication use and medication-free days (MFD). Secondary outcomes were asthma incidence, asthma control (asthma control test, ACT), lung function (FEV_1), quality of life (QoL), emergency visits, new sensitizations detected by nasal allergen challenge (NAC), and the analysis of the minimal clinically important difference (MCID). Assessments were conducted at baseline and at years 1, 3, 5, 7, and 10.

Results: Sixty-six patients were included (AIT n = 32; non-AIT n = 34). The AIT cohort showed a sustained reduction in nasal-ocular symptoms from year 1 ($p < 0.001$) and significantly more MFD from year 3 ($p < 0.001$). Asthma developed in 40.7% of non-AIT vs. 8.0% of AIT patients ($p = 0.021$). New sensitizations occurred in 38.2% of non-AIT and 6.3% of AIT patients ($p = 0.002$). FEV_1 improved in the AIT cohort and declined in non-AIT ($p < 0.001$). QoL and emergency visits also favored AIT.

Conclusion: AIT induces a sustained clinical improvement and prevents the onset of asthma and local sensitizations in responder LAR patients.

Keywords: allergen immunotherapy; asthma; local allergic rhinitis; long-term effect; prevention.

- 40 references

Supplementary info

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Int Arch Allergy Immunol

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. 2025 Nov 19:1-14.

doi: 10.1159/000549441. Online ahead of print.

Tracking systemic inflammation in allergic rhinitis with immune-inflammation markers

Mustafa Ilker Inan, Yasemin Akgul Balaban, Fevzi Demirel, Ezgi Sonmez, Fikriye Kalkan, Sait Yesillik, Cem Ozgonul, Erdim Sertoglu, Ozgur Kartal

- **PMID: 41259278**

- **DOI: 10.1159/000549441**

Abstract

Introduction: Allergic rhinitis (AR) is an inflammatory disorder of the nasal mucosa in allergen-sensitized individuals. Beyond local inflammation, AR also promotes systemic inflammatory responses. This study aimed to evaluate biomarkers reflecting systemic inflammation like neutrophil-to-lymphocyte ratio (NLR), platelet-to-lymphocyte ratio (PLR), systemic immune-inflammation index (SII), pan-immune-inflammation value (PIV), and serum SCUBE levels in the diagnosis and treatment monitoring of AR.

Methods: In this prospective, controlled study, 88 patients with AR and 50 healthy controls were enrolled. All AR patients received nasal corticosteroid (NCS) therapy; however, only 42 patients returned for follow-up. Symptom severity was assessed using the Visual Analogue Scale (VAS) and the Control of Allergic Rhinitis and Asthma Test (CARAT). Laboratory measurements included NLR, PLR, SII, PIV, and serum SCUBE1 and SCUBE2 levels. Intergroup and pre-post treatment comparisons were performed.

Results: Compared with controls, AR patients exhibited significantly higher PLR, SII, and PIV values ($p<0.05$ for all), whereas SCUBE1 or SCUBE2 levels showed no difference. Following treatment, significant clinical improvement was observed in VAS and CARAT scores ($p<0.001$). In addition, NLR, PLR, and SII values significantly decreased compared with baseline ($p<0.05$ for all). The area under the curve (AUC) values were 0.655 (95% CI:0.562-0.747) for PIV, 0.611 (95% CI:0.512-0.711) for SII, and 0.607 (95% CI:0.512-0.702) for PLR.

Conclusion: PLR, SII, and PIV were significantly elevated in patients with AR, while NLR, PLR, and SII improved following one month of NCS therapy. These findings highlight that the systemic inflammatory burden of AR should not be underestimated and suggest that novel, easily accessible biomarkers such as SII and PIV may provide additional value in the assessment and monitoring of inflammation in AR.

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Review

Curr Allergy Asthma Rep

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. 2025 Nov 20;25(1):54.

doi: 10.1007/s11882-025-01235-4.

Restoring the Sense of Smell: A Systematic Review and Meta-Analysis of Biologic Therapies for Chronic Rhinosinusitis with Nasal Polyps

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Affiliations Expand

- PMID: 41261303

- PMCID: PMC12630158

- DOI: 10.1007/s11882-025-01235-4

Abstract

Purpose of review: Smell loss is among the most debilitating symptoms of chronic rhinosinusitis with nasal polyps (CRSwNP). We aimed to synthesize current evidence on the smell-restoring efficacy of biologics, focusing on outcomes measured by psychophysical tests.

Recent findings: Biologics mark a paradigm shift in the management of refractory CRSwNP, offering targeted, effective and safe treatment options. However, their relative impact on psychophysical smell outcomes remains uncertain. With several biologics now approved and real-world evidence emerging, a comprehensive evaluation is needed. This is a systematic review and meta-analysis of 8 RCTs (n = 2,024) and an additional review of 20 cohorts (n = 1,685). Among RCTs, biologic treatment produced a moderate to large pooled improvement in psychophysical smell scores (standardized mean difference, [SMD] = 0.72 (95% CI 0.32-1.13), p = 0.0004). The effect differed between drugs (χ^2 = 23.95, p < 0.0002). Dupilumab showed the largest improvements across four RCTs (SMD = 1.16, 95% CI = 0.35-1.97). In single RCTs, benralizumab showed large effect (1.03, 0.55-1.51), tezepelumab (0.56, 0.46-0.67), telikibart (0.35, 0.11-0.59), and omalizumab (0.27, 0.15-0.40) yielded modest but significant improvements. Mepolizumab showed no effect (0.1330 (95% CI -0.2490-0.5150). Blood-eosinophil level correlated with treatment response (p < 0.001). The cohort studies supported the findings (SMD = 1.20, 95% CI = 0.99-1.42), though most data were derived from studies of dupilumab. Overall, biologics substantially improve psychophysically measured olfactory function in CRSwNP. Future head-to-head trials are warranted to delineate comparative efficacy of smell recovery.

Keywords: Chronic rhinosinusitis with nasal polyps (CRSwNP); Monoclonal antibodies; Olfaction; Smell loss; Type-2 inflammation.

Conflict of interest statement

Declarations. Human and Animal Rights and Informed Consent: All reported studies/experiments involving human or animal subjects performed by the authors were in

accordance with the ethical standards of institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Competing interests: The authors declare no competing interests.

- 62 references
- 5 figures

Supplementary info

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7

Allergy

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Methodology for the Development of the Allergic Rhinitis and Its Impact on Asthma (ARIA)-EAACI 2024-2025 Guidelines: From Evidence-to-Decision Frameworks to Digitalised Shared Decision-Making Algorithms

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Affiliations Expand

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Abstract

The Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines produced their first edition in 1999, with subsequent revisions in 2008, 2010, 2016 and 2019. A new iteration of ARIA-ARIA 2024-

2025-in collaboration with EAACI is currently being developed, focusing on the management of allergic rhinitis. ARIA 2024-2025 follows the GRADE framework and is endorsed by the European Academy of Allergy and Clinical Immunology (EAACI). A set of approaches has been used to develop guideline questions, including surveying key opinion leaders and using artificial intelligence (AI)-based tools to analyse web searches on allergic rhinitis and to generate questions. Each prioritised guideline question is assessed through an Evidence-to-Decision (EtD) framework. EtDs support the systematic and transparent formulation of recommendations, comprising 12 criteria for which the best available evidence should be sought. In the context of ARIA-EAACI 2024-2025, such evidence is derived not only from randomised controlled trials but also-among others-from patient-generated data sources that better reflect the affected individuals' perspectives. Moreover, ARIA-EAACI 2024-2025 incorporates evidence on planetary health. Developed guideline recommendations will support the creation of digitalised decision algorithms and care pathways. This paper describes the methodology used to develop the person-centred, digitally enabled and AI-assisted ARIA-EAACI 2024-2025. Among others, it describes (i) the development and prioritisation of guideline questions, (ii) sources of evidence for EtDs and (iii) the development of digitalised decision algorithms and care pathways.

Keywords: ENT (rhinitis, sinusitis, nasal polyps...); allergic rhinitis; asthma; guidelines.

- 87 references

Supplementary info

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

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Respirology

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Reply to 'Comment on "High Airway-to-Vessel Volume Ratio and Visual Bronchiectasis Are Associated With Exacerbations in COPD"'

Nobuyasu Wakazono [1], Kaoruko Shimizu [1], Naoya Tanabe [2]

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No abstract available

Keywords: COPD; bronchiectasis; radiology and other imaging; respiratory structure and function.

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Tuberc Respir Dis (Seoul)

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. 2025 Nov 19.

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Expert Consensus Statement on the Disease Burden and Vaccination for Respiratory Syncytial Virus (RSV) Infection in Adults

Joon Young Choi [1], Chin Kook Rhee [2], Yong-Il Hwang [3], Ji-Yong Moon [4], Kwang Ha Yoo [4], Hyoung Kyu Yoon [5]

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- PMID: 41255075

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Free article

Abstract

Respiratory syncytial virus (RSV) is a leading cause of acute respiratory infection in adults, with higher morbidity and mortality in older adults and those with COPD or asthma. Despite the burden, disease awareness remains low and treatment is limited to supportive care. Recent advances have led to the approval of multiple vaccines and updated guideline recommendations. We reviewed current literature, surveillance data, and international guidelines to assess the burden of RSV in adults and to evaluate evidence for vaccination in high-

risk groups. Globally, RSV accounts for millions of infections and substantial hospitalizations and deaths among adults ≥60 years. COPD and asthma patients show disproportionately high risks of RSV-related hospitalization, exacerbations, and mortality. South Korean studies confirm RSV as a major contributor to pneumonia, COPD and asthma exacerbations, and bronchiectasis. As of 2025, three RSV vaccines (Arexvy, Abrysvo, mRESVIA) have FDA approval; only Arexvy is approved in Korea for older adults. ACIP now recommends vaccination for all adults ≥75 years and high-risk adults aged 50-74 years, while GOLD, GINA, and Korean COPD guidelines endorse RSV vaccination for chronic respiratory disease patients. RSV is underrecognized yet imposes significant disease and healthcare burdens in older adults and those with chronic respiratory diseases. In the absence of effective antivirals, vaccination is a key preventive strategy. Expanding vaccination uptake, improving awareness, and integrating RSV vaccines into national immunization programs could substantially reduce RSV-related morbidity and mortality.

Keywords: Acute respiratory infection; Asthma; COPD; Respiratory syncytial virus (RSV); Vaccine.

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Cardiovascular disease as a prognostic factor for mortality in non-cystic fibrosis bronchiectasis: data from the Taiwan Bronchiectasis Research Collaboration

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Abstract

Background: Non-cystic fibrosis bronchiectasis (NCFB) is linked to an increased incidence of cardiovascular disease (CVD), but its impact on mortality is unclear. This study aimed to assess the effect of CVD on mortality and its relationship with clinical characteristics in NCFB patients.

Methods: This multicentre retrospective study analysed baseline characteristics and outcomes of 2753 NCFB patients, including 648 with CVD. Univariate and multivariate analyses identified factors associated with CVD and mortality, comparing demographics, comorbidities and pulmonary function between patients with and without CVD.

Results: Patients with CVD were significantly older (76.4 *versus* 68.8 years, p<0.001), had higher body mass index (BMI) (22.9 *versus* 21.5 kg·m^{-2}, p<0.001) and more comorbidities. Age (hazard ratio (HR) 1.046, p<0.001), BMI (HR 1.089, p<0.001) and comorbidity score (HR 1.698, p<0.001) were independent risk factors for CVD. Mortality risk factors in NCFB patients included older age (HR 1.032, p=0.042), *Pseudomonas aeruginosa* infection (HR 3.353, p=0.002), emergency visits (HR 2.455, p<0.001), COPD (HR 2.563, p=0.005) and CVD (HR 2.146, p=0.015).

Conclusion: CVD in NCFB is associated with severe clinical profiles and poor outcomes. Older age, higher BMI and comorbidity burden significantly correlate with CVD presence. CVD is an independent risk factor for mortality, highlighting the importance of early identification and management of cardiovascular comorbidities in patients with NCFB.

Conflict of interest statement

Conflict of interest: The authors have nothing to disclose.

- 34 references
- 4 figures

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Editorial

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Bronchiectasis Treatment Goals, Unmet Needs, and Emerging Therapies: A Podcast

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- PMID: 41269659

- DOI: 10.1007/s41030-025-00330-1

Abstract

Bronchiectasis is a chronic and progressive inflammatory lung disease characterized by dilated airways, impaired mucociliary clearance, recurrent infections, and inflammation. In this podcast, we discuss the heterogeneous causes and complex pathophysiology of bronchiectasis, reviewing the therapeutic tools we currently have available to target aspects of the vicious vortex that drives disease progression. Patient evaluation involves identifying underlying causes such as autoimmune diseases or immune deficiencies, conducting sputum cultures for bacteria, fungi, and mycobacteria, and performing pulmonary function tests. The primary objectives of treatment are to alleviate symptoms, reduce burdensome exacerbations, enhance quality of life, and slow disease progression, requiring shared decision-making to align clinical and patient priorities. Effective management necessitates a multimodal approach to address all aspects of pathophysiology including airway obstruction, infection, and inflammation. An unmet need remains to fully address the inflammation, which is predominantly neutrophilic, driving bronchiectasis. Emerging therapies that directly target dysregulated neutrophilic inflammation via inhibition of the enzyme dipeptidyl peptidase 1 (DPP1) reduce neutrophil serine protease (NSP) activity. Brensocatib, an oral, once-daily DPP1 inhibitor, was recently approved by the FDA and is indicated in the USA for the treatment of noncystic fibrosis bronchiectasis in adult and pediatric patients 12 years of age and older. In the phase 3, 52-week ASPEN trial, brensocatib significantly reduced exacerbation burden, and the 25-mg dose reduced lung function decline and nominally significantly improved patient-reported symptoms compared with placebo. Additional therapies in development include other DPP1 inhibitors (verducatib and HSK31858) and drugs targeting phosphodiesterase 3/4 inhibition (ensifentrine) and anti-interleukin-33 (itepekimab). Overall, the future is promising for patients with the historically neglected and underdiagnosed disease bronchiectasis, with growing awareness and new therapeutic tools becoming available. Podcast (MP4 81554 KB).

Keywords: Bronchiectasis; DPP1 inhibitor; Neutrophilic inflammation; Treatment goals.

Conflict of interest statement

Declarations. Conflict of interest: Patrick A. Flume reports consulting fees and research support from Insmed Incorporated. Diego J. Maselli reports consulting fees from Insmed Incorporated. Ethical Approval: This article is based on previously conducted studies and does not contain any new studies with human participants or animals conducted by the authors. The podcast transcript has been edited for clarity.

- 34 references

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