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

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BMC Pulm Med

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Predictive value analysis of diaphragmatic ultrasound evaluation for mechanical ventilation outcomes in patients with acute exacerbation of chronic obstructive pulmonary disease

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Affiliations Expand

- **PMID: 41107891**

- **DOI: 10.1186/s12890-025-03567-3**

Abstract

Background: Chronic obstructive pulmonary disease (COPD) exacerbations often necessitate mechanical ventilation. Weaning from ventilation poses challenges, especially due to diaphragmatic dysfunction. We evaluated the predictive value of diaphragmatic ultrasound for mechanical ventilation outcomes in COPD patients during acute exacerbations.

Methods: A retrospective analysis was conducted on 200 patients experiencing acute COPD exacerbations between June 2020 and September 2023. We identified these patients using the ICD-10 codes for COPD (J44.x) and acute exacerbations from our electronic medical record system.Patients underwent diaphragmatic ultrasound assessments and were then grouped based on weaning success or failure. The study investigated parameters such as the E-T index, diaphragmatic displacement (DD), and diaphragmatic thickening fraction (DTF), correlating them with weaning outcomes. Correlation and receiver operating characteristic (ROC) analyses were employed to ascertain predictive values.

Results: The E-T index, DD, and DTF were significantly higher in the success group, indicating these parameters as predictors of successful weaning. The E-T index (rho = -0.254, P < 0.001), DD (rho = -0.269, P < 0.001), and DTF (rho = -0.201, P = 0.004) negatively correlated with weaning failure. Conversely, the diaphragmatic Rapid Shallow Breathing Index (D-RSBI) positively correlated with failure (rho = 0.179, P = 0.011). Higher LUS scores predicted weaning failure (P = 0.029). Combined analysis of ultrasound indicators demonstrated an area under the curve (AUC) of 0.905, highlighting the model's predictive utility.Additional correlations showed that higher $PaCO_2$ before weaning was linked with lower DD, suggesting an association between impaired diaphragmatic mechanics and elevated CO_2 levels.

Conclusion: Diaphragmatic ultrasound was a valuable tool for assessing readiness for mechanical ventilation weaning in COPD exacerbations, enhancing the precision of clinical decisions.Our findings also suggest that a threshold E-T index of ~ 1.915 and DTF of ~ 42.475% may have clinical relevance in identifying successful weaners.

Keywords: Acute exacerbation; Chronic obstructive pulmonary disease; Diaphragmatic ultrasound evaluation; Mechanical ventilation outcomes; Predictive value.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study was conducted in accordance with the Declaration of Helsinki and approved by the Ethics Committee of the First People's Hospital of Baiyin City (GS-BY-009). Written informed consent was waived because of the retrospective design and the use of de-identified data. **Consent for publication:** Not applicable (no identifying images or personal data requiring individual consent). **Competing interests:** The authors declare no competing interests.

- 30 references

Supplementary info

MeSH termsExpand

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Cite

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Int J Neurosci

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doi: 10.1080/00207454.2025.2577353. Online ahead of print.

Concomitant Trends in Stroke and COPD-Related Mortality in the U.S.: A 25-Year Retrospective Analysis of the CDC WONDER Database

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- DOI: 10.1080/00207454.2025.2577353

Abstract

Background: Chronic obstructive pulmonary disease (COPD) and stroke are leading contributors to mortality and disability. We analyzed national trends in deaths attributed to co-occurring stroke and COPD in US adults from 1999-2023.

Methods: Using CDC WONDER multiple cause-of-death data for adults aged ≥25 years, we identified decedents with co-existent stroke (ICD-10 I60.x, I61.x, I63.x, I64, I69.0, I69.1, I69.3, I69.4) and COPD (J40-J44). Crude and age-adjusted mortality rates (AAMRs) per 100,000 population were calculated using the 2000 US standard population. Joinpoint regression estimated annual percent changes (APCs) and identified trend inflection points. Analyses were stratified by sex, race/ethnicity, metropolitan status, and state.

Results: From 1999-2023, 311,375 deaths involved concurrent stroke and COPD. Overall AAMRs declined from 8.04 per 100,000 in 1999 to 5.17 in 2009 (APC -4.40%), with continued decline to 2018 (APC -1.34%). Rates then increased through 2020-2021 (APC +7.33%) before a modest decline toward 2023. Males consistently exhibited higher AAMRs than females. Non-Hispanic White adults had the highest AAMRs, whereas Hispanic and Asian/Pacific Islander groups had lower rates. Non-metropolitan areas experienced consistently higher AAMRs than metropolitan areas. State-level analyses identified the highest burdens in Appalachian and Deep South regions.

Conclusion: Mortality from coexisting stroke and COPD declined for two decades but rose around the COVID-19 period, revealing significant sex, racial/ethnic, and

geographic disparities. These findings highlight the need for targeted prevention, improved access to care for high-risk populations, and further research into mechanisms driving recent inflection points. Data and methods are detailed in the manuscript.

Keywords: CDC Wonder; Chronic Obstructive Pulmonary Disease; Stroke.

Full text links

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Int J Environ Health Res

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Association between outdoor air pollution and acute exacerbation of chronic obstructive pulmonary disease in Xinjiang, China

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- PMID: 41105438

- DOI: 10.1080/09603123.2025.2574405

Abstract

This study investigated the association between short-term exposure to air pollutants and hospital admissions for acute exacerbations of chronic obstructive pulmonary disease (AECOPD) in Northwest China. We analyzed data from a tertiary hospital in Xinjiang (2014-2023), along with air pollutant and meteorological data. Using a time-series approach with generalized additive models and distributed lag nonlinear models, we found that interquartile range increases in $PM_{2.5}$, PM_{10}, NO_2, CO, and O_3 were associated with increased AECOPD admissions of 4.70% (95% CI: 1.48%, 8.01%), 1.61% (0.38%, 2.86%), 15.97% (7.36%, 25.28%), 35.64% (15.84%, 58.82%), and 5.89% (1.10%, 10.90%), respectively, with peak effects at lag 0. Stratified analyses identified sex-, age-, and season-specific relationships, including

protective effects of O_3 and CO in males at longer lags, heightened susceptibility to particulate matter and NO_2 in adults aged ≥65 years, and distinct seasonal patterns for NO_2, O_3, and CO. These findings demonstrate that short-term air pollution exposure is significantly associated with AECOPD hospitalizations in this understudied region.

Keywords: DLNM; Xinjiang; air pollution; chronic obstructive pulmonary disease; hospitalization.

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Am J Respir Crit Care Med

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doi: 10.1164/rccm.202508-1894PP. Online ahead of print.

Addressing the Global Challenges of COPD and Asthma: A Shared Vision from the Global Initiative for Chronic Obstructive Pulmonary Disease (GOLD) and the Global Initiative for Asthma (GINA)

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- **PMID: 41104909**
- **DOI: 10.1164/rccm.202508-1894PP**

No abstract available

Keywords: Asthma; COPD; GINA; GOLD; Global challenges.

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Int J Emerg Med

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Novice point-of-care ultrasound for the assessment of acute dyspnea in the emergency department

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- PMID: 41102659

- PMCID: PMC12532782

- DOI: 10.1186/s12245-025-00995-0

Abstract

Background: Dyspnea is one of the most common presentations to the ED. The goal of this study was to determine the diagnostic accuracy of POCUS examination completed by a medical student for several causes of dyspnea.

Methods: A prospective observational study was conducted in the ED of an academic center. Adult patients (≥ 18 yo) who presented to the emergency room with dyspnea were enrolled in the study. The study investigator was a medical student who was blinded to the clinical work up. Standardized POCUS examinations were performed following a modified BLUE protocol to identify the dyspnea etiology as one of the following diagnoses: asthma/COPD, acute heart failure, pneumonia, pulmonary embolism, pneumothorax, and non-diagnostic. POCUS diagnoses were compared to the clinical diagnosis made by the treating emergency physician.

Results: 250 patients were enrolled in the study. 99 (39.6%) patients were male, and 136 (54.4%) patients identified as Black. POCUS demonstrated high sensitivity and specificity for diagnosing asthma/COPD, acute heart failure, pneumonia, and pneumothorax. Concordance was optimal (0.8 < k < 1) for the diagnosis of asthma/COPD, acute decompensated heart failure; good (0.6 < k < 0.8) for pneumonia and non-diagnostic; and moderate (0.4 < k < 0.6) for pneumothorax and pulmonary embolism. Overall concordance was optimal (k = 0.84).

Conclusion: POCUS examinations completed by a medical student demonstrated acceptable diagnostic accuracy for asthma/COPD, acute heart failure, and

pneumonia. Medical student POCUS examinations could be used for risk stratification to identify patients that require additional diagnostic imaging.

Keywords: Diagnostics; Dyspnea; Point-of-care-ultrasound (POCUS).

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki and was approved by the MetroHealth Medical Center Institutional Review Board (Protocol Number: MOD00002150). All participants provided informed consent prior to the study. Written informed consent was obtained from all participants. Consent for publication: The authors affirm that all participants provided informed consent for publication of their pooled demographic data. Competing interests: The authors declare no competing interests.

- 15 references
- 1 figure

Full text links

Cite

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Commun Med (Lond)

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. 2025 Oct 16;5(1):427.

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Angiotensin receptor-neprilysin inhibitor treatment in people with chronic obstructive pulmonary disease and heart failure

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- PMID: 41102262

- PMCID: PMC12532997

- DOI: 10.1038/s43856-025-01140-x

Abstract

Background: While renin-angiotensin system inhibitors (RASi) have shown benefits for people with both heart failure (HF) and chronic obstructive pulmonary disease (COPD), limited data exists on the use of angiotensin receptor-neprilysin inhibitors (ARNIs) in this population. This study compares the effectiveness of RASi and ARNIs in people with coexisting COPD and HF.

Methods: We identified individuals who started treatment with either ARNI or RASi since August 1, 2015. We assessed outcomes such as COPD exacerbations, acute respiratory failure, and lower respiratory tract infections (LRTIs) over 30 days to 3 years. Kaplan-Meier survival analysis and Cox regression models were applied to estimate survival probabilities and hazard ratios (HR).

Results: Among 9,071 ARNI users and 71,836 RASi users, the ARNI group has fewer respiratory complications. The ARNI group has a higher proportion of females compared to the RASi group (38.2% vs. 31.5%). Specifically, ARNI users have a lower incidence of COPD exacerbations (13.1% vs. 18.7%; HR, 0.84), acute respiratory failure (16.2% vs. 22.0%; HR, 0.90), and LRTIs (16.9% vs. 22.9%; HR, 0.91).

Conclusions: In people with both COPD and HF, ARNI treatment is associated with fewer respiratory complications compared to RASi.

Plain language summary

People who have both heart failure (HR) and chronic obstructive lung disease (COPD) often experience serious breathing problems. Medicines called RAS inhibitors (RASi) have been used to help people with HR and COPD. However, a newer type of medicine, called angiotensin receptor-neprilysin inhibitors (ARNIs), has also shown therapeutic potential. The current study looked at patient outcomes using data from adults who had started either medication, tracking their health over several years. People taking ARNIs had fewer instances of sudden worsening of COPD symptoms such as breathlessness and cough, less respiratory failure, and fewer lung infections than those taking RASi. This suggests that ARNIs could be a better choice for people with both HF and COPD.

Conflict of interest statement

Competing interests: The authors declare no competing interests.

- 35 references
- 6 figures

Full text links

Cite

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Chest

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doi: 10.1016/j.chest.2025.09.133. Online ahead of print.

Cardiovascular Events in COPD: Complementary Role of Cardiac Risk and Coronary Artery Calcium Scores

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- DOI: 10.1016/j.chest.2025.09.133

Abstract

Background: Patients with chronic obstructive pulmonary disease (COPD) are at high risk of developing major adverse cardiovascular events (MACE). Existing clinical tools for risk stratification in these patients have underperformed in predicting the outcomes.

Research question: Does a combination of Cardiovascular Risk (CVRS) and Coronary Artery Calcium (CACS) scores improve risk assessment of MACE in COPD patients?

Study design and methods: This is an observational cohort of COPD patients (n = 529). They underwent a chest CT scan, and clinical, functional, and laboratory data were recorded. CACS and CVRS (SCORE2, SCORE2-OP, SCORE2-Diabetes, SMART risk score) were calculated. Using a threshold of CVRS ≥10% or CACS score >3, patients were divided into 4 groups: I: CVRS<10%+CAC≤3, II: CVRS ≥10%+CACS≤3, III: CVRS<10%+CAC>3, and IV: CVRS ≥10%+CACS>3 and followed for a median of 98 months. Regression analysis and Kaplan Meier curves were used to compare the risks among groups. ROC analysis determined the performance of CAC and CVRS and their combination to predict MACE.

Results: Most patients were men (80%) with moderate COPD. Over time, 131 (24%) had a MACE. Compared with group I, the HR and 95% CI, for MACE were: group IV 7.6 (4.9-11.9, p<0.001), group III: 3.1 (1.8-8.5, p<0.001) and group II: 2.6 (1.6-4.2, p<0.001). AUC from the ROC analysis for predicting MACE were: CACS+CVRS 0.72 (p < 0.01) compared with CVRS of 0.69 and CACS of 0.66.

Conclusion: The combination of cardiovascular risk and coronary artery calcification scores provides a complementary role in MACE risk stratification in patients with COPD.

Keywords: COPD; Cardiovascular Risk; Coronary Artery Calcium; MACE.

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JACC Heart Fail

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Prevalence and Associations of Systemic Inflammation in Heart Failure Across the Spectrum of Ejection Fraction

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- **PMID: 41099689**

- **DOI: 10.1016/j.jchf.2025.102712**

Abstract

Background: Systemic inflammation contributes to the pathophysiology of heart failure (HF). Inflammation in heart failure with mildly reduced ejection fraction (HFmrEF) or heart failure with preserved ejection fraction (HFpEF) has been linked to cardiovascular-kidney-metabolic conditions, whereas inflammation in heart

failure and reduced ejection fraction (HFrEF) is thought to develop secondary to cardiac stress and circulatory derangements.

Objectives: This study aims to characterize the prevalence and correlates of systemic inflammation across the spectrum of HF.

Methods: Patients with HF participating in 3 large outcome trials (SELECT, SOUL, and FLOW) were examined to identify the prevalence of systemic inflammation, defined as elevated high-sensitivity C-reactive protein (hsCRP) ≥2 mg/L. Clinical characteristics associated with elevated hsCRP were examined by HF subtype and across the HF spectrum.

Results: Across the 3 trials, 3,204 patients had HFpEF, 1,246 had HFmrEF, and 1,018 had HFrEF. Elevated hsCRP was observed in 2,335 patients (52.5%) with HFpEF/HFmrEF and 503 patients (49.4%) with HFrEF. Compared with patients with lower hsCRP levels, those with higher hsCRP levels were more likely to be female and have obesity, diabetes, lower estimated glomerular filtration rate, higher albuminuria, and chronic obstructive pulmonary disease, without meaningful differences by HF subtype. hsCRP level was unrelated to ejection fraction (R^2 < 0.001; P = 0.73) but increased linearly with the number of comorbidities for all HF subtypes (R^2 = 0.94; P < 0.001).

Conclusions: Systemic inflammation is present in one-half of patients with HF, and is associated with excess body fat, chronic kidney disease, albuminuria, and diabetes, and increases with comorbidity burden. These relationships are not specific to HFpEF/HFmrEF but are also common to HFrEF (Semaglutide Effects on Heart Disease and Stroke in Patients With Overweight or Obesity [SELECT]; NCT03574597; A Research Study to See How Semaglutide Works Compared to Placebo in People With Type 2 Diabetes and Chronic Kidney Disease [FLOW]; NCT03819153; A Heart Disease Study of Semaglutide in Patients With Type 2 Diabetes [SOUL]; NCT03914326).

Keywords: C-reactive protein; HFmrEF; HFpEF; HFrEF; cardiometabolic; heart failure; inflammation; kidney; obesity.

Conflict of interest statement

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from Novo Nordisk, Eli Lilly, Akebia, Alnylam, Amgen, Ardelyx, Becton-Dickson, Brainstorm Cell, Cadrenal, Endologix, FibroGen, GlaxoSmithKline, Intarcia, Medtronic, Neovasc, Provention Bio, and ReCor. Dr Mulvagh has received consulting fees from Novo Nordisk and Lantheus Medical Imaging. Dr Tuttle is supported by National Institutes of Health research grants R01MD014712, U2CDK114886, UL1TR002319, U54DK083912, U01DK100846, OT2HL161847, UM1AI109568, and OT2OD032581; is supported by CDC project numbers 75D301-21-P-12254 and 75D301-23-C-18264; has received investigator-initiated grant support from Travere, Bayer, and the Doris Duke Foundation outside the submitted work; has received consultancy fees from Boehringer Ingelheim, Eli Lilly, and Novo Nordisk; and has received speaker fees from Novo Nordisk. Dr Petrie has received research funding from Boehringer Ingelheim, Roche, SQ Innovations, AstraZeneca, Novartis, Novo Nordisk, Medtronic, Boston Scientific, and Pharmacosmos; and has consulted and/or served on committees for Abott, Akero, Applied Therapeutics, Amgen, AnaCardio, Biosensors, Boehringer Ingelheim, Corteria, Novartis, AstraZeneca, Novo Nordisk, AbbVie, Bayer, Horizon Therapeutics, Foundry, Takeda, Cardiorentis, Pharmacosmos, Siemens, Eli Lilly, Vifor, New Amsterdam, Moderna, Teikoku, LIB Therapeutics, 3R Lifesciences, Reprieve, FIRE 1, and Corvia.

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Allergy

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. 2025 Oct 16.

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Immune Training of the Interleukin 6 Gene in Airway Epithelial Cells is Central to Asthma Exacerbations

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Orinska[2,22], Thomas Bahmer[2,23], Jan Heyckendorf[2,6,23], Gesine Hansen[24,25], Erika von Mutius[6,26,27], Klaus F Rabe[2,23,28], Anna-Maria Dittrich[24,25], Bianca Schaub[8,27], Folke Brinkmann[2,3], Matthias V Kopp[2,3,29], Michael Wegmann[1,2]; ALLIANCE Study Group as part of the German Centre for Lung Research (DZL)

Affiliations Expand

- PMID: 41099307

- DOI: 10.1111/all.70070

Abstract

Question: Epidemiological studies suggest that respiratory viral infections are major triggers of asthma exacerbations, and clinical studies have suggested the involvement of an increased interleukin-6 (IL-6) release. What is the pathophysiological role of IL-6 in asthma exacerbation, and which mechanisms lead to enhanced IL-6 release?

Materials and methods: Exacerbations of ovalbumin-induced experimental allergic asthma were elicited in wild-type and IL-6-deficient mice by intranasal (i.n.) application of poly(I:C). Airway inflammation, cytokine expression and release, mucus production and airway hyperresponsiveness were measured. IL-6 was neutralised by i.n. anti-IL-6 antibody application. The human bronchial epithelial cell line, BEAS-2B, was stimulated with poly(I:C) and infected with human rhinovirus-16 in vitro, followed by quantification of IL6 gene expression and DNA methylation. Genome-wide DNA methylation was assessed in bronchial epithelial cells from adults with asthma (cohort I, n = 54) and in nasal epithelial cells from children and adults in the All-Age-Asthma cohort (ALLIANCE, n = 53 and n = 108 respectively).

Results: Poly(I:C)-induced experimental exacerbations in mice were preceded and paralleled by exaggerated IL-6 release in the airway epithelium, with IL-6 neutralisation completely preventing experimental exacerbations. Repetitive infection/stimulation with RV16 or poly(I:C) resulted in training of the IL-6 release in human respiratory epithelial cells. In patients, hypomethylation at the IL6 gene methylation was associated with high IL6 expression and future exacerbations.

Answer: An exaggerated IL-6 release is required for exacerbation of experimental asthma, potentially the result of viral PAMP-induced immune training of airway epithelial cells. Additionally, patients with asthma carrying the epigenetic signature of a trained IL-6 response exacerbate more frequently. These findings open new avenues to identify and treat exacerbation-prone patients.

Keywords: IL-6; asthma; exacerbations; immune training; respiratory viruses.

- 42 references

Supplementary info

Grants and fundingExpand

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Orthop Surg

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doi: 10.1111/os.70181. Online ahead of print.

Effect of Spinal Versus General Anesthetic on 30-Day Outcomes in Patients With Chronic Obstructive Pulmonary Disease Undergoing Hip Arthroplasty for Femoral Neck Fracture

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- PMID: 41094741

- DOI: 10.1111/os.70181

Free article

Abstract

Introduction: Patients with chronic obstructive pulmonary disease (COPD) and femoral neck fractures are at high risk for postoperative complications and mortality. One consideration to reduce risk is the type of anesthesia, although this has not been investigated. The purpose of this study was to compare 30-day complications between use of general and spinal anesthetic in patients with COPD and femoral neck fractures who underwent hip arthroplasty.

Methods: Patients with COPD treated with hip arthroplasty for femoral neck fractures were identified on the American College of Surgeons' National Surgical Quality Improvement Program (ACS-NSQIP) database between January 1, 2015 and December 31, 2020. Demographics, patient variables, and surgical variables were recorded. Patients were divided into cohorts based on general or spinal anesthetic. Propensity score matching was used to match the two groups. Thirty-day outcome

measures were compared between groups using chi-squared test. Logistic regression was used to assess for risk factors for 30-day complications.

Results: Five thousand and forty patients with COPD were identified who underwent arthroplasty for femoral neck fracture-3800 with general anesthesia and 1240 patients with spinal anesthesia. The general anesthesia cohort had higher rates of diabetes (18.4% vs. 15.1%, p = 0.007), congestive heart failure (10.7% vs. 6.7%, p < 0.001), and chronic kidney disease requiring dialysis (2.6% vs. 1.5%. p = 0.019). After matching, the general anesthesia cohort had higher rates of mortality (8.4% vs. 5.8%, p = 0.042), nonhome discharge (85.5% vs. 79.2%, p < 0.001), and unplanned intubation (1.9% vs. 0.7%, p = 0.048). Logistic regression identified general anesthesia to be an independent risk factor for 30-day mortality (RR 1.514 [1.022-2.245]), nonhome discharge (1.626 [1.237-2.138]), and unplanned intubation (RR 1.488 [1.012-2.187]).

Conclusions: General anesthesia is an independent risk factor for 30-day mortality, nonhome discharge, and unplanned intubation in patients with COPD undergoing arthroplasty procedures for femoral neck fractures. If possible, spinal anesthetic should be considered as it may reduce the risk of complications in this patient population.

Keywords: chronic obstructive pulmonary disease; femoral neck fracture; general anesthesia; hip fracture; spinal anesthesia.

- 21 references

Full text links

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11

BMC Med Inform Decis Mak

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Development of an interpretable machine learning model for predicting prolonged hospital stay in patients with acute exacerbation of chronic obstructive pulmonary disease: a retrospective cohort study

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- PMCID: PMC12522218
- DOI: 10.1186/s12911-025-03220-3

Abstract

Objective: Prolonged hospital stay in patients with acute exacerbation of chronic obstructive pulmonary disease (AECOPD) significantly impacts patient outcomes and healthcare resource allocation. This study aimed to develop and validate an interpretable machine learning (ML) model for forecasting prolonged hospital stays of the AECOPD population.

Methods: A retrospective analysis was performed utilizing data from the MIMIC-IV database on patients diagnosed with AECOPD. The dataset was split into a training set (80%) and a validation set (20%). Feature selection was executed through LASSO regression and the Boruta algorithm. Logistic regression (LR), random forest (RF), neural network (NN), gradient boosting machine (GBM), naive Bayes (NB), as well as K-nearest neighbors (KNN) models were constructed based on the selected features. Model performance was evaluated via receiver operating characteristic (ROC), calibration and decision curves. The interpretability of the optimal model was enhanced through SHapley Additive exPlanations (SHAP) analysis.

Results: 7,373 AECOPD patients were encompassed. The final model incorporated the following features: hemoglobin, platelet count, anion gap, blood urea nitrogen(BUN), potassium, chloride, antibiotic use, invasive ventilation, vasopressor use, SOFA, body temperature(Tb), heart rate(HR), acute kidney injury (AKI), as well as sepsis. The RF model demonstrated the best predictive performance, with an area of the ROC curve (AUC) of 0.817 in the training set and 0.715 in the validation set, along with good calibration and clinical utility. SHAP analysis further enhanced the interpretability of the model, providing valuable clinical decision support.

Conclusion: The RF model developed in our study exhibited excellent performance in predicting prolonged hospital stays in AECOPD patients. The incorporation of interpretability analysis improved the transparency and reliability of its clinical application.

Clinical trial number: Not applicable.

Supplementary Information: The online version contains supplementary material available at 10.1186/s12911-025-03220-3.

Keywords: AECOPD; ML; Prolonged hospital stay; RF; SHAP.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: All the data were obtained from The Medical Information Mark for Intensive Care (MIMIC) database. The database was acquired with the approval of the Institutional Review Board (IRB) at both the Massachusetts Institute of Technology and Beth Israel Deaconess Medical Center. It is an open access database containing no personal information of the registrants. As a result, the need for obtaining informed consent from patients was waived. Access to this repository is predicated upon the successful completion of an institution-specific training program examination, and we extracted data in strict accordance with its regulations. Therefore, ethical approval and informed consent are not required. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

- **44 references**
- **6 figures**

Supplementary info

Grants and fundingExpand

Full text links

Cite

12

Editorial

Thorax

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. 2025 Oct 15:thorax-2025-223607.

doi: 10.1136/thorax-2025-223607. Online ahead of print.

Does one size fit all? Tailoring azithromycin therapy with machine learning

Anthony Paulo Sunjaya [1 2], William D-C Man [3 4 5]

Affiliations Expand

- **PMID: 41093566**
- **DOI: 10.1136/thorax-2025-223607**

No abstract available

Keywords: COPD Pharmacology; Microbiota; Respiratory Infection; Smoking.

Conflict of interest statement

Competing interests: The authors have no conflicts of interest.

Supplementary info

Publication typesExpand

Full text links

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Cite

13

BMJ Open Respir Res

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. 2025 Oct 15;12(1):e002719.

doi: 10.1136/bmjresp-2024-002719.

Chronic obstructive pulmonary disease mortality rate trends in Taiwan, 2002-2022: a joinpoint regression analysis

Ching-Hsiung Lin [# 1 2 3 4], Yi-Rong Li [# 5], Shu-O Chiang [# 6], Hao-Chien Wang [7], Meng-Chih Lin [8 9 10], Shih-Lung Cheng [11], Chong-Jen Yu [# 12]

Affiliations Expand

- **PMID: 41093543**
- **PMCID: PMC12530367**
- **DOI: 10.1136/bmjresp-2024-002719**

Abstract

Background: Chronic respiratory diseases, particularly chronic obstructive pulmonary disease (COPD), are the eighth leading cause of death in Taiwan. Although COPD management has advanced in the previous two decades, mortality

trends remain unclear. The present study analysed COPD mortality rates in Taiwan from 2002 to 2022.

Methods: COPD mortality and population data were obtained from Taiwan's National Health Statistics and the Ministry of the Interior's Demographic Yearbook. For comparison, global COPD mortality data were sourced from the WHO mortality database. A joinpoint analysis was conducted to assess trends in age-specific and age-standardised mortality rates across sex, region or country.

Results: From 2002 to 2022, Taiwan had 100 147 deaths attributed to COPD. The age-standardised mortality rate decreased with an annual average percentage change (AAPC) of -3.79%, which was more pronounced in women (AAPC: -4.28%) than in men (AAPC: -3.79%). The largest decline occurred from 2016 to 2022, with an AAPC of -7.70%. Most COPD-related deaths occurred among older individuals, with significant reductions in mortality rates observed among men aged ≥60 years and among women aged ≥50 years. A downward trend in COPD mortality rates was noted in most counties from 2016 to 2022, although patterns varied. The overall COPD mortality rate has declined in most countries since 2002, including Taiwan, which ranks third in Asia in terms of reductions in COPD mortality rates during this period.

Conclusion: From 2002 to 2022, COPD mortality rates in Taiwan declined considerably across sexes and regions, although patterns varied. In Asia, Taiwan's reduction in the rate of COPD mortality ranks third behind those of the Republic of Korea and Singapore. The reductions observed in COPD mortality rates in Taiwan may be attributable to tobacco control initiatives and nationwide COPD care programmes.

Keywords: COPD epidemiology; Pulmonary Disease, Chronic Obstructive; Tobacco and the lung.

Conflict of interest statement

Competing interests: C-HL and Y-RL are employed by the Changhua Christian Hospital, which received funding to conduct the study. S-OC, H-CW, M-CL, S-LC and C-JJY have no conflicts of interest to declare.

- 41 references
- 5 figures

Supplementary info

MeSH termsExpand

Full text links

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Cite

14

Ann Vasc Surg

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. 2025 Oct 13:S0890-5096(25)00654-5.

doi: 10.1016/j.avsg.2025.09.049. Online ahead of print.

TRENDS IN MORTALITY RELATED TO PERIPHERAL ARTERY DISEASE AND CHRONIC OBSTRUCTIVE PULMONARY DISEASE COMORBIDITY IN THE UNITED STATES (1999-2023)

Neha Waseem [1], Aleena Ihtasham [2], Waleed Tariq [1], Darakhshan Zareen Khan [3], Shaheer Bin Shafiq [4], Bushra Ubaid [4], Iftikhar Khan [1], Muhammad Ahmad Nadeem [5], Zoya Aamir [4], Zainab Nouman [6], Hafiz Muhammad Haris [2], Rida Noor [7], Muhammad Faraz Shaikh [4], Matia Fawad Memon [8], Zainab Zaheer Malik [1], Abu Baker Sheikh [9], Raheel Ahmed [10]

Affiliations Expand

- PMID: 41093102

- DOI: 10.1016/j.avsg.2025.09.049

Abstract

Background: Peripheral artery disease (PAD) and chronic obstructive pulmonary disease (COPD) often coexist, contributing to elevated mortality due to shared etiologic factors such as tobacco use, chronic systemic inflammation, and aging-related vascular degeneration. National trends in the combined burden of PAD and COPD remain under-investigated. This study aims to demonstrate trends and demographic patterns in deaths associated with both COPD and PAD in the United States from 1999 to 2023.

Methods: Mortality data from 1999 to 2023 were extracted from the CDC WONDER database using ICD-10 codes corresponding to PAD and COPD (I70.x and I73.9 for PAD and J40 to J44 for COPD). Data from the Multiple Cause-of-Death Public Use Record were used to identify death certificates that listed both PAD and COPD simultaneously, whether as the underlying or contributing cause of death. Age-adjusted mortality rates (AAMRs) were calculated, stratified by age group, sex, race, state, urbanization, and region. Joinpoint regression analysis was used to evaluate trends and annual percent changes (APC) and average annual percent change (AAPC).

Results: A total of 283,974 deaths were reported among individuals with coexisting PAD and COPD, with an overall AAMR of 5.50. AAMRs declined significantly between 2001 and 2017 (APC: -3.06%, 95% CI: -3.41, -2.72) but rose from 2017 to 2021 (APC: 5.72%, 95% CI: 1.85, 9.73). Males had a higher overall AAMR than

females (7.84 vs 4.25). The White population had the highest race-specific AAMR (6.13), and crude rates were highest in the 65+ age group (24.8). Geographically, West Virginia reported the highest state-level AAMR (10.51) (95% CI: 10.16-10.86). Non-metropolitan areas had higher mortality rates (7.2) compared to metropolitan areas (5.11). Regionally, the Midwest exhibited the highest AAMR (6.42).

Conclusion: Although overall mortality related to PAD and COPD declined from 1999 to 2023, recent increases, particularly among older adults, males, the rural population, and specific geographic regions, highlight persistent disparities. While mortality from PAD or COPD alone has continued to decline, recent years have shown a reversal in patients with coexisting PAD and COPD, where mortality is rising disproportionately compared with either disease in isolation. These findings underscore the importance of continued surveillance and targeted chronic disease interventions to reduce mortality in high-risk populations.

Cite

15

Review

Respir Med

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. 2025 Oct 13:249:108421.

doi: 10.1016/j.rmed.2025.108421. Online ahead of print.

Treatable Traits. Why, What, How?

Alvar Agusti [1], Peter Gibson [2], Mario Cazzola [3]

Affiliations Expand

- PMID: 41092989

- DOI: 10.1016/j.rmed.2025.108421

Abstract

Chronic airway diseases, such as asthma, bronchiectasis and chronic obstructive pulmonary disease (COPD), are complex and heterogeneous conditions. Hence, their assessment and management need to be personalized and precise. A decade ago, a precision medicine strategy based on the presence of treatable traits was proposed. This proposal generated a lot of interest and publications. This issue of Respiratory Medicine is fully dedicated to this topic. In this first introductory chapter, we present the reasons that underlie it ("Why"), outline its core content ("What") and discuss how to implement it in clinical practice ("How").

Keywords: Asthma; Bronchiectasis; COPD; Chronic obstructive pulmonary disease; Treatment.

Conflict of interest statement

Declaration of competing interest Authors declare that they do not have any conflict of interest with the publication TREATABLE TRAITS. WHY, WHAT, HOW?

Supplementary info

Publication typesExpand

Full text links

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Cite

16

Respir Med

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. 2025 Oct 13:108429.

doi: 10.1016/j.rmed.2025.108429. Online ahead of print.

Timing of cardiovascular events in people with COPD with and without chronic respiratory failure

Michele Vitacca [1], Gaia Riboni [2], Mara Paneroni [3], Valentina Tibollo [2], Riccardo Bellazzi [4], Armando Capelli [5], Nicolino Ambrosino [6]

Affiliations Expand

- PMID: 41092988

- DOI: 10.1016/j.rmed.2025.108429

Abstract

Background: Chronic obstructive pulmonary disease (COPD) may be associated to comorbidities including cardiovascular diseases (CVD). The timing of CVD associated with chronic respiratory failure (CRF) in COPD people is unclear. This large, long-term, real life study is aimed to assess the timing of ischemic heart disease (IHD), congestive heart failure (CHF), and cardiac atrial arrhythmia (CAA) in COPD individuals with CRF as compared to those without.

Methods: This is a fifteen-year, retrospective matched (propensity score) observational cohort study (TriNetX Analytics Network) with two cohorts [Cohort 1: participants with coded (ICD-10-CM) COPD AND CRF diagnoses; Cohort 2: COPD people without CRF]. We estimated the 15-year CVD risk after the coded diagnoses. Using a Cox model, we compared incidences, hazard risks and probability to remain free from CVD.

Results: Data of 123356 participants in each cohort, well matched for age, BMI and sex, were analysed. The number of participants in each cohort was reduced for each CVD risk analysis by excluding those who had experienced the specific CVD event just prior to the study. After 15 years since coded diagnosis 38.5, 27.9, 57.6 % of participants in Cohort 1 were free from IHD, CHF, CAA as compared to 42.5, 43.5, 65.9% ($p<0.0001$) in Cohort 2.

Interpretation: With the limitations of the retrospective, observational nature of the study and of potential confounding factor, our results show that in individuals with COPD, CRF is associated with additional greater and earlier risks of cardiovascular diseases; targeted screening and monitoring in this population is desirable.

Keywords: COPD; Cardiovascular diseases; Chronic respiratory failure; comorbidities.

Conflict of interest statement

Declaration of Competing Interest All authors report no conflicts of interest or financial support relating to this paper.

. 2025 Oct 15.

doi: 10.1111/ggi.70223. Online ahead of print.

Associations of Daily Step Goals With Prefrailty and Frailty in Patients With Chronic Obstructive Pulmonary Disease

Kotaro Mochimaru [1], Naoya Tanabe [1 2], Yusuke Shiraishi [2], Tomoki Maetani [2], Yohei Oshima [3], Yuji Yoshioka [3], Ryota Hamada [3], Atsuyasu Sato [2], Susumu Sato [2 4], Ryosuke Ikeguchi [1], Toyohiro Hirai [2]

Affiliations Expand

- PMID: 41090602

- DOI: 10.1111/ggi.70223

Abstract

Aim: Maintaining physical activity and prevention of frailty is a main goal of chronic obstructive pulmonary disease (COPD) management. We investigated whether setting a daily step goal, rather than simply owning a pedometer, is associated with a lower incidence of prefrailty/frailty in patients with COPD.

Methods: This cross-sectional study prospectively enrolled patients with stable COPD and examined their frailty status (robust, prefrail, and frail) using the Japanese version of the Cardiovascular Health Study criteria (J-CHS). All participants completed a self-administered questionnaire regarding ownership of consumer-grade pedometers or smartphone apps (pedometer users/nonusers) and daily step goals to evaluate everyday walking behavior and wore a medical-grade accelerometer for seven consecutive days to obtain objective daily step counts.

Results: A total of 153 patients were included and classified into three groups: pedometer users with and without a daily step goal and nonusers (n = 62, 11 and 80, respectively). The prevalence of prefrailty/frailty and the J-CHS low-activity domain was lower in pedometer users with a daily step goal than those without a goal (39% vs. 82%, and 13% vs. 64%, respectively). In multivariable models, the pedometer users with a daily step goal were prefrail/frail less likely than the pedometer users without a goal after adjusting for age, body mass index, smoking history, lung function, or 6-min walk distance.

Conclusions: In patients with stable COPD, the daily use of pedometers with a daily step goal may be associated with a lower prevalence of frailty. These findings underscore the importance of goal-oriented strategies in COPD management.

Keywords: COPD; daily step count; frailty; pedometer; smartphone application.

- 36 references

Supplementary info

18

ERJ Open Res

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. 2025 Oct 13;11(5):00857-2024.

doi: 10.1183/23120541.00857-2024. eCollection 2025 Sep.

Associated factors of fatigue in patients with COPD: results from the FAntasTIGUE study

Maarten Van Herck [1 2 3 4], Yvonne M J Goërtz [5], Zjala Ebadi [6 7], Chris Burtin [3], Jeannette B Peters [7], Melissa S Y Thong [8], Rein Posthuma [1 2 4], Jean W M Muris [9], Erik W M A Bischoff [10], Emiel F M Wouters [2 11], Mirjam A G Sprangers [8 12], Jan H Vercoulen [6 7], Daisy J A Janssen [1 5 9], Martijn A Spruit [1 2]

Affiliations Expand

- PMID: 41089566
- PMCID: PMC12517038
- DOI: 10.1183/23120541.00857-2024

Abstract

Background: Fatigue is present in about half of the patients with COPD. The associated factors of fatigue in COPD remain unclear and have not been studied in an integrated and holistic analysis. The aim of this study is to identify associated factors of fatigue in COPD.

Methods: In this cross-sectional study, clinically stable patients with COPD from primary and secondary care were assessed for fatigue (Checklist Individual Strength Subjective Fatigue (CIS-Fatigue)), other symptoms, medication, and personal, COPD-related, physical, psychological and systemic factors. Multivariable stepwise regression analyses were performed for each domain, followed by a multivariable (enter) model with all identified factors.

Results: In total, 247 patients with COPD (67±8 years, 60% male, forced expiratory volume in 1 s 57±21% predicted, 27% Global Initiative for Chronic Obstructive Lung Disease (GOLD) E) were included in the study of which 51% reported severe fatigue (CIS-Fatigue ≥36 points). Distinct models for each group of factors identified the following factors associated with a higher level of fatigue: living alone, antidepressant use, anxiolytic use, systemic antihistamines use, higher Charlson comorbidity score, lower diffusion capacity, higher number of moderate exacerbations in the last year, higher dyspnoea, reduced sleep quality, higher pain, lower functional exercise capacity, higher fatigue-related catastrophising, more depressive symptoms, lower calcium and higher leukocyte count. The final model explained 46.6% of variance in fatigue with dyspnoea, sleep quality, fatigue-catastrophising and pain as significant associated factors ($F(17, 184)=11.312$, $p<0.001$).

Conclusion: Pain, sleep quality, dyspnoea and fatigue-catastrophising were identified as associated factors of fatigue. These factors should not be overlooked when treating fatigue in patients with COPD.

Conflict of interest statement

Conflict of interest: M. Van Herck, Y.M.J. Goërtz, Z. Ebadi, C. Burtin, J.B. Peters, M.S.Y. Thong, R. Posthuma, J.W.M. Muris, E.W.M.A. Bischoff, E.F.M. Wouters, M.A.G. Sprangers and J.H. Vercoulen have nothing to disclose. D.J.A. Janssen reports grants from the Stichting Astmabestrijding and the Netherlands Respiratory Society, and speaker fees from Chiesi, Abbott and AstraZeneca in the past 36 months outside the submitted work and all paid to her institution. M.A. Spruit reports grants from Lung Foundation Netherlands, Stichting Astma Bestrijding, Boehringer Ingelheim and AstraZeneca to support the FAntasTIGUE project, grants from Boehringer Ingelheim, AstraZeneca, TEVA, Chiesi and Sanofi outside the submitted work, consulting fees from Boehringer Ingelheim and GSK, and speaker fees from Boehringer Ingelheim in the past 36 months outside the submitted work. All payments were made to his institution.

- **40 references**
- **2 figures**

Cite

19

Am J Respir Crit Care Med

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. 2025 Oct 14.

doi: 10.1164/rccm.202509-2272ED. Online ahead of print.

The Case for *Case-Finding* in Asthma and COPD

Jerry A Krishnan [1]

Affiliations Expand

- PMID: 41086412

- DOI: 10.1164/rccm.202509-2272ED

No abstract available

Full text links

Proceed to details

Cite

20

Am J Respir Crit Care Med

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. 2025 Oct 14.

doi: 10.1164/rccm.202505-1162VP. Online ahead of print.

The ROME COPD Exacerbation Proposal Works! Time to Move Forward

Bartolome R Celli [1 2], Leonardo M Fabbri [3], Gerard J Criner [4 5], Alberto Papi [6], Antoni Torres [7], Alvar Agusti [8]

Affiliations Expand

- PMID: 41086404

- DOI: 10.1164/rccm.202505-1162VP

No abstract available

Keywords: COPD; COPD exacerbations.

Full text links

Proceed to details

Cite

21

Observational Study

Sci Rep

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. 2025 Oct 13;15(1):35625.

doi: 10.1038/s41598-025-19657-5.

Association between glucagon-like peptide-1 receptor agonist therapy and respiratory illness in patients with type 2 diabetes: a retrospective observational cohort study

Li-Ti Ho [1], Yu-Wei Fang [2 3], Pei-Sung Hsu [1 4], Jing-Tong Wang [5 6], Ming-Hsien Tsai [7 8 9]

Affiliations Expand

- PMID: 41083699
- PMCID: PMC12518849
- DOI: 10.1038/s41598-025-19657-5

Abstract

Studies have shown that glucagon-like peptide-1 receptor agonists (GLP-1 RAs) provide lung benefits beyond glycemic control, including reduced risks of lung malignancy, pulmonary infection and chronic obstructive pulmonary disease exacerbations. A retrospective cohort study with a new-user and active-comparator design was conducted using the TriNetX US Network. Adults (≥ 18 years) with Type 2 diabetes mellitus (T2DM) (n = 3,389,059) from January 1, 2005, to December 31, 2020, were identified. Two cohorts of new GLP-1 RA (n = 201,153) and new dipeptidyl peptidase-4 inhibitor (DPP4i) (n = 323,114) users were created. Propensity score matching was used to create comparable cohorts. The primary outcome was lung cancer, while other pulmonary conditions were secondary outcomes over a 10-year follow-up. Through 1:1 propensity score matching, two balanced cohorts of

GLP-1 RA and DPP4i (n = 158,224) users were created. GLP-1 RA users had a significantly lower risk of lung cancer than did DPP4i users (hazard ratios [HR] 0.86; 95% confidence interval [CI] 0.80-0.94). Reduced risk of influenza and pneumonia (HR 0.94; 95% CI 0.92-0.96) and pulmonary fibrosis (HR 0.92; 95% CI 0.87-0.98) were also noted in GLP-1 RA users. Our findings indicate that GLP-1 RAs may lower the risks of lung cancer, pulmonary fibrosis, and respiratory infections, meriting further prospective study.

Keywords: Dipeptidyl peptidase-4 inhibitor; Glucagon-like peptide-1 receptor agonist; Lung cancer; Real-world evidence; Type 2 diabetes mellitus.

Conflict of interest statement

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

- 41 references
- 5 figures

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

Cite

22

Editorial

Thorax

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. 2025 Oct 15;80(11):779-781.

doi: 10.1136/thorax-2025-224029.

Lung Research Grand Challenges: transforming respiratory research

Ellen J Forty [1], Samantha M Walker [2], Eric W F W Alton [3], Ian P Hall [4]

Affiliations Expand

- PMID: 41047238

- DOI: 10.1136/thorax-2025-224029

No abstract available

Keywords: Asthma; Bronchiectasis; COPD Pathology; Cystic Fibrosis; Idiopathic pulmonary fibrosis; Paediatric Lung Disaese; Respiratory Function Tests; Symptom Flare Up.

Conflict of interest statement

Competing interests: EA: royalties or licenses: royalties from Boehringer Ingelheim related to cystic fibrosis gene therapy programme. Consulting fees: Boehringer Ingelheim—payments made to EA and institution; AlveoGene—payments made to EA. Patents planned, issued or pending: multiple patents filed by Imperial College. Participation on a Data Safety Monitoring Board or Advisory Board: Boehringer Ingelheim Advisory Board—payments made to EA Leadership or fiduciary role in other board, society, committee or advocacy group, paid or unpaid. Founder Director, AlveoGene Stock or stock options AlveoGene shares. SW: leadership or fiduciary role in other board, society, committee or advocacy group, paid or unpaid co-chair of Lung Research and Innovation Group (LRIG). IH: grants or contracts from any entity. NIHR Senior Investigator Award—research grant to institution. Support for attending meetings and/or travel: travel to AUKCAR meeting in Reading, 2024—Expenses covered by Asthma + Lung UK. Leadership or fiduciary role in other board, society, committee or advocacy group, paid or unpaid: co-chair of Lung Research and Innovation Group (LRIG). Consulting fees: advisory board for GSK.

Supplementary info

Publication typesExpand

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23

Editorial

Thorax

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. 2025 Oct 15;80(11):784-785.

doi: 10.1136/thorax-2025-223695.

Enhancing home oxygen therapy: automation to facilitate ambulation

Richard D Branson [1]

Affiliations Expand

- PMID: 40962498

- DOI: 10.1136/thorax-2025-223695

No abstract available

Keywords: COPD Pathology; Exercise; Hypoxemia; Long Term Oxygen Therapy (LTOT).

Conflict of interest statement

Competing interests: RDB sits on the advisory board at Lung Pacer and is the Editor-in-Chief of Respiratory Care (official scientific journal of the American Association for Respiratory Care) at Daedalus Publishers.

Supplementary info

Publication typesExpand

Full text links

24

Eur Respir J

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. 2025 Oct 16;66(4):2501295.

doi: 10.1183/13993003.01295-2025. Print 2025 Oct.

Reduction in sputum inflammatory cells after a single dose of cepeprubart in COPD patients

Dave Singh [1 2], Thomas Southworth [3 2], Alex Mulvanny [2], Nick Stefanko [4], Amy Ascher [4], Russell P Rother [4]

Affiliations Expand

- PMID: 40935581

- DOI: 10.1183/13993003.01295-2025

No abstract available

Conflict of interest statement

Conflict of interest: D. Singh is an Associate Editor of the European Respiratory Journal and reports consultancy fees from Adovate, Aerogen, Almirall, Apogee, Arrowhead, AstraZeneca, Bial, Boehringer Ingelheim, Chiesi, Cipla, CONNECT Biopharm, Covis, CSL Behring, DevPro Biopharma LCC, Elpen, Empirico, EpiEndo, Genentech, Generate Biomedicines, GlaxoSmithKline, Glenmark, Kamada, Kinaset Therapeutics, Kymera, Menarini, MicroA, OM Pharma, Orion, Pieris Pharmaceuticals, Pulmatrix, Revolo, Roivant Sciences, Sanofi, Synairgen, Tetherex, Teva, Theravance Biopharma, Upstream and Verona Pharma. T. Southworth and A. Mulvanny have no conflicts of interest to report. N. Stefanko and A. Ascher report stock (or stock options) with Tetherex and MoatBio. R.P. Rother reports inventorship on several Tetherex patents issued and pending, board membership with Tetherex and MoatBio, participation on the data monitoring board for the current study and a study performed by MoatBio, and stock (or stock options) with Tetherex and MoatBio.

Supplementary info

Publication typesExpand

Full text links

Cite

25

JAMA

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. 2025 Oct 14;334(14):1300.

doi: 10.1001/jama.2025.12097.

Diagnostic Approach for COPD

David L Hahn [1]

Affiliations Expand

- PMID: 40906484

- DOI: 10.1001/jama.2025.12097

No abstract available

Full text links

Proceed to details

Cite

26

JAMA

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. 2025 Oct 14;334(14):1300-1301.

doi: 10.1001/jama.2025.12100.

Diagnostic Approach for COPD-Reply

Surya P Bhatt [1], Edwin K Silverman [2], James D Crapo [3]

Affiliations Expand

- PMID: 40906482

- DOI: 10.1001/jama.2025.12100

No abstract available

Full text links

Proceed to details

Cite

27

JAMA

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. 2025 Oct 14;334(14):1299-1300.

doi: 10.1001/jama.2025.12094.

Diagnostic Approach for COPD

Jianping Zhu [1], Weixing Zhang [1], Hui Xie [1]

Affiliations Expand

- PMID: 40906466

- DOI: 10.1001/jama.2025.12094

No abstract available

Full text links

Proceed to details

Cite

28

Review

Life Sci

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. 2025 Oct 15:379:123888.

doi: 10.1016/j.lfs.2025.123888. Epub 2025 Jul 30.

Dopamine and its effects on the respiratory system: A narrative literature review

Vincenzo Bellitto [1], Demetris Savva [2], Niccolò Fagni [3], Giulio Procelli [4], Marco Maria Dima [5], Giulio Nittari [6]

Affiliations Expand

- PMID: 40749823

- DOI: 10.1016/j.lfs.2025.123888

Free article

Abstract

Dopamine is a neuromodulator molecule that is involved in several systems in the human body. As a neurotransmitter, it plays a role in regulating reward, pleasure, and motor control in the brain. Beyond its well-known central nervous system functions it significantly influences peripheral systems including kidneys, circulatory system, and notably, immune system. It increases glomerular filtration rate and renal blood flow in the kidneys, while it increases aortic pressure and cardiac output in the circulatory system. Crucially, dopamine and its receptors have been identified on various immune cells, playing a significant immunomodulatory role that contributes to balanced immune responses and has implications in autoimmune diseases and conditions like sepsis. Moreover, in the respiratory system, dopamine plays a significant role in the pathophysiology of major respiratory disorders such as asthma, cystic fibrosis, chronic obstructive pulmonary disease, and lung cancer. Depending on the type of receptor, dopaminergic receptors contribute to the pathophysiology of lung disease. As part of the narrative review, we have identified dopaminergic receptors in the respiratory system, their anatomic locations, and their specific mechanisms of action in the pathophysiology of major respiratory disorders. We have also identified and summarized molecular therapy protocols that can be used in the treatment of these disorders, considering the evolving understanding of dopamine's broad systemic effects.

Keywords: Autoimmune diseases; Dopamine; Dopamine molecule; Immune system; Neuromodulators; Receptor; Respiratory system.

Conflict of interest statement

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

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

Proceed to details

Cite

29

Randomized Controlled Trial

Thorax

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. 2025 Oct 15;80(11):803-809.

doi: 10.1136/thorax-2024-221883.

Optimised oxygenation improves functional capacity during daily activities in patients with COPD on long-term oxygen therapy: a randomised crossover trial

Linette Marie Kofod [1 2], Ejvind Frausing Hansen [3], Barbara Christina Brocki [4], Morten Tange Kristensen [5 6], Nassim Bazeghi Roberts [7], Elisabeth Westerdahl [8]

Affiliations Expand

- PMID: 40473413

- DOI: 10.1136/thorax-2024-221883

Free article

Abstract

Background: Minimising hypoxaemia during submaximal walking tests has a positive effect on exercise capacity and dyspnoea in patients with chronic obstructive pulmonary disease (COPD) on long-term oxygen therapy (LTOT). However, the impact of optimising oxygenation during everyday tasks remains unexplored. Therefore, we investigated the effects of maintaining a target saturation on activities of daily living (ADL) using automated oxygen titration compared with conventional fixed oxygen flow.

Methods: In a double-blinded, randomised crossover trial, patients with COPD on LTOT performed two GlittreADL tests to assess the functional capacity of everyday activities using (1) their fixed oxygen dose and (2) an adjusted flow from 0 to 8 L/min targeting a peripheral oxygen saturation (SpO_2) of 90-94%. A closed-loop device automatically titrated the oxygen based on information from a Bluetooth wrist pulse oximeter.

Results: 31 patients (mean±SD age: 72.8±5.9 years, forced expiratory volume in 1 s of % predicted: 36.7±12.7) were included. The patients reduced the time to perform the ADL test by median (IQR) 38 (12-73) s, p<0.001, using automated titration compared with the fixed oxygen flow. The oxygen flow in the automated arm more than tripled to 5.4 (4.1-6.8) versus 1.6 (1.1-2.1) L/min (fixed) during the test, p<0.001, while the time spent within SpO_2-target was increased from 19% to 49%, p=0.002. Correspondingly, the patients experienced less dyspnoea (BorgCR10); 5 (3-7) versus 6 (4-8), p<0.001, in favour of the automated oxygen titration.

Conclusions: Improving oxygenation and extending the time spent within target saturation reduced dyspnoea and improved functional capacity in ADL in patients with COPD on LTOT.

Trial registration number: NCT05553847.

Keywords: COPD Pathology; Exercise; Hypoxemia; Long Term Oxygen Therapy (LTOT); Pulmonary Rehabilitation.

Conflict of interest statement

Competing interests: The principal investigator has no competing interest regarding this study. One of the investigators (EFH) is a co-inventor of the automated oxygen device used in present study and holds shares in O2matic, which manufactures the device. O2matic was not involved in protocol writing, data analysis or interpretation, or in any other way in the writing or editing of the manuscript. None of the remaining investigators have any conflict of interest.

Supplementary info

Publication types, MeSH terms, Substances, Associated dataExpand

Full text links

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

1

BMC Prim Care

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. 2025 Oct 16;26(1):316.

doi: 10.1186/s12875-025-03024-4.

Developing core indicators for identifying people at risk of delayed heart failure diagnosis

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Affiliations Expand

- PMID: 41102653

- PMCID: PMC12533351

- DOI: 10.1186/s12875-025-03024-4

Abstract

Background: Heart failure (HF) is frequently diagnosed during hospital admission, often after symptoms have been present for some time. Those diagnosed in hospital typically experience higher mortality reflecting not only possible diagnostic delay but also greater illness severity at presentation. The reasons behind delayed HF diagnosis are multifaceted and complex. This study aimed to achieve consensus on a priority list of patient, clinical, and service-level factors associated with delayed HF diagnosis, and to identify indicators that could support earlier detection of undiagnosed HF in primary care.

Methods: A three-round modified e-Delphi process involved patients and clinicians from primary and specialist care. Participants rated sociodemographic and clinical factors for their importance in delayed HF diagnosis and clinicians also rated service-level factors and identified indicators of undiagnosed HF. Consensus was defined as two-thirds agreement with stable opinions across rounds (McNemar $p \geq 0.05$). Indicators of undiagnosed HF required additional ranking in the top 5 by > 50% of clinicians.

Results: The first survey was completed by 18 patients (67% women, median age 61) and 27 clinicians (67% nurses/allied health professionals, 33% doctors). Consensus was achieved, comprising 15 factors and 5 indicators. Key sociodemographic factors were patients lacking HF knowledge, lack of access to GP/cardiologist appointments, symptom confusion, younger age (< 50), and learning difficulties. Clinical factors included multimorbidity, respiratory/mental health conditions, obesity, and depression. Service-level factors included poor HF knowledge, limited N-terminal pro-B-type Natriuretic Peptide (NT-proBNP) testing and echocardiogram access in primary care, and fragmented care. The top 5 indicators of undiagnosed HF included elevated NT-proBNP without referral, loop diuretic use, and overlapping cardiac and respiratory histories.

Conclusions: This study identifies critical factors and indicators that can aid earlier HF diagnosis in primary care. These indicators could be embedded into electronic health record-based alerts and used to support decision-making in primary care.

Keywords: Consensus; Diagnosis; Heart failure.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: Ethics approval was granted by the Health and Social Care Research Ethics Committee A (HSC REC A) [23/NI/0156]. All patients provided written consent. Clinicians indicated their willingness to participate through tacit consent, confirmed by email and through completion of the Delphi surveys. All participants were informed of their right to withdraw from the study at any point. Consent for publication: Not applicable. Competing interests: CL has acted as a speaker for Boehringer Ingelheim. KK has acted as a consultant, speaker or received grants for investigator-initiated studies for Astra Zeneca, Bayer, Novo Nordisk, Sanofi-Aventis, Servier, Lilly and Merck Sharp & Dohme, Boehringer Ingelheim, Oramed Pharmaceuticals, Pfizer, Roche, Daiichi-Sankyo, Applied Therapeutics, Embecta and Nestle Health Science. CAM has participated on advisory boards/consulted for AstraZeneca, Boehringer Ingelheim and Lilly Alliance, Novartis and PureTech Health, serves as an advisor for HAYA Therapeutics, has received speaker fees from AstraZeneca, Boehringer Ingelheim and Novo Nordisk, conference attendance support from AstraZeneca, and research support from Amicus Therapeutics, AstraZeneca, Guerbet Laboratories Limited, Roche and Univar Solutions B.V.

2

BMC Prim Care

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"So I call myself healthy": a qualitative study on health perceptions and healthcare experiences in older adults with multimorbidity

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Affiliations Expand

- PMID: 41094678

- PMCID: PMC12522901

- DOI: 10.1186/s12875-025-03010-w

Abstract

An ageing population and its association with a rising prevalence of co-existing multiple chronic conditions poses increasing challenges for healthcare systems worldwide. In line with the World Health Organization ambition for societies to develop integrated care models and person-centered care, this study aimed to investigate what health means for individuals managing multiple chronic conditions and how these patients navigate a healthcare system primarily designed for single-disease management.

Methods: A six-phase reflexive thematic analysis was conducted on 16 individual interviews with patients aged 67 to 87 years old in a Swedish primary care setting.

Results: Two themes were developed. Firstly, Resiliently Positioning as Non-Sick that centered on how participants employed internal strategies to position their identity on the non-sick side of a health spectrum, and secondly, Placing Yourself in the Hands of Healthcare, which focused on the mixed feelings towards interacting with healthcare.

Conclusion: Older individuals with multiple conditions tend to identify as non-sick and strive for autonomy. Engaging with healthcare can pose a threat to both their autonomy and their non-sick identity. They desire healthcare that works holistically, focuses on health and function, and avoids stigmatizing terms like multimorbidity. We recommend that policymakers and healthcare providers integrate this understanding and support for autonomy and holistic approaches into their efforts to deliver person-centered care.

Keywords: Aged; Holistic health; Multimorbidity; Person-centered care; Primary health care; Qualitative research.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: The study was conducted in accordance with the Helsinki declaration on medical research involving human participants [68] and approved by the Swedish Ethical Review Authority under one main application (2021–04267) and two amendments: one for additional recruitment of primary care centers for greater sociodemographic mix (2023–02018–02) and another for clarifications regarding the use of interviews in qualitative publications (2023–05939–02). All interviewees received information about the study and its purpose. They were informed that their participation was voluntary and possible to cancel at any time. If they participated or not, and the content of their answers, would not influence the care they received or their relationship with their care providers. All answers were pseudo-anonymized and separated from the

interviewee's information. Consent for publication: Participants were informed about the intent to publish scientific findings based on the data collected from the study. This information was provided both verbally and in writing before collection of informed consent. Competing interests: The authors declare no competing interests.

- **68 references**
- **2 figures**

Supplementary info

MeSH termsExpand

Full text links

UNIMORE

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Cite

3

AIDS Care

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. 2025 Oct 13:1-11.

doi: 10.1080/09540121.2025.2570402. Online ahead of print.

Aging with HIV: multimorbidity and polypharmacy burden

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Affiliations Expand

- **PMID: 41082730**
- **DOI: 10.1080/09540121.2025.2570402**

Abstract

Background: Aging people living with HIV (PLWH) are at higher risk of multimorbidity and polypharmacy, complicating care.

Objective: To assess the prevalence and risk factors of multimorbidity and polypharmacy in elderly PLWH on antiretroviral therapy (ART).

Method: In this cross-sectional study, PLWH aged ≥50 were compared with age- and sex-matched people without HIV. Logistic regression was used to identify predictors of polypharmacy.

Results: Multimorbidity (≥2 chronic conditions) was seen in 29% of PLWH and 22% of controls. Osteoporosis (9.5% vs. 2.3%) and psychiatric disorders (9.5% vs. 2.8%) were significantly more common in PLWH ($p < 0.001$). Polypharmacy (≥5 non-ART medications) was more frequent in PLWH (20.4% vs. 11.8%, $p = 0.014$). In multivariable analysis, being in the PLWH group (aOR 2.41), increasing age (aOR per 1-year 1.05), and having no formal education (aOR 4.59) were independent predictors of polypharmacy. Potential drug-drug interactions were present in 19.4% of PLWH and were present in those with polypharmacy (33% vs. 16%, $p < 0.001$).

Conclusion: Older PLWH experience greater multimorbidity and polypharmacy than people without HIV. Tailored strategies - such as medication review, drug interaction monitoring, and preventive care - are essential to optimize outcomes in this growing and vulnerable population.

Keywords: Drug–drug interactions; HIV and aging; Multimorbidity; Non-communicable diseases; Older adults living with HIV; Polypharmacy; SDG 3: good health and well-Being.

Heart

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. 2025 Oct 14;111(21):1004-1012.

doi: 10.1136/heartjnl-2025-325665.

Predictive performance of cardiovascular disease risk prediction models in older adults: a validation and updating study

Shiva Ganjali [#1], Mojtaba Lotfaliany [#2], Andrew Tonkin [3], Mark R Nelson [3,4], Christopher M Reid [3,5], John J McNeil [3], Rory Wolfe [3], Enayet Karim Chowdhury [3,6], Robyn L Woods [3], Michael Berk [2,7], Mohammadreza Mohebbi [2,8]

Affiliations Expand

- PMID: 40368453

- DOI: 10.1136/heartjnl-2025-325665

Abstract

Background: Current cardiovascular disease (CVD) risk prediction models tailored for older adults are inadequate. This study aimed to validate, update and assess the utility of widely used CVD risk prediction models including American College of Cardiology/American Heart Association, 2008 Framingham, GloboRisk, National Vascular Disease Prevention Alliance and Predict1 originally developed for middle-aged population, as well as an age-specific Systematic COronary Risk Evaluation 2-Older Person model, in Australian and the US community-dwelling older adults.

Methods: Participants, without history of CVD events, dementia or physical disability, enrolled in the ASPREE (ASPirin in Reducing Events in the Elderly) clinical trial and ASPREE-eXTention observational post-trial follow-up, were considered for CVD risk prediction. The main outcome was predicted CVD risk from adjudicated CVD events. The performance of the original, recalibrated (adjusting models' intercept and slope) and updated (adjusting models' coefficients) models was evaluated by discrimination (C statistic), calibration (calibration plots) and clinical utility (decision curves). Models were extended by incorporating predictors including serum creatinine, depression and socioeconomic status index (Index of Relative Socio-economic Advantage and Disadvantage, IRSAD) into models' equation, and the changes in discrimination were evaluated.

Results: Among 15 618 adults (mean age 75 (4.4) years), 520 men and 498 women experienced CVD events over a median follow-up of 6.3 (IQR: 5.2-7.7) years. Following updating, the discrimination power of models increased for both sexes (C statistics ranged 0.62-0.64 for men and 0.68-0.69 for women). Updated models indicated good calibration, with an added net benefit at the risk thresholds ranging from 4%-10% for women to 5%-12% for men. Incorporating IRSAD, depression and serum creatinine did not improve CVD risk discrimination of updated models.

Conclusions: Updating models, by adjusting model coefficients to better reflect the characteristics and risk factors of older adults, improves CVD risk prediction in a large cohort of relatively healthy Caucasian population aged 70+. Further external validation in diverse older populations including those with frailty and multimorbidity is recommended before clinical implementation.

Keywords: Cardiovascular Diseases; Risk Assessment.

Conflict of interest statement

Competing interests: None declared.

- Cited by 2 articles

Supplementary info

Publication types, MeSH termsExpan

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

1

J Allergy Clin Immunol Pract

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. 2025 Oct 15:S2213-2198(25)00955-9.

doi: 10.1016/j.jaip.2025.10.004. Online ahead of print.

Management of patients with comorbid asthma and obesity: A large language model evaluation of clinical documentation

Oluwatobi Olayiwola [1], Zixuan Yang [2], David Stein [3], Liqin Wang [4], Dinah Foer [5]

Affiliations Expand

- **PMID: 41106684**

- **DOI: 10.1016/j.jaip.2025.10.004**

Abstract

Background: Obesity is a well-known asthma risk factor, and weight loss benefits asthma outcomes. Asthma guidelines recommend weight reduction as part of care; however, provider practices are not known.

Objective: To evaluate if weight management is integrated into routine asthma care for patients with comorbid obesity.

Methods: We analyzed outpatient encounter notes from patients with both asthma and obesity seen by primary care, allergy/immunology, or pulmonary providers at a large health system between January 01, 2020, and September 30, 2023. Notes were extracted from electronic health records for visits with a primary asthma diagnosis. Using GPT-4o, a large language model (LLM), we assessed documentation of: (1) asthma management; (2) obesity management; (3) integration of obesity management into asthma care; (4) specific weight management strategies. Inclusion rates were compared across specialties, and encounter-level predictors were identified. Chart review evaluated GPT-4o's performance.

Results: Of 17,658 encounters (N=8992 patients), only 12.6% included obesity management as part of asthma care, more frequently in subspecialty (11.0%) than in

primary care (1.6%) settings. In adjusted models, male sex, middle age, higher body mass index, higher education, and pulmonology care increased odds of an encounter with obesity management linked to asthma care; oral steroid use decreased the odds. Obesity management strategies differed by specialty, though exercise and general weight counseling was common. GPT-4o demonstrated robust performance.

Conclusion: LLM evaluation of >17,000 encounters demonstrate that, in contrast to guidelines, weight management is infrequently addressed in asthma care. These results highlight actionable opportunities to improve asthma outcomes.

Keywords: Artificial intelligence; Clinical documentation; Natural language processing; Obesity management; Severe asthma; Weight loss.

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J Allergy Clin Immunol Pract

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. 2025 Oct 15:S2213-2198(25)00957-2.

doi: 10.1016/j.jaip.2025.10.006. Online ahead of print.

Joint Association of Methamphetamine and Cannabis Use as Risk Factors for Asthma Exacerbations Requiring Hospitalization: A Retrospective Analysis

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Affiliations Expand

- PMID: 41106683

- DOI: 10.1016/j.jaip.2025.10.006

Abstract

Background: Substance use, including cocaine and heroin, has been associated with severe asthma exacerbations and need for intubation, but data on methamphetamine use in asthma is limited.

Objective: To evaluate the relationship between methamphetamine use alone, co-use with cannabis and asthma exacerbations requiring hospitalization.

Methods: Subjects aged 19 years or older, admitted for an asthma exacerbation with an available urine drug screen (UDS) from January 1, 2013 to October 17, 2023 were included in this retrospective medical record review. Outcomes included length of hospital stay, need for mechanical ventilation, fatal exacerbation, need for ICU admission, and length of ICU stay using simple and multiple logistic regression modeling. Comparisons were made between those with and without a positive UDS using Wilcoxon rank-sum, chi-square or Fisher's exact tests.

Results: There were 201 hospitalizations from a total of 167 subjects. Of 167 initial subject hospitalizations, 102 (61.1%) had a positive UDS; 28/167 (16.8%) for methamphetamines, and 53/167 (31.7%) for cannabis. Methamphetamine use alone showed a trend toward requiring mechanical ventilation (p=0.117). Co-positive methamphetamine and cannabis UDS associated with increased intubation (p=0.020) and more status asthmaticus (p=0.032). Overall, subjects with a positive drug screen of any substance were more likely to require ICU care (p=0.022).

Conclusions: Methamphetamine use alone was not linked to worse asthma outcomes in this cohort, but there was a trend towards requiring mechanical ventilation. Importantly, the co-use of cannabis and methamphetamine were associated with more severe asthma exacerbations. Providers should address substance use in asthma management to help improve outcomes.

Keywords: amphetamine; asthma; asthma exacerbation; asthma hospitalization; cannabinoids; cannabis; fatal asthma; methamphetamine; status asthmaticus; urine drug screen.

3

Editorial

Lancet Respir Med

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. 2025 Oct 14:S2213-2600(25)00367-4.

doi: 10.1016/S2213-2600(25)00367-4. Online ahead of print.

[Redefining outcomes in asthma-remission and beyond]

[The Lancet Respiratory Medicine]

- **PMID: 41106414**

- **DOI: [10.1016/S2213-2600(25)00367-4]**

No abstract available

Supplementary info

Publication typesExpand

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Am J Respir Crit Care Med

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. 2025 Oct 17.

doi: 10.1164/rccm.202508-1894PP. Online ahead of print.

[Addressing the Global Challenges of COPD and Asthma: A Shared Vision from the Global Initiative for Chronic Obstructive Pulmonary Disease (GOLD) and the Global Initiative for Asthma (GINA)]

[David M G Halpin] [1] [2], [Refiloe Masekela] [3] [4], [Claus F Vogelmeier] [5], [Obianuju B Ozoh] [6], [Alvaro A Cruz] [7], [Helen K Reddel] [8] [9], [Arzu Yorgancıoğlu] [10], [Alvar Agusti] [11]

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- **PMID: 41104909**

- **DOI: [10.1164/rccm.202508-1894PP]**

No abstract available

Keywords: Asthma; COPD; GINA; GOLD; Global challenges.

Full text links

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Int J Emerg Med

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. 2025 Oct 16;18(1):204.

doi: 10.1186/s12245-025-00995-0.

Novice point-of-care ultrasound for the assessment of acute dyspnea in the emergency department

Joseph O'Brien [1 2], Kevin R Caja [2 3], Matthew P Tabbut [2 3], Jon W Schrock [4 5]

Affiliations Expand

- PMID: 41102659
- PMCID: PMC12532782
- DOI: 10.1186/s12245-025-00995-0

Abstract

Background: Dyspnea is one of the most common presentations to the ED. The goal of this study was to determine the diagnostic accuracy of POCUS examination completed by a medical student for several causes of dyspnea.

Methods: A prospective observational study was conducted in the ED of an academic center. Adult patients (≥ 18 yo) who presented to the emergency room with dyspnea were enrolled in the study. The study investigator was a medical student who was blinded to the clinical work up. Standardized POCUS examinations were performed following a modified BLUE protocol to identify the dyspnea etiology as one of the following diagnoses: asthma/COPD, acute heart failure, pneumonia, pulmonary embolism, pneumothorax, and non-diagnostic. POCUS diagnoses were compared to the clinical diagnosis made by the treating emergency physician.

Results: 250 patients were enrolled in the study. 99 (39.6%) patients were male, and 136 (54.4%) patients identified as Black. POCUS demonstrated high sensitivity and specificity for diagnosing asthma/COPD, acute heart failure, pneumonia, and pneumothorax. Concordance was optimal (0.8 < k < 1) for the diagnosis of

asthma/COPD, acute decompensated heart failure; good (0.6 < k < 0.8) for pneumonia and non-diagnostic; and moderate (0.4 < k < 0.6) for pneumothorax and pulmonary embolism. Overall concordance was optimal (k = 0.84).

Conclusion: POCUS examinations completed by a medical student demonstrated acceptable diagnostic accuracy for asthma/COPD, acute heart failure, and pneumonia. Medical student POCUS examinations could be used for risk stratification to identify patients that require additional diagnostic imaging.

Keywords: Diagnostics; Dyspnea; Point-of-care-ultrasound (POCUS).

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki and was approved by the MetroHealth Medical Center Institutional Review Board (Protocol Number: MOD00002150). All participants provided informed consent prior to the study. Written informed consent was obtained from all participants. Consent for publication: The authors affirm that all participants provided informed consent for publication of their pooled demographic data. Competing interests: The authors declare no competing interests.

- 15 references
- 1 figure

Full text links

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Editorial

Eur Respir J

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. 2025 Oct 16;66(4):2501232.

doi: 10.1183/13993003.01232-2025. Print 2025 Oct.

Gene-environment interaction at 17q12-q21 locus and its role in asthma pathogenesis

Zhaozhong Zhu [1], Conglin Liu [2], Carole Ober [3], Carlos A Camargo Jr [4]

Affiliations Expand

- PMID: 41101939

- DOI: 10.1183/13993003.01232-2025

No abstract available

Conflict of interest statement

Conflict of interest: Z. Zhu reports grants from the National Institutes of Health, the American Lung Association and Harvard University during the conduct of the study. C. Liu is an employee of Sanofi US and may hold shares and/or stock options in the company. C. Ober reports grants from U19 AI162310 and UM1 AI160040, payment or honoraria for lectures, presentations, manuscript writing or educational events from the American Academy of Asthma, Allergy, and Immunology as an associate editor, and participation on a data safety monitoring board or advisory board with COPDGene (NHLBI), PRIMERO (NHLBI) and Clemson University. C.A. Camargo Jr reports grants from the National Institutes of Health during the conduct of the study.

Comment on

- Functional sequence variants of intergenic long noncoding RNA on chromosome 17q21 are associated with asthma.

Liu KY, Sie JJ, Gao Y, Lo YL, Wu CC, Wang CC, Sheu CC, Lai RS, Leung SY, Lin CC, Wei YF, Lin CH, Lin SH, Hsu JY, Huang WC, Tseng CC, Lai YF, Cheng MH, Chen HC, Yang CJ, Hsu YT, Su CH, Hsu SC, Chung WY, Hsieh MT, Chen LC, Hung CH, Lee CL, Huang MS, Zhou Y, Fann CSJ, Huang SK.Eur Respir J. 2025 Oct 16;66(4):2500847. doi: 10.1183/13993003.00847-2025. Print 2025 Oct.PMID: 40610054 Free PMC article.

Supplementary info

Publication typesExpand

Full text links

. 2025 Oct 16.

doi: 10.1111/all.70070. Online ahead of print.

Immune Training of the Interleukin 6 Gene in Airway Epithelial Cells is Central to Asthma Exacerbations

Lars P Lunding [1,2], Markus Weckmann [2,3,4], Ulrich M Zissler [5,6,7], Constanze Jakwerth [5,8], Rebecca Bodenstein-Sgró [1,2], Sina Webering [1,2], Christina Vock [2,9], Johanna C Ehlers [2,9], Romina A M Fernandez Ceballos [2,3], Sai Sneha Priya Nemani [2,3], Karosham Diren Reddy [2,3,4], Brian George G Oliver [10,11], Cornelis J Vermeulen [12], Maarten van de Berge [12], Carole Ober [13], Axel Künstner [14], Hauke Busch [15], Inke König [2,16], Christoph Garbers [17], Carsten B Schmidt-Weber [5,8], Marcel F Nold [18,19,20], Ali Önder Yildirim [6,21], Claudia A Nold-Petry [18,19], Zane Orinska [2,22], Thomas Bahmer [2,23], Jan Heyckendorf [2,6,23], Gesine Hansen [24,25], Erika von Mutius [6,26,27], Klaus F Rabe [2,23,28], Anna-Maria Dittrich [24,25], Bianca Schaub [8,27], Folke Brinkmann [2,3], Matthias V Kopp [2,3,29], Michael Wegmann [1,2]; ALLIANCE Study Group as part of the German Centre for Lung Research (DZL)

Affiliations Expand

- PMID: 41099307

- DOI: 10.1111/all.70070

Abstract

Question: Epidemiological studies suggest that respiratory viral infections are major triggers of asthma exacerbations, and clinical studies have suggested the involvement of an increased interleukin-6 (IL-6) release. What is the pathophysiological role of IL-6 in asthma exacerbation, and which mechanisms lead to enhanced IL-6 release?

Materials and methods: Exacerbations of ovalbumin-induced experimental allergic asthma were elicited in wild-type and IL-6-deficient mice by intranasal (i.n.) application of poly(I:C). Airway inflammation, cytokine expression and release, mucus production and airway hyperresponsiveness were measured. IL-6 was neutralised by i.n. anti-IL-6 antibody application. The human bronchial epithelial cell line, BEAS-2B, was stimulated with poly(I:C) and infected with human rhinovirus-16 in vitro, followed by quantification of IL6 gene expression and DNA methylation. Genome-wide DNA methylation was assessed in bronchial epithelial cells from adults with asthma (cohort I, n = 54) and in nasal epithelial cells from children and adults in the All-Age-Asthma cohort (ALLIANCE, n = 53 and n = 108 respectively).

Results: Poly(I:C)-induced experimental exacerbations in mice were preceded and paralleled by exaggerated IL-6 release in the airway epithelium, with IL-6 neutralisation completely preventing experimental exacerbations. Repetitive infection/stimulation with RV16 or poly(I:C) resulted in training of the IL-6 release in human respiratory epithelial cells. In patients, hypomethylation at the IL6 gene methylation was associated with high IL6 expression and future exacerbations.

Answer: An exaggerated IL-6 release is required for exacerbation of experimental asthma, potentially the result of viral PAMP-induced immune training of airway epithelial cells. Additionally, patients with asthma carrying the epigenetic signature of a trained IL-6 response exacerbate more frequently. These findings open new avenues to identify and treat exacerbation-prone patients.

Keywords: IL-6; asthma; exacerbations; immune training; respiratory viruses.

- **42 references**

Supplementary info

Grants and fundingExpand

Full text links

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Cite

8

Review

Regul Toxicol Pharmacol

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. 2025 Oct 13:105962.

doi: 10.1016/j.yrtph.2025.105962. Online ahead of print.

Occupational asthma: dust exposure as a contributory factor and implications for classification of respiratory sensitisers

Mark A Pemberton [1], Ian Kimber [2]

Affiliations Expand

- **PMID: 41093094**

- **DOI: 10.1016/j.yrtph.2025.105962**

Abstract

Occupational asthma (AO) is an important chronic respiratory disease associated with airway narrowing. Chemicals that cause OA are regulated under the UN GHS endpoint of respiratory sensitisation. Such chemicals are typically identified using evidence suggesting work-related exposure resulting in the ab initio development of asthma, rather than simply aggravating pre-existing asthma (work exacerbated asthma; WEA). There exist predisposing and aggravating factors within and outside the workplace that influence the development and severity of the disease. Inhalation exposure to dusts is one factor and is recognised as directly causing respiratory disease, and also aggravating pre-existing disease, including asthma. Here the contribution of dusts to the development of work-related asthma has been re-examined with reference to published clinical case studies. The data reveal a link between exposure to dusts and OA, suggesting an additional role of dust in this respect may be the presentation of irritant or sensitising agents in a way that promotes the development of OA, even under conditions where exposure to those agents alone does not. We propose that the significance of co-exposure to dusts may be currently under-estimated in health management of OA, clinical identification of chemicals suspected of causing OA, and classification of true respiratory sensitisers.

Keywords: Occupational asthma; dust; respiratory irritation; sensitisation of the respiratory tract.

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:Mark A Pemberton reports financial support was provided by Methacrylate Producers Association Inc. Ian Kimber reports financial support was provided by Methacrylate Producers Association Inc. Mark A Pemberton reports a relationship with Methacrylate Producers Association Inc that includes: consulting or advisory. Ian Kimber reports a relationship with Methacrylate Producers Association Inc that includes: consulting or advisory. 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.

Supplementary info

Publication typesExpand

Full text links

Respir Med

. 2025 Oct 13:249:108421.

doi: 10.1016/j.rmed.2025.108421. Online ahead of print.

Treatable Traits. Why, What, How?

Alvar Agusti [1], Peter Gibson [2], Mario Cazzola [3]

Affiliations Expand

- PMID: 41092989

- DOI: 10.1016/j.rmed.2025.108421

Abstract

Chronic airway diseases, such as asthma, bronchiectasis and chronic obstructive pulmonary disease (COPD), are complex and heterogeneous conditions. Hence, their assessment and management need to be personalized and precise. A decade ago, a precision medicine strategy based on the presence of treatable traits was proposed. This proposal generated a lot of interest and publications. This issue of Respiratory Medicine is fully dedicated to this topic. In this first introductory chapter, we present the reasons that underlie it ("Why"), outline its core content ("What") and discuss how to implement it in clinical practice ("How").

Keywords: Asthma; Bronchiectasis; COPD; Chronic obstructive pulmonary disease; Treatment.

Conflict of interest statement

Declaration of competing interest Authors declare that they do not have any conflict of interest with the publication TREATABLE TRAITS. WHY, WHAT, HOW?

Supplementary info

Publication typesExpand

Full text links

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Cite

10

Allergy

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. 2025 Oct 15.

doi: 10.1111/all.70106. Online ahead of print.

Asthma Remission in Adults: Role of Age at Asthma Onset, Smoking, Obesity, and Allergic Rhinitis

Reshed Abohalaka [1], Selin Ercan [1], Lauri Lehtimäki [2 3], Daniil Lisik [1 4], Saliha Selin Ozuygur Ermis [1], Linda Ekerljung [1 5], Helena Backman [4], Madeleine Rådinger [1], Bright I Nwaru [1], Hannu Kankaanranta [1 3 6]

Affiliations Expand

- **PMID: 41090708**

- **DOI: 10.1111/all.70106**

No abstract available

Keywords: asthma; asthma treatment; epidemiology; personlized medicine; precision medicine; quality-of-life.

Supplementary info

Publication types, Grants and fundingExpand

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Cite

11

ERJ Open Res

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. 2025 Oct 13;11(5):01333-2024.

doi: 10.1183/23120541.01333-2024. eCollection 2025 Sep.

Airway mucus and ^{129}Xe MRI ventilation after single inhaler triple therapy in asthma

Ali Mozaffaripour [1 2 3], Sam Tcherner [1 4 3], Eveline Durom [1 4], Harkiran K Kooner [1], Marrissa J McIntosh [1], Malcolm Sherwood [5], Narinder Paul [6], Hana Serajeddini [5], Anurag Bhalla [5], Cory Yamashita [5], Grace Parraga [1 2 4 5 6]

Affiliations Expand

- PMID: 41089567
- PMCID: PMC12517039
- DOI: 10.1183/23120541.01333-2024

Abstract

Background: In asthma, fluticasone furoate/umeclidinium/vilanterol (FF/UMEC/VI) was previously demonstrated to improve forced expiratory volume in 1 s (FEV_1) and asthma control, but the mechanism by which this occurs, especially at the level of the small airways, is not well-understood. We asked the question, does FF/UMEC/VI influence asthma control by improving airway structure-function and airway occlusions? Hence, our objective was to measure airway structure-function using ^{129}Xe magnetic resonance imaging (MRI) ventilation defect percentage (VDP), computed tomography (CT) and airwave oscillometry after 6-week single-inhaler FF/UMEC/VI and 1 year later.

Methods: Participants with Global Initiative for Asthma Step 4-5 (GINA4-5) asthma who were poorly controlled on inhaled corticosteroid/long-acting β-2 agonist (ICS/LABA) provided written informed consent to baseline, 6- and 12-week visits as well as an open-extension 1-year visit. All received FF/UMEC/VI (200/62.5/25 µg) at baseline and underwent MRI, spirometry, plethysmography and oscillometry, pre- and post-bronchodilator (BD). The Asthma Control Questionnaire, the Asthma Quality of Life Questionnaire (AQLQ) and St. George's Respiratory Questionnaire (SGRQ) were completed. CT was acquired at baseline and 1 year later.

Results: Thirty-one participants (24 females, 54±15 yrs) completed the baseline visit, 28 (21 females, 54±15 yrs) completed the 6-week visit and 15 patients attended the 1-year visit. At 6-weeks, there was significantly improved pre-BD VDP ($p=0.02$), FEV_1 ($p=0.008$), distal airways resistance (R_{5-19}) ($p=0.001$), AQLQ ($p<0.001$) and SGRQ-scores ($p=0.001$), which persisted at 1 year. VDP improved in participants with elevated mucus score and eosinophil count, while R_{5-19} improvements were independent of type 2 inflammation. Mean airway mucus score, lumen area and total airway count were significantly improved at 1 year.

Conclusions: In participants with GINA4-5 asthma, who had been poorly controlled on ICS/LABA, single-inhaler FF/UMEC/VI resulted in improved VDP and FEV_1 at 6-weeks. These improvements persisted 1-year later when airway markers were also significantly improved, consistent with the reversal of airway remodelling.

Conflict of interest statement

Conflict of interest: A. Mozaffaripour, S. Tcherner, E. Durom, H.K. Kooner, M.J. McIntosh, M. Sherwood, N. Paul, H. Serajeddini and C. Yamashita report no conflicts of interest. A. Bhalla reports speaking honoraria (GSK). G. Parraga reports speaking honoraria (Sanofi, AstraZeneca, GSK and Polarean) and study funding (GSK and AstraZeneca).

- 40 references
- 6 figures

Cite

12

Tuberc Respir Dis (Seoul)

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. 2025 Oct 15.

doi: 10.4046/trd.2025.0131. Online ahead of print.

Biologic Therapies in Severe Asthma and EGPA: Targeted Therapy and Personalized Care

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Affiliations Expand

- PMID: 41088969
- DOI: 10.4046/trd.2025.0131

Free article

Abstract

Biologic agents have transformed severe asthma management by enabling biomarker-driven care. Five monoclonal antibodies-omalizumab, mepolizumab, reslizumab, benralizumab, and dupilumab-are currently used widely, with the recently approved Tezepelumab, an anti-thymic stromal lymphopoietin, expanding

treatment options to include the type 2 inflammation-low phenotype. Despite the increasing availability of biologics, clinicians often face challenges when selecting an initial biologic therapy. This review presents real-world cases illustrating phenotype-guided biologics selection for patients with asthma or eosinophilic granulomatosis with polyangiitis. In addition, emerging therapeutic innovations of biologics are discussed for their potential to enhance accessibility and effectiveness. In the future, integrating evolving evidence with patient-specific characteristics may facilitate disease modification in severe asthma.

Keywords: Asthma; Biologics; Personalized care; Severe asthma.

13

Am J Respir Crit Care Med

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. 2025 Oct 14.

doi: 10.1164/rccm.202509-2272ED. Online ahead of print.

The Case for *Case-Finding* in Asthma and COPD

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Affiliations Expand

- **PMID: 41086412**

- **DOI: 10.1164/rccm.202509-2272ED**

No abstract available

14

Review

Immunotherapy

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. 2025 Oct 14:1-10.

doi: 10.1080/1750743X.2025.2567844. Online ahead of print.

Evaluating the efficacy and safety of tezepelumab in the treatment of chronic rhinosinusitis with nasal polyps

Jennifer Priessnitz [1], Jaekeun Jung [2], Joseph K Han [3 4], Kent K Lam [3 4]

Affiliations Expand

- **PMID: 41084787**

- **DOI: 10.1080/1750743X.2025.2567844**

Abstract

Chronic rhinosinusitis with nasal polyps (CRSwNP) is a debilitating inflammatory disease associated with high recurrence rates and limited response to current therapies. Tezepelumab, a human monoclonal antibody targeting thymic stromal lymphopoietin (TSLP), has emerged as a promising upstream biologic intervention. In the phase 3 WAYPOINT trial, tezepelumab significantly reduced nasal polyp score (-2.07), nasal congestion severity (-1.03), and SNOT-22 scores (-28.4), while decreasing the need for endoscopic sinus surgery by 98% versus placebo. Post hoc analyses of the NAVIGATOR trial showed SNOT-22 improvements (-21.06 vs -10.48 placebo), and PATHWAY data confirmed reductions in asthma exacerbations (up to 85%) and suppression of type 2 inflammatory biomarkers including eosinophils, FeNO, IL-5, and IL-13. Tezepelumab demonstrated a favorable safety profile without increased risk of serious infection or hypersensitivity. Although not approved for CRSwNP, tezepelumab is a promising investigational agent for patients with corticosteroid-refractory or biologic-insensitive disease. Ongoing trials such as ESSENCE will clarify its long-term efficacy, safety, and positioning relative to existing monoclonal antibodies.

Keywords: Chronic rhinosinusitis with nasal polyps; SNOT-22; asthma comorbidity; biologic therapy; endoscopic sinus surgery; tezepelumab.

Plain language summary

Chronic rhinosinusitis with nasal polyps (CRSwNP) is a long-lasting inflammatory condition of the sinuses that causes nasal blockage, loss of smell, facial pressure, and poor quality of life. Current treatments, such as corticosteroid sprays, oral

steroids, and sinus surgery, are often not effective in patients with severe or recurrent disease. Tezepelumab is a new investigational medicine designed to target thymic stromal lymphopoietin (TSLP), an important signaling protein that starts inflammation in the sinuses. By blocking TSLP, tezepelumab works “upstream” to reduce multiple inflammatory pathways involved in CRSwNP. In a large clinical study called the WAYPOINT trial, patients receiving tezepelumab showed significant reductions in nasal polyp size and nasal blockage compared with placebo, along with major improvements in quality of life and smell. Tezepelumab also reduced the need for sinus surgery by 98% and lowered the need for oral steroids by 88%. Findings from earlier studies, including the NAVIGATOR and PATHWAY trials, showed similar benefits in patients who also had both asthma and CRSwNP diagnoses. Tezepelumab has been well tolerated in studies, with no major safety concerns reported. While it is not yet approved for CRSwNP, ongoing research continues to evaluate its long-term benefits, safety, and role compared with existing treatments.

Supplementary info

Publication typesExpand

Full text links

Cite

15

Review

Clin Exp Otorhinolaryngol

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. 2025 Oct 13.

doi: 10.21053/ceo.2025-00124. Online ahead of print.

The role of innate T cells in inflammatory disorders in asthma and chronic rhinosinusitis

Myeong-Seok Lee [1], Dae Woo Kim [2], You Jeong Lee [1]

Affiliations Expand

- PMID: 41082940

- DOI: 10.21053/ceo.2025-00124

Free article

Abstract

Chronic rhinosinusitis (CRS) and asthma are often comorbid and represent heterogeneous inflammatory disorders in the upper and lower airways, respectively. Type 2 inflammation driven by eosinophils and CD4 T cells has been recognized as central mediators in CRS with nasal polyp (CRSwNP) and asthma pathogenesis. However, recent evidence has highlighted the critical involvement of innate T cells, such as invariant natural killer T (iNKT), mucosal-associated invariant T (MAIT), and γδ T cells in airway inflammatory disorders. Innate T cells were enriched in sinonasal tissues and contributed to mucosal inflammation through cytokine production, exhibiting functional polarization influenced by local inflammatory cues. In particular, MAIT17 and Vγ1+ γδ T cells have been associated with tissue eosinophilia and disease severity in eosinophilic CRSwNP (E-NP) patients, whereas iNKT cells displayed subset-specific distribution across eosinophilic and neutrophilic endotypes. In asthma, iNKT cells consistently contributed to disease development in murine models, whereas the roles of MAIT and γδ T cells were controversial, demonstrating both pro- and anti-inflammatory roles depending on anatomical location and disease context. This review summarizes current findings on the contribution of innate T cells to the immunopathology of CRSwNP and asthma and discusses the challenges and future directions in resolving discrepancies arising from methodological and biological variability.

Keywords: Asthma; CRS; Innate T cells.

Supplementary info

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16

Clin Exp Allergy

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. 2025 Oct 13.

doi: 10.1111/cea.70160. Online ahead of print.

Direct and Indirect Pathways Between Patient, Health System and Socioeconomic Factors and Medication Adherence in Asthma

Tunn Ren Tay [1 2], Mon Hnin Tun [3], Sudev Suthendran [4], Nicole Yu-Fang Sieow [1 2], Yan Cao [5], Soyah Binti Mohamed Noor [5], Hui Ye [5], Haijuan Chen [5], Xiao Ling Li [5], Norlidah Binte Mohd Noor [5], Nuraini Binte Mohamed Razali [5], Chee Wei Tan [6], Choon How How [6]

Affiliations Expand

- PMID: 41081488

- DOI: 10.1111/cea.70160

No abstract available

Keywords: health literacy; illness belief; medication belief; socioeconomic; structural equation model.

Supplementary info

Grants and fundingExpand

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Cite

17

Allergy

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. 2025 Oct 13.

doi: 10.1111/all.70097. Online ahead of print.

Efficacy of Dupilumab in Asthma: Focus on Early, Progressive, and Long-Lasting Effects on Small Airways

Matteo Martini [1 2], Leonardo Antonicelli [3], Maria Stella Garritani [1], Maria Chiara Braschi [1], Angelica Di Vincenzo [1 2], Giada Torresi [1], Marco Gallifuoco [1], Ilaria Claudi [2], Maria Giovanna Danieli [2 4 5], Federico Mei [6 7], Gianluca Moroncini [2 8], Mario Andrea Piga [9], Maria Beatrice Bilò [1 2 5]

Affiliations Expand

- PMID: 41078173

- DOI: 10.1111/all.70097

No abstract available

Keywords: asthma; dupilumab; oscillometry; reactance; small airway dysfunction.

Full text links

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Cite

18

Allergy

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. 2025 Oct 13.

doi: 10.1111/all.70091. Online ahead of print.

Antibiotics for Acute Wheezing and Asthma Exacerbations: An EAACI Position Paper and Systematic Review

Anne-Lotte Redel [1 2], Wojciech Feleszko [3], Marina Atanaskovic-Markovic [4], Alessandra Arcolaci [5], Avraham Beigelman [6], Cristina Boccabella [7], Matteo Bonini [8 9], Gert-Jan Braunstahl [1 2], Francesca Cefaloni [7], Aspasia Karavelia [10], Gerdien Tramper-Stranders [11 12]

Affiliations Expand

- PMID: 41078060

- DOI: 10.1111/all.70091

Abstract

Introduction: Antibiotics are frequently prescribed in preschool wheezing episodes and acute asthma exacerbations (AAEs), even though antibiotics are not recommended as standard AAE treatment.

Objective: To systematically present relevant literature about the clinical effects of antibiotics for AAE and conclude with recommendations.

Methods: Systematic search was conducted in Medline ALL, Embase, Web of Science Core Collection, and Cochrane Central Register of Controlled Trials. Primary outcomes included AAE duration and length of hospital stay, while

secondary outcomes incorporated AAE severity, treatment failure, AAE recurrence risk, spirometry, health costs, and adverse events.

Selection criteria: Randomised controlled trials and cohort studies were included if they investigated the clinical effect of antibiotics in AAE compared to placebo/standard care.

Results: Fifteen studies were included. Evidence for clinical effects of antibiotics in AAE treatment is scarce. Macrolides seem to shorten AAE duration in children; for adults, there is a lack of data. Antibiotics were associated with a longer hospital admission in retrospective observational studies, without evidence in randomised trials. Procalcitonin-guided treatment led to a reduction of antibiotic prescriptions without adverse outcomes.

Conclusion: Limited evidence is available that macrolides shorten AAE duration in preschool wheezers. For other age groups, there is no clear evidence of beneficial effects of antibiotics.

Keywords: antibiotics; asthma; exacerbation; treatment.

- **44 references**

Supplementary info

Grants and fundingExpand

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Cite

19

Occup Environ Med

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. 2025 Oct 17;82(8):388-395.

doi: 10.1136/oemed-2025-110208.

Work-related asthma symptoms and lung function among workers in the Norwegian salmon processing industry: a cross-sectional study

Carl Fredrik Fagernæs [1 2], Hans Thore Smedbold [3 2], Pål Richard Romundstad [2], Marte Renate Thomassen [4], Anje Christina Höper [4 5], Gro

Tjalvin [6 7], Anna Beathe Overn Nordhammer [3], Hilde Brun Lauritzen [3 2], Erlend Hassel [3 2], Kaja Irgens-Hansen [7 8], Berit Elisabeth Bang [4 9], Sindre Rabben Svedahl [3 2]

Affiliations Expand

- PMID: 41015527

- DOI: 10.1136/oemed-2025-110208

Abstract

Objectives: Exposure to bioaerosols from salmon processing is associated with occupational asthma. The prevalence of work-related asthma symptoms in fish processing workers has earlier been reported to be 12%-24%, but small sample sizes and heterogeneity in exposure across studies make generalisability to todays' salmon processing industry questionable. Studies comparing filleting workers and slaughtering workers have shown conflicting results.

Methods: Questionnaire and spirometry data from workers in nine different salmon processing plants were gathered during 2021-2023. Exposure to salmon bioaerosols was defined by work tasks and total time working with salmon. Asthma symptoms and lung function were compared between exposure groups using logistic regression and adjusting for relevant confounding variables.

Results: Of the 867 workers regularly or variably exposed to salmon bioaerosols, 170 (20%) had work-related asthma symptoms. Exposure was associated with symptoms, but not with lung function. Of the 440 exposed workers with spirometry data, 9.8% had expiratory airflow limitation, and all mean lung function measures were below the reference values. The prevalence of work-related asthma symptoms was slightly higher among gutting workers than filleting workers (OR 1.7, 95% CI 1.1 to 2.8).

Conclusions: The prevalence of work-related asthma symptoms is high in salmon processing, probably due to bioaerosol exposure. Salmon processing workers had more expiratory airflow limitation and lower lung function compared with the reference values. Although gutting workers had slightly higher risk for work-related asthma symptoms than filleting workers, all exposed workers seem to be at risk and preventive measures should be taken in all areas where bioaerosols are present.

Keywords: Aerosols; Asthma; Occupational Health; Workers.

Conflict of interest statement

Competing interests: None declared.

Supplementary info

MeSH terms, SubstancesExpand

Full text links

Cite

20

Thorax

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. 2025 Oct 15;80(11):853-857.

doi: 10.1136/thorax-2025-223239.

Impact of regional asthma guidelines on SABA prescribing patterns across England: an interrupted time series analysis

Dominic L Sykes [1], Michael D Clarkson [2], Anita Negbenebor [3], Helena Cummings [2], Shoaib Faruqi [2], Oscar Lau [3], Niranjanlal Ahilal [3], Michael G Crooks [4]

Affiliations Expand

- PMID: 40897544

- DOI: 10.1136/thorax-2025-223239

Abstract

The 2024 British Thoracic Society/ National Institute for Health and Care Excellence/ Scottish Intercollegiate Guidelines Network asthma guidelines recommend anti-inflammatory reliever (AIR)-based management, providing opportunity to reduce short-acting beta agonist (SABA) over-use. Many English regions also publish local guidelines. Analysis of 34 regional guidelines enabled grouping into three categories: SABA-first, inhaled corticosteroid (ICS) plus SABA and AIR (as-needed AIR), based on recommended initial treatment. Interrupted time series analysis using publicly available data demonstrated that AIR guideline publication resulted in the greatest decline in SABA prescribing, expressed as the proportion of all ICS-containing and SABA inhaler prescriptions (AIR: -0.26% (SD 0.09%) per month; SABA-first: -0.1% (SD 0.03%) per month, p=0.001 vs AIR; and ICS plus SABA: -0.16% (SD 0.06%) per month, p=0.004, vs AIR). Therefore, regional guidelines do affect local prescribing practice and alignment with the latest national recommendations could improve asthma prescribing and resulting patient outcomes.

Keywords: Asthma; Asthma Epidemiology; Asthma Guidelines; Asthma in primary care.

Conflict of interest statement

Competing interests: None declared.

Supplementary info

MeSH terms, SubstancesExpand

Full text links

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Cite

21

Review

Eur Respir J

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. 2025 Oct 16;66(4):2402563.

doi: 10.1183/13993003.02563-2024. Print 2025 Oct.

Natural disasters and respiratory health

[Isabella Annesi-Maesano][1][2], [Hasan Bayram][3][4], [Lorenzo Cecchi][5], [Daniel Croft][6][7], [Gennaro D'Amato][8], [Arundhati Garud][9][10], [Ozgecan Kayalar][3][4], [Mehdi Misraedi][11], [Subhabrata Moitra][10], [Vanitha Sampath][12], [Neeta Thakur][6][7], [Kari Nadeau][12], [John Balmes][13][14]

Affiliations Expand

- **PMID: 40841146**

- **DOI: [10.1183/13993003.02563-2024]**

Abstract

Natural disasters (including heatwaves, wildfires, hurricanes, floods, earthquakes and volcanic eruptions) significantly impact respiratory health, posing heightened risks to vulnerable populations such as individuals with pre-existing conditions, children, and the elderly. This review explores the complex relationship between natural catastrophes and respiratory health, emphasising the roles of chemical pollutants, biocontaminants and meteorological factors. Epidemiological evidence

highlights alarming trends, including increased asthma exacerbations, COPD hospitalisations and respiratory infections following these events. During heatwaves, elevated ozone levels and emissions from power generation for air conditioning exacerbate respiratory conditions, while fine and ultrafine particulate matter, particularly during dust storms and wildfires, emerge as a major contributor to respiratory morbidity and mortality. Volcanic eruptions release hazardous gases, corrosive minerals and plumes of particles and dust into the atmosphere, which exacerbate symptoms in individuals with pre-existing respiratory conditions. Thunderstorms often increase airborne pollen and mould concentrations, triggering episodes of thunderstorm asthma. Earthquake-damaged buildings are significant sources of dust, worsening respiratory symptoms among affected populations. Floods are the origin of mould proliferation, responsible for asthma and other respiratory diseases. First responders, such as firefighters, face acute and potentially chronic respiratory issues due to prolonged exposure to chemical pollutants and biocontaminants during rescue operations. Marginalised communities disproportionately bear the brunt of these health impacts due to systemic vulnerabilities and limited adaptive capacities. This review underscores the escalating respiratory health threats posed by natural disasters amid ongoing climate change. An integrated approach is needed to address these challenges through improved understanding, targeted interventions, and proactive measures to mitigate risks.

Conflict of interest statement

Conflict of interest: The authors have no potential conflicts of interest to declare.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

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Cite

22

Review

Eur J Pharmacol

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. 2025 Oct 15:1005:178064.

doi: 10.1016/j.ejphar.2025.178064. Epub 2025 Aug 14.

Pulmonary surfactant in asthma

Odalys Blanco [1], Mercyleidi Díaz-Reyes [2], Alexis Labrada [3], Chiara Autilio [4], Jesús Pérez-Gil [5]

Affiliations Expand

- PMID: 40816530

- DOI: 10.1016/j.ejphar.2025.178064

Free article

Abstract

Pulmonary surfactant is vital in human respiration. It maintains alveoli and terminal conducting airways open and therefore promotes an efficient gas exchange and low resistance in the airways during breathing dynamics. Lack or dysfunction of the pulmonary surfactant system is associated with severe lung disorders. Surfactant ability to maintain low surface tension at the respiratory air-liquid interface, with subsequent good compliance and low resistance in the airways, is extremely important for asthmatic patients. A growing series of experimental evidence indicates that surfactant dysfunction, either associated with the causes or as a consequence of asthma, can contribute to constriction of airways and exacerbation of asthma. Modulation by surfactant of the innate and induced immune response is also an important element defining propensity, but also the resolution of asthmatic crisis. Limited trials indicate that administration of exogenous therapeutic surfactant may offer favorable pharmacological effects to asthmatic patients, possibly by two different mechanisms. On the one hand, it can restore endogenous surface activity and, on the other hand, properly modulate the immune system. The objective of the present review has been to summarize and update available concepts and evidence that support the relationship between pulmonary surfactant and asthma, with particular attention to the role of pulmonary surfactant in the mechanisms of asthma manifestations as well as in the design of innovative future therapies.

Keywords: Animal model; Asthma; Clinical trial; Exogenous surfactant; Pulmonary surfactant; Surface tension.

Conflict of interest statement

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

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Cite

23

Thorax

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. 2025 Oct 15;80(11):796-802.

doi: 10.1136/thorax-2024-222465.

Short-term exposure to ultrafine particles and asthma hospital admissions in children in Copenhagen, Denmark

Marie Bergmann [1], Zorana J Andersen [2], Andreas Massling [3], Steffen Loft [2], Thomas Cole-Hunter [2], Claus Nordstrøm [3], Stéphane Tuffier [2], Jiawei Zhang [2], Youn-Hee Lim [2]

Affiliations Expand

- PMID: 40274412

- DOI: 10.1136/thorax-2024-222465

Free article

Abstract

Background: Ultrafine particles (UFP; <0.1 µm in diameter) are not regulated or commonly monitored but may be harmful to human health, particularly for children. In this study, we aimed to examine the association between short-term exposure to UFP and asthma hospital admissions in children.

Methods: Daily UFP concentrations (2002-2018) were monitored at an urban background station in Copenhagen, Denmark. Asthma hospital admissions, demographic and socioeconomic information of children (0-18 years) were obtained from registries. A case-crossover design was applied to estimate the association between hospital admissions and up to 6-day UFP exposure windows for all children, and stratified by age, sex, family income, mother's education, prior asthma or prior respiratory infection.

Results: We observed 15 903 asthma hospital admissions in total. An IQR increase in UFP was significantly associated with asthma hospital admissions, strongest at 2-day exposure windows (risk ratio (RR): 1.17 (95% CI: 1.09, 1.25)). These

associations remained unchanged when adjusting for particulate matter <2.5 μm in diameter ($PM_{2.5}$) or nitrogen dioxide (NO_2), for which we also detected significant positive associations. Associations with UFP were stronger for school-aged children (5-14 years: RR: 1.26 (95% CI: 1.15, 1.38)) than for children younger than 5 years (1.01 (95% CI: 0.93, 1.10)).

Conclusions: In this large study in a low-exposure setting, we find that short-term exposure to UFP can trigger asthma hospital admissions in children, independently of associations with $PM_{2.5}$ or NO_2. This study adds evidence calling for the regulation and improvement of UFP exposure assessment to protect children's health in urban areas.

Keywords: Asthma; Asthma Epidemiology; Paediatric asthma.

Conflict of interest statement

Competing interests: None declared.

Supplementary info

MeSH terms, SubstancesExpand

Full text links

24

J Investig Allergol Clin Immunol

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. 2025 Oct 15;35(5):373-383.

doi: 10.18176/jiaci.1047. Epub 2025 Jan 23.

Allergic Rhinitis and its Impact on Asthma (ARIA) Classes in MASK-air Users

B Sousa-Pinto [1 2], M Savouré [3], R J Vieira [1 2], R Amaral [1 2 4 5], W Czarlewski [6 7 8], A Bedbrook [7 8], A Valiulis [9 10], V Kvedariene [11 12], L Brussino [13 14], B Gemicioglu [15 16], T Haahtela [17], L Klimek [18 19], H Kraxner [20], D E Larenas-Linnemann [21], O Pfaar [22], F S Regateiro [23 24 25 26], B Samolinski [27], L Taborda-Barata [26 28], S Toppila-Salmi [17 29], M T Ventura [30 31], I J Ansotegui [32], F Braido [33 34], G W Canonica [35 36], L Cecchi [37], A A Cruz [38], P Devillier [39], W J Fokkens [40], S Gil-Mata [1 2], A Fm Giuliano [41], J C Ivancevich [42], P Kuna [43], M Kupczyk [43], G Louis [44 45], R Louis [45 46], M Makris [47], M

Morais-Almeida [48], J Mullol [49], R Nadif [50 51], M Niedoszytko [52], Y Okamoto [53 54], M Ollert [55 56], N G Papadopoulos [57], V Patella [58 59 60], R Pawankar [61], A M Pereira [1 2 62], B Pétré [44], N Pham-Thi [63 64 65], N Roche [51 66 67], P W Rouadi [68 69], J Sastre [70], N Scichilone [71], A Sheikh [72], M Sova [73], A Todo-Bom [74], A Yorgancioglu [75], M Zidarn [76 77], J M Anto [78 79 80], T Zuberbier [81 82], J A Fonseca [1 2], J Bousquet [7 8 51 81 82]

Affiliations Expand

- PMID: 39846812

- DOI: 10.18176/jiaci.1047

Free article

Abstract

Background and objectives: The Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines classify rhinitis as "intermittent" or "persistent" and "mild" or "moderate-severe". Objectives: To assess ARIA classes in a real-world study in terms of phenotypic differences and their association with asthma.

Methods: We performed a cross-sectional real-world study based on users of the MASK-air® app who reported data for at least 3 different months. We assessed the frequency of users according to the ARIA classes and compared these classes in terms of rhinitis symptoms, use of comedication, frequency of comorbid asthma, and the association between comorbid asthma and rhinitis control.

Results: A total of 2273 users (180 796 days) were assessed. Most users had moderate-severe rhinitis (n=2003; 88.1%) and persistent rhinitis (n=1144; 50.3%). The frequency of patients with probable asthma was 35.7% (95%CI, 34.5%-37.0%) for intermittent rhinitis and 48.5% (95%CI, 47.1%-49.9%) for persistent rhinitis. The maximum values on the visual analog scale (VAS) for rhinitis symptoms and the combined symptom-medication score were lower in patients with mild rhinitis than in those with moderate-severe rhinitis (irrespective of whether they had persistent or intermittent rhinitis). In most ARIA classes, VAS nose and VAS eye and rhinitis comedication were more frequent in patients with rhinitis+asthma than in those with rhinitis alone.

Conclusions: This study suggests that the presence of asthma is more closely related to persistence of rhinitis than to severity and that the presence of comorbid asthma may be associated with poorer control of rhinitis across the different ARIA classes.

Keywords: Allergic rhinitis; Asthma; mHealth.

Supplementary info

MeSH termsExpand

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

Curr Opin Otolaryngol Head Neck Surg

. 2025 Oct 13.

doi: 10.1097/MOO.0000000000001095. Online ahead of print.

Current perspectives on rhinitis, postnasal drip, and cough

Kawita Atipas [1], Triphoom Suwanwech [1], Dichapong Kanjanawasee [2 3], Navarat Kasemsuk [1], Pongsakorn Tantilipikorn [1 2]

Affiliations Expand

- PMID: 41100852

- DOI: 10.1097/MOO.0000000000001095

Abstract

Purpose of review: This review explores the pathogenesis, diagnosis, and treatment of cough caused by rhinitis and related conditions, emphasizing new advancements.

Recent findings: Upper airway cough involves multiple inflammatory and neurogenic mechanisms, including postnasal drip stimulation of cough receptors, inflammatory mediator release, and sensory neural hypersensitivity. Diagnosis requires comprehensive clinical evaluation, with increasing emphasis on identifying specific disease endotypes. Management has expanded from conventional therapies to include biologics and targeted procedures, while emerging treatments provide additional options for refractory cases.

Summary: Chronic cough frequently results from upper airway conditions, including allergic rhinitis, nonallergic rhinitis, chronic rhinosinusitis, and postviral cough. Diagnosis and treatment depend on symptom assessment, endoscopy, imaging, and biomarkers. Management targets the underlying etiology through pharmacotherapy, immunotherapy, and procedural interventions; however, further research remains essential to optimize understanding and treatment of affected patients.

Keywords: chronic cough; postnasal drip; rhinitis; upper airway cough syndrome.

- 88 references

Full text links

Cite

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Asian Pac J Allergy Immunol

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. 2025 Oct 13.

doi: 10.12932/AP-301224-1997. Online ahead of print.

Environmental pollutants and allergic sensitization: A systematic literature review

Eric Lopez-Retana [1], Zoe Gomez-Mendoza [1], Jaime Guerrero-Quezada [1], Camila Galvan-Coeto [1], Maria Tellez-Garcia [1], Ingrid Luna-Lopez [1], Luis Hernandez-Zarate [2 3], Ricardo Martinez-Tenopala [1 2], Carlos Gomez-Nunez [1 2], Victor González-Uribe [1 2]

Affiliations Expand

- PMID: 41082205

- DOI: 10.12932/AP-301224-1997

Abstract

Background: Exposure to environmental pollutants has been associated with an increased risk of respiratory and allergic diseases.

Objective: To describe the interactions between common pollutants and the immune system and their association with allergic diseases.

Methods: A systematic literature review was conducted using PubMed, Clinical Key, Redalyc, MEDLINE, and SciELO for studies published between 2018 and 2024.

Results: Evidence shows that pollutants such as PM2.5 , PM10 , NO2 , CO, and ozone trigger oxidative stress, inflammatory responses, and epithelial damage, facilitating allergic sensitization, asthma, rhinitis, and dermatitis.

Conclusions: Exposure to environmental pollutants plays a key role in the development and exacerbation of allergic diseases, highlighting the need for preventive measures.

3

Clin Exp Allergy

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. 2025 Oct 13.

doi: 10.1111/cea.70159. Online ahead of print.

Adherence to Grass Pollen Allergen Immunotherapy and Allergy Medication Use in Patients With Allergic Rhinitis

Morten Borg [1 2], Ole Hilberg [1 2], Rikke Ibsen [3], Anders Løkke [1 2]

Affiliations Expand

- PMID: 41081466

- DOI: 10.1111/cea.70159

No abstract available

Supplementary info

Grants and fundingExpand

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J Investig Allergol Clin Immunol

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. 2025 Oct 15;35(5):373-383.

doi: 10.18176/jiaci.1047. Epub 2025 Jan 23.

Allergic Rhinitis and its Impact on Asthma (ARIA) Classes in MASK-air Users

B Sousa-Pinto [1,2], M Savouré [3], R J Vieira [1,2], R Amaral [1,2,4,5], W Czarlewski [6,7,8], A Bedbrook [7,8], A Valiulis [9,10], V Kvedariene [11,12], L Brussino [13,14], B Gemicioglu [15,16], T Haahtela [17], L Klimek [18,19], H Kraxner [20], D E Larenas-Linnemann [21], O Pfaar [22], F S Regateiro [23,24,25,26], B Samolinski [27], L Taborda-Barata [26,28], S Toppila-Salmi [17,29], M T Ventura [30,31], I J Ansotegui [32], F Braido [33,34], G W Canonica [35,36], L Cecchi [37], A A Cruz [38], P Devillier [39], W J Fokkens [40], S Gil-Mata [1,2], A Fm Giuliano [41], J C Ivancevich [42], P Kuna [43], M Kupczyk [43], G Louis [44,45], R Louis [45,46], M Makris [47], M Morais-Almeida [48], J Mullol [49], R Nadif [50,51], M Niedoszytko [52], Y Okamoto [53,54], M Ollert [55,56], N G Papadopoulos [57], V Patella [58,59,60], R Pawankar [61], A M Pereira [1,2,62], B Pétré [44], N Pham-Thi [63,64,65], N Roche [51,66,67], P W Rouadi [68,69], J Sastre [70], N Scichilone [71], A Sheikh [72], M Sova [73], A Todo-Bom [74], A Yorgancioglu [75], M Zidarn [76,77], J M Anto [78,79,80], T Zuberbier [81,82], J A Fonseca [1,2], J Bousquet [7,8,51,81,82]

Affiliations Expand

- PMID: 39846812

- DOI: 10.18176/jiaci.1047

Free article

Abstract

Background and objectives: The Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines classify rhinitis as "intermittent" or "persistent" and "mild" or "moderate-severe". Objectives: To assess ARIA classes in a real-world study in terms of phenotypic differences and their association with asthma.

Methods: We performed a cross-sectional real-world study based on users of the MASK-air® app who reported data for at least 3 different months. We assessed the frequency of users according to the ARIA classes and compared these classes in terms of rhinitis symptoms, use of comedication, frequency of comorbid asthma, and the association between comorbid asthma and rhinitis control.

Results: A total of 2273 users (180 796 days) were assessed. Most users had moderate-severe rhinitis (n=2003; 88.1%) and persistent rhinitis (n=1144; 50.3%). The frequency of patients with probable asthma was 35.7% (95%CI, 34.5%-37.0%) for intermittent rhinitis and 48.5% (95%CI, 47.1%-49.9%) for persistent rhinitis. The maximum values on the visual analog scale (VAS) for rhinitis symptoms and the combined symptom-medication score were lower in patients with mild rhinitis than in those with moderate-severe rhinitis (irrespective of whether they had persistent or intermittent rhinitis). In most ARIA classes, VAS nose and VAS eye and rhinitis comedication were more frequent in patients with rhinitis+asthma than in those with rhinitis alone.

Conclusions: This study suggests that the presence of asthma is more closely related to persistence of rhinitis than to severity and that the presence of comorbid asthma may be associated with poorer control of rhinitis across the different ARIA classes.

Keywords: Allergic rhinitis; Asthma; mHealth.

Supplementary info

MeSH termsExpand

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Cite

chronic cough

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Commun Med (Lond)

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. 2025 Oct 16;5(1):427.

doi: 10.1038/s43856-025-01140-x.

Angiotensin receptor-neprilysin inhibitor treatment in people with chronic obstructive pulmonary disease and heart failure

Wan-Hsuan Hsu [1], Bo-Wen Shiau [1], Jheng-Yan Wu [2 3], Min-Hsiang Chuang [4], Ya-Wen Tsai [5], Po-Yu Huang [6], Khai-Chi Hu [7], Wei Hsu [8], Ting-Hui Liu [9], Kuang-Ming Liao [10 11], Chih-Cheng Lai [12 13]

Affiliations Expand

- PMID: 41102262

- PMCID: PMC12532997

- DOI: 10.1038/s43856-025-01140-x

Abstract

Background: While renin-angiotensin system inhibitors (RASi) have shown benefits for people with both heart failure (HF) and chronic obstructive pulmonary disease (COPD), limited data exists on the use of angiotensin receptor-neprilysin inhibitors (ARNIs) in this population. This study compares the effectiveness of RASi and ARNIs in people with coexisting COPD and HF.

Methods: We identified individuals who started treatment with either ARNI or RASi since August 1, 2015. We assessed outcomes such as COPD exacerbations, acute respiratory failure, and lower respiratory tract infections (LRTIs) over 30 days to 3 years. Kaplan-Meier survival analysis and Cox regression models were applied to estimate survival probabilities and hazard ratios (HR).

Results: Among 9,071 ARNI users and 71,836 RASi users, the ARNI group has fewer respiratory complications. The ARNI group has a higher proportion of females compared to the RASi group (38.2% vs. 31.5%). Specifically, ARNI users have a lower incidence of COPD exacerbations (13.1% vs. 18.7%; HR, 0.84), acute respiratory failure (16.2% vs. 22.0%; HR, 0.90), and LRTIs (16.9% vs. 22.9%; HR, 0.91).

Conclusions: In people with both COPD and HF, ARNI treatment is associated with fewer respiratory complications compared to RASi.

Plain language summary

People who have both heart failure (HR) and chronic obstructive lung disease (COPD) often experience serious breathing problems. Medicines called RAS inhibitors (RASi) have been used to help people with HR and COPD. However, a newer type of medicine, called angiotensin receptor-neprilysin inhibitors (ARNIs), has also shown therapeutic potential. The current study looked at patient outcomes using data from adults who had started either medication, tracking their health over several years. People taking ARNIs had fewer instances of sudden worsening of COPD symptoms such as breathlessness and cough, less respiratory failure, and fewer lung infections than those taking RASi. This suggests that ARNIs could be a better choice for people with both HF and COPD.

Conflict of interest statement

Competing interests: The authors declare no competing interests.

- 35 references
- 6 figures

Cite

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Curr Opin Otolaryngol Head Neck Surg

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. 2025 Oct 13.

doi: 10.1097/MOO.0000000000001095. Online ahead of print.

Current perspectives on rhinitis, postnasal drip, and cough

Kawita Atipas [1], Triphoom Suwanwech [1], Dichapong Kanjanawasee [2 3], Navarat Kasemsuk [1], Pongsakorn Tantilipikorn [1 2]

Affiliations Expand

- PMID: 41100852

- DOI: 10.1097/MOO.0000000000001095

Abstract

Purpose of review: This review explores the pathogenesis, diagnosis, and treatment of cough caused by rhinitis and related conditions, emphasizing new advancements.

Recent findings: Upper airway cough involves multiple inflammatory and neurogenic mechanisms, including postnasal drip stimulation of cough receptors, inflammatory mediator release, and sensory neural hypersensitivity. Diagnosis requires comprehensive clinical evaluation, with increasing emphasis on identifying specific disease endotypes. Management has expanded from conventional therapies to include biologics and targeted procedures, while emerging treatments provide additional options for refractory cases.

Summary: Chronic cough frequently results from upper airway conditions, including allergic rhinitis, nonallergic rhinitis, chronic rhinosinusitis, and postviral cough. Diagnosis and treatment depend on symptom assessment, endoscopy, imaging, and biomarkers. Management targets the underlying etiology through pharmacotherapy, immunotherapy, and procedural interventions; however, further research remains essential to optimize understanding and treatment of affected patients.

Keywords: chronic cough; postnasal drip; rhinitis; upper airway cough syndrome.

- 88 references

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Cite

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Pulmonology

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. 2025 Dec 31;31(1):2572011.

doi: 10.1080/25310429.2025.2572011. Epub 2025 Oct 14.

Prevalence, risk factors, and clinical implications of failed spirometry in adults: Results from NHANES 2007-2012

Cuiqiong Dai [1], Lifei Lu [1], Zihui Wang [1], Huajing Yang [1], Zhili Zou [2], Yumin Zhou [1 3], Pixin Ran [1 3]

Affiliations Expand

- PMID: 41084927

- DOI: 10.1080/25310429.2025.2572011

Free article

Abstract

Background and research question: Some participants inevitably fail spirometry testing and we aimed to assess the prevalence, risk factors, chronic respiratory symptoms, health status, and all-cause mortality outcomes associated with failed spirometry.

Methods: Using NHANES 2007-2012 data, we categorized participants into three groups: those with failed spirometry (FS-participants), those with qualified spirometry without COPD (QS-non-COPD), and those with qualified spirometry and COPD (QS-COPD). We assessed the prevalence and risk factors associated with FS-participants and compared clinical implications among the three groups.

Results: The prevalence of FS-participants was 4.8%. Key risk factors included older age, being male, non-Hispanic Black ethnicity, lower socioeconomic status, self-reported emphysema, and increased frailty. After adjustment, FS-participants had higher odds of shortness of breath, wheezing, and dry cough at night (all *P* values < 0.05). They also faced a greater risk of all-cause mortality (HR: 1.51, 95% CI: 1.22 to 1.86; $p < 0.001$) compared to the QS-non-COPD group, a risk similar to that of the QS-COPD group (HR: 1.05, 95% CI: 0.82 to 1.27; $p = 0.675$).

Conclusion: Failed spirometry is common among adults and correlates with increased respiratory symptoms and higher all-cause mortality risk, indicating the need for targeted attention.

Keywords: NHANES; Prevalence; clinical implications; failed spirometry; risk factors.

Review

Clin Rev Allergy Immunol

. 2025 Oct 17;68(1):92.

doi: 10.1007/s12016-025-09103-9.

Immunodeficiencies in Adults: Key Considerations for Diagnosis and Management

Jean Regina [1], Jacqueline Doms [2], Eleftheria Kampouri [3], Christel Gerber [4], Oriol Manuel [3 5], Pierre-Alexandre Bart [4], Fabio Candotti [2], Denis Comte [6]

Affiliations Expand

- PMID: 41107625

- DOI: 10.1007/s12016-025-09103-9

Abstract

Immunodeficiencies in adults are increasingly recognized yet often remain underdiagnosed, leading to significant morbidity from recurrent infections, autoimmunity, and malignancy. Both primary immunodeficiencies (PIDs), now known as inborn errors of immunity (IEI), and secondary immunodeficiencies (SIDs) contribute to immune dysfunction in adults. Although SIDs are more common in adults due to factors like medications, malignancies, metabolic disorders, chronic conditions, and protein-losing conditions, IEI-particularly common variable immunodeficiency (CVID)-can also manifest in adulthood with diverse clinical features. Early recognition is crucial, with key warning signs including recurrent sinopulmonary infections, unexplained autoimmunity, poor vaccine responses, chronic diarrhea, bronchiectasis, and persistent lymphadenopathy. The diagnostic approach should be systematic. It begins with a detailed patient history and status followed by the evaluation of immunoglobulin levels, lymphocyte subsets, vaccine-specific antibody responses, and exclusion of secondary causes. Genetic testing, increasingly accessible, plays an important role in confirming the diagnosis of IEI and guiding prognosis and treatment. Management strategies focus on treating the underlying condition in SIDs. Preventive measures, including antimicrobial prophylaxis, vaccination, and immunoglobulin replacement therapy (IGRT) in patients with significant antibody deficiencies, are essential for reducing infections and complications in high-risk patients. Given the growing recognition of adult-onset immunodeficiency, clinicians should maintain a high index of suspicion and adopt a structured diagnostic and management approach to improve patient outcomes and quality of life.

Keywords: Common variable immunodeficiency; Inborn errors of immunity; Primary immunodeficiencies; Secondary immunodeficiencies.

Conflict of interest statement

Declarations. Conflict of Interest: EK received consulting fees from Merck and honoraria from Takeda and Merck.

- 100 references

Supplementary info

Publication types, MeSH termsExpand

Full text links

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Cite

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Monaldi Arch Chest Dis

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. 2025 Oct 16.

doi: 10.4081/monaldi.2025.3139. Online ahead of print.

Airway clearance techniques by video consultation for patients with bronchiectasis: satisfaction, adherence, effectiveness, and safety. A pilot study

Ana Balañá Corberó [1], Mariela Alvarado Miranda [2], Gerard Muñoz [3], Patrick J Hurley [4], Juana Martínez Llorens [5], Esther Barreiro [5], Marisol Domínguez-Álvarez [6]

Affiliations Expand

- PMID: 41103185

- DOI: 10.4081/monaldi.2025.3139

Abstract

Airway clearance techniques (ACT) should be included as part of the non-pharmacological treatment of patients with bronchiectasis (BE) following international guidelines. This approach in chronic respiratory patients should be maintained despite a pandemic situation, including SARS-CoV-2. The objective of this study is to evaluate the satisfaction, adherence, effectiveness, and safety of telehealth ACT (tACT) via video consultation for secretion drainage in patients with stable BE. This is an observational pilot study with prospective recruitment describing a cohort of patients with BE and patients with BE and infection due to non-tuberculous mycobacterial pulmonary disease (NTM-PD) included in a tACT program. Patients received an initial tACT visit (V1), another after one week (V7), and a final visit after one month (V30). Adherence, effectiveness and safety data were recorded. Satisfaction with the intervention was determined using a visual analogue scale

(0-10). A total of 40 patients with BE and 17 patients with BE and NTM-PD were included, with a mean age of 63 (13). A total of 48 patients evaluated the telehealth intervention at >8 with the VAS, with a mean VAS score at V7 of 9.0 (1.9) and 8.9 (2) at V30. Self-reported adherence to treatment was high, with an average of 6.5/7 and 25/30 days; 94% of the patients managed to expectorate during V1 (effectiveness of the intervention). No relevant side effects were detected. tACT for managing secretions in patients with BE, whether with or without NTM-PD, has proven to be satisfactory, effective, and safe during a critical pandemic situation. This safety strategy could be included in the future as a complementary tool in the management of chronic respiratory patients.

Cite

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Am J Respir Crit Care Med

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. 2025 Oct 16.

doi: 10.1164/rccm.202508-2095ED. Online ahead of print.

The Upper Airway Microbiome in Bronchiectasis: Expanding the Landscape of Airway Dysbiosis

Wei-Jie Guan [1], Cui-Xia Pan [2 3 4 5], Miguel Angel Martinez-Garcia [6]

Affiliations Expand

- PMID: 41100723

- DOI: 10.1164/rccm.202508-2095ED

No abstract available

Keywords: Dysbiosis; Microbiome; Upper Airway; epithelial disruption.

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Review

Respir Med

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. 2025 Oct 13:249:108421.

doi: 10.1016/j.rmed.2025.108421. Online ahead of print.

Treatable Traits. Why, What, How?

Alvar Agusti [1], Peter Gibson [2], Mario Cazzola [3]

Affiliations Expand

- PMID: 41092989

- DOI: 10.1016/j.rmed.2025.108421

Abstract

Chronic airway diseases, such as asthma, bronchiectasis and chronic obstructive pulmonary disease (COPD), are complex and heterogeneous conditions. Hence, their assessment and management need to be personalized and precise. A decade ago, a precision medicine strategy based on the presence of treatable traits was proposed. This proposal generated a lot of interest and publications. This issue of Respiratory Medicine is fully dedicated to this topic. In this first introductory chapter, we present the reasons that underlie it ("Why"), outline its core content ("What") and discuss how to implement it in clinical practice ("How").

Keywords: Asthma; Bronchiectasis; COPD; Chronic obstructive pulmonary disease; Treatment.

Conflict of interest statement

Declaration of competing interest Authors declare that they do not have any conflict of interest with the publication TREATABLE TRAITS. WHY, WHAT, HOW?

Supplementary info

Publication typesExpand

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Cite

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Expert Rev Respir Med

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. 2025 Oct 15.

doi: 10.1080/17476348.2025.2576337. Online ahead of print.

The prevalence of and risk factors for bronchiectasis in inflammatory bowel disease: a chest CT-based case-control study

Jiaqi Ren [1], Lina Sun [1], Meijiao Li [2], Xun Liu [3], Shigang Ding [3], Yongchang Sun [1]

Affiliations Expand

- PMID: 41090704

- DOI: 10.1080/17476348.2025.2576337

Abstract

Background: To identify the prevalence, clinical and imaging characteristics, and the risk factors for bronchiectasis in IBD.

Research design and methods: We retrospectively enrolled IBD patients from 1 January 2020 to 1 July 2022. Chest HRCT was evaluated for the presence and severity of

bronchiectasis. The clinical characteristics were compared between the IBD patients with and without bronchiectasis.

Results: Among the 429 IBD patients, 34.5% showed bronchiectasis on chest HRCT. Four main imaging characteristics of bronchiectasis showed in IBD patients: multiple lobe involvement: 72.3% (107/148) of the patients had ≥2 lobes involved; Central predominance (> 50%) in distribution; Mostly cylindrical bronchiectasis (> 90%); Mild severity in most cases with Smith score < 4 and Bhalla score of one point. Multi-factor logistic regression analysis showed that age of IBD onset ≥35 years (OR = 2.05, 95%CI 1.26-3.32), history of immunosuppressant therapy (OR = 3.93, 95%CI 2.12-7.27), ESR > 20 mm/h (OR = 2.01, 95%CI 1.21-3.33) and positive ASCA (OR = 1.37, 95% CI 1.06-1.77) were independently associated with the presence of bronchiectasis in IBD.

Conclusions: More than 1/3 IBD patients in our cohort presented bronchiectasis on chest HRCT, with almost no respiratory symptoms and the mild degree of bronchiectasis, which is easily overlooked. IBD patients may need routine chest HRCT scanning for bronchiectasis.

Keywords: Crohn's disease; bronchiectasis; high resolution computed tomography; inflammatory bowel diseases; ulcerative colitis.

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ERJ Open Res

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. 2025 Oct 13;11(5):00150-2025.

doi: 10.1183/23120541.00150-2025. eCollection 2025 Sep.

Quality standards for paediatric bronchiectasis care in the UK, a national study

Siobhán B Carr [1 2], Priti Kenia [3], Ross Langley [4], Woolf Walker [5], Tom Ruffles [6], Cara Bossley [7], Christine O'Keeffe [1], Hollie Smith [3], Sarah Brown [8], Anne Schmidt [9], Gwyneth Davies [10 11], Evie Robson [12], Manisha Ramphul [13], Emma Spencer [14], Alison Scott [15], Alison Garde [5], Bushra Ahmed [10], Hannah Corbett [8], Gemma Saint [16], Karen Keown [17], James

Stewart [18], Elizabeth Gregson [19], Kristin Unger [20], Isobel Fullwood [21], Joanne Colley [22], Alex Adams [12], David Lo [13], Wanda Kozlowska [23], Manjith Narayanan [20], Stefan Unger [20]

Affiliations Expand

- PMID: 41089568

- PMCID: PMC12517041

- DOI: 10.1183/23120541.00150-2025

Abstract

The recent quality standards for paediatric bronchiectasis are a useful benchmarking tool for newly established services. They can be achieved with innovative individual practice. https://bit.ly/42B4S5l.

Conflict of interest statement

Conflict of interest: All authors declare no conflicts of interest in relationship to this work. Outside this work, the S.B. Carr and G. Davies declare payments or honoraria to them or their institution for a combination of lectures, presentations, educational events, advisory boards, steering groups, grants or consultancy fees from Vertex Pharmaceuticals and Chiesi Ltd.

- 7 references

Supplementary info

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7

Respiration

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. 2025 Oct 13:1-22.

doi: 10.1159/000548741. Online ahead of print.

Prospective Study of Aspergillus IgG and Clinical Outcomes in Patients with Bronchiectasis

Jie Yang, Kui Zhang, Shuai Lu, Chuanmei Liu, Zhaohui Lu, Min Wang, Xin Su

- PMID: 41082454

- DOI: 10.1159/000548741

Abstract

Introduction: Patients with bronchiectasis frequently exhibit impaired mucociliary clearance and compromised immunity, rendering them more susceptible to Aspergillus-related lung diseases. Positive Aspergillus IgG not only indicates potential aspergillosis but also suggests the possibility of chronic Aspergillus infection or exposure. We aimed to evaluate the implications of positive Aspergillus IgG in bronchiectasis patients without aspergillosis.

Methods: A total of 235 patients diagnosed with bronchiectasis were prospectively enrolled from three tertiary care hospitals. Serum samples were obtained for the detection of Aspergillus IgG. The associations between Aspergillus IgG levels and clinical outcomes were subsequently analyzed.

Results: Aspergillus IgG was positive in 30% (70/235) of the patients. Those with positive Aspergillus IgG demonstrated significantly higher modified Medical Research Council (mMRC) scores (p = 0.001), poorer lung function (p = 0.027), and more severe disease (p = 0.005). Additionally, this group experienced more exacerbations (p = 0.001) and hospitalizations (p = 0.001) in the preceding year. Although there was no significant difference in mortality between the two groups during the 12-month follow-up, patients with positive Aspergillus IgG had more frequent exacerbations and hospitalizations at both 6-month and 12-month follow-ups post-discharge. Multivariate analysis revealed a significant association between positive Aspergillus IgG and an increased risk of exacerbations in bronchiectasis (HR 1.905, 95% CI 1.179-3.077, p = 0.013).

Conclusion: Positive Aspergillus IgG is prevalent among bronchiectasis patients. Furthermore, positive Aspergillus IgG is associated with poorer lung function, increased disease severity and more frequent exacerbations in patients with bronchiectasis.

Cite

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J Med Econ

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. 2025 Dec;28(1):1798-1810.

doi: 10.1080/13696998.2025.2567761. Epub 2025 Oct 14.

Frequency, duration, and cost of pulmonary exacerbations among patients with bronchiectasis

Maitreyee Mohanty [1], Claudia Leiras [2], Haiyan Sun [2], Reina Rau [2], John Fastenau [1], Joseph Feliciano [1], Sunjay R Devarajan [3]

Affiliations Expand

- PMID: 41017477

- DOI: 10.1080/13696998.2025.2567761

Free article

Abstract

Background: In administrative claims database studies of bronchiectasis, pulmonary exacerbations are usually defined using a fixed period for their start and end, which prevents assessment of exacerbation duration and thereby limits assessment of exacerbation characteristics. Here, we applied a novel cost-based algorithm to characterize exacerbations.

Methods: This cohort study used the Merative MarketScan Commercial Claims and Encounters database, 1-Jan-2016 to 31-Dec-2022. Patients ≥18 years with bronchiectasis (≥2 outpatient or ≥1 inpatient claim with bronchiectasis; no cystic fibrosis) had 12 months of continuous enrollment before (baseline) and ≥12 months after (follow-up) index (first bronchiectasis claim). Cost-based exacerbations were identified by compound score of week with highest percentage all-cause cost increase during follow-up compared with baseline weekly maintenance all-cause cost, and week with highest absolute weekly cost

during follow-up. Exacerbation duration was the period with significantly higher weekly cost difference during follow-up than mean baseline weekly cost. Cost-based exacerbations were compared with exacerbations identified using a traditional claims-based definition.

Results: Of 9,005 patients with bronchiectasis, 6,033 had 49,750 cost-based exacerbations during 2.5 years median follow-up. Mean (SD) cost-based exacerbation duration was 3.4 (8.6) weeks (median [Q1, Q3] 1 [1, 3] weeks). During follow-up, 82.8% patients had ≥3 cost-based exacerbations, and 67.5% patients needed hospitalization/intravenous antibiotic treatment for an exacerbation. Mean respiratory costs were higher for the first cost-based exacerbation ($7,738) than the second ($5,429). Annual respiratory costs were $14,116 for patients with (vs. $3,390 without) cost-based exacerbations. Overall, 95.7% patients with cost-based exacerbations had ≥1 claims-based exacerbation; 51.0% cost-based exacerbations met the claims-based definition.

Limitations: Cost-based exacerbations may not represent true exacerbations, because cost increases could also result from worsening comorbidities or other clinical events.

Conclusions: Exacerbations identified using a cost-based algorithm frequently lasted >3 weeks. Patients with cost-based exacerbations had higher healthcare costs, particularly respiratory costs, than those without.

Keywords: Bronchiectasis; I10; I11; claims; cost; duration; exacerbation; frequency; real-world.

Plain language summary

Bronchiectasis is a chronic lung disease where patients have symptoms including cough, congestion, shortness of breath, and fatigue. Symptoms may be more severe for some people than others, but many people with bronchiectasis have episodes where their symptoms get worse called exacerbations, or flares. People with flares often need antibiotic treatment and may need to be hospitalized. Flares are therefore a burden for patients and healthcare systems. This burden can be assessed using insurance claims data. Previous studies have identified flares based on patients receiving antibiotics in the week or two after a claim with a diagnosis code for bronchiectasis. However, flares can be different lengths and severities. This study quantified flares, and measured their duration and burden, using a new method that did not begin with any assumption of how long flares would last. Instead, flares were identified by flagging weeks with unusually high costs compared with the patient's usual healthcare costs. Using this method, identified flares often lasted more than 3 weeks. Healthcare costs were higher for people with flares than without, and a person's first flare was often the most expensive. Over 95% of people with high-cost flares had at least 1 flare that could be confirmed using the previous diagnosis-code based definition. This study provides a new research approach to identifying flares in people with bronchiectasis. The results show that flares may be longer than previously thought and place a high burden on healthcare. Future research will be needed to confirm this method using clinical data.

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Prognostication in patients with idiopathic pulmonary fibrosis using quantitative airway analysis from HRCT: a retrospective study

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Abstract

Background: Predicting shorter life expectancy is crucial for prioritising antifibrotic therapy in fibrotic lung diseases (FLDs), where progression varies widely, from stability to rapid deterioration. This heterogeneity complicates treatment decisions, emphasising the need

for reliable baseline measures. This study focuses on leveraging an artificial intelligence (AI) model to address heterogeneity in disease outcomes, focusing on mortality as the ultimate measure of disease trajectory.

Methods: This retrospective study included 1744 anonymised patients who underwent high-resolution computed tomography (HRCT) scanning. The AI model, SABRE (Smart Airway Biomarker Recognition Engine), was developed using data from patients with various lung diseases (n=460, including lung cancer, pneumonia, emphysema and fibrosis). Then, 1284 HRCT scans with evidence of diffuse FLD from the Australian Idiopathic Pulmonary Fibrosis Registry and Open Source Imaging Consortium were used for clinical analyses. Airway branches were categorised and quantified by anatomical structures and volumes, followed by multivariable analysis to explore the associations between these categories and patients' progression and mortality, adjusting for disease severity or traditional measurements.

Results: Cox regression identified SABRE-based variables as independent predictors of mortality and progression, even adjusting for disease severity (fibrosis extent, traction bronchiectasis extent and interstitial lung disease extent), traditional measures (forced vital capacity percentage predicted, diffusing capacity of the lung for carbon monoxide (D_{LCO}) percentage predicted and composite physiological index), and previously reported deep learning algorithms for fibrosis quantification and morphological analysis. Combining SABRE with D_{LCO} significantly improved prognosis utility, yielding an area under the curve of 0.852 at the first year and a C-index of 0.752.

Conclusions: SABRE-based variables capture prognostic signals beyond that provided by traditional measurements, disease severity scores and established AI-based methods, reflecting the progressiveness and pathogenesis of the disease.

Conflict of interest statement

Conflict of interest: T. Corte reports grants from Avalyn Pharma, Boehringer Ingelheim, Pharmaxis, Bristol Myers Squibb, 4D, Roche, Pliant, Bridge Biotherapeutics and Avalyn Therapeutics, consultancy fees from Boehringer Ingelheim, Pharmaxis, Bristol Myers Squibb, Ad Alta, Roche, Pliant, Bridge Biotherapeutics, Avalyn Therapeutics, DevPro and Endeavour BioMedicine, payment or honoraria for lectures, presentations, manuscript writing or educational events from Bristol Myers Squibb, Roche and Boehringer Ingelheim, support for attending meetings from Bristol Myers Squibb and Boehringer Ingelheim, and participation on a data safety monitoring board or advisory board with Boehringer Ingelheim, Ad Alta, Bristol Myers Squibb, Roche, Pliant, Bridge Biotherapeutics, Avalyn Therapeutics, DevPro and Endeavour BioMedicine. The remaining authors have no potential conflicts of interest to disclose.

Comment in

- SABRE: a sharper tool for prognostication in pulmonary fibrosis.

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