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

□ 1

Lancet Respir Med

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. 2023 Jun 21;S2213-2600(23)00185-6.

doi: 10.1016/S2213-2600(23)00185-6. Online ahead of print.

## [Addressing the origins and health effects of small lungs](#)

[Magnus Ekström](#)<sup>1</sup>, [Helena Backman](#)<sup>2</sup>, [David Mannino](#)<sup>3</sup>

Affiliations expand

- PMID: 37354918

- DOI: [10.1016/S2213-2600\(23\)00185-6](https://doi.org/10.1016/S2213-2600(23)00185-6)

*No abstract available*

### Conflict of interest statement

ME is supported by an unrestricted grant from the Swedish Research Council (2019-02081), outside of the submitted work. ME discloses personal fees from AstraZeneca, outside of the submitted work. HB discloses personal fees from AstraZeneca, GSK, and Boehringer Ingelheim, outside of the submitted work. DM is a former employee and current shareholder of GSK, and a consultant to AstraZeneca and the COPD Foundation; he is also an expert witness for Schlesinger Law Offices.

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Cytokine

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. 2023 Jun 22;169:156275.

doi: [10.1016/j.cyto.2023.156275](https://doi.org/10.1016/j.cyto.2023.156275). Online ahead of print.

# [Leptin, resistin and fetuin a concentration as the potential useful biomarkers in stable COPD - An exploratory study](#)

[Elżbieta Małujło-Balcerska](#)<sup>1</sup>, [Anna Kumor-Kisielewska](#)<sup>2</sup>, [Witold Śmigielski](#)<sup>3</sup>

Affiliations [expand](#)

- PMID: 37354646
- DOI: [10.1016/j.cyto.2023.156275](https://doi.org/10.1016/j.cyto.2023.156275)

## Abstract

Adipokines, which have pleiotropic activities, are known to be involved in inflammation as adipocytokines. The aim of the current study was to investigate selected adipocytokine levels in the serum of stable chronic obstructive pulmonary disease COPD patients and healthy controls, to assess a potential association between the investigated biomarkers and selected parameters and to conduct receiving operating curve (ROC) analysis. Twenty-five COPD patients and 30 healthy controls were enrolled in the current study. Serum levels of adiponectin, leptin, resistin, chemerin and fetuin A were measured using an enzyme-linked immunosorbent assay (ELISA) method. Both leptin and resistin concentrations were significantly elevated in COPD patients and differentiated them from control subjects. Fetuin A levels were lower in COPD patients and may be related to the disease. Further studies in larger cohorts are needed to confirm the findings of this exploratory study.

**Keywords:** Adipokines; Chronic obstructive pulmonary disease; Inflammation; ROC analysis.

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## 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.

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[Review](#)

Int Rev Immunol

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. 2023 Jun 24;1-21.

doi: 10.1080/08830185.2023.2222769. Online ahead of print.

# Exploring the role of neutrophils in infectious and noninfectious pulmonary disorders

[Alisha Arora](#)<sup>1</sup>, [Archana Singh](#)<sup>1</sup>

Affiliations expand

- PMID: 37353973
- DOI: [10.1080/08830185.2023.2222769](https://doi.org/10.1080/08830185.2023.2222769)

## Abstract

With the change in global environment, respiratory disorders are becoming more threatening to the health of people all over the world. These diseases are closely linked to performance of immune system. Within the innate arm of immune system, Neutrophils are an important moiety to serve as an immune defense barrier. They are one of the first cells recruited to the site of infection and plays a critical role in pathogenesis of various pulmonary diseases. It is established that the migration and activation of neutrophils can lead to inflammation either directly or indirectly and this inflammation caused is very crucial for the clearance of pathogens and resolution of infection. However, the immunopathological mechanisms involved to carry out the same is very complex and not well understood. Despite there being studies concentrating on the role of neutrophils in multiple respiratory diseases, there is still a long way to go in order to completely understand the complexity of the participation of neutrophils and mechanisms involved in the development of these respiratory diseases. In the present article, we have reviewed the literature to comprehensively provide an insight in the current development and advancements about the role of neutrophils in infectious respiratory disorders including viral respiratory disorders such as Coronavirus disease (COVID-19) and bacterial pulmonary disorders with a focused review on pulmonary tuberculosis as well as in noninfectious disorders like Chronic obstructive pulmonary disease (COPD) and asthma. Also, future directions into research and therapeutic targets have been discussed for further exploration.

**Keywords:** Asthma; COPD; COVID-19; neutrophils; pulmonary disorders; tuberculosis.

## Plain language summary

Respiratory illnesses are becoming more prevalent and a substantial source of sickness and mortality worldwide as a result of the changes in the global environment. Although

diagnostic and therapeutic approaches for respiratory disorders have improved over the years, a thorough and in-depth approach is still required to understand the underlying immuno-pathophysiological mechanisms. Neutrophils are a crucial part of innate immune system which functions as a first line defense against various pulmonary infections. They are known to be involved in resistance against invading pulmonary pathogens and also play an important role in repairing of damaged lung tissue by removing debris. However, emerging evidences suggest that neutrophils may also be involved in promoting and aggravating the unabating inflammation in several pulmonary disorders by release of various proteases, forming neutrophil extracellular traps or by attracting and activating other immune cells at the site of inflammation. In this article, we have discussed diverse roles and responses of neutrophils and their use in potential future research and therapeutic approaches in infectious pulmonary disorders like Tuberculosis and COVID-19 and noninfectious pulmonary disorders like Chronic obstructive pulmonary disease (COPD) and asthma.

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[Published Erratum](#)

Intern Emerg Med

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. 2023 Jun 23.

doi: 10.1007/s11739-023-03346-0. Online ahead of print.

## [Correction to: Predictors of short-term COPD readmission](#)

[Jose M Quintana](#)<sup>1,2,3</sup>, [Ane Anton-Ladislao](#)<sup>4,5,6</sup>, [Miren Orive](#)<sup>7,5,6</sup>, [Amaia Aramburu](#)<sup>8,9</sup>, [Milagros Iriberr](#)<sup>10,9</sup>, [Raquel Sánchez](#)<sup>11</sup>, [Alberto Jiménez-Puente](#)<sup>12</sup>, [Javier de-Miguel-Díez](#)<sup>13,14</sup>, [Cristobal Esteban](#)<sup>8,5,9</sup>; [ReEPOC-REDISSEC group](#)

Affiliations expand

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- DOI: [10.1007/s11739-023-03346-0](https://doi.org/10.1007/s11739-023-03346-0)

No abstract available

## Erratum for

- [Predictors of short-term COPD readmission.](#)  
Quintana JM, Anton-Ladislao A, Orive M, Aramburu A, Iriberry M, Sánchez R, Jiménez-Puente A, de-Miguel-Díez J, Esteban C; ReEPOC-REDISSEC group. Intern Emerg Med. 2022 Aug;17(5):1481-1490. doi: 10.1007/s11739-022-02948-4. Epub 2022 Feb 28. PMID: 35224712

SUPPLEMENTARY INFO

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Environ Res

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. 2023 Jun 21;116448.

doi: 10.1016/j.envres.2023.116448. Online ahead of print.

# [Climate change and mortality rates of COPD and asthma: A global analysis from 2000 to 2018](#)

[Huan Minh Tran](#)<sup>1</sup>, [Ting-Wu Chuang](#)<sup>2</sup>, [Hsiao-Chi Chuang](#)<sup>3</sup>, [Feng-Jen Tsai](#)<sup>4</sup>

Affiliations expand

- PMID: 37352955
- DOI: [10.1016/j.envres.2023.116448](https://doi.org/10.1016/j.envres.2023.116448)

## Abstract

**Background:** Climate change plays a significant role in global health threats, particularly with respiratory diseases such as chronic obstructive pulmonary disease (COPD) and asthma, but the long-term global-scale impact of climate change on these diseases' mortality remains unclear.

**Objective:** This study aims to investigate the impact of climate change on the age-standardized mortality rates (ASMR) of COPD and asthma at national levels.

**Methods:** We used Global Burden of Disease (GBD) data of ASMR of COPD and asthma from 2000 to 2018. The climate change index was represented as the deviance percentage of temperature (DPT) and relative humidity (DPRH), calculated based on 19-year temperature and humidity averages. Annual temperature, RH, and fine particulate matter (PM<sub>2.5</sub>) levels in 185 countries/regions were obtained from ERA5 and the OECD's environmental statistics database. General linear mixed-effect regression models were used to examine the associations between climate change with the log of ASMR (LASMR) of COPD and asthma.

**Results:** After adjusting for annual PM<sub>2.5</sub>, SDI level, smoking prevalence, and geographical regions, a 0.26% increase in DPT was associated with decreases of 0.016, 0.017, and 0.014 per 100,000 people in LASMR of COPD and 0.042, 0.046, and 0.040 per 100,000 people in LASMR of asthma for both genders, males, and females. A 2.68% increase in DPRH was associated with increases of 0.009 and 0.011 per 100,000 people in LASMR of COPD. We observed a negative association of DPT with LASMR for COPD in countries/regions with temperatures ranging from 3.8 to 29.9 °C and with LASMR for asthma ranging from -5.3-29.9 °C. However, we observed a positive association of DPRH with LASMR for both COPD and asthma in the RH range of 41.2-67.2%.

**Conclusion:** Climate change adaptation and mitigation could be crucial in reducing the associated COPD and asthma mortality rates, particularly in regions most vulnerable to temperature and humidity fluctuations.

**Keywords:** Asthma; Chronic obstructive pulmonary disease (COPD); Climate change; Mortality rate; Relative humidity; Temperature.

## 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.

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Am J Respir Crit Care Med

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. 2023 Jun 23.

doi: 10.1164/rccm.202306-0978ED. Online ahead of print.

# Leveraging Omics to Predict COPD Exacerbations: The "Immunome"

[Francesca Polverino](#)<sup>1,2</sup>, [Ravi Kalhan](#)<sup>3</sup>

Affiliations expand

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- DOI: [10.1164/rccm.202306-0978ED](https://doi.org/10.1164/rccm.202306-0978ED)

*No abstract available*

**Keywords:** COPD; AECOPD; endotypes; multiomics; immunity.

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PLoS One



. 2023 Jun 23;18(6):e0287518.

doi: 10.1371/journal.pone.0287518. eCollection 2023.

# The primary care experience of adults with chronic obstructive pulmonary disease (COPD). An interpretative phenomenological inquiry

[Sanduni Madawala](#)<sup>1</sup>, [Narelle Warren](#)<sup>2</sup>, [Christian Osadnik](#)<sup>3</sup>, [Chris Barton](#)<sup>1</sup>

Affiliations expand

- PMID: 37352267
- PMCID: [PMC10289323](#)
- DOI: [10.1371/journal.pone.0287518](#)

## Abstract

**Background:** Studies of the lived experience of chronic obstructive pulmonary disease (COPD) reveal a number of challenges patients face when interacting with healthcare providers that may be exacerbated by unwillingness or inability to quit smoking. However, none have explored, in-depth, primary care experiences among patients with COPD in community healthcare settings.

**Aims/ objective:** The study investigated healthcare experiences of patients living independently in the community with COPD who smoked or had recently quit (at most within the last 5 years), seeking care in primary care settings.

**Method:** An Interpretative Phenomenological Analysis (IPA) involving thirteen participants purposively recruited from social media posts in COPD and carer support groups, general

community groups, community noticeboards and paid adverts on social media. In-depth interviews were held between February and April 2022 by phone or Zoom™ and explored patient experience of primary care, focusing on how smoking patterns, addiction and stigma impact upon and shape these experiences.

**Results:** Participants were aged between 45 to 75 years. Nine were female and two thirds were current smokers. Problematic experiences including time-constrained consultations, having to self-advocate for care "...go digging myself and then go and see him and say, can we do this, can we do that type of thing?" and guilt about smoking were common. Positive care experiences described non-judgemental interpersonal interactions with doctors, timely referral, proactive care and trust "I have an actual great trust for my GP... they're awesome, they'll look after you". Participants described how their care experience shifted as primary care adapted care delivery during COVID-19.

**Conclusions:** Pro-active, empathetic care from general practitioners is desired from patients living with COPD. Stigma and fear of judgement was an important underlying driver of negative care experiences contributing to delayed help seeking from general practitioners.

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## Conflict of interest statement

The authors have declared that no competing interests exist.

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

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PLoS One

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. 2023 Jun 23;18(6):e0286326.

doi: 10.1371/journal.pone.0286326. eCollection 2023.

# Using a person-centered approach in clinical care for patients with complex chronic conditions: Perspectives from healthcare professionals caring for Veterans with COPD in the U.S. Veterans Health Administration's Whole Health System of Care

[Ekaterina Anderson](#)<sup>1,2</sup>, [Renda Soylemez Wiener](#)<sup>3,4</sup>, [Brienne Molloy-Paolillo](#)<sup>1</sup>, [Megan McCullough](#)<sup>1,5</sup>, [Bo Kim](#)<sup>3,6</sup>, [J Irene Harris](#)<sup>7,8</sup>, [Seppo T Rinne](#)<sup>1,9</sup>, [A Rani Elwy](#)<sup>1,10</sup>, [Barbara G Bokhour](#)<sup>1,2</sup>

Affiliations expand

- PMID: 37352241
- PMCID: [PMC10289382](#)
- DOI: [10.1371/journal.pone.0286326](#)

## Abstract

**Background:** The largest nationally integrated health system in the United States, the Veterans Health Administration (VHA), has been undergoing a transformation toward a Whole Health (WH) System of Care. WH Clinical Care, a component of this system, includes holistically assessing the Veteran's life context, identifying what really matters to the Veteran, collaboratively setting and monitoring personal health and well-being goals, and equipping the Veteran with access to conventional and complementary and integrative health resources. Implementation of WH Clinical Care has been challenging. Understanding healthcare professionals' perspectives on the value of and barriers and facilitators to

practicing WH Clinical Care holds relevance for not only VHA's efforts but also other health systems, in the U.S. and internationally, that are engaged in person-centered care implementation.

**Objectives:** We sought to understand perspectives of healthcare professionals at VHA on providing WH Clinical Care to Veterans with COPD, as a lens to understand the broader issue of WH Clinical Care for Veterans living with complex chronic conditions.

**Design:** We interviewed 25 healthcare professionals across disciplines and services at a VA Medical Center in 2020-2021, including primary care providers, pulmonologists, palliative care providers, and chaplains. Interview transcripts were analyzed using qualitative content analysis.

**Key results:** Each element of WH Clinical Care raised complex questions and/or concerns, including: (1) the appropriate depth/breadth of inquiry in person-centered assessment; (2) the rationale for elicitation of what really matters; (3) the feasibility and appropriate division of labor in personal health goal setting and planning; and (4) challenges related to referring Veterans to a broad spectrum of supportive services.

**Conclusions:** Efforts to promote person-centered care must account for healthcare professionals' existing comfort with its elements, advocate for a team-based approach, and continue to grapple with the conflicting structural conditions and organizational imperatives.

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## Conflict of interest statement

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- [82 references](#)

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Ann Am Thorac Soc



. 2023 Jun 23.

doi: 10.1513/AnnalsATS.202210-857OC. Online ahead of print.

# Systemic Markers of Lung Function and FEV<sub>1</sub> Decline across Diverse Cohorts

[Debby Ngo](#)<sup>1</sup>, [Katherine A Pratte](#)<sup>2</sup>, [Claudia Flexeder](#)<sup>3,4</sup>, [Hans Petersen](#)<sup>5</sup>, [Hong Dang](#)<sup>6</sup>, [Yanlin Ma](#)<sup>7</sup>, [Michelle J Keyes](#)<sup>8</sup>, [Yan Gao](#)<sup>9</sup>, [Shuliang Deng](#)<sup>10</sup>, [Bennet D Peterson](#)<sup>10</sup>, [Laurie A Farrell](#)<sup>10</sup>, [Victoria M Bhambhani](#)<sup>10</sup>, [Cesar Palacios](#)<sup>10</sup>, [Juweria Quadir](#)<sup>10</sup>, [Lucas Gillenwater](#)<sup>11</sup>, [Hanfei Xu](#)<sup>12</sup>, [Claire Emson](#)<sup>13</sup>, [Christian Gieger](#)<sup>14</sup>, [Karsten Suhre](#)<sup>15</sup>, [Johannes Graumann](#)<sup>16</sup>, [Deepti Jain](#)<sup>17</sup>, [Matthew P Conomos](#)<sup>18</sup>, [Russell P Tracy](#)<sup>19</sup>, [Xiuqing Guo](#)<sup>20</sup>, [Yongmei Liu](#)<sup>21</sup>, [W Craig Johnson](#)<sup>22</sup>, [Elaine Cornell](#)<sup>23</sup>, [Peter Durda](#)<sup>24</sup>, [Kent D Taylor](#)<sup>20</sup>, [George J Papanicolaou](#)<sup>25</sup>, [Stephen S Rich](#)<sup>26</sup>, [Jerome I Rotter](#)<sup>20</sup>, [Stephen I Rennard](#)<sup>27</sup>, [Jeffrey L Curtis](#)<sup>28</sup>, [Prescott Woodruff](#)<sup>29</sup>, [Alejandro P Comellas](#)<sup>30,31</sup>, [Edwin K Silverman](#)<sup>32</sup>, [James D Crapo](#)<sup>33</sup>, [Martin G Larson](#)<sup>34</sup>, [Ramachandran S Vasan](#)<sup>35</sup>, [Thomas J Wang](#)<sup>36</sup>, [Adolfo Correa](#)<sup>37,38</sup>, [Mario Sims](#)<sup>9</sup>, [James G Wilson](#)<sup>39</sup>, [Robert E Gerszten](#)<sup>40</sup>, [George T O'Connor](#)<sup>41</sup>, [R Graham Barr](#)<sup>42</sup>, [David Couper](#)<sup>43</sup>, [Josée Dupuis](#)<sup>44</sup>, [Ani Manichaikul](#)<sup>45</sup>, [Wanda O'Neal](#)<sup>46</sup>, [Yohannes Tesfaigzi](#)<sup>47,48</sup>, [Holger Schulz](#)<sup>49</sup>, [Russell Bowler](#)<sup>50</sup>

Affiliations expand

- PMID: 37351609
- DOI: [10.1513/AnnalsATS.202210-857OC](https://doi.org/10.1513/AnnalsATS.202210-857OC)

## Abstract

**Rationale:** Chronic obstructive pulmonary disease (COPD) is a complex disease characterized by airway obstruction and accelerated lung function decline. Our understanding of systemic protein biomarkers associated with COPD remains incomplete.

**Objectives:** To determine what proteins and pathways are associated with impaired pulmonary function in a diverse population?

**Methods:** We studied 6,722 participants across six cohort studies with both aptamer-based proteomic and spirometry data (4,566 predominantly White participants in a discovery analyses and 2,156 African American cohort participants in a validation). In linear regression models, we examined protein associations with baseline FEV<sub>1</sub> and FEV<sub>1</sub>/FVC. In linear mixed effects models we investigated the associations of baseline protein levels with rate of FEV<sub>1</sub> decline (mL/year) in 2,777 participants with up to 7 years of follow-up spirometry.

**Results:** We identified 254 proteins associated with FEV<sub>1</sub> in our discovery analyses with 80 proteins validated in the Jackson Heart Study. Novel validated protein associations include kallistatin serine protease inhibitor, growth differentiation factor 2, and tumor necrosis factor-like weak inducer of apoptosis (Discovery  $\beta=0.0561$ ,  $Q=4.05 \times 10^{-10}$ ,  $\beta=0.0421$ ,  $Q=1.12 \times 10^{-3}$ ,  $\beta=0.0358$ ,  $Q=1.67 \times 10^{-3}$ , respectively). In longitudinal analyses within cohorts with follow up spirometry, we identified 15 proteins associated with FEV<sub>1</sub> decline ( $Q < 0.05$ ), including elafin leukocyte elastase inhibitor and mucin-associated trefoil factor 2 ( $\beta = -4.3$  mL/year,  $Q = 0.049$ ;  $\beta = -6.1$  mL/year,  $Q = 0.032$ ; respectively). Pathways and processes highlighted by our study include aberrant extracellular matrix remodeling, enhanced innate immune response, dysregulation of angiogenesis and coagulation.

**Conclusion:** In this study, we identify and validate novel biomarkers and pathways associated with lung function traits in a racially diverse population. Additionally, we identify novel protein markers associated with FEV<sub>1</sub> decline. Several protein findings are supported by previously reported genetic signals, highlighting the plausibility of certain biologic pathways. These novel proteins might represent markers for endophenotyping and risk stratification, as well novel molecular targets for treatment of COPD.

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Clin Respir J

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. 2023 Jun 23.

doi: 10.1111/crj.13652. Online ahead of print.

# "It's like a forgotten issue sometimes ...": Qualitative study of individuals living and caring for people with chronic breathlessness

[Anthony Sunjaya](#)<sup>1</sup>, [Allison Martin](#)<sup>1</sup>, [Clare Arnott](#)<sup>2</sup>, [Guy Marks](#)<sup>3</sup>, [Christine Jenkins](#)<sup>1</sup>

Affiliations expand

- PMID: 37350174

- DOI: [10.1111/crj.13652](https://doi.org/10.1111/crj.13652)

## Abstract

**Introduction:** This study aims to explore the perspectives of patients and carers with chronic breathlessness on current provision of care, care expectations, and self-management needs to develop relevant health services and resources to improve clinical outcomes.

**Methods:** In-depth semistructured interviews were conducted on patients living with chronic breathlessness and carers.

**Results:** Thirteen patients (cardiac, respiratory, and noncardiorespiratory) and two carers were interviewed (mean age 57 years, 47% female, median duration with breathlessness 5 years). Four main themes were identified: (1) living with breathlessness, (2) diagnosis delays, misdiagnosis, and knowledge gaps, (3) beyond curing disease: symptom relief and improving quality of life, and (4) self-management and limited support for it.

**Conclusion:** Breathlessness has a high personal impact but remains a neglected condition in Australia. Patients suffer from lack of personal, community, and provider awareness, discontinuity of care, and too few clinical and self-management options.

**Keywords:** chronic obstructive; dyspnoea; heart failure; lung neoplasms; multimorbidity; patient-centred care; pulmonary disease; self-management.

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BMC Health Serv Res

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. 2023 Jun 22;23(1):684.

doi: 10.1186/s12913-023-09712-0.

# [Enhancing potential impact of hospital discharge interventions for patients with COPD: a qualitative systematic review](#)

[Torbjørn Nygård](#)<sup>1</sup>, [David Wright](#)<sup>2</sup>, [Hamde Nazar](#)<sup>3</sup>, [Svein Haavik](#)<sup>4</sup>

Affiliations expand

- PMID: 37349764
- PMCID: [PMC10288795](#)
- DOI: [10.1186/s12913-023-09712-0](#)

## Abstract

**Background:** Patients with chronic obstructive pulmonary disease (COPD) are frequently readmitted to hospital resulting in avoidable healthcare costs. Many different interventions designed to reduce hospital readmissions are reported with limited evidence for

effectiveness. Greater insight into how interventions could be better designed to improve patient outcomes has been recommended.

**Aim:** To identify areas for optimisation within previously reported interventions provided to reduce COPD rehospitalisation to improve future intervention development.

**Methods:** A systematic review was conducted by searching Medline, Embase, CINAHL, PsycINFO, and CENTRAL in June 2022. Inclusion criteria were interventions provided to patients with COPD in the transition from hospital to home or community. Exclusion criteria were lack of empirical qualitative results, reviews, drug trials, and protocols. Study quality was assessed using the Critical Appraisal Skills Programme tool and results were synthesised thematically.

**Results:** A total of 2,962 studies were screened and nine studies included. Patients with COPD experience difficulties when transitioning from hospital to home. It is therefore important for interventions to facilitate a smooth transition process and give appropriate follow-up post-discharge. Additionally, interventions should be tailored for each patient, especially regarding information provided.

**Conclusion:** Very few studies specifically consider processes underpinning COPD discharge intervention implementation. There is a need to recognise that the transition itself creates problems, which require addressing, before introducing any new intervention. Patients report a preference for interventions to be individually adapted-in particular the provision of patient information. Whilst many intervention aspects were well received, feasibility testing may have enhanced acceptability. Patient and public involvement may address many of these concerns and greater use of process evaluations should enable researchers to learn from each other's experiences.

**Trial registration:** The review was registered in PROSPERO with registration number CRD42022339523.

**Keywords:** Chronic obstructive pulmonary disease; Health services; Implementation science; Qualitative research; Systematic review.

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## Conflict of interest statement

The authors declare that they have no competing interests.

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

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J Gen Intern Med

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. 2023 Jun 22.

doi: 10.1007/s11606-023-08273-6. Online ahead of print.

# [Disparities in Receipt of Mental Health Services and Mental Distress Among Patients with Chronic Obstructive Pulmonary Disease](#)

[Tej A Patel](#)<sup>1</sup>, [Bhav Jain](#)<sup>2</sup>, [Michelle Ann B Eala](#)<sup>3,4</sup>, [Katherine Donatela Manlongat](#)<sup>5</sup>, [Neha Vapiwala](#)<sup>6</sup>, [Leo Anthony Celi](#)<sup>7,8,9,10</sup>, [Edward Christopher Dee](#)<sup>11</sup>

Affiliations expand

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- DOI: [10.1007/s11606-023-08273-6](https://doi.org/10.1007/s11606-023-08273-6)

*No abstract available*

- [7 references](#)

SUPPLEMENTARY INFO

Publication types, Grant supportexpand

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# [A wireless patch for the monitoring of C-reactive protein in sweat](#)

[Jiaobing Tu](#)<sup>1</sup>, [Jihong Min](#)<sup>1</sup>, [Yu Song](#)<sup>1</sup>, [Changhao Xu](#)<sup>1</sup>, [Jiahong Li](#)<sup>1</sup>, [Jeff Moore](#)<sup>2</sup>, [Justin Hanson](#)<sup>3</sup>, [Erin Hu](#)<sup>3</sup>, [Tanyalak Parimon](#)<sup>4</sup>, [Ting-Yu Wang](#)<sup>5</sup>, [Elham Davoodi](#)<sup>1</sup>, [Tsui-Fen Chou](#)<sup>5</sup>, [Peter Chen](#)<sup>4</sup>, [Jeffrey J Hsu](#)<sup>3</sup>, [Harry B Rossiter](#)<sup>2</sup>, [Wei Gao](#)<sup>6</sup>

Affiliations expand

- PMID: 37349389
- DOI: [10.1038/s41551-023-01059-5](https://doi.org/10.1038/s41551-023-01059-5)

## Abstract

The quantification of protein biomarkers in blood at picomolar-level sensitivity requires labour-intensive incubation and washing steps. Sensing proteins in sweat, which would allow for point-of-care monitoring, is hindered by the typically large interpersonal and intrapersonal variations in its composition. Here we report the design and performance of a wearable and wireless patch for the real-time electrochemical detection of the inflammatory biomarker C-reactive (CRP) protein in sweat. The device integrates iontophoretic sweat extraction, microfluidic channels for sweat sampling and for reagent routing and replacement, and a graphene-based sensor array for quantifying CRP (via an electrode functionalized with anti-CRP capture antibodies-conjugated gold nanoparticles), ionic strength, pH and temperature for the real-time calibration of the CRP sensor. In patients with chronic obstructive pulmonary disease, with active or past infections or who had heart failure, the elevated concentrations of CRP measured via the patch correlated well with the protein's levels in serum. Wearable biosensors for the real-time sensitive

analysis of inflammatory proteins in sweat may facilitate the management of chronic diseases.

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. 2023 Jun 20;S0953-6205(23)00210-8.

doi: 10.1016/j.ejim.2023.06.015. Online ahead of print.

# [Pulmonary rehabilitation and endothelial function in patients with chronic obstructive pulmonary disease: A prospective cohort study](#)

[Pasquale Ambrosino](#)<sup>1</sup>, [Matteo Nicola Dario Di Minno](#)<sup>2</sup>, [Silvestro Ennio D'Anna](#)<sup>3</sup>, [Roberto Formisano](#)<sup>4</sup>, [Nicola Pappone](#)<sup>5</sup>, [Costantino Mancusi](#)<sup>6</sup>, [Antonio Molino](#)<sup>2</sup>, [Andrea Motta](#)<sup>7</sup>, [Mauro Maniscalco](#)<sup>8</sup>

Affiliations expand

- PMID: 37349204
- DOI: [10.1016/j.ejim.2023.06.015](https://doi.org/10.1016/j.ejim.2023.06.015)

# Abstract

**Background:** Chronic obstructive pulmonary disease (COPD) is associated with subclinical atherosclerosis and endothelial dysfunction, thereby leading to increased cardiovascular risk. In the present study, we evaluated the changes in endothelium-dependent flow-mediated dilation (FMD) in a cohort of severe COPD patients undergoing pulmonary rehabilitation.

**Methods:** Consecutive COPD patients referred to our Pulmonary Rehabilitation Unit were screened for inclusion. All study procedures were performed at hospital admission and discharge.

**Results:** Of 78 patients screened for eligibility, a total of 40 participants (67.5% males, median age 72.5 years) were included. After pulmonary rehabilitation, a significant improvement in functional parameters, exercise capacity, and measures of disability and quality of life were documented. FMD changed from 3.25% (IQR: 2.31-4.26) to 4.95% (IQR: 3.57-6.02), corresponding to a 52.3% increase of its median value ( $P < 0.001$ ). Significantly lower changes in FMD were documented in COPD patients with hypercholesterolemia as compared to those without ( $+0.33\% \pm 1.61$  vs.  $+1.62\% \pm 1.59$ ,  $P = 0.037$ ). Changes in FMD ( $\Delta$ FMD) were positively associated with changes in forced expiratory volume in 1 s ( $FEV_1$ ), when expressed both as absolute values ( $\Delta FEV_1$ ) ( $r = 0.503$ ,  $P = 0.002$ ) and as percentages of predicted values ( $\Delta FEV_1\%$ ) ( $r = 0.608$ ;  $P < 0.001$ ). In multiple linear regressions, after adjusting for major cardiovascular risk factors,  $\Delta FEV_1$  ( $\beta=0.342$ ;  $P = 0.049$ ) and  $\Delta FEV_1\%$  ( $\beta=0.480$ ;  $P = 0.015$ ) were both confirmed as independent predictors of  $\Delta$ FMD.

**Conclusions:** Results of our study suggest that endothelial function may improve in COPD after pulmonary rehabilitation. The potential beneficial effect in terms of cardiovascular risk prevention should be evaluated in ad hoc designed studies.

**Keywords:** Chronic obstructive pulmonary disease; Disability; Endothelial function; Exercise; Occupational medicine; Outcome; Pulmonary rehabilitation.

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Am J Respir Crit Care Med

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. 2023 Jun 22.

doi: 10.1164/rccm.202303-0455CI. Online ahead of print.

# Targeting Type 2 Inflammation and Epithelial Alarmins in Chronic Obstructive Pulmonary Disease: A Biologics Outlook

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Affiliations expand

- PMID: 37348121
- DOI: [10.1164/rccm.202303-0455CI](https://doi.org/10.1164/rccm.202303-0455CI)

## Abstract

Chronic obstructive pulmonary disease (COPD) is a complex, heterogeneous, progressive inflammatory airway disease associated with significant impact on patients' lives, including morbidity and mortality, and significant health-care related costs. Current pharmacologic strategies, including first- and second-line therapies such as long-acting  $\beta$ 2-agonists, long-acting muscarinic antagonists, inhaled corticosteroids, phosphodiesterase 4 inhibitors, and macrolides, provide relief in patients with COPD. However, many patients remain symptomatic, with persistent symptoms and/or acute exacerbations, and progressive lung function loss. While neutrophilic inflammation is the most common type of inflammation in COPD, 20-40% of patients with COPD exhibit type 2 inflammation, with roles for CD4+ T helper type 2 cells, type 2 innate lymphoid cells, eosinophils, and alternatively activated macrophages. Based on the current limitations of available therapies, significant unmet need exists in COPD management, including the need for targeted therapies to address the underlying pathophysiology leading to disease progression, such as type 2 inflammation, as well as biomarkers to help select patients that would most benefit from the new therapies. Significant progress is being made, with our evolving understanding of the pathobiology of COPD leading to novel therapeutic targets including epithelial alarmins. In this review we describe the current therapeutic landscape in COPD, discuss

unmet treatment needs, review the current knowledge of type 2 inflammation and epithelial alarmins in COPD, explore potential biomarkers of type 2 inflammation in COPD, and finally provide a rationale for incorporating therapies targeting type 2 inflammation and epithelial alarmins in COPD.

**Keywords:** alarmins; chronic obstructive; eosinophils; pulmonary disease; type 2 inflammation.

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Am J Respir Crit Care Med

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. 2023 Jun 22.

doi: 10.1164/rccm.202303-0476OC. Online ahead of print.

## [Childhood Cigarette Smoking and Risk of COPD in Older U.S. Adults](#)

[James D Sargent](#)<sup>1,2</sup>, [Michael Halenar](#)<sup>3</sup>, [Alexander W Steinberg](#)<sup>4</sup>, [Jenny Ozga](#)<sup>3</sup>, [Zhiqun Tang](#)<sup>3</sup>, [Cassandra A Stanton](#)<sup>3</sup>, [Laura M Paulin](#)<sup>4,1,5</sup>

Affiliations expand

- PMID: 37348105
- DOI: [10.1164/rccm.202303-0476OC](https://doi.org/10.1164/rccm.202303-0476OC)

### Abstract

**Rationale:** It is not certain the extent to which childhood smoking adds COPD risk independent of lifetime cigarette exposure.

**Objectives:** We examined the association between age started smoking cigarettes regularly, current smoking status, smoking history, and risk of COPD.

**Methods:** Cross-sectional survey of U.S. adults  $\geq 40$ y in the 2020 National Health Interview Survey. Respondents who were ever cigarette smokers were asked when they began smoking regularly. Multivariable analysis assessed self-report of COPD diagnosis as a function of age started smoking (<15yrs vs. 15+yrs) adjusting for current smoking, cigarette pack years and covariates.

**Measurements and main results:** Overall, 7.1% reported that they had COPD, 2.6% for never smokers compared to 23.1% and 11.6% for smoking onset <15 and 15+ years respectively. Persons who began smoking regularly <15 years had higher pack years of smoking (median 29 vs. 15 respectively), and higher smoking intensity (median 20cigs/day for <15yrs vs. 10 for 15+ for current smokers). In the multivariable analysis, relative risk for COPD among childhood smokers was 1.41 (1.22, 1.63) compared to later onset smokers. Substituting smoking duration for pack years confounded the association between current smoking and COPD but did not change the childhood smoking estimate. In a stratified analysis, higher risk for childhood smoking was found at all current smoking intensity levels.

**Conclusions:** Among adults aged 40+, one-fifth of childhood smokers have COPD. Lifetime cigarette smoking explained some but not all of the higher risk. If replicated, this suggests a lung development window of enhanced vulnerability to cigarette smoking.

**Keywords:** COPD, cigarette, smoking, adolescence, lung development.

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BMC Pulm Med

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. 2023 Jun 21;23(1):221.

doi: 10.1186/s12890-023-02425-4.

## [An increased risk of pulmonary hypertension in patients with combined](#)

# pulmonary fibrosis and emphysema: a meta-analysis

[Hangqi Ni](#)<sup>1</sup>, [Yuying Wei](#)<sup>1</sup>, [Liuqing Yang](#)<sup>1</sup>, [Qing Wang](#)<sup>2</sup>

Affiliations expand

- PMID: 37344866
- PMCID: [PMC10283193](#)
- DOI: [10.1186/s12890-023-02425-4](#)

## Abstract

**Background and aim:** Pulmonary hypertension (PH) is a common complication of combined pulmonary fibrosis and emphysema (CPFE). Whether the incidence of PH is increased in CPFE compared with pure pulmonary fibrosis or emphysema remains unclear. This meta-analysis aimed to evaluate the risk of PH in patients with CPFE compared to those with IPF or COPD/emphysema.

**Methods:** We searched the PubMed, Embase, Cochrane Library, and CNKI databases for relevant studies focusing on the incidence of PH in patients with CPFE and IPF or emphysema. Pooled odds ratios (ORs) and standard mean differences (SMD) with 95% confidence intervals (95% CIs) were used to evaluate the differences in the clinical characteristics presence and severity of PH between patients with CPFE, IPF, or emphysema. The survival impact of PH in patients with CPFE was assessed using hazard ratios (HRs).

**Results:** A total of 13 eligible studies were included in the meta-analysis, involving 560, 720, and 316 patients with CPFE, IPF, and emphysema, respectively. Patients with CPFE had an increased PH risk with a higher frequency of pulmonary hypertension and higher estimated systolic pulmonary artery pressure (esPAP), compared with those with IPF (OR: 2.66; 95% CI: 1.55-4.57;  $P < 0.01$ ; SMD: 0.86; 95% CI: 0.52-1.19;  $P < 0.01$ ) or emphysema (OR: 3.19; 95% CI: 1.42-7.14;  $P < 0.01$ ; SMD: 0.73; 95% CI: 0.50-0.96;  $P < 0.01$ ). In addition, the patients with CPFE combined with PH had a poor prognosis than patients with CPFE without PH (HR: 6.16; 95% CI: 2.53-15.03;  $P < 0.01$ ).

**Conclusions:** Our meta-analysis showed that patients with CPFE were associated with a significantly higher risk of PH compared with those with IPF or emphysema alone. The presence of PH was a poor predictor of mortality.

**Keywords:** COPD; CPFE; IPF; Meta-analysis; PH.

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## Conflict of interest statement

The authors declare no competing interests.

- [51 references](#)
- [6 figures](#)

SUPPLEMENTARY INFO

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. 2023 Jun 21;2300538.

doi: 10.1183/13993003.00538-2023. Online ahead of print.

# [Real-world comparative effectiveness of three single-inhaler dual bronchodilators for the treatment of chronic obstructive pulmonary disease](#)

[Jiaying Li](#)<sup>1,2</sup>, [Sophie Dell'Aniello](#)<sup>1</sup>, [Pierre Ernst](#)<sup>1,2,3</sup>, [Samy Suissa](#)<sup>4,2,3</sup>

Affiliations expand

- PMID: 37343975
- DOI: [10.1183/13993003.00538-2023](https://doi.org/10.1183/13993003.00538-2023)

## Abstract

**Purpose:** Single-inhaler dual bronchodilators are now recommended as initial treatment of chronic obstructive pulmonary disease (COPD) for patients with multiple exacerbations or with moderate or severe dyspnea. It is unclear whether there are differences in effectiveness among commonly used dual bronchodilators.

**Patients and methods:** We identified a cohort of COPD patients, 40 years or older, treated during 2017-2020, from the United Kingdom's Clinical Practice Research Datalink, a real-world practice setting. Inhaled corticosteroid-naïve patients initiating vilanterol-umeclidinium (VIL-UME) were compared with those initiating olodaterol-tiotropium (OLO-TIO) or indacaterol-glycopyrronium (IND-GLY) dual bronchodilators primarily on the incidence of moderate and severe COPD exacerbation over one year, after adjustment by propensity score weighting.

**Results:** The cohort included 15 224 initiators of VIL-UME, 5536 of OLO-TIO, and 5059 of IND-GLY. The adjusted hazard ratio (HR) of a moderate or severe exacerbation with VIL-UME was 0.91 (95% CI:0.85-0.97) compared with OLO-TIO, and 0.96 (95% CI:0.89-1.03) compared with IND-GLY. The risk of severe exacerbation was not different for VIL-UME when compared with OLO-TIO (HR 1.04; 95% CI:0.86-1.26) and IND-GLY (HR 1.05; 95% CI:0.86-1.28). All-cause mortality was lower with VIL-UME compared with IND-GLY (HR 0.82; 95% CI:0.68-0.98), but not *versus* OLO-TIO (HR 0.87; 95% CI:0.72-1.04) .

**Conclusion:** In a real-world setting of COPD treatment, the three dual bronchodilator combinations were similarly effective on the risk of a severe exacerbation of COPD. However, the vilanterol-umeclidinium and indacaterol-glycopyrronium combinations may confer slightly superior effectiveness than olodaterol-tiotropium on the risk of moderate or severe exacerbation. The potential lower mortality with vilanterol-umeclidinium warrants further investigation.

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. 2023 Jun 21.

doi: 10.1080/17425247.2023.2228681. Online ahead of print.

# [Delivering monoclonal antibodies via inhalation: A systematic review of clinical trials in asthma and COPD](#)

[Rossella Laitano](#)<sup>1</sup>, [Luigino Calzetta](#)<sup>2</sup>, [Francesco Cavalli](#)<sup>1</sup>, [Mario Cazzola](#)<sup>1</sup>, [Paola Rogliani](#)<sup>1</sup>

Affiliations expand

- PMID: 37342873
- DOI: [10.1080/17425247.2023.2228681](https://doi.org/10.1080/17425247.2023.2228681)

## Abstract

**Introduction:** Advances in understanding the pathophysiology of asthma and chronic obstructive pulmonary disease (COPD) led to investigation of biologic drugs targeting specific inflammatory pathways. No biologics are licensed for COPD while all the approved monoclonal antibodies (mAbs) for severe asthma treatment are systemically administered. Systemic administration is associated with low target tissue exposure and risk of systemic adverse events. Thus, delivering mAbs via inhalation may be an attractive approach for asthma and COPD treatment due to direct targeting of the airways.

**Areas covered:** This systematic review of randomized control trials (RCTs) evaluated the potential role of delivering mAbs via inhalation in asthma and COPD treatment. Five RCTs were deemed eligible for a qualitative analysis.

**Expert opinion:** Compared to systemic administration, delivering mAbs via inhalation is associated with rapid onset of action, greater efficacy at lower doses, minimal systemic exposure, and lower risk of adverse events. Although some of the inhaled mAbs included

in this study showed a certain level of efficacy and safety in asthmatic patients, delivering mAbs via inhalation is still challenging and controversial. Further adequately powered and well-designed RCTs are needed to assess the potential role of inhaled mAbs in the treatment of asthma and COPD.

**Keywords:** COPD; asthma; inhaled; monoclonal antibodies; systematic review.

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. 2023 Jun 19;15(6):e40624.

doi: 10.7759/cureus.40624. eCollection 2023 Jun.

# [Identifying the Relationship Between Economic Prosperity and Quality of Life in Chronic Obstructive Pulmonary Disease Patients](#)

[Dimitris Mazetas](#)<sup>1,2</sup>, [Mary Gouva](#)<sup>3</sup>, [Athina Economou](#)<sup>4</sup>, [Irina Gerogianni](#)<sup>1,2</sup>, [Stefanos Mantzoukas](#)<sup>3</sup>, [Konstantinos I Gourgoulianis](#)<sup>1,2</sup>

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- PMID: 37342299
- PMCID: [PMC10278553](#)

- DOI: [10.7759/cureus.40624](https://doi.org/10.7759/cureus.40624)

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## Abstract

**Background** Chronic obstructive pulmonary disease (COPD) places a significant economic burden on national healthcare systems, and the economic effects of diseases have long been known. The study aimed to evaluate the association of parental family financial wealth with current economic prosperity and the combined effect of both on health-related quality of life (HRQOL) in a sample of patients with COPD. The moderating effect of birth order is further investigated. **Methods** The results of the study are based on a purposive sample of 105 COPD patients at the Larisa University Hospital pulmonology clinic (94 males and 11 females), with an average age of 68.9 (SD = 9.2). The data collection was carried out in the spring and summer of 2020. Participants completed the 36-item Short Form Survey (SF-36) and a sociodemographic questionnaire with self-reported parental and current wealth items. A mediation model with the moderation of the indirect effect of parental wealth on current wealth and the direct effect of parental wealth on HRQOL was applied to test the research hypotheses among the variables studied. **Results** Parental wealth was found to affect current wealth significantly, and both were involved considerably in HRQOL. Birth order had a significant moderating effect on the relationship between parental wealth and HRQOL. Among parental families with lower financial status, patients who grew up as third or later children had significantly lower HRQOL than the first or second children of these families. Neither age nor COPD duration was related to current wealth or HRQOL. **Conclusions** An intergenerational transmission of poverty was found in our sample. In addition, a birth order effect can provide further insight into the harsher environment that the later children of a low-income family are exposed to and the long-term implications for their HRQOL.

**Keywords:** birth order; copd: chronic obstructive pulmonary disease; economic; family; intergenerational transmission of poverty; physical health; psychic health; psychology; quality of life; rehabilitation.

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## Conflict of interest statement

The authors have declared that no competing interests exist.

- [30 references](#)
- [5 figures](#)

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. 2023 Jun 19;9(3):00704-2022.

doi: 10.1183/23120541.00704-2022. eCollection 2023 May.

# Moderate-vigorous physical activity and all-cause mortality in COPD: could bouts matter?

[Narelle S Cox](#)<sup>1,2</sup>, [Angela T Burge](#)<sup>1,2,3</sup>, [Anne E Holland](#)<sup>1,2,3</sup>

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- PMID: 37342092
- PMCID: [PMC10277873](#)
- DOI: [10.1183/23120541.00704-2022](#)

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## Abstract

**For people with COPD, performance of physical activity in bouts confers a greater survival benefit than total physical activity alone, suggesting that the manner in which physical activity is undertaken may be important for people with COPD** <https://bit.ly/3Gy2Gjl>.

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## Conflict of interest statement

Conflict of interest: None declared.

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. 2023 Jun 21.

doi: [10.1021/acs.molpharmaceut.3c00323](https://doi.org/10.1021/acs.molpharmaceut.3c00323). Online ahead of print.

# [Lung Microbiota: Its Relationship to Respiratory System Diseases and Approaches for Lung-Targeted Probiotic Bacteria Delivery](#)

[Nilufer Yuksel](#)<sup>1</sup>, [Busra Gelmez](#)<sup>2,3</sup>, [Ayca Yildiz-Pekoz](#)<sup>4</sup>

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- PMID: 37340968
- DOI: [10.1021/acs.molpharmaceut.3c00323](https://doi.org/10.1021/acs.molpharmaceut.3c00323)

## Abstract

Microorganisms that make up the local microbiota (such as *Lactobacillus* sp. and *Bifidobacterium* sp.) play a crucial role in the modulation of diseases and health states by taking place not only in the gut but also in many parts of our body. There is also interference between the gut and the lung via the gut-lung axis. The relationship between respiratory diseases and lung microbiota, which become more of an issue of particular importance in recent years, shows that probiotics play an essential role in maintaining the balance of microorganisms in the respiratory tract. However, studies on probiotics' prophylactic or therapeutic application in chronic lung diseases are limited. In this review, the literature between 1977 and 2022 was surveyed. General information about human microbiota was accessed in earlier sources, and especially in the past decade, research on lung microbiota has been reached. The relationship between lung microbiota and important respiratory diseases such as bronchopulmonary dysplasia, chronic obstructive pulmonary disease, pneumonia, cystic fibrosis, allergy-asthma, influenza, lung cancer, and COVID-19 infection, was scrutinized after mentioning human microbiota, the gut-lung axis, and respiratory tract microbiota. The mechanism of action of probiotics and the formulation approaches of probiotics in terms of pharmaceutical technology were reviewed. Finally, future perspectives on lung-targeted administration of probiotic bacteria with prophylactic or therapeutic potential, or both, were presented.

**Keywords:** Lactobacillus; chronic lung diseases; lung microbiota; microencapsulation; probiotic technology; probiotics; respiratory tract.

#### SUPPLEMENTARY INFO

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BMC Pulm Med

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. 2023 Jun 20;23(1):217.

doi: 10.1186/s12890-023-02518-0.

# Acute exacerbation of chronic obstructive pulmonary disease in United States emergency departments, 2010–2018

[Chiat Qiao Liew](#)<sup>1</sup>, [Shu-Hsien Hsu](#)<sup>1</sup>, [Chia-Hsin Ko](#)<sup>1</sup>, [Eric H Chou](#)<sup>2</sup>, [Jeffrey Herrala](#)<sup>3</sup>, [Tsung-Chien Lu](#)<sup>1,4</sup>, [Chih-Hung Wang](#)<sup>1,4</sup>, [Chien-Hua Huang](#)<sup>1,4</sup>, [Chu-Lin Tsai](#)<sup>5,6</sup>

Affiliations expand

- PMID: 37340379
- PMCID: [PMC10283236](#)
- DOI: [10.1186/s12890-023-02518-0](#)

**Free PMC article**

## Abstract

**Objectives:** Little is known about the recent status of acute exacerbation of chronic obstructive pulmonary disease (AECOPD) in the U.S. emergency department (ED). This study aimed to describe the disease burden (visit and hospitalization rate) of AECOPD in the ED and to investigate factors associated with the disease burden of AECOPD.

**Methods:** Data were obtained from the National Hospital Ambulatory Medical Care Survey (NHAMCS), 2010–2018. Adult ED visits (aged 40 years or above) with AECOPD were identified using International Classification of Diseases codes. Analysis used descriptive statistics and multivariable logistic regression accounting for NHAMCS's complex survey design.

**Results:** There were 1,366 adult AECOPD ED visits in the unweighted sample. Over the 9-year study period, there were an estimated 7,508,000 ED visits for AECOPD, and the proportion of AECOPD visits in the entire ED population remained stable at approximately 14 per 1,000 visits. The mean age of these AECOPD visits was 66 years, and 42% were men. Medicare or Medicaid insurance, presentation in non-summer seasons, the Midwest and South regions (vs. Northeast), and arrival by ambulance were independently associated with a higher visit rate of AECOPD, whereas non-Hispanic black or Hispanic race/ethnicity (vs. non-Hispanic white) was associated with a lower visit rate of AECOPD. The proportion

of AECOPD visits that were hospitalized decreased from 51% to 2010 to 31% in 2018 ( $p = 0.002$ ). Arrival by ambulance was independently associated with a higher hospitalization rate, whereas the South and West regions (vs. Northeast) were independently associated with a lower hospitalization rate. The use of antibiotics appeared to be stable over time, but the use of systemic corticosteroids appeared to increase with near statistical significance ( $p = 0.07$ ).

**Conclusions:** The number of ED visits for AECOPD remained high; however, hospitalizations for AECOPD appeared to decrease over time. Some patients were disproportionately affected by AECOPD, and certain patient and ED factors were associated with hospitalizations. The reasons for decreased ED admissions for AECOPD deserve further investigation.

**Keywords:** Chronic obstructive pulmonary disease; Emergency department; Epidemiology; Exacerbation.

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## Conflict of interest statement

The authors declare no competing interests.

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

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J Gen Intern Med

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. 2023 Jun 20.

doi: 10.1007/s11606-023-08249-6. Online ahead of print.

# Effectiveness of a Bundled Payments for Care Improvement Program for Chronic Obstructive Pulmonary Disease

[Amelia Waltman](#)<sup>1</sup>, [R Tamara Konezka](#)<sup>2</sup>, [Stephanie Chia](#)<sup>3</sup>, [Assad Ghani](#)<sup>3</sup>, [Wen Wan](#)<sup>4</sup>, [Steven R White](#)<sup>5</sup>, [Rajlakshmi Krishnamurthy](#)<sup>3</sup>, [Valerie G Press](#)<sup>6,7</sup>

Affiliations expand

- PMID: 37340256
- DOI: [10.1007/s11606-023-08249-6](https://doi.org/10.1007/s11606-023-08249-6)

## Abstract

**Background:** The Medicare Bundled Payments for Care Improvement (BPCI) program reimburses 90-day care episodes post-hospitalization. COPD is a leading cause of early readmissions making it a target for value-based payment reform.

**Objective:** Evaluate the financial impact of a COPD BPCI program.

**Design, participants, interventions:** A single-site retrospective observational study evaluated the impact of an evidence-based transitions of care program on episode costs and readmission rates, comparing patients hospitalized for COPD exacerbations who received versus those who did not receive the intervention.

**Main measures:** Mean episode costs and readmissions.

**Key results:** Between October 2015 and September 2018, 132 received and 161 did not receive the program, respectively. Mean episode costs were below target for six out of eleven quarters for the intervention group, as opposed to only one out of twelve quarters for the control group. Overall, there were non-significant mean savings of \$2551 (95% CI: -\$811 to \$5795) in episode costs relative to target costs for the intervention group, though results varied by index admission diagnosis-related group (DRG); there were additional costs of \$4184 per episode for the least-complicated cohort (DRG 192), but savings of \$1897 and \$1753 for the most complicated index admissions (DRGs 191 and 190, respectively). A significant mean decrease of 0.24 readmissions per episode was observed in 90-day readmission rates for intervention relative to control. Readmissions and hospital discharges to skilled nursing facilities were factors of higher costs (mean increases of \$9098 and \$17,095 per episode respectively).

**Conclusions:** Our COPD BPCI program had a non-significant cost-saving effect, although sample size limited study power. The differential impact of the intervention by DRG suggests that targeting interventions to more clinically complex patients could increase the financial impact of the program. Further evaluations are needed to determine if our BPCI program decreased care variation and improved quality of care.

**Primary source of funding:** This research was supported by NIH NIA grant #5T35AG029795-12.

**Keywords:** bundled Payment Care Initiative; chronic obstructive pulmonary disease; medicare; quality of health care; readmissions.

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. 2023 Jun 20.

doi: 10.1164/rccm.202212-2341OC. Online ahead of print.

## [Consequences of Using Post- or Pre-Bronchodilator Reference Values in Interpreting Spirometry](#)

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## Abstract

**Rationale:** Post-bronchodilator (BD) spirometry is used for diagnosis of chronic obstructive pulmonary disease (COPD). However, pre-BD reference values are used for spirometry interpretation.

**Objectives:** To compare the resulting prevalence rates of abnormal spirometry and study the consequences of using pre- or post-BD reference values generated within the Swedish CARDioPulmonary bioImage Study (SCAPIS) when interpreting post-BD spirometry in a general population.

**Methods:** SCAPIS reference values for post-BD and pre-BD spirometry were based on 10,156 and 1,498 never-smoking, healthy participants, respectively. We studied the associations of abnormal spirometry, defined by using pre- or post-BD reference values, with respiratory burden in the SCAPIS general population (28,851 individuals).

**Measurements and main results:** Bronchodilation resulted in higher predicted median and lower limit of normal (LLN) for FEV1/FVC ratio. The prevalence of post-BD FEV1/FVC < pre-bronchodilator LLN was 4.8% and that of post-BD FEV1/FVC < post-bronchodilator LLN was 9.9% for the general population. An additional 5.1% was identified as having an abnormal post-BD FEV1/FVC ratio and this group had more respiratory symptoms, emphysema (13.5% vs. 4.1%,  $p < 0.001$ ) and self-reported physician-diagnosed COPD (2.8% vs. 0.5%,  $p < 0.001$ ) than subjects with post-BD FEV1/FVC ratio > LLN for both pre- and post-bronchodilation).

**Conclusions:** Pre- and post-bronchodilator spirometry reference values differ with regard to FEV1/FVC ratio. Use of post-bronchodilator reference values doubled the population prevalence of airflow obstruction; this was related to a higher respiratory burden. Using post-bronchodilator reference values when interpreting post-bronchodilator spirometry might enable identification of individuals with mild disease and be clinically relevant.

**Keywords:** COPD; post-bronchodilator; pre-bronchodilator; reference values; spirometry.

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Am J Respir Crit Care Med

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. 2023 Jun 20.

doi: 10.1164/rccm.202303-0450OC. Online ahead of print.

# FEV<sub>1</sub>/FVC Severity Stages for Chronic Obstructive Pulmonary Disease

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- DOI: [10.1164/rccm.202303-0450OC](https://doi.org/10.1164/rccm.202303-0450OC)

## Abstract

**Rationale:** The diagnosis of COPD is based on low ratio of the forced expiratory volume in one second to the forced vital capacity (FEV<sub>1</sub>/FVC) but its severity is classified using percentage predicted FEV<sub>1</sub> (ppFEV<sub>1</sub>).

**Objective:** To test a new severity classification scheme for COPD using FEV<sub>1</sub>/FVC, a more robust measure of airflow obstruction than ppFEV<sub>1</sub>.

**Methods:** In COPDGene (n=10,132), the severity of airflow obstruction was categorized by GOLD Stages I-IV (ppFEV<sub>1</sub> ≥80, ≥50-80, ≥30-50, and <30). A new severity classification (STaging of Airflow obstruction by Ratio, STAR) was tested in COPDGene: FEV<sub>1</sub>/FVC ≥0.60 to <0.70, ≥0.50 to <0.60, ≥0.40 to <0.50, and <0.40, respectively for stages I-IV, and applied to the combined Pittsburgh SCCOR and Pittsburgh Emphysema registry cohorts for replication (n=2017).

**Measurements and main results:** Agreement (weighted Bangdiwala B) between GOLD and new FEV<sub>1</sub>/FVC severity stages was 0.89 in COPDGene and 0.88 in the Pittsburgh cohort. In both COPDGene and the Pittsburgh cohort, in comparison to GOLD staging, STAR provided significant discrimination between the absence of airflow obstruction and Stage I for all-cause mortality, respiratory-quality of life, dyspnea, airway wall thickness,

exacerbations and lung function decline. No difference was noted for emphysema, small airways disease, and 6-minute walk distance. The STAR classification system identified a greater number of adults with Stage III-IV disease who would be eligible for lung transplantation and lung volume reduction evaluations.

**Conclusions:** The new severity classification scheme STAR provides discrimination for mortality similar to the GOLD classification but with a more uniform gradation of disease truncated.

**Keywords:** Airflow Obstruction; Chronic Obstructive Pulmonary Disease; Severity; Staging.

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BMC Pulm Med



. 2023 Jun 19;23(1):216.

doi: 10.1186/s12890-023-02503-7.

## [The adherence to and utility of the Global Initiative for Chronic Obstructive Lung Disease guidelines for treating COPD among pulmonary specialists: a retrospective analysis](#)

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Affiliations expand

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- DOI: [10.1186/s12890-023-02503-7](#)

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## Abstract

**Background:** Despite the evidence-based guidelines promoted by the Global Initiative for Chronic Obstructive Lung Disease (GOLD), the overuse of prescription drugs to manage COPD, particularly inhaled corticosteroids (ICS), remains a persistent challenge. In this real-world study, we evaluated how patients with COPD were divided into ABCD groups based on the 2017 GOLD guidelines, determined the rate of adherence to the GOLD treatment recommendations, described the rate of ICS usage, and determined the rate of triple therapy (TT) prescription.

**Methods:** The charts of 2291 patients diagnosed with COPD were retrospectively analyzed, of which 1438 matched the eligibility criteria.

**Results:** The average patient age was  $69.6 \pm 10.9$  years; 52% of patients were female. The average COPD assessment test (CAT) score was  $18.3 \pm 9.1$ . The ABCD breakdown was as follows: group A 19.5%, group B 64.1%, group C 1.8%, and group D 14.6%. All groups, except group D, showed discordance in COPD treatment relative to the proposed GOLD guidelines. Only 18.9% of group A and 26% of group B were treated in concordance with the guidelines. TT was primarily used in group D (63.3%) and overused in groups A (30.6%) and B (47.8%). ICS was overused in all groups, particularly in groups A (56.2%) and B (67.3%).

**Conclusion:** Studies from the last decade have consistently revealed a lack of conformity between what physicians prescribe and what GOLD guidelines recommend. The excessive usage of ICS, which continues despite all the associated adverse effects and the attributable costs, is concerning. The awareness of GOLD guidelines among primary care physicians (PCPs) and respiratory specialists needs to be improved.

**Keywords:** CAT score; COPD assessment test; COPD classification; Global Initiative for Chronic Obstructive Lung Disease; Guideline adherence; ICS; Triple therapy.

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## Conflict of interest statement

This study was funded by Florida Lung Asthma and Sleep Specialists (FLASS), which is owned by FOA. KMD employed by FLASS. PSBB is employed by FLASS. JG is employed by

FLASS. KG is employed by FLASS. RJ is employed by FLASS. HAA and MTZ have no conflicts of interest to disclose. All authors have no other conflicts of interest to disclose.

- [45 references](#)
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doi: [10.1136/thorax-2022-219736](https://doi.org/10.1136/thorax-2022-219736). Online ahead of print.

# [Association between antidepressants with pneumonia and exacerbation in patients with COPD: a self-controlled case series \(SCCS\)](#)

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[Affiliations expand](#)

- PMID: [37336642](https://pubmed.ncbi.nlm.nih.gov/37336642/)
- DOI: [10.1136/thorax-2022-219736](https://doi.org/10.1136/thorax-2022-219736)

## Abstract

**Objective:** To assess whether antidepressant prescriptions are associated with an increased risk of pneumonia and chronic obstructive pulmonary disease (COPD) exacerbation.

**Methods:** A self-controlled case series was performed to investigate the rates of pneumonia and COPD exacerbation during periods of being exposed to antidepressants compared with non-exposed periods. Patients with COPD with pneumonia or COPD exacerbation and at least one prescription of antidepressant were ascertained from The Health Improvement Network in the UK. Incidence rate ratios (IRR) and 95% CI were calculated for both outcomes.

**Results:** Of 31 253 patients with COPD with at least one antidepressant prescription, 1969 patients had pneumonia and 18 483 had a COPD exacerbation. The 90-day risk period following antidepressant prescription was associated with a 79% increased risk of pneumonia (age-adjusted IRR 1.79, 95% CI 1.54 to 2.07). These associations then disappeared once antidepressants were discontinued. There was a 16% (age-adjusted IRR 1.16, 95% CI 1.13 to 1.20) increased risk of COPD exacerbation within the 90 days following antidepressant prescription. This risk persisted and slightly increased in the remainder period ((age-adjusted IRR 1.38, 95% CI 1.34 to 1.41), but diminished after patients discontinued the treatment.

**Conclusion:** Antidepressants were associated with an increased risk of both pneumonia and exacerbation in patients with COPD, with the risks diminished on stopping the treatment. These findings suggest a close monitoring of antidepressant prescription side effects and consideration of non-pharmacological interventions.

**Keywords:** COPD Exacerbations; COPD epidemiology.

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## Conflict of interest statement

Competing interests: All authors have completed the International Committee of Medical Journal Editors (ICMJE) Form for Disclosure of Potential Conflicts of Interest (available on request from the corresponding author) and declare that the following: CEB reports grants from BLF Early COPD Study—various pharma, grants from Pfizer, grants from GSK, other from Chiesi, outside the submitted work; and no financial relationship with any organisation that might have an interest in the submitted work in the previous three years, no other relationship or activity that could appear to have influenced the submitted work.

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. 2023 Jun 19;13(6):e070820.

doi: 10.1136/bmjopen-2022-070820.

# Estimate of the prevalence of subjects with chronic diseases in a province of Northern Italy: a retrospective study based on administrative databases

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- PMID: 37336537
- DOI: [10.1136/bmjopen-2022-070820](https://doi.org/10.1136/bmjopen-2022-070820)

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## Abstract

**Objective:** To find a definition of chronic disease based on literature review and to estimate the population-based prevalence rate of chronicity in a province in Northern Italy.

**Design:** Retrospective observational study based on administrative databases.

**Data sources/setting:** Archives of the National Health Service that contain demographic and administrative information linked with the archives of ticket exemptions (2000-2019), the hospital discharge and drug prescriptions (2016-2019).

**Participants:** Subjects who lived in Vercelli Local Health Authority, a Northern Italian province (Piedmont region), and were alive in December 2019.

**Main outcome measures:** Prevalence of subjects with at least one chronic disease identified by administrative sources and stratification of population according to the number of comorbidities. The pathologies considered were: chronic ischaemic heart disease, congestive heart failure, cardiac arrhythmias, hypertension, stroke, neoplasm, asthma, chronic obstructive pulmonary disease, diabetes, thyroid disorders, osteoporosis, rheumatoid arthritis, chronic kidney disease, dementia, autism spectrum disorder, depression, schizophrenia, hepatitis, HIV and substance use disorders.

**Results:** Our target population was about 164 344 subjects. The overall prevalence of subjects with at least one chronic condition was 21.43% (n=35 212): 19 541 were female and 15 671 were male with a raw prevalence of 22.96% and 19.77%, respectively. The overall prevalence increases with age until 85 years old, then a decrease is observed. Moreover, 16.39% had only one pathology, 4.30% two diseases and 0.74% had a more complex clinical condition (more than three diseases).

**Conclusions:** Despite the difficulty of having a unique definition of chronic disease, the prevalence obtained was coherent with the estimates reported by other national surveillance systems such as Passi and Passi d'Argento. Underestimates were observed when international comparisons were done; however, when we used less stringent definitions of chronic diseases, similar results were obtained.

**Keywords:** EPIDEMIOLOGIC STUDIES; EPIDEMIOLOGY; PUBLIC HEALTH.

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## Conflict of interest statement

Competing interests: None declared.

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. 2023 Jun 22;61(6):2201763.

doi: 10.1183/13993003.01763-2022. Print 2023 Jun.

# Preterm birth and asthma and COPD in adulthood: a nationwide register study from two Nordic countries

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- PMCID: [PMC10285109](#)
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## Abstract

**Background:** Preterm birth affects lungs in several ways but few studies have follow-up until adulthood. We investigated the association of the entire spectrum of gestational ages with specialist care episodes for obstructive airway disease (asthma and chronic obstructive pulmonary disease (COPD)) at age 18-50 years.

**Methods:** We used nationwide registry data on 706 717 people born 1987-1998 in Finland (4.8% preterm) and 1 669 528 born 1967-1999 in Norway (5.0% preterm). Care episodes of asthma and COPD were obtained from specialised healthcare registers, available in Finland for 2005-2016 and in Norway for 2008-2017. We used logistic regression to estimate odds ratios (ORs) for having a care episode with either disease outcome.

**Results:** Odds of any obstructive airway disease in adulthood for those born at <28 or 28-31 completed weeks were 2-3-fold of those born full term (39-41 completed weeks), persisting after adjustments. For individuals born at 32-33, 34-36 or 37-38 weeks, the odds were 1.1- to 1.5-fold. Associations were similar in the Finnish and the Norwegian data and among people aged 18-29 and 30-50 years. For COPD at age 30-50 years, the OR was 7.44 (95% CI 3.49-15.85) for those born at <28 weeks, 3.18 (95% CI 2.23-4.54) for those born at 28-31 weeks and 2.32 (95% CI 1.72-3.12) for those born at 32-33 weeks. Bronchopulmonary dysplasia in infancy increased the odds further for those born at <28 and 28-31 weeks.

**Conclusion:** Preterm birth is a risk factor for asthma and COPD in adulthood. The high odds of COPD call for diagnostic vigilance when adults born very preterm present with respiratory symptoms.

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## Conflict of interest statement

Conflict of interest: All authors have nothing to disclose.

## Comment in

- [Prematurity-related chronic respiratory disease across the life course.](#)  
Duijts L. *Eur Respir J.* 2023 Jun 22;61(6):2300662. doi: 10.1183/13993003.00662-2023.  
Print 2023 Jun. PMID: 37348899 No abstract available.
- [42 references](#)
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. 2023 Jun 25;879:163073.

doi: 10.1016/j.scitotenv.2023.163073. Epub 2023 Mar 23.

# Long-term cadmium exposure induces chronic obstructive pulmonary disease-like lung lesions in a mouse model

[Wen-Jing Wang](#)<sup>1</sup>, [Kun Peng](#)<sup>1</sup>, [Xue Lu](#)<sup>2</sup>, [Yan-Yan Zhu](#)<sup>2</sup>, [Zhao Li](#)<sup>1</sup>, [Qing-Hua Qian](#)<sup>2</sup>, [Ya-Xin Yao](#)<sup>1</sup>, [Lin Fu](#)<sup>1</sup>, [Yan Wang](#)<sup>2</sup>, [Yi-Chao Huang](#)<sup>2</sup>, [Hui Zhao](#)<sup>1</sup>, [Hua Wang](#)<sup>2</sup>, [De-Xiang Xu](#)<sup>2</sup>, [Zhu-Xia Tan](#)<sup>3</sup>

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## Abstract

Accumulating evidences demonstrate that long-term exposure to atmospheric fine particles and air pollutants elevates the risk of chronic obstructive pulmonary disease (COPD). Cadmium (Cd) is one of the important toxic substances in atmospheric fine particles and air pollutants. In this study, we aimed to establish a mouse model to evaluate whether respiratory Cd exposure induces COPD-like lung injury. Adult male C57BL/6 mice were exposed to CdCl<sub>2</sub> (10 mg/L, 4 h per day) by inhaling aerosol for either 10 weeks (short-term) or 6 months (long-term). The mean serum Cd concentration was 6.26 µg/L in Cd-exposed mice. Lung weight and coefficient were elevated in long-term Cd-exposed mice. Pathological scores and alveolar destructive indices were increased in long-term Cd-exposed mouse lungs. Mean linear intercept and airway wall thickness were accordingly elevated in Cd-exposed mice. Inflammatory cell infiltration was obvious and inflammatory cytokines, including TNF-α, IL-1β, IL-6, IL-8, IL-10 and TGF-β, were up-regulated in Cd-exposed mouse lungs. α-SMA, N-cadherin and vimentin, epithelial-mesenchymal transition markers, and extracellular matrix collagen deposition around small airway, determined by Masson's trichrome staining, were shown in Cd-exposed mouse lungs. COPD-characteristic lung function decline was observed in long-term Cd-exposed mice. These outcomes show that long-term respiratory exposure to Cd induces COPD-like lung lesions for the first time.

**Keywords:** COPD-like lung lesions; Cadmium; Environmental pollutants; Long-term respiratory exposure.

## Conflict of interest statement

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

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

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doi: 10.3238/arztebl.m2023.027. Online ahead of print.

# [The Diagnosis and Treatment of COPD and Its Comorbidities](#)

[Kathrin Kahnert](#), [Rudolf A Jörres](#), [Jürgen Behr](#), [Tobias Welte](#)

- PMID: 36794439

- DOI: [10.3238/arztebl.m2023.027](https://doi.org/10.3238/arztebl.m2023.027)

**Free article**

## Abstract

**Background:** Chronic obstructive pulmonary disease (COPD) is the third most common cause of death around the world. The affected patients suffer not only from impaired lung

function, but also from a wide variety of comorbidities. Their cardiac comorbidities, in particular, lead to increased mortality.

**Methods:** This review is based on pertinent publications retrieved by a selective search in PubMed, including guidelines from Germany and abroad.

**Results:** The usual diagnostic criteria for COPD are a post-bronchodilator FEV1/FVC quotient below the fixed threshold of 0.7, or, preferably, below the lower limit of normal (LLN) according to the GLI reference values for the avoidance of over- and underdiagnosis. The overall prognosis is markedly affected by comorbidities of the lung itself and those that involve other organs; in particular, many persons with COPD die of heart disease. The potential presence of heart disease must be borne in mind in the evaluation of patients with COPD, as lung disease can impair the detection of heart disease.

**Conclusion:** As patients with COPD are often multimorbid, the early diagnosis and adequate treatment not only of their lung disease, but also of their extrapulmonary comorbidities are very important. Well-established diagnostic instruments and well-tested treatments are available and are described in detail in the guidelines concerning the comorbidities. Preliminary observations suggest that more attention should be paid to the potential positive effects of treating comorbidities on the lung disease itself, and vice versa.

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Eur Heart J

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. 2023 Jun 20;44(23):2066-2077.

doi: 10.1093/eurheartj/ehac395.

## [Hypertension management in patients with cardiovascular comorbidities](#)

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[Teo](#)<sup>12</sup>, [Raymond R Townsend](#)<sup>13</sup>, [Costas Tsioufis](#)<sup>14</sup>, [Michael A Weber](#)<sup>15</sup>, [Thomas Weber](#)<sup>16</sup>, [Michael Böhm](#)<sup>1, 17</sup>

Affiliations expand

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- DOI: [10.1093/eurheartj/ehac395](https://doi.org/10.1093/eurheartj/ehac395)

## Abstract

Arterial hypertension is a leading cause of death globally. Due to ageing, the rising incidence of obesity, and socioeconomic and environmental changes, its incidence increases worldwide. Hypertension commonly coexists with Type 2 diabetes, obesity, dyslipidaemia, sedentary lifestyle, and smoking leading to risk amplification. Blood pressure lowering by lifestyle modifications and antihypertensive drugs reduce cardiovascular (CV) morbidity and mortality. Guidelines recommend dual- and triple-combination therapies using renin-angiotensin system blockers, calcium channel blockers, and/or a diuretic. Comorbidities often complicate management. New drugs such as angiotensin receptor-neprilysin inhibitors, sodium-glucose cotransporter 2 inhibitors, glucagon-like peptide-1 receptor agonists, and non-steroidal mineralocorticoid receptor antagonists improve CV and renal outcomes. Catheter-based renal denervation could offer an alternative treatment option in comorbid hypertension associated with increased sympathetic nerve activity. This review summarises the latest clinical evidence for managing hypertension with CV comorbidities.

**Keywords:** Aortic valve stenosis; Atrial fibrillation; Cardiovascular comorbidities; Chronic kidney disease; Chronic obstructive pulmonary disease; Diabetes mellitus; Heart failure; Hypertension; Obesity; Stroke; Transient ischemic attack.

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## Conflict of interest statement

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- [Cited by 2 articles](#)

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

FULL TEXT LINKS



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

1

J Am Geriatr Soc

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. 2023 Jun 24.

doi: 10.1111/jgs.18479. Online ahead of print.

# Common non-cardiovascular multimorbidity groupings and clinical outcomes in older adults with major cardiovascular disease

[Stephanie Denise M Sison](#)<sup>1,2,3</sup>, [Kueiyu Joshua Lin](#)<sup>4</sup>, [Mehdi Najafzadeh](#)<sup>4</sup>, [Darae Ko](#)<sup>5</sup>, [Elisabetta Patorno](#)<sup>4</sup>, [Lily G Bessette](#)<sup>4</sup>, [Heidi Zakoul](#)<sup>4</sup>, [Dae Hyun Kim](#)<sup>1,2,4</sup>

Affiliations expand

- PMID: 37354026
- DOI: [10.1111/jgs.18479](https://doi.org/10.1111/jgs.18479)

## Abstract

**Background:** Among older adults, non-cardiovascular multimorbidity often coexists with cardiovascular disease (CVD) but their clinical significance is uncertain. We identified common non-cardiovascular comorbidity patterns and their association with clinical outcomes in Medicare fee-for-service beneficiaries with acute myocardial infarction (AMI), congestive heart failure (CHF), or atrial fibrillation (AF).

**Methods:** Using 2015-2016 Medicare data, we took 1% random sample to create 3 cohorts of beneficiaries diagnosed with AMI (n = 24,808), CHF (n = 57,285), and AF (n = 36,277) prior to 1/1/2016. Within each cohort, we applied latent class analysis to classify beneficiaries based on 9 non-cardiovascular comorbidities (anemia, cancer, chronic kidney disease, chronic lung disease, dementia, depression, diabetes, hypothyroidism, and musculoskeletal disease). Mortality, cardiovascular and non-cardiovascular hospitalizations, and home time lost over a 1-year follow-up period were compared across non-cardiovascular multimorbidity classes.

**Results:** Similar non-cardiovascular multimorbidity classes emerged from the 3 CVD cohorts: (1) minimal, (2) depression-lung, (3) chronic kidney disease (CKD)-diabetes, and (4) multi-system class. Across CVD cohorts, multi-system class had the highest risk of mortality (hazard ratio [HR], 2.7-3.9), cardiovascular hospitalization (HR, 1.6-3.3), non-cardiovascular hospitalization (HR, 3.1-7.2), and home time lost (rate ratio, 2.7-5.4). Among those with AMI, the CKD-diabetes class was more strongly associated with all the adverse outcomes than the depression-lung class. In CHF and AF, differences in risk between the depression-lung and CKD-diabetes classes varied per outcome; and the depression-lung and multi-

system classes had double the rates of non-cardiovascular hospitalizations than cardiovascular hospitalizations.

**Conclusion:** Four non-cardiovascular multimorbidity patterns were found among Medicare beneficiaries with CHF, AMI, or AF. Compared to the minimal class, the multi-system, CKD-diabetes, and depression-lung classes were associated with worse outcomes. Identification of these classes offers insight into specific segments of the population that may benefit from more than the usual cardiovascular care.

**Keywords:** atrial fibrillation; comorbidity; heart failure; latent class analysis; myocardial infarction.

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- [36 references](#)

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BMC Public Health

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. 2023 Jun 23;23(1):1217.

doi: 10.1186/s12889-023-16161-1.

## [Ethnic disparities in prevalence of chronic non-communicable diseases and its multimorbidity among older adults in rural southwest China](#)

[Ying-Rong Du](#)<sup>1</sup>, [Lan Liu](#)<sup>2</sup>, [Yi Zhao](#)<sup>2,3</sup>, [Jing-Jing Huang](#)<sup>1</sup>, [Allison Rabkin Golden](#)<sup>2</sup>, [Le Cai](#)<sup>4</sup>

Affiliations expand

- PMID: 37353785
- DOI: [10.1186/s12889-023-16161-1](https://doi.org/10.1186/s12889-023-16161-1)

## Abstract

**Background:** As the population ages, chronic non-communicable diseases (NCDs) multimorbidity has emerged as a major public health issue globally. This study examines ethnic disparities in prevalence of NCDs and its multimorbidity among rural southwest Chinese older adults.

**Methods:** A cross-sectional survey was conducted in rural southwest population aged  $\geq 60$  years consisting of 5,642 consenting participants of Han and three ethnic minority groups (Dai, Ha Ni, and Bai). Information about participants' demographic characteristics and lifestyle behaviors was obtained using a standard questionnaire. Anthropometric measurements including height, weight, and waist circumference, fasting blood sugar and blood pressure measurement, as well as post-bronchodilator spirometry test were recorded for each participant.

**Results:** The age-standardized prevalence of five common chronic NCDs- hypertension, diabetes, coronary heart disease (CHD), stroke, chronic obstructive pulmonary disease (COPD) - and its multimorbidity was 72.8%, 15.9%, 4.0%, 10.0%, 9.8%, and 27.6%, respectively. Bai participants had both the highest overall and sex-specific prevalence rates of hypertension, diabetes, stroke, and COPD, whereas Han participants had the highest rates of CHD ( $P < 0.01$ ). The results of multivariate logistic regression analysis indicated that female and older participants had a higher probability of chronic NCDs multimorbidity than their counterparts ( $P < 0.01$ ). Bai ethnic minority participants were more likely to have NCDs multimorbidity while Ha Ni and Dai ethnic minority participants were less likely to have NCD multimorbidity relative to the Han participants ( $P < 0.05$ ). Older adults with a higher level of education and family history of chronic NCDs, and who were also current smokers, current drinkers, obese, centrally obese, and physically inactive had a greater probability of developing chronic NCDs multimorbidity ( $P < 0.01$ ).

**Conclusions:** Ethnicity and individual demographic and lifestyle factors significantly impact prevalence of chronic NCDs multimorbidity. Future chronic NCDs prevention and control strategies must be tailored to address ethnicity, and culturally tailored lifestyle interventions may reduce the prevalence of chronic NCDs multimorbidity in rural southwest China.

**Keywords:** China; Chronic non-communicable diseases; Ethnicity; Multimorbidity.

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- [35 references](#)

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J Am Med Dir Assoc

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. 2023 Jun 20;S1525-8610(23)00479-6.

doi: 10.1016/j.jamda.2023.05.015. Online ahead of print.

# [Prevalence of Palliative Care Needs in Older Adults With Multimorbidity: A Multicentric Point Prevalence Study](#)

[Luca Tagliafico](#)<sup>1</sup>, [Giada Maizza](#)<sup>1</sup>, [Carlo Marani](#)<sup>2</sup>, [Federica Della Rovere](#)<sup>3</sup>, [Irene Schiavetti](#)<sup>4</sup>, [Alessio Signori](#)<sup>4</sup>, [Lorena Petrocchi](#)<sup>5</sup>, [Silvia Ottaviani](#)<sup>1</sup>, [Mariya Muzyka](#)<sup>1</sup>, [Alessio Nencioni](#)<sup>1</sup>, [Fiammetta Monacelli](#)<sup>6</sup>; [Genoa's Palliative Care Day Network](#)<sup>1</sup>

Affiliations expand

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- DOI: [10.1016/j.jamda.2023.05.015](https://doi.org/10.1016/j.jamda.2023.05.015)

*No abstract available*

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Publication typesexpand

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Gerontologist

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. 2023 Jun 23;gnad066.

doi: 10.1093/geront/gnad066. Online ahead of print.

# [Managing Complexity: Black Older Adults with Multimorbidity](#)

[Heather Fritz](#)<sup>1</sup>, [Sage Chase](#)<sup>2</sup>, [Lauren Morgan](#)<sup>2</sup>, [Malcolm P Cutchin](#)<sup>1</sup>

Affiliations expand

- PMID: 37350763
- DOI: [10.1093/geront/gnad066](https://doi.org/10.1093/geront/gnad066)

## Abstract

**Background and objectives:** Black older adults have higher rates of multimorbidity and receive less effective multimorbidity support than their white counterparts. Yet little is known about the experiences of Black older adults with multimorbidity that may be at the heart of those disparities and which are central to interventions and improving care for this population. In this study, we aimed to conceptualize the multimorbidity management (MM) experience for Black older adults.

**Research design and methods:** As part of a larger study on Black older adults multimorbidity and physician empathy, we conducted in-depth qualitative interviews with 30 Black older adults living in a large midwestern city in the USA aged 65 years and older with self-reported multimorbidity. We used grounded theory analysis to distill findings into a core conceptual category as well as component domains and dimensions.

**Results:** 'Managing complexity' emerged as the core category to describe MM in our sample. Managing complexity included domains of 'social context', 'daily logistics', 'care time', and 'care roles'.

**Discussion and implications:** We discuss how managing complexity is distinct from patient complexity and how it is related to cumulative inequality and precarity. Study findings have potential implications for intervention around provider education and empathy as well as for enabling agency of Black older adults with MM.

**Keywords:** cumulative inequality/disadvantage; empathy; grounded theory; health disparities; precarity.

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Review

Basic Clin Pharmacol Toxicol

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. 2023 Jun 23.

doi: 10.1111/bcpt.13920. Online ahead of print.

## [Inappropriate Polypharmacy Management versus Deprescribing: A Review on their Relationship](#)

[Amani Zidan](#)<sup>1</sup>, [Ahmed Awaisu](#)<sup>1</sup>

Affiliations expand

- PMID: 37350370

- DOI: [10.1111/bcpt.13920](https://doi.org/10.1111/bcpt.13920)

## Abstract

Medication burden and polypharmacy are highly prevalent among patients with multimorbidity. There have been multiple initiatives to overcome polypharmacy and medication burden in patients with multimorbidity. These initiatives have evolved over time as effective in reducing the negative health consequences of polypharmacy. In recent years, the concept and practice of deprescribing has emerged and gained popularity as an efficient comprehensive approach to manage polypharmacy and ultimately improve health outcomes. Clinicians and researchers with interest in deprescribing view it as a novel and unique strategy that should be a part of effective prescribing process. However, other traditional polypharmacy management strategies such as drug review and medication therapy management still coexist. It is intriguing if deprescribing is considered as a type of these strategies or not. This narrative mini-review explored published literature in an effort to ascertain the differences and similarities between deprescribing and other prominent polypharmacy management interventions. It is clear that there is an overlap between deprescribing and inappropriate polypharmacy management. This is represented by focusing on multimorbid older adults, using similar explicit and implicit tools, and having drug review as the core principle of both approaches. This overlap has probably made deprescribing considered as one of polypharmacy management approaches.

**Keywords:** Deprescribing; Inappropriate polypharmacy management; Polypharmacy.

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Clin Respir J

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. 2023 Jun 23.

doi: 10.1111/crj.13652. Online ahead of print.

# "It's like a forgotten issue sometimes ...": Qualitative study of individuals living and caring for people with chronic breathlessness

[Anthony Sunjaya](#)<sup>1</sup>, [Allison Martin](#)<sup>1</sup>, [Clare Arnott](#)<sup>2</sup>, [Guy Marks](#)<sup>3</sup>, [Christine Jenkins](#)<sup>1</sup>

Affiliations expand

- PMID: 37350174

- DOI: [10.1111/crj.13652](https://doi.org/10.1111/crj.13652)

## Abstract

**Introduction:** This study aims to explore the perspectives of patients and carers with chronic breathlessness on current provision of care, care expectations, and self-management needs to develop relevant health services and resources to improve clinical outcomes.

**Methods:** In-depth semistructured interviews were conducted on patients living with chronic breathlessness and carers.

**Results:** Thirteen patients (cardiac, respiratory, and noncardiorespiratory) and two carers were interviewed (mean age 57 years, 47% female, median duration with breathlessness 5 years). Four main themes were identified: (1) living with breathlessness, (2) diagnosis delays, misdiagnosis, and knowledge gaps, (3) beyond curing disease: symptom relief and improving quality of life, and (4) self-management and limited support for it.

**Conclusion:** Breathlessness has a high personal impact but remains a neglected condition in Australia. Patients suffer from lack of personal, community, and provider awareness, discontinuity of care, and too few clinical and self-management options.

**Keywords:** chronic obstructive; dyspnoea; heart failure; lung neoplasms; multimorbidity; patient-centred care; pulmonary disease; self-management.

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- [13 references](#)

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PLoS One

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. 2023 Jun 22;18(6):e0287234.

doi: [10.1371/journal.pone.0287234](https://doi.org/10.1371/journal.pone.0287234). eCollection 2023.

# [Interaction of mental comorbidity and physical multimorbidity predicts length-of-stay in medical inpatients](#)

[Sophia Stahl-Toyota](#)<sup>1</sup>, [Christoph Nikendei](#)<sup>1</sup>, [Ede Nagy](#)<sup>1</sup>, [Stefan Bönsel](#)<sup>2</sup>, [Ivo Rollmann](#)<sup>1</sup>, [Inga Unger](#)<sup>3</sup>, [Julia Szendrödi](#)<sup>4</sup>, [Norbert Frey](#)<sup>5</sup>, [Patrick Michl](#)<sup>6</sup>, [Carsten Müller-Tidow](#)<sup>7</sup>, [Dirk Jäger](#)<sup>8</sup>, [Hans-Christoph Friederich](#)<sup>1</sup>, [Achim Hochlehnert](#)<sup>2</sup>

Affiliations expand

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- PMCID: [PMC10287009](#)
- DOI: [10.1371/journal.pone.0287234](https://doi.org/10.1371/journal.pone.0287234)

## Abstract

**Background:** Mental comorbidities of physically ill patients lead to higher morbidity, mortality, health-care utilization and costs.

**Objective:** The aim of the study was to investigate the impact of mental comorbidity and physical multimorbidity on the length-of-stay in medical inpatients at a maximum-care university hospital.

**Design:** The study follows a retrospective, quantitative cross-sectional analysis approach to investigate mental comorbidity and physical multimorbidity in internal medicine patients.

**Patients:** The study comprised a total of  $n = 28.553$  inpatients treated in 2017, 2018 and 2019 at a German Medical University Hospital.

**Main measures:** Inpatients with a mental comorbidity showed a median length-of-stay of eight days that was two days longer compared to inpatients without a mental comorbidity. Neurotic and somatoform disorders (ICD-10 F4), behavioral syndromes (F5) and organic disorders (F0) were leading with respect to length-of-stay, followed by affective disorders (F3), schizophrenia and delusional disorders (F2), and substance use (F1), all above the sample mean length-of-stay. The impact of mental comorbidity on length-of-stay was greatest for middle-aged patients. Mental comorbidity and Elixhauser score as a measure for physical multimorbidity showed a significant interaction effect indicating that the impact of mental comorbidity on length-of-stay was greater in patients with higher Elixhauser scores.

**Conclusions:** The findings provide new insights in medical inpatients how mental comorbidity and physical multimorbidity interact with respect to length-of-stay. Mental comorbidity had a large effect on length-of-stay, especially in patients with high levels of physical multimorbidity. Thus, there is an urgent need for new service models to especially care for multimorbid inpatients with mental comorbidity.

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## Conflict of interest statement

The authors have declared that no competing interests exist.

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

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PLoS One

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. 2023 Jun 22;18(6):e0287550.

doi: 10.1371/journal.pone.0287550. eCollection 2023.

# [Increased patient satisfaction by integration of palliative care into geriatrics – A prospective cohort study](#)

[Maria E C Schelin](#)<sup>1,2</sup>, [Carl Johan Fürst](#)<sup>1,2</sup>, [Birgit H Rasmussen](#)<sup>1,3</sup>, [Christel Hedman](#)<sup>1,2,4,5</sup>

Affiliations expand

- PMID: 37347730
- PMCID: [PMC10286968](#)
- DOI: [10.1371/journal.pone.0287550](#)

## Abstract

**Background:** Integration of oncology and palliative care has been shown to increase quality of life in advanced disease. To meet the needs of the growing older population, integration of palliative care and geriatrics has been proposed but scarcely described.

**Objectives:** The aim of this study was to integrate palliative care into geriatrics by a structured care guide, the Swedish Palliative Care Guide, and to evaluate its effect on patient satisfaction, health-related quality of life and symptom burden, compared to a control group.

**Methods:** Geriatric in-patients over 65 years of age were included in the study, those with cognitive impairment were excluded. Data was collected before (baseline) and after the implementation (intervention) of the Swedish Palliative Care Guide. Patient satisfaction was evaluated two weeks after discharge with questions from a national patient survey. Health-related quality of life was measured with EQ-5D-3L and symptom burden with Edmonton Symptom Assessment Scale.

**Results:** In total, 400 patients were included, 200 in the baseline- and intervention group, respectively. Mean age was 83 years in both groups. Patient satisfaction was significantly higher in nine out of ten questions ( $p = 0.02 - <0.001$ ) in the intervention group compared to baseline. No differences between the groups were seen in health-related quality of life or symptom burden.

**Conclusion:** A significant effect on patient satisfaction was seen after implementation of the Swedish Palliative Care Guide in geriatric care. Thus, integration of palliative care and geriatrics could be of substantial benefit in the growing population of older adults with multimorbidity and frailty.

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## Conflict of interest statement

The authors have declared that no competing interests exist.

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

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BMC Prim Care

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. 2023 Jun 20;24(1):126.

doi: 10.1186/s12875-023-02073-x.

# Development, successes, and potential pitfalls of multidisciplinary chronic disease management clinics in a family health team: a qualitative study

[Laura Brooks](#)<sup>1</sup>, [Jacobi Elliott](#)<sup>1</sup>, [Paul Stolee](#)<sup>1</sup>, [Veronique Maria Boscart](#)<sup>1</sup>, [Sarah Gimbel](#)<sup>2</sup>, [Brittany Holisek](#)<sup>3</sup>, [Jason Randle](#)<sup>4</sup>, [George Albert Heckman](#)<sup>5</sup>

Affiliations expand

- PMID: 37340362
- PMCID: [PMC10280863](#)
- DOI: [10.1186/s12875-023-02073-x](#)

**Free PMC article**

## Abstract

**Background:** The creation of Family Health Teams in Ontario was intended to reconfigure primary care services to better meet the needs of an aging population, an increasing proportion of which is affected by frailty and multimorbidity. However, evaluations of family health teams have yielded mixed results.

**Methods:** We conducted interviews with 22 health professionals affiliated or working with a well-established family health team in Southwest Ontario to understand how it approached the development of interprofessional chronic disease management programs, including successes and areas for improvement.

**Results:** Qualitative analysis of the transcripts identified two primary themes: [1] Interprofessional team building and [2] Inadvertent creation of silos. Within the first theme, two subthemes were identified: (a) collegial learning and (b) informal and electronic communication.

**Conclusion:** Emphasis on collegiality among professionals, rather than on more traditional hierarchical relationships and common workspaces, created opportunities for better informal communication and shared learning and hence better care for patients. However, formal communication and process structures are required to optimize the deployment, engagement, and professional development of clinical resources to better support chronic disease management and to avoid internal care fragmentation for more complex patients with clustered chronic conditions.

**Keywords:** Chronic disease; Frailty; Multidisciplinary teams; Older adults; Primary care.

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## Conflict of interest statement

SG and GAH are both physicians working with the Family Health Team discussed in this article. The authors have no other conflicts to declare.

SG and GAH are both physicians working with the Family Health Team discussed in this article. The authors have no other conflicts to declare.

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

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MeSH terms, Grant supportexpand

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BMJ

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. 2023 Jun 20;381:1342.

doi: 10.1136/bmj.p1342.

# Multimorbidity: time to stop defending our silos

[Lara Fairall](#)<sup>1,2</sup>

Affiliations expand

- PMID: 37339799
- DOI: [10.1136/bmj.p1342](https://doi.org/10.1136/bmj.p1342)

*No abstract available*

## Conflict of interest statement

Competing interests: None declared.

## Comment on

- [Multimorbidity deserves its makeover.](#)  
Richards T. *BMJ*. 2023 Apr 20;381:898. doi: 10.1136/bmj.p898. PMID: 37080604 No abstract available.

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS



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BMC Geriatr

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. 2023 Jun 19;23(1):378.

doi: 10.1186/s12877-023-04072-0.

# Association between medication literacy and medication adherence and the mediating effect of self-efficacy in older people with multimorbidity

[Wenna Wang](#)<sup>1,2</sup>, [Wenyan Luan](#)<sup>2</sup>, [Zhenxiang Zhang](#)<sup>3</sup>, [Yongxia Mei](#)<sup>2</sup>

Affiliations expand

- PMID: 37337135
- PMCID: [PMC10280829](#)
- DOI: [10.1186/s12877-023-04072-0](#)

**Free PMC article**

## Abstract

**Background:** Multimorbidity has a significant impact on public health and primary care. Medication adherence is recognized as the most effective measure for managing and preventing multimorbidity. Studies have shown that medication literacy has a positive effect on medication adherence in patients with multimorbidity. However, limited knowledge exists regarding the underlying mechanisms of this relationship in older adults with multimorbidity. Therefore, the aim of this study was to investigate the mediating role of self-efficacy in the association between medication literacy and medication adherence in this population.

**Methods:** This study employed a cross-sectional design and convenience sampling method to survey older patients with multimorbidity in six communities in Zhengzhou, China, from July 12, 2021, to December 15, 2021. Participants were assessed using a demographic questionnaire, the Chinese Version of the Medication Literacy Scale (C-MLS), the Self-Efficacy for Appropriate Medication Use Scale (SEAMS), and the Chinese Version of the Morisky Medication Adherence Scale-8 (C-MMAS-8). Data were analyzed using descriptive statistics, t-tests, one-way analysis of variance, Pearson correlation analysis, and mediation analysis.

**Results:** A total of 350 elderly patients met the inclusion criteria, and 328 valid questionnaires were collected. The mean age of the participants was  $74.90 \pm 7.37$  years,

with a slightly higher proportion of males (55.8%) than females (44.2%). The mean score for medication adherence was  $4.85 \pm 1.57$ , indicating poor medication adherence among the participants. Medication adherence scores varied significantly among participants of different ages, education levels, employment statuses and kinds of medication ( $p < 0.01$ ). Scores for medication literacy and self-efficacy showed a significant positive correlation with medication adherence scores (all  $p < 0.001$ ). The standardized coefficient for the total effect and direct effect of medication literacy on medication adherence was 0.268 (95% CI: 0.201, 0.335) and 0.187 (95% CI: 0.123, 0.252), respectively. After introducing self-efficacy into the model, the standardized coefficient for the indirect effect was 0.081 (95% CI: 0.049, 0.120), indicating that self-efficacy partially mediated the relationship between medication literacy and medication adherence, accounting for 30.22% of the total effect.

**Conclusion:** This study might suggest that medication literacy indirectly affected medication adherence in older people with multimorbidity through self-efficacy. Health care providers should be aware of the importance of improving medication literacy and implement strategies aimed at increasing self-efficacy to achieve the goal of improving medication adherence in older adults with multimorbidity.

**Keywords:** Elderly; Medication adherence; Medication literacy; Multimorbidity; Self-efficacy.

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## Conflict of interest statement

The authors declare no competing interests.

- [40 references](#)

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

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. 2023 Jun 19;381:1348.  
doi: 10.1136/bmj.p1348.

# Multimorbidity: small steps in the right direction

[Adewale O Adebajo](#)<sup>1</sup>

Affiliations expand

- PMID: 37336570
- DOI: [10.1136/bmj.p1348](https://doi.org/10.1136/bmj.p1348)

*No abstract available*

## Conflict of interest statement

Competing interests: None declared.

## Comment on

- [Multimorbidity deserves its makeover.](#)  
Richards T.BMJ. 2023 Apr 20;381:898. doi: 10.1136/bmj.p898.PMID: 37080604 No abstract available.

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Publication types, MeSH termsexpand

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# Prospective associations between diet quality, dietary components, and risk of cardiometabolic multimorbidity in older British men

[Qiaoye Wang](#)<sup>1</sup>, [Amand Floriaan Schmidt](#)<sup>2,3</sup>, [Lucy T Lennon](#)<sup>4</sup>, [Olia Papacosta](#)<sup>4</sup>, [Peter H Whincup](#)<sup>5</sup>, [S Goya Wannamethee](#)<sup>4</sup>

Affiliations expand

- PMID: 37335359
- DOI: [10.1007/s00394-023-03193-x](https://doi.org/10.1007/s00394-023-03193-x)

## Abstract

**Purpose:** Cardiometabolic multimorbidity (CMM) is a major public health challenge. This study investigated the prospective relationships between diet quality, dietary components, and risk of CMM in older British men.

**Methods:** We used data from the British Regional Heart Study of 2873 men aged 60–79 free of myocardial infarction (MI), stroke, and type 2 diabetes (T2D) at baseline. CMM was defined as the coexistence of two or more cardiometabolic diseases, including MI, stroke, and T2D. Sourcing baseline food frequency questionnaire, the Elderly Dietary Index (EDI), which was a diet quality score based on Mediterranean diet and MyPyramid for Older Adults, was generated. Cox proportional hazards regression and multi-state model were used to estimate the hazard ratios (HRs) and 95% confidence intervals (CIs).

**Results:** During a median follow-up of 19.3 years, 891 participants developed first cardiometabolic disease (FCMD), and 109 developed CMM. Cox regression analyses found no significant association between baseline EDI and risk of CMM. However, fish/seafood consumption, a dietary component of the EDI score, was inversely associated with risk of CMM, with HR 0.44 (95% CI 0.26, 0.73) for consuming fish/seafood 1–2 days/week

compared to less than 1 day/week after adjustment. Further analyses with multi-state model showed that fish/seafood consumption played a protective role in the transition from FCMD to CMM.

**Conclusions:** Our study did not find a significant association of baseline EDI with CMM but showed that consuming more fish/seafood per week was associated with a lower risk of transition from FCMD to CMM in older British men.

**Keywords:** Cardiometabolic multimorbidity; Diet; Fish consumption; Prospective cohort study.

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- [48 references](#)

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Diabetes Obes Metab

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. 2023 Jun 19.

doi: 10.1111/dom.15170. Online ahead of print.

# [Severe hypoglycaemia in adults presenting to a hospital emergency department: Clinical characteristics, comorbidities, and mortality outcomes](#)

[Soon H Song](#)<sup>1</sup>, [Brian M Frier](#)<sup>2</sup>

Affiliations expand

- PMID: 37334521

- DOI: [10.1111/dom.15170](https://doi.org/10.1111/dom.15170)

## Abstract

**Aims:** To determine the clinical characteristics, risk factors and mortality outcomes associated with severe hypoglycaemia (SH) treated at a hospital emergency department.

**Materials and methods:** Adult patients presenting with SH to the Northern General Hospital, Sheffield, UK over a 44-month period were assessed for clinical characteristics, coexisting comorbidities and mortality outcomes, including cause of death, and analysed by age of diabetes onset, below and above age 40 years. Factors that predicted mortality were determined.

**Results:** A total of 619 episodes of SH occurred in 506 individuals. Most had type 1 (T1D; n = 172 [34.0%]) or type 2 diabetes (T2D; n = 216 [42.7%]), but several attendees did not have diabetes (non-DM; n = 110 [21.7%]). Irrespective of age of diabetes onset, patients with T2D had more socioeconomic deprivation and comorbidities ( $P < 0.005$ ). SH was uncommon in those with young-onset T2D, who constituted 7.2% of all episodes in diabetes. Hospital admission was high (60%-75%). The T2D cohort had the longest inpatient stay (median 5 days, vs. 2 and 3 days for the T1D and non-DM cohorts, respectively). Survival after the index SH episode was lower and mortality was higher in the non-DM (39.1%) and T2D (38.0%) cohorts than the T1D cohort (13.3%; all  $P < 0.05$ ), with a median time to death of 13, 113 and 465 days, respectively. Most deaths (78%-86%) were from non-cardiovascular causes. Charlson index predicted mortality and poor survival in T1D and T2D (both  $P < 0.05$ ).

**Conclusions:** Severe hypoglycaemia requiring emergency hospital treatment is associated with non-cardiovascular deaths and exerts a disproportionately greater impact on mortality in people with T2D and those without diabetes. Multimorbidity is an important risk factor for SH and increases mortality risk.

**Keywords:** comorbidity; mortality; non-diabetic; severe hypoglycaemia; type 1 diabetes; type 2 diabetes.

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Ethn Health

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. 2023 Jun 18;1-16.

doi: 10.1080/13557858.2023.2224949. Online ahead of print.

# [Chronic disease multimorbidity and substance use among African American men: veteran–non–veteran differences](#)

[M Daniel Bennett Jr](#)<sup>1</sup>, [Justin T McDaniel](#)<sup>2</sup>, [David L Albright](#)<sup>3</sup>

Affiliations expand

- PMID: 37331990
- DOI: [10.1080/13557858.2023.2224949](https://doi.org/10.1080/13557858.2023.2224949)

## Abstract

**Objectives:** The purpose of the study was to explore the extent to which prior military service may moderate the relationship between chronic disease multimorbidity and substance use among African American men in the United States.

**Design:** Data for this cross-sectional study was downloaded from the 2016–2019 United States (US) National Survey on Drug Use and Health. We estimated three survey-weighted multivariable logistic regression models, where use of each of the following substances served as the dependent variables: illicit drugs, opioids, and tobacco. Differences in these outcomes were examined along two primary independent variables: veteran status and multimorbidity (and an interaction term for these variables). We also controlled for the following covariates: age, education, income, rurality, criminal behavior, and religiosity.

**Results:** From the 37,203,237 (weighted N) African American men in the sample, approximately 17% reported prior military service. Veterans with  $\geq 2$  chronic diseases had higher rates of illicit drug use (aOR = 1.37, 95% CI = 1.01, 1.87; 32% vs. 28%) than non-

veterans with  $\geq 2$  chronic diseases. Non-veterans with one chronic disease had higher rates of tobacco use (aOR = 0.80, 95% CI = 0.69, 0.93; 29% vs. 26%) and opioid misuse (aOR = 0.49, 95% CI = 0.36, 0.67; 29% vs. 18%) than veterans with one chronic disease.

**Discussion:** Chronic disease multi-morbidity appears to be a context in which African American veterans may be at greater risk for certain undesirable health behaviors than African American non-veterans and at lower risk for others. This may be due to exposure to trauma, difficulty accessing care, socio-environmental factors, and co-occurring mental health conditions. These complex interactions may contribute to higher rates of SUDs among African American veterans compared to African American non-veterans.

**Keywords:** African American; chronic disease; substance use; veterans.

FULL TEXT LINKS



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

1

Review

Int Rev Immunol

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. 2023 Jun 24;1-21.

doi: 10.1080/08830185.2023.2222769. Online ahead of print.

## [Exploring the role of neutrophils in infectious and noninfectious pulmonary disorders](#)

[Alisha Arora](#)<sup>1</sup>, [Archana Singh](#)<sup>1</sup>

Affiliations expand

- PMID: 37353973
- DOI: [10.1080/08830185.2023.2222769](https://doi.org/10.1080/08830185.2023.2222769)

# Abstract

With the change in global environment, respiratory disorders are becoming more threatening to the health of people all over the world. These diseases are closely linked to performance of immune system. Within the innate arm of immune system, Neutrophils are an important moiety to serve as an immune defense barrier. They are one of the first cells recruited to the site of infection and plays a critical role in pathogenesis of various pulmonary diseases. It is established that the migration and activation of neutrophils can lead to inflammation either directly or indirectly and this inflammation caused is very crucial for the clearance of pathogens and resolution of infection. However, the immunopathological mechanisms involved to carry out the same is very complex and not well understood. Despite there being studies concentrating on the role of neutrophils in multiple respiratory diseases, there is still a long way to go in order to completely understand the complexity of the participation of neutrophils and mechanisms involved in the development of these respiratory diseases. In the present article, we have reviewed the literature to comprehensively provide an insight in the current development and advancements about the role of neutrophils in infectious respiratory disorders including viral respiratory disorders such as Coronavirus disease (COVID-19) and bacterial pulmonary disorders with a focused review on pulmonary tuberculosis as well as in noninfectious disorders like Chronic obstructive pulmonary disease (COPD) and asthma. Also, future directions into research and therapeutic targets have been discussed for further exploration.

**Keywords:** Asthma; COPD; COVID-19; neutrophils; pulmonary disorders; tuberculosis.

## Plain language summary

Respiratory illnesses are becoming more prevalent and a substantial source of sickness and mortality worldwide as a result of the changes in the global environment. Although diagnostic and therapeutic approaches for respiratory disorders have improved over the years, a thorough and in-depth approach is still required to understand the underlying immuno-pathophysiological mechanisms. Neutrophils are a crucial part of innate immune system which functions as a first line defense against various pulmonary infections. They are known to be involved in resistance against invading pulmonary pathogens and also play an important role in repairing of damaged lung tissue by removing debris. However, emerging evidences suggest that neutrophils may also be involved in promoting and aggravating the unabating inflammation in several pulmonary disorders by release of various proteases, forming neutrophil extracellular traps or by attracting and activating other immune cells at the site of inflammation. In this article, we have discussed diverse roles and responses of neutrophils and their use in potential future research and therapeutic approaches in infectious pulmonary disorders like Tuberculosis and COVID-19 and noninfectious pulmonary disorders like Chronic obstructive pulmonary disease (COPD) and asthma.

SUPPLEMENTARY INFO

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Respir Res



. 2023 Jun 23;24(1):169.

doi: [10.1186/s12931-023-02475-6](https://doi.org/10.1186/s12931-023-02475-6).

# [Global, regional, and national burden of asthma and its attributable risk factors from 1990 to 2019: a systematic analysis for the Global Burden of Disease Study 2019](#)

[Zhufeng Wang](#)<sup>#1</sup>, [Yun Li](#)<sup>#1</sup>, [Yi Gao](#)<sup>#1</sup>, [Yu Fu](#)<sup>2</sup>, [Junfeng Lin](#)<sup>1</sup>, [Xuedong Lei](#)<sup>1</sup>, [Jinping Zheng](#)<sup>3</sup>, [Mei Jiang](#)<sup>4</sup>

Affiliations [expand](#)

- PMID: 37353829
- DOI: [10.1186/s12931-023-02475-6](https://doi.org/10.1186/s12931-023-02475-6)

## Abstract

**Background:** The burden of asthma in terms of premature death or reduced quality of life remains a huge issue. It is of great importance to evaluate asthma burden geographically

and time trends from 1990 to 2019 and to assess the contributions of age, period, and cohort effects at global level.

**Methods:** Asthma prevalence, deaths, and disability adjusted life years (DALYs) as well as risk-attributable burden were collected from the Global Burden of Diseases, Injuries, and Risk Factors Study (GBD) 2019 database and were compared by age and sex. The Smoothing Splines models were used to estimate the relationship between asthma DALYs and the sociodemographic index (SDI). The Age-Period-Cohort model was used to determine effects of ages, periods, and birth cohorts on disease rates.

**Results:** Between 1990 and 2019, the declines were 24.05% (95% uncertainty interval [UI] - 27.24 to - 20.82) in age-standardized asthma prevalence, 51.3% (- 59.08 to - 43.71) in mortality, and 42.55% (- 48.48 to - 36.61) in DALYs rate. However, the burden of asthma continued to rise, with an estimated 262.41 million prevalent cases globally (95% UI 224.05 to 309.45). Asthma caused greater DALYs in females than in males among people aged 20 years and older. The lowest age-standardized DALYs rate was observed at a SDI of approximately 0.70. The Longitudinal age curves showed an approximate W-shaped pattern for asthma prevalence and a likely J-shaped pattern for asthma mortality. The period effect on prevalence and mortality of asthma decreased from 1990 to 2019. Compared with the 1955-1959 birth cohort, the prevalence relative risk (RR) of asthma was highest in the 1905-1909 birth cohort, whereas the mortality RR continued to decline. At the global level, the percentages of high body-mass index, occupational asthmagens, and smoking contributing to DALYs due to asthma were 16.94%, 8.82%, and 9.87%, respectively.

**Conclusions:** Although the age-standardized rates of asthma burden declined in the past 30 years, the overall burden of asthma remains severe. High body mass index becomes the most important risk factor for DALYs due to asthma at the global level.

**Keywords:** Age-period-cohort analysis; Asthma; Burden; Risk factors.

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- [49 references](#)

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Environ Res

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. 2023 Jun 21;116448.

doi: 10.1016/j.envres.2023.116448. Online ahead of print.

# Climate change and mortality rates of COPD and asthma: A global analysis from 2000 to 2018

[Huan Minh Tran](#)<sup>1</sup>, [Ting-Wu Chuang](#)<sup>2</sup>, [Hsiao-Chi Chuang](#)<sup>3</sup>, [Feng-Jen Tsai](#)<sup>4</sup>

Affiliations expand

- PMID: 37352955
- DOI: [10.1016/j.envres.2023.116448](https://doi.org/10.1016/j.envres.2023.116448)

## Abstract

**Background:** Climate change plays a significant role in global health threats, particularly with respiratory diseases such as chronic obstructive pulmonary disease (COPD) and asthma, but the long-term global-scale impact of climate change on these diseases' mortality remains unclear.

**Objective:** This study aims to investigate the impact of climate change on the age-standardized mortality rates (ASMR) of COPD and asthma at national levels.

**Methods:** We used Global Burden of Disease (GBD) data of ASMR of COPD and asthma from 2000 to 2018. The climate change index was represented as the deviance percentage of temperature (DPT) and relative humidity (DPRH), calculated based on 19-year temperature and humidity averages. Annual temperature, RH, and fine particulate matter (PM<sub>2.5</sub>) levels in 185 countries/regions were obtained from ERA5 and the OECD's environmental statistics database. General linear mixed-effect regression models were used to examine the associations between climate change with the log of ASMR (LASMR) of COPD and asthma.

**Results:** After adjusting for annual PM<sub>2.5</sub>, SDI level, smoking prevalence, and geographical regions, a 0.26% increase in DPT was associated with decreases of 0.016, 0.017, and 0.014 per 100,000 people in LASMR of COPD and 0.042, 0.046, and 0.040 per 100,000 people in LASMR of asthma for both genders, males, and females. A 2.68% increase in DPRH was

associated with increases of 0.009 and 0.011 per 100,000 people in LASMR of COPD. We observed a negative association of DPT with LASMR for COPD in countries/regions with temperatures ranging from 3.8 to 29.9 °C and with LASMR for asthma ranging from -5.3-29.9 °C. However, we observed a positive association of DPRH with LASMR for both COPD and asthma in the RH range of 41.2-67.2%.

**Conclusion:** Climate change adaptation and mitigation could be crucial in reducing the associated COPD and asthma mortality rates, particularly in regions most vulnerable to temperature and humidity fluctuations.

**Keywords:** Asthma; Chronic obstructive pulmonary disease (COPD); Climate change; Mortality rate; Relative humidity; Temperature.

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## 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.

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J Allergy Clin Immunol Pract

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. 2023 Jun 21;S2213-2198(23)00669-4.

doi: 10.1016/j.jaip.2023.06.024. Online ahead of print.

# Eosinophilic Occupational Asthma Caused by Padauk Wood Dust

[Virginie Doyen](#)<sup>1</sup>, [Sabine Kespohl](#)<sup>2</sup>, [Carine Sohy](#)<sup>1</sup>, [Ines Jadot](#)<sup>1</sup>, [Catherine Riffart](#)<sup>1</sup>, [Joël Thimpont](#)<sup>3</sup>, [Solange de Lovinfosse](#)<sup>4</sup>, [Monika Raulf](#)<sup>2</sup>, [Olivier Vandenplas](#)<sup>5</sup>

Affiliations [expand](#)

- PMID: 37352932
- DOI: [10.1016/j.jaip.2023.06.024](https://doi.org/10.1016/j.jaip.2023.06.024)

*No abstract available*

**Keywords:** Bronchoprovocation test; Eosinophils; Occupational asthma; Sputum.

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Autoimmun Rev

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. 2023 Jun 21;103386.

doi: [10.1016/j.autrev.2023.103386](https://doi.org/10.1016/j.autrev.2023.103386). Online ahead of print.

## [Functional autoantibodies: Definition, mechanisms, origin and contributions to autoimmune and non-autoimmune disorders](#)

[Xinhua Yu](#)<sup>1</sup>, [Jacqueline Wax](#)<sup>2</sup>, [Gabriela Riemekasten](#)<sup>3</sup>, [Frank Petersen](#)<sup>2</sup>

Affiliations [expand](#)

- PMID: 37352904
- DOI: [10.1016/j.autrev.2023.103386](https://doi.org/10.1016/j.autrev.2023.103386)

# Abstract

A growing body of evidence underscores the relevance of functional autoantibodies in the development of various pathogenic conditions but also in the regulation of homeostasis. However, the definition of the term functional autoantibody varies among studies and a comprehensive overview on this emerging topic is missing. Here, we do not only explain functional autoantibodies but also summarize the mechanisms underlying the effect of such autoantibodies including receptor activation or blockade, induction of receptor internalization, neutralization of ligands or other soluble extracellular antigens, and disruption of protein-protein interactions. In addition, in this review article we discuss potential triggers of production of functional autoantibodies, including infections, immune deficiency and tumor development. Finally, we describe the contribution of functional autoantibodies to autoimmune diseases including autoimmune thyroid diseases, myasthenia gravis, autoimmune pulmonary alveolar proteinosis, autoimmune autonomic ganglionopathy, pure red cell aplasia, autoimmune encephalitis, pemphigus, acquired thrombotic thrombocytopenic purpura, idiopathic dilated cardiomyopathy and systemic sclerosis, as well as non-autoimmune disorders such as allograft rejection, infectious diseases and asthma.

**Keywords:** Autoimmune diseases; Functional autoantibodies; Mechanism; Pathogenesis.

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## Conflict of interest statement

Declaration of Competing Interest The authors declare that there is no competing interests exist.

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Int Immunopharmacol

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. 2023 Jun 19;121:110495.

doi: 10.1016/j.intimp.2023.110495. Online ahead of print.

# [Aiming to IgE: Drug development in allergic diseases](#)

[Xiao-Jing Ling](#)<sup>1</sup>, [Ji-Fu Wei](#)<sup>2</sup>, [Ying Zhu](#)<sup>3</sup>

Affiliations expand

- PMID: 37348229
- DOI: [10.1016/j.intimp.2023.110495](https://doi.org/10.1016/j.intimp.2023.110495)

## Abstract

The incidence of allergic disease significantly increases in recent decades, causing it become a major public health problem all over the world. The common allergic diseases such as allergic dermatitis, allergy rhinitis, allergic asthma and food allergy are mediated, at least in part, by immunoglobulin E (IgE), and so IgE acts as a central role in allergic diseases. IgE can interact with its high-affinity receptor (FcεR I ) which is primarily expressed on tissue-resident mast cells and circulating basophils, initiating intracellular signal transduction and then causing the activation and degranulation of mast cells and basophils. On the other hand, IgE interaction with its low-affinity receptor (CD23), can regulate various IgE-mediated immune responses including IgE-allergen complex presentation, IgE synthesis, the growth and differentiation of both B and T cells, and the secretion of pro-inflammatory mediators. With the deeper mechanism research for allergic diseases, new therapeutic strategies for interfering IgE are developed and receive a great attention. In this review, we summarize a current profile of therapeutic strategies for interfering IgE in allergic diseases. Besides, we suggest that targeting memory B cells (including long-lived plasma cells and (or) IgE<sup>+</sup> memory B cells) may help to completely control allergic diseases, and highlight that the development of drugs synergistically aiming to multiple targets can be a better choice for improving treatment efficacy which results from allergic diseases as the systemic disorders caused by an impaired immune system.

**Keywords:** Allergy diseases; Challenge; Drug development; IgE; Therapeutic strategies.

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## 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.

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Altern Ther Health Med

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. 2023 Jun 23;AT8268.

Online ahead of print.

# [Specific Immunotherapy and Follow-up Management of Respiratory Allergic Diseases in Children](#)

[Liang Xie](#), [Lei Zhang](#), [Jie Zhou](#), [Yun Peng](#), [Chongjin Li](#), [Junxiu Pan](#)

- PMID: 37347693

**Free article**

## Abstract

**Objective:** To analyze specific immunotherapy and follow-up management for respiratory allergic diseases in children.

**Methods:** A total of 100 children with allergic bronchial asthma admitted to our hospital from November 2020 to October 2021 were selected. Based on different treatment schemes, they were divided into two groups: the routine treatment group and the immunotherapy group, with 50 cases in each group. The routine treatment group received standard care, while the immunotherapy group underwent specific immunotherapy. Assessment parameters included asthma symptom control score, pulmonary function, immune function, levels of inflammatory factors, clinical efficacy, and adverse reactions.

**Results:** After treatment and during follow-up, the immunotherapy group showed significantly lower scores for daytime and nighttime symptoms compared to the routine treatment group ( $P < .05$ ). The immunotherapy group also exhibited higher FEV1/FVC and PEF% values compared to the routine therapy group after treatment and at follow-up ( $P < .05$ ). Furthermore, the immunotherapy group showed higher levels of CD3+, CD4+, and CD4+/CD8+ and lower levels of CD8+ compared to the routine therapy group ( $P < .05$ ). Additionally, the immunotherapy group demonstrated lower levels of IL-4 and IL-12 compared to the routine therapy group after treatment and during follow-up ( $P < .05$ ). The total effective rate of the immunotherapy group was higher than that of the routine therapy group ( $P < .05$ ). The incidence of adverse reactions in the immunotherapy group was similar to that in the routine therapy group ( $P > .05$ ).

**Conclusions:** Specific immunotherapy is a significantly effective approach to managing children's allergic bronchial asthma. It effectively controls asthma symptoms, improves lung function and immune response, and reduces inflammatory factors. It showed superior clinical efficacy and minimal adverse reactions; specific immunotherapy, therefore, is a safe and beneficial treatment option that warrants further promotion and application.

FULL TEXT LINKS



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J Asthma

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. 2023 Jun 22;1-11.

doi: 10.1080/02770903.2023.2228900. Online ahead of print.

# The association of varying treatment thresholds of mepolizumab on asthma exacerbations in adults

[Jaclyn Davis](#)<sup>1</sup>, [Pamela M McMahon](#)<sup>2</sup>, [Andrew Simon](#)<sup>2</sup>, [Katherine Haffenreffer](#)<sup>2</sup>, [Aziza Jamal-Allial](#)<sup>3</sup>, [Cheryl N McMahill-Walraven](#)<sup>4</sup>, [Anne Marie Kline](#)<sup>4</sup>, [Jeffrey S Brown](#)<sup>2</sup>, [Melissa K Van Dyke](#)<sup>5</sup>, [Rupert W Jakes](#)<sup>5</sup>, [Ann Chen Wu](#)<sup>1,2</sup>

Affiliations expand

- PMID: 37347586
- DOI: [10.1080/02770903.2023.2228900](https://doi.org/10.1080/02770903.2023.2228900)

## Abstract

**Background.** Asthma has a high healthcare burden globally, with up to 10% of the asthma population suffering from severe disease. Biologic agents are a newer class of asthma treatments for severe asthma, with good evidence for efficacy in clinical trials. Nevertheless, real-world studies of its impact on clinical outcomes are limited. **Methods.** This is an observational cohort study using administrative claims data. The study population consisted of patients aged  $\geq 18$  years who had a diagnosis of asthma and initiated mepolizumab after November 4, 2015 and had continuous medical and drug coverage in both the 365 days prior to and following mepolizumab initiation. In patients treated with mepolizumab, we described clinically significant asthma exacerbations by minimum continuous treatment thresholds following initiation of mepolizumab, medication switching patterns and chronic oral corticosteroid ( $\geq 28$  days) use. **Results.** We identified 2,536 adults with asthma who initiated mepolizumab. There was an association toward reduction in severe asthma-related events over the first one year of exposure. We observed associations with reduced dispensings of oral corticosteroids over the first year after mepolizumab initiation. Very few patients switched to other biologics during the study period. **Conclusions.** Treatment with mepolizumab may be associated with fewer asthma-related events in the first year. Over the first one year after initiating mepolizumab, we found associations with decreased concomitant dispensings of oral corticosteroids and medium to high dose ICS/LABA. Additionally, most patients who initiated mepolizumab did not switch to other biologics.

**Keywords:** asthma; biologics; corticosteroids; effectiveness; exacerbations; mepolizumab.

FULL TEXT LINKS

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. 2023 Jun 22;1-10.

doi: 10.1080/02770903.2023.2228885. Online ahead of print.

# [Retrospective cohort analysis of weight changes during the COVID-19 pandemic in a pediatric asthma population](#)

[Cari O'Rourke](#)<sup>1</sup>, [Philippa Wood](#)<sup>2</sup>, [Kenneth A Macleod](#)<sup>3,4</sup>, [Julie Westwood](#)<sup>3</sup>, [Don S Urquhart](#)<sup>3,4</sup>

Affiliations expand

- PMID: 37345889
- DOI: [10.1080/02770903.2023.2228885](https://doi.org/10.1080/02770903.2023.2228885)

## Abstract

**Objective**To investigate the BMI trajectories of children attending a tertiary asthma clinic during the COVID-19 pandemic.  
**Methods**Data were collected retrospectively on children and young people with asthma who attended the Royal Hospital for Children and Young People (RHCYP) before March 2020 (pre-COVID-19) and after August 2021 (the lifting of national restrictions).  
**Main outcome measures**Changes in weight, height, and BMI Z score measured between 13/03/2019 and 13/03/2020 (timepoint 1) and then again during the period 01/08/2021 to 01/10/2022 (timepoint 2); changes in lung function parameters (FEV<sub>1</sub>) between the timepoints; proportion of study sample classed as obese and overweight at both timepoints; interaction analyses according to deprivation indices (SIMD decile), the use of high dose inhaled corticosteroid (ICS) therapy, and the presence of atopy.  
**Results**Eighty-nine children aged 5-18 years were studied. Weight and height Z scores significantly increased between timepoint 1 and 2 [weight Z score: +0.19 (0.08, +0.30), height Z score: +0.15 (+0.07, +0.23)], such that no significant change was observed

in the BMI Z score [+ 0.07 (-0.05, +0.20)] or BMI centile [+0.5 (-3.1, +4.1)]. There was also no change in FEV<sub>1</sub>%predicted [-0.1 (-3.8, +3.6)] between the timepoints. **Conclusions** No changes in BMI were observed in children with asthma before and after COVID-19 lockdowns. Improved linear growth was noted, implying an improvement in the overall physical health of our study cohort. This may suggest improved asthma control, which may reflect avoidance of viral triggers and/or improved adherence to treatment.

**Keywords:** COVID-19; Pediatric obesity; asthma; body mass index; chronic disease; growth; weight change.

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J Asthma

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. 2023 Jun 22;1-13.

doi: 10.1080/02770903.2023.2228897. Online ahead of print.

## [Identifying asthma-related risks during hospitalization using the child asthma risk assessment tool](#)

[Christine L Schuler](#)<sup>1,2,3</sup>, [Carolyn Kerckmar](#)<sup>2,3</sup>, [Mona Mansour](#)<sup>3,4</sup>, [Karen M McDowell](#)<sup>2,3</sup>, [Guixia Huang](#)<sup>5</sup>, [Md Monir Hossain](#)<sup>2,3,5</sup>, [Eric D Robinette](#)<sup>6</sup>, [Andrew F Beck](#)<sup>1,3,4</sup>

Affiliations expand

- PMID: 37345884
- DOI: [10.1080/02770903.2023.2228897](https://doi.org/10.1080/02770903.2023.2228897)

### Abstract

The Child Asthma Risk Assessment Tool (CARAT) identifies risk factors for asthma morbidity. We hypothesized that CARAT-identified risk factors (using a CARAT adapted for inpatient use) would be associated with future healthcare utilization and would identify areas for intervention. We reviewed CARAT data collected during pediatric asthma admissions from 2010-2015, assessing for risk factors in environmental, medical, and social domains and providing prompts for inpatient (specialist consultation or social services engagement) and post-discharge interventions (home care visit or home environmental assessment). Confirmatory factor analysis identified groups of CARAT-identified risk factors with similar effects on healthcare utilization (latent factors). Structural equation models then evaluated relationships between latent factors and future utilization. There were 2731 unique patients admitted for asthma exacerbations; 1015 (37%) had complete CARAT assessments and were included in analyses. Those with incomplete CARAT assessments were more often younger and privately-insured. CARAT-identified risk factors across domains were common in children hospitalized for exacerbations. Risks in the environmental domain were most common. Inpatient asthma consults by pulmonologists or allergists and home care referrals were the most frequent interventions indicated (62%, 628/1015, and 50%, 510/1015, respectively). Two latent factors were positively associated with healthcare utilization in the year after index stay - social stressors and known/suspected allergies (both  $p < 0.05$ ). Stratified analyses analyzing data just from those children with prior healthcare utilization also indicated known/suspected allergies to be positively associated with future utilization. Inpatient interventions to address social stressors and allergic profiles may be warranted to reduce subsequent asthma morbidity.

**Keywords:** allergy; exacerbation; pediatric; risk factor; wheeze.

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. 2023 Jun 21;3913988231182163.

doi: 10.1177/03913988231182163. Online ahead of print.

# Successful treatment of near-fatal asthma with ECMO: A case report and literature review

[Junxian Xu](#)<sup>1</sup>, [Lijun Tian](#)<sup>1</sup>, [Xudong Han](#)<sup>1</sup>

Affiliations expand

- PMID: 37345330
- DOI: [10.1177/03913988231182163](https://doi.org/10.1177/03913988231182163)

## Abstract

Near-fatal asthma (NFA) can lead to severe hypercapnia and sudden cardiac arrest; however, it can be reversed by extracorporeal membrane oxygenation (ECMO). We report a case of a 37-year-old male diagnosed with NFA. After fluid rehydration, spasmolysis, and treatment with glucocorticoid and mechanical ventilation, the patient's condition improved temporarily. However, his condition worsened rapidly, and the patient presented with progressive respiratory distress, a sharp increase in airway pressure, decreased tidal volume, and barotrauma. The patient was treated with venovenous ECMO in the prone position. Five days later, the patient was successfully weaned from ECMO. Hence, ECMO could be used for NFA at the right time to provide adequate gas exchange for patients in order to reduce lung damage and prevent death.

**Keywords:** Extracorporeal membrane oxygenation; artificial; asthma; glucocorticoids; hypercapnia; respiration; respiratory distress syndrome.

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Ann Allergy Asthma Immunol

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. 2023 Jun 19;S1081-1206(23)00441-6.

# Patterns of rescue and maintenance therapy claims surrounding a clinical encounter for an asthma exacerbation

[Miguel J Lanz](#)<sup>1</sup>, [Ileen A Gilbert](#)<sup>2</sup>, [Hitesh N Gandhi](#)<sup>3</sup>, [Michael Pollack](#)<sup>3</sup>, [Joseph P Tkacz](#)<sup>4</sup>, [Njira L Lugogo](#)<sup>5</sup>

Affiliations expand

- PMID: 37343824
- DOI: [10.1016/j.anai.2023.06.018](https://doi.org/10.1016/j.anai.2023.06.018)

## Abstract

**Background:** A "window of opportunity" has been proposed where anti-inflammatory therapy administration in response to symptoms could prevent exacerbation.

**Objective:** To evaluate rescue and maintenance therapy claims surrounding a severe asthma exacerbation serious enough to require a face-to-face clinical encounter.

**Methods:** Merative® MarketScan® research databases (US administrative claims 2011-2017) were analyzed for patients  $\geq 4$  years, with an asthma diagnosis code, who filled short-acting  $\beta 2$ -agonist (SABA) and Global Initiative for Asthma Steps 3-5 maintenance therapies. Patients were indexed on a random SABA claim and had 12 months' continuous health-plan eligibility pre- and post-index. Serious exacerbations were severe exacerbations requiring systemic corticosteroids prescribed from an outpatient clinic, urgent-care or emergency department, or hospitalization for asthma. SABA and maintenance claims 30 days pre- and post-event were analyzed.

**Results:** Of 319,342 patients (30% children 4-11 years; 70% adolescents/adults  $\geq 12$  years), 27.2% of children and 16.8% of adolescents/adults experienced  $\geq 1$  serious exacerbation (unadjusted odds ratio [OR] 1.85 [95% CI 1.81-1.88]). In the 30 days pre-event, 42.6% filled  $\geq 1$  SABA (children: 44.3%; adolescents/adults: 41.5%; OR 1.12 [1.09-1.16]) and 57.4% filled maintenance (children: 59.0%; adolescents/adults: 56.3%; OR 1.12 [1.08-1.15]). In the 30 days post-event, 61.4% filled SABA (children: 69.7%; adolescents/adults: 55.6%; OR 1.84 [1.78-1.90]) and 94.8% filled maintenance (children: 98.6%; adolescents/adults: 92.2%; OR 6.09 [5.45-6.81]).

**Conclusion:** Many patients treated as having moderate-to-severe asthma escalate SABA claims before a serious exacerbation, but ~40% have no anti-inflammatory maintenance fill, highlighting a "window of opportunity" to prevent exacerbations using inhaled corticosteroids concomitantly with SABA as rescue.

**Keywords:** Anti-inflammatory agents; Prescriptions; Short-acting  $\beta(2)$ -agonist; United States.

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. 2023 Jun 21.

doi: 10.1080/17425247.2023.2228681. Online ahead of print.

# [Delivering monoclonal antibodies via inhalation: A systematic review of clinical trials in asthma and COPD](#)

[Rossella Laitano](#)<sup>1</sup>, [Luigino Calzetta](#)<sup>2</sup>, [Francesco Cavalli](#)<sup>1</sup>, [Mario Cazzola](#)<sup>1</sup>, [Paola Rogliani](#)<sup>1</sup>

Affiliations expand

- PMID: 37342873
- DOI: [10.1080/17425247.2023.2228681](https://doi.org/10.1080/17425247.2023.2228681)

## Abstract

**Introduction:** Advances in understanding the pathophysiology of asthma and chronic obstructive pulmonary disease (COPD) led to investigation of biologic drugs targeting specific inflammatory pathways. No biologics are licensed for COPD while all the approved monoclonal antibodies (mAbs) for severe asthma treatment are systemically administered. Systemic administration is associated with low target tissue exposure and risk of systemic adverse events. Thus, delivering mAbs via inhalation may be an attractive approach for asthma and COPD treatment due to direct targeting of the airways.

**Areas covered:** This systematic review of randomized control trials (RCTs) evaluated the potential role of delivering mAbs via inhalation in asthma and COPD treatment. Five RCTs were deemed eligible for a qualitative analysis.

**Expert opinion:** Compared to systemic administration, delivering mAbs via inhalation is associated with rapid onset of action, greater efficacy at lower doses, minimal systemic exposure, and lower risk of adverse events. Although some of the inhaled mAbs included in this study showed a certain level of efficacy and safety in asthmatic patients, delivering mAbs via inhalation is still challenging and controversial. Further adequately powered and well-designed RCTs are needed to assess the potential role of inhaled mAbs in the treatment of asthma and COPD.

**Keywords:** COPD; asthma; inhaled; monoclonal antibodies; systematic review.

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. 2023 Jun 19;9(3):00722-2022.

doi: 10.1183/23120541.00722-2022. eCollection 2023 May.

# High use of short-acting $\beta_2$ -agonists in COPD is associated with an increased risk of exacerbations and mortality

[Christer Janson](#)<sup>1</sup>, [Fredrik Wiklund](#)<sup>2</sup>, [Gunilla Telg](#)<sup>3</sup>, [Georgios Stratelis](#)<sup>1,3</sup>, [Hanna Sandelowsky](#)<sup>4,5,6</sup>

Affiliations expand

- PMID: 37342089
- PMCID: [PMC10277875](#)
- DOI: [10.1183/23120541.00722-2022](#)

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## Abstract

**Background:** Short-acting  $\beta_2$ -agonist (SABA) overuse has been associated with an increased risk of exacerbations in asthma; however, less is known about SABA use in COPD. Our aim was to describe SABA use and investigate potential associations between high SABA use and the risk of future exacerbations and mortality in COPD.

**Methods:** This observational study identified COPD patients in primary care medical records in Sweden. Data were linked to the National Patient Registry, the Prescribed Drug Registry and the Cause of Death Registry. The index date was 12 months after the date of COPD diagnosis. During a 12-month prior to index baseline period, information on SABA use was collected. Patients were followed with respect to exacerbations and mortality for 12 months post index.

**Results:** Of the 19 794 COPD patients included (mean age 69.1 years, 53.3% females), 15.5% and 7.0% had collected  $\geq 3$  or  $\geq 6$  SABA canisters during the baseline period, respectively. A higher level of SABA use ( $\geq 6$  canisters) was independently associated with a higher risk of both moderate and severe exacerbations (hazard ratio (HR) 1.28 (95% CI 1.17–1.40) and 1.76 (95% CI 1.50–2.06), respectively) during follow-up. In total, 673 (3.4%) patients died during the 12-month follow-up period. An independent association was found between high SABA use and overall mortality (HR 1.60, 95% CI 1.07–2.39). This association, however, was not found in patients using inhaled corticosteroids as maintenance treatment.

**Conclusion:** In COPD patients in Sweden, high SABA use is relatively common and associated with a higher risk of exacerbations and all-cause mortality.

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## Conflict of interest statement

Conflict of interest: C. Janson has received payments for educational activities from AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Novartis, and Teva, and has served on advisory boards arranged by AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Novartis, and Teva. F. Wiklund is employed at Statisticon of which AstraZeneca is a client. Conflict of interest: G. Telg and G. Stratelis are employed by AstraZeneca. H. Sandelowsky has received honoraria for educational activities from Boehringer Ingelheim, Novartis, AstraZeneca, Chiesi, and TEVA, an unrestricted research grant from AstraZeneca, and has served on advisory boards arranged by AstraZeneca, Novartis, Chiesi, and GlaxoSmithKline.

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- [4 figures](#)

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. 2023 Jun 21.

doi: 10.1113/EP091236. Online ahead of print.

## [More airway smooth muscle in males versus females in a mouse model of asthma: A blessing in disguise?](#)

[Rebecka Gill](#)<sup>1</sup>, [Andrés Rojas-Ruiz](#)<sup>1</sup>, [Magali Boucher](#)<sup>1</sup>, [Cyndi Henry](#)<sup>1</sup>, [Ynuk Bossé](#)<sup>1</sup>

Affiliations expand

- PMID: 37341687

- DOI: [10.1113/EP091236](https://doi.org/10.1113/EP091236)

## Abstract

**New findings:** What is the central question of this study? The lung response to inhaled methacholine is reputed to be greater in male than in female mice. The underpinnings of this sex disparity are ill defined. What is the main finding and its importance? We demonstrated that male airways exhibit a greater content of airway smooth muscle than female airways. We also found that, although a more muscular airway tree in males might contribute to their greater responsiveness to inhaled methacholine than females, it might also curb the heterogeneity in small airway narrowing.

**Abstract:** Mouse models are helpful in unveiling the mechanisms underlying sex disparities in asthma. In comparison to their female counterparts, male mice are hyperresponsive to inhaled methacholine, a cardinal feature of asthma that contributes to its symptoms. The physiological details and the structural underpinnings of this hyperresponsiveness in males are currently unknown. Herein, BALB/c mice were exposed intranasally to either saline or house dust mite once daily for 10 consecutive days to induce experimental asthma. Twenty-four hours after the last exposure, respiratory mechanics were measured at baseline and after a single dose of inhaled methacholine that was adjusted to trigger the same degree of bronchoconstriction in both sexes (it was twice as high in females). Bronchoalveolar lavages were then collected, and the lungs were processed for histology. House dust mite increased the number of inflammatory cells in bronchoalveolar lavages to the same extent in both sexes (asthma,  $P = 0.0005$ ; sex,  $P = 0.96$ ). The methacholine response was also markedly increased by asthma in both sexes (e.g.,  $P = 0.0002$  for asthma on the methacholine-induced bronchoconstriction). However, for a well-matched bronchoconstriction between sexes, the increase in hysteresivity, an indicator of airway narrowing heterogeneity, was attenuated in males for both control and asthmatic mice (sex,  $P = 0.002$ ). The content of airway smooth muscle was not affected by asthma but was greater in males (asthma,  $P = 0.31$ ; sex,  $P < 0.0001$ ). These results provide further insights regarding an important sex disparity in mouse models of asthma. The increased amount of airway smooth muscle in males might contribute functionally to their greater methacholine response and, possibly, to their decreased propensity for airway narrowing heterogeneity.

**Keywords:** airway hyperresponsiveness; airway remodelling; allergic inflammation.

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- [72 references](#)

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Pediatr Pulmonol



. 2023 Jun 21.

doi: 10.1002/ppul.26556. Online ahead of print.

# [Childhood asthma treatment based on indirect hyperresponsiveness test: Randomized controlled trial](#)

[Janusz Ciółkowski](#)<sup>1</sup>, [Paweł Hydzik](#)<sup>2</sup>, [Marta Rachel](#)<sup>3</sup>, [Zofia Mazurek-Durlak](#)<sup>4</sup>, [Renata Skalska-Izdebska](#)<sup>1,3</sup>, [Henryk Mazurek](#)<sup>5,6</sup>

Affiliations expand

- PMID: 37341585
- DOI: [10.1002/ppul.26556](https://doi.org/10.1002/ppul.26556)

## Abstract

**Purpose:** The purpose of this study was to assess the usefulness of indirect airway hyperresponsiveness (AHR) test using hypertonic saline in determining the dose of inhaled corticosteroids (ICS) to maintain asthma control in children.

**Methods:** A group of 104 patients (7-15 years) with mild-moderate atopic asthma were monitored for their asthma control and treatment for 1 year. Patients were randomly assigned to a symptom-only monitored group and a group with therapy changes based on

the symptoms and severity of AHR. Spirometry, exhaled nitric oxide, and blood eosinophils (BEos) were assessed on enrollment and every 3 months thereafter.

**Results:** During the study period, the number of mild exacerbations was lower in the AHR group (44 vs. 85; the absolute rate per patient 0.83 vs. 1.67; relative rate 0.49, 95% confidence interval: 0.346-0.717 ( $p < 0.001$ )). Mean changes from baseline in clinical (except asthma control test), inflammatory, and lung function parameters were similar between groups. Baseline BEos correlated with AHR and was a risk factor for recurrent exacerbation in all patients. There was no significant difference in the final ICS dose between AHR and symptoms group: 287 (SD 255) vs. 243 (158)  $p = 0.092$ .

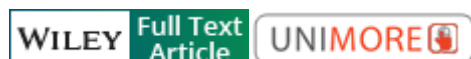
**Conclusions:** Adding an indirect AHR test to clinical monitoring of childhood asthma reduced the number of mild exacerbations, with similar current clinical control and final ICS dose as in the symptom-monitored group. The hypertonic saline test appears to be a simple, cheap, and safe tool for monitoring the treatment of mild-to-moderate asthma in children.

**Keywords:** airway hyperresponsiveness; blood eosinophils; childhood asthma; exacerbations; inhaled corticosteroids.

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- [40 references](#)

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. 2023 Jun 21.

doi: 10.1021/acs.molpharmaceut.3c00323. Online ahead of print.

## [Lung Microbiota: Its Relationship to Respiratory System Diseases and](#)

# Approaches for Lung-Targeted Probiotic Bacteria Delivery

[Nilufer Yuksel](#)<sup>1</sup>, [Busra Gelmez](#)<sup>2,3</sup>, [Ayca Yildiz-Pekoz](#)<sup>4</sup>

Affiliations expand

- PMID: 37340968
- DOI: [10.1021/acs.molpharmaceut.3c00323](https://doi.org/10.1021/acs.molpharmaceut.3c00323)

## Abstract

Microorganisms that make up the local microbiota (such as *Lactobacillus* sp. and *Bifidobacterium* sp.) play a crucial role in the modulation of diseases and health states by taking place not only in the gut but also in many parts of our body. There is also interference between the gut and the lung via the gut-lung axis. The relationship between respiratory diseases and lung microbiota, which become more of an issue of particular importance in recent years, shows that probiotics play an essential role in maintaining the balance of microorganisms in the respiratory tract. However, studies on probiotics' prophylactic or therapeutic application in chronic lung diseases are limited. In this review, the literature between 1977 and 2022 was surveyed. General information about human microbiota was accessed in earlier sources, and especially in the past decade, research on lung microbiota has been reached. The relationship between lung microbiota and important respiratory diseases such as bronchopulmonary dysplasia, chronic obstructive pulmonary disease, pneumonia, cystic fibrosis, allergy-asthma, influenza, lung cancer, and COVID-19 infection, was scrutinized after mentioning human microbiota, the gut-lung axis, and respiratory tract microbiota. The mechanism of action of probiotics and the formulation approaches of probiotics in terms of pharmaceutical technology were reviewed. Finally, future perspectives on lung-targeted administration of probiotic bacteria with prophylactic or therapeutic potential, or both, were presented.

**Keywords:** Lactobacillus; chronic lung diseases; lung microbiota; microencapsulation; probiotic technology; probiotics; respiratory tract.

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. 2023 Jun 21.

doi: 10.1111/all.15785. Online ahead of print.

# [Epidemiology of sensitization to perennial aeroallergens in adults with severe asthma in Belgium. The BEIgE study](#)

[Florence Schleich](#)<sup>1</sup>, [Eléonore Maury](#)<sup>2</sup>, [Claus Bachert](#)<sup>3</sup>, [Shane Hanon](#)<sup>4</sup>, [Olivier Michel](#)<sup>5</sup>, [Mieke Jansen](#)<sup>2</sup>, [Sandra Gurdain](#)<sup>2</sup>, [Jan Van Schoor](#)<sup>2</sup>, [Belgian IgE \(BEIgE\) Study Investigators](#)

Collaborators, Affiliations [expand](#)

- PMID: 37340902
- DOI: [10.1111/all.15785](https://doi.org/10.1111/all.15785)

*No abstract available*

- [6 references](#)

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Allergy

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. 2023 Jun 20.

doi: 10.1111/all.15789. Online ahead of print.

# Exercise and physical activity for asthma management: The European Academy of Allergy and Clinical Immunology perspective

[Oliver J Price](#)<sup>1,2,3</sup>, [Stefano Del Giacco](#)<sup>4</sup>, [Radoslaw Gawlik](#)<sup>5</sup>, [Christer Janson](#)<sup>6</sup>, [Mikaela Odemyr](#)<sup>7</sup>, [Nikolaos G Papadopoulos](#)<sup>8</sup>, [Matteo Bonini](#)<sup>9,10</sup>

Affiliations expand

- PMID: 37340667
- DOI: [10.1111/all.15789](https://doi.org/10.1111/all.15789)

*No abstract available*

**Keywords:** asthma; exercise; management; physical activity; rehabilitation.

- [18 references](#)

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# [The role of small airway function parameters in preschool asthmatic children](#)

[Liangqin Yi](#)<sup>1</sup>, [Yan Zhao](#)<sup>1</sup>, [Ziyao Guo](#)<sup>1</sup>, [Qinyuan Li](#)<sup>1</sup>, [Guangli Zhang](#)<sup>2</sup>, [Xiaoyin Tian](#)<sup>2</sup>, [Ximing Xu](#)<sup>3</sup>, [Zhengxiu Luo](#)<sup>4</sup>

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- PMID: 37340433
- PMCID: [PMC10283187](#)
- DOI: [10.1186/s12890-023-02515-3](#)

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## Abstract

**Background:** Small airways are the major sites of inflammation and airway remodeling in all severities of asthma patients. However, whether small airway function parameters could reflect the airway dysfunction feature in preschool asthmatic children remain unclear. We aim to investigate the role of small airway function parameters in evaluating airway dysfunction, airflow limitation and airway hyperresponsiveness (AHR).

**Methods:** Eight hundred and fifty-one preschool children diagnosed with asthma were enrolled retrospectively to investigate the characteristics of small airway function parameters. Curve estimation analysis was applied to clarify the correlation between small and large airway dysfunction. Spearman's correlation and receiver-operating characteristic (ROC) curves were employed to evaluate the relationship between small airway dysfunction (SAD) and AHR.

**Results:** The prevalence of SAD was 19.5% (166 of 851) in this cross-sectional cohort study. Small airway function parameters (FEF25-75%, FEF50%, FEF75%) showed strong correlations with FEV<sub>1</sub>% (r = 0.670, 0.658, 0.609, p<0.001, respectively), FEV<sub>1</sub>/FVC% (r = 0.812, 0.751, 0.871, p<0.001, respectively) and PEF% (r = 0.626, 0.635, 0.530, p<0.01, respectively). Moreover, small airway function parameters and large airway function parameters (FEV<sub>1</sub>%, FEV<sub>1</sub>/FVC%, PEF%) were curve-associated rather than linear-related (p<0.001). FEF25-75%, FEF50%, FEF75% and FEV<sub>1</sub>% demonstrated a positive correlation with PC<sub>20</sub> (r = 0.282, 0.291, 0.251, 0.224, p<0.001, respectively). Interestingly, FEF25-75% and FEF50% exhibited a higher correlation coefficient with PC<sub>20</sub> than FEV<sub>1</sub>% (0.282 vs. 0.224, p = 0.031 and 0.291 vs. 0.224, p = 0.014, respectively). ROC curve analysis for predicting moderate to severe AHR showed that the area under the curve (AUC) was 0.796, 0.783, 0.738, and 0.802 for FEF25-75%, FEF50%, FEF75%, and the combination of FEF25-75% and FEF75%, respectively. When Compared to children with normal lung function, patients with SAD were slightly older, more likely to have a family history of asthma and airflow obstruction with lower FEV<sub>1</sub>% and FEV<sub>1</sub>/FVC%, lower PEF% and more severe AHR with lower PC<sub>20</sub> ( all p<0.05).

**Conclusion:** Small airway dysfunction is highly correlated with large airway function impairment, severe airflow obstruction and AHR in preschool asthmatic children. Small airway function parameters should be utilized in the management of preschool asthma.

**Keywords:** Asthma; FEF25-75%; FEF50%; FEF75%; Small airway function; Spirometry.

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## Conflict of interest statement

The authors declare no competing interests.

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

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. 2023 Jun 19;381:e072328.

doi: 10.1136/bmj-2022-072328.

## Towards net zero: asthma care

[Laura-Jane E Smith](#)<sup>1</sup>, [Ruhi Bhugra](#)<sup>2</sup>, [Reem Y Kelani](#), [James Smith](#)<sup>3</sup>

Affiliations expand

- PMID: 37336559
- DOI: [10.1136/bmj-2022-072328](https://doi.org/10.1136/bmj-2022-072328)

*No abstract available*

### Conflict of interest statement

Competing interests: The BMJ has judged that there are no disqualifying financial ties to commercial companies. The authors declare the following other interests: JS and LJS are members of NHS England Inhalers Group. Further details of The BMJ policy on financial interests is here:

<https://www.bmj.com/sites/default/files/attachments/resources/2016/03/16-current-bmj-education-coi-form.pdf>.

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. 2023 Jun 18.

doi: 10.1111/cea.14362. Online ahead of print.

# Long-term clinical outcomes of aspirin-exacerbated respiratory disease: Real-world data from an adult asthma cohort

[Youngsoo Lee](#)<sup>1</sup>, [Chungsoo Kim](#)<sup>2</sup>, [Eunyoung Lee](#)<sup>3,4</sup>, [Hyun Young Lee](#)<sup>5</sup>, [Seong-Dae Woo](#)<sup>6</sup>, [Seng Chan You](#)<sup>7</sup>, [Rae Woong Park](#)<sup>2,3</sup>, [Hae-Sim Park](#)<sup>1</sup>

Affiliations expand

- PMID: 37332228
- DOI: [10.1111/cea.14362](https://doi.org/10.1111/cea.14362)

## Abstract

**Background:** Aspirin-exacerbated respiratory disease (AERD) is a phenotype of severe asthma, but its disease course has not been well documented compared with that of aspirin-tolerant asthma (ATA).

**Objectives:** This study aimed to investigate the long-term clinical outcomes between AERD and ATA.

**Methods:** AERD patients were identified by the diagnostic code and positive bronchoprovocation test in a real-world database. Longitudinal changes in lung function, blood eosinophil/neutrophil counts, and annual numbers of severe asthma exacerbations (AEx) were compared between the AERD and the ATA groups. Within a year after baseline, two or more severe AEx events indicated severe AERD, whereas less than two AEx events indicated nonsevere AERD.

**Results:** Among asthmatics, 353 had AERD in which 166 and 187 patients had severe and nonsevere AERD, respectively, and 717 had ATA. AERD patients had significantly lower FEV1%, higher blood neutrophil counts, and higher sputum eosinophils (%) (all  $p < .05$ ) as well as higher levels of urinary LTE4 and serum periostin, and lower levels of serum myeloperoxidase and surfactant protein D (all  $p < .01$ ) than those with ATA. In a 10-year follow-up, the severe AERD group maintained lower FEV1% with more severe AEs than the nonsevere AERD group.

**Conclusion and clinical relevance:** We demonstrated that AERD patients presented poorer long-term clinical outcomes than ATA patients in real-world data analyses.

**Keywords:** aspirin-exacerbated respiratory disease; asthma exacerbations; biomarker; eosinophilic inflammation; lung function.

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. 2023 Jun 18.

doi: 10.1007/s41030-023-00230-2. Online ahead of print.

## [Gaps and Future Directions in Clinical Research on Obesity-Related Asthma](#)

[Andi C Hudler](#)<sup>1</sup>, [Isaías Raymundo Ramírez Díaz](#)<sup>2</sup>, [Sunita Sharma](#)<sup>1</sup>, [Fernando Holguin](#)<sup>3</sup>

Affiliations expand

- PMID: 37330948

- DOI: [10.1007/s41030-023-00230-2](https://doi.org/10.1007/s41030-023-00230-2)

Free article

## Abstract

Obesity is a major comorbidity for the development and worsening of asthma. It is associated with increased disease incidence, reduced response to inhaled and systemic steroids, increased asthma exacerbations, and poor disease control. Over the past two decades, we have learned that there are clinical asthma phenotypes associated with obesity, which have unique immune, inflammatory, and metabolic disease mechanisms. The objectives of this review are to provide a brief overview of the associations and gaps between these chronic inflammatory diseases and the role that traditional therapies have on treating patients with obesity-related asthma, and to describe new clinical research of therapeutic developments targeting mechanisms that are more specific to this patient population.

**Keywords:** Airway inflammation; Asthma; Metabolic dysregulation; Obesity.

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. 2023 Jun 23;1-7.

doi: 10.1080/1744666X.2023.2226869. Online ahead of print.

# [Definition of severity and treatment response in chronic rhinosinusitis with](#)

# nasal polyps: a Delphi study among French experts

[Florent Carsuzaa](#)<sup>1,2</sup>, [Léa Fath](#)<sup>3,4</sup>, [Maxime Fieux](#)<sup>5,6,7</sup>, [Sophie Bartier](#)<sup>7,8</sup>, [Guillaume de Bonnecaze](#)<sup>9,10</sup>, [Cécile Rumeau](#)<sup>11,12</sup>, [Justin Michel](#)<sup>13</sup>, [Jean-François Papon](#)<sup>7,14,15</sup>, [Mihaela Alexandru](#)<sup>14,15,16</sup>, [Valentin Favier](#)<sup>17,18</sup>

Affiliations expand

- PMID: 37327360
- DOI: [10.1080/1744666X.2023.2226869](https://doi.org/10.1080/1744666X.2023.2226869)

## Abstract

**Introduction:** The introduction of biotherapies has significantly changed the management of patients with chronic rhinosinusitis with nasal polyps (CRSwNP). These drugs are generally reserved for severe or recurrent CRSwNP. Thus, the concepts of severity of the disease and treatment response must be mastered by otorhinolaryngologists. However, a clear definition of these concepts in CRSwNP is missing.

**Methods:** This article focuses on definitions of severity and treatment response in CRSwNP by providing an expert consensus among French rhinologists, using a Delphi study.

**Results:** The severity assessment should seek the presence of uncontrolled asthma, olfactory disorders, nasal blockage, impaired quality of life (QOL) and cumulative annual dose of systemic corticosteroids. The treatment response should assess the presence of olfactory disorders, nasal blockage, QOL impairment, response to background therapy, resistance and/or dependence to oral corticosteroids, cumulative annual dose of systemic corticosteroids, response to surgery and to biologics. A failure after polypectomy should not be considered as a failure of surgical management of CRSwNP and must discuss the realization of an extended sinus surgery procedure before the prescription of biologics.

**Conclusion:** Definitions of severity, control of CRSwNP, as well as therapeutic strategies to improve patients' QOL achieved high level of consensus.

**Keywords:** CRSwNP; nasal polyposis; severity; systemic corticosteroids; treatment response.

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. 2023 Jun 19.

doi: 10.1515/jpm-2022-0543. Online ahead of print.

# [Perinatal, obstetric and parental risk factors for asthma in the offspring throughout childhood: a longitudinal cohort study](#)

[Rafael A Caparros-Gonzalez](#)<sup>1,2</sup>, [Cecilia Essau](#)<sup>3</sup>, [Jean-Philippe Gouin](#)<sup>4</sup>, [Andres Pemau](#)<sup>5</sup>, [Alejandra Galvez-Merlin](#)<sup>5</sup>, [Alejandro de la Torre-Luque](#)<sup>6,7</sup>

Affiliations expand

- PMID: 37326102
- DOI: [10.1515/jpm-2022-0543](https://doi.org/10.1515/jpm-2022-0543)

## Abstract

**Objectives:** Asthma is a common chronic and burdensome disease which typically begins in childhood. The aim of this study was to assess perinatal and obstetric factors which may increase the risk of developing asthma in the offspring.

**Methods:** Data from five consecutive waves (n=7,073 children, from birth to 15 years old) from a nationally-representative birth cohort of people born in the United Kingdom between 2000 and 2002, the Millennium Cohort Study (MCS), were used. The Kaplan-Meier survival curve was used to graphically display the risk of developing asthma from early childhood to adolescence. The Z-based Wald test was used to prove significant covariate loading.

**Results:** Cox regression analyzing the influence of covariates on asthma development risk showed a significant likelihood ratio test,  $\chi^2(18)=899.30$ ,  $p<0.01$ . A parent with asthma (OR=2.02,  $p<0.01$ ), a younger maternal age at delivery (OR=0.98,  $p<0.05$ ), and the use of assisted reproductive technology (OR=1.43,  $p<0.05$ ) were associated with an increased risk of developing asthma in the offspring.

**Conclusions:** Perinatal factors (a younger maternal age, assisted reproductive technology) and a parental factor (a parent with asthma) increased the risk for developing asthma in the offspring.

**Keywords:** assisted reproductive technology; asthma; delivery; perinatal factors; pregnancy.

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J Asthma

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. 2023 Jun 19;1-8.

doi: 10.1080/02770903.2023.2225603. Online ahead of print.

## [Predicting emergency department visits among children with asthma in two academic medical systems](#)

[Tyler J Gorham](#)<sup>1</sup>, [Dmitry Tumin](#)<sup>2</sup>, [Judith Groner](#)<sup>3,4</sup>, [Elizabeth Allen](#)<sup>3,4</sup>, [Jessica Retzke](#)<sup>3,4</sup>, [Stephen Hersey](#)<sup>3,4</sup>, [Swan Bee Liu](#)<sup>1</sup>, [Charlie Macias](#)<sup>5</sup>, [Kamel Alachraf](#)<sup>6</sup>, [Aimee W Smith](#)<sup>7</sup>, [Theresa Blount](#)<sup>8</sup>, [Bennett Wall](#)<sup>8</sup>, [Kim Crickmore](#)<sup>8</sup>, [William I Wooten](#)<sup>2</sup>, [Shaundreal D Jamison](#)<sup>2</sup>, [Steve Rust](#)<sup>1</sup>

Affiliations expand

- PMID: 37318283
- DOI: [10.1080/02770903.2023.2225603](https://doi.org/10.1080/02770903.2023.2225603)

## Abstract

**Objective:** To develop and validate a predictive algorithm that identifies pediatric patients at risk of asthma-related emergencies, and to test whether algorithm performance can be improved in an external site via local retraining. **Methods:** In a retrospective cohort at the first site, data from 26 008 patients with asthma aged 2-18 years (2012-2017) were used to develop a lasso-regularized logistic regression model predicting emergency department visits for asthma within one year of a primary care encounter, known as the Asthma Emergency Risk (AER) score. Internal validation was conducted on 8634 patient encounters from 2018. External validation of the AER score was conducted using 1313 pediatric patient encounters from a second site during 2018. The AER score components were then reweighted using logistic regression using data from the second site to improve local model performance. Prediction intervals (PI) were constructed via 10 000 bootstrapped samples. **Results:** At the first site, the AER score had a cross-validated area under the receiver operating characteristic curve (AUROC) of 0.768 (95% PI: 0.745-0.790) during model training and an AUROC of 0.769 in the 2018 internal validation dataset ( $p = 0.959$ ). When applied without modification to the second site, the AER score had an AUROC of 0.684 (95% PI: 0.624-0.742). After local refitting, the cross-validated AUROC improved to 0.737 (95% PI: 0.676-0.794;  $p = 0.037$  as compared to initial AUROC). **Conclusions:** The AER score demonstrated strong internal validity, but external validity was dependent on reweighting model components to reflect local data characteristics at the external site.

**Keywords:** Machine learning; clinical decision support; pediatric asthma; population health; predictive modeling.

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2023 Jun 19;1-13.

doi: 10.1080/17476348.2023.2226392. Online ahead of print.

# Defining response to therapy with biologics in severe asthma: from global evaluation to super response and remission

[Andriana I Papaioannou](#)<sup>1</sup>, [Evangelia Fouka](#)<sup>2,3</sup>, [Konstantinos Bartziokas](#)<sup>4</sup>, [Maria Kallieri](#)<sup>5</sup>, [Angelos Vontetsianos](#)<sup>6</sup>, [Konstantinos Porpodis](#)<sup>2</sup>, [Nikoletta Rovina](#)<sup>6</sup>, [Stelios Loukides](#)<sup>7</sup>, [Petros Bakakos](#)<sup>6</sup>

Affiliations expand

- PMID: 37318035
- DOI: [10.1080/17476348.2023.2226392](https://doi.org/10.1080/17476348.2023.2226392)

## Abstract

**Introduction:** In recent years, monoclonal antibodies targeting Type-2 inflammatory pathways have been developed for severe asthma treatment. However, even when patients are carefully selected, the response to treatment varies.

**Areas covered:** Different studies have evaluated response to therapy with biologics such as exacerbation reduction, symptom improvement, pulmonary function increase, improvement in QoL, or decrease of oral corticosteroids, showing that all patients do not respond to all disease aspects and leading to an extensive debate regarding the definition of response.

**Expert opinion:** Assessing response to therapy is of great importance, but since there is no uniform definition of treatment response, the recognition of patients who really benefit from these therapies remains an unmet need. In the same context, identifying non-responding patients in which biologic therapy should be switched or substituted by alternative treatment options is of paramount importance. In this review, we present the road trip of the definition of therapeutic response to biologics in severe asthmatics by presenting the current relevant medical literature. We also present the suggested predictors of response, with an emphasis on the so-called super-responders. Finally, we

discuss the recent insights regarding asthma remission as a feasible treatment goal and provide a simple algorithm for the evaluation of response.

**Keywords:** Asthma; Benralizumab; Biologics; Mepolizumab; Omalizumab.

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J Asthma

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. 2023 Jun 23;1-8.

doi: 10.1080/02770903.2023.2225605. Online ahead of print.

## [Investigation of miRNAs that are effective in the pathogenesis of asthma](#)

[Ender Coskunpinar](#)<sup>1</sup>, [Betul Akcesme](#)<sup>1</sup>, [Sevgi Kalkanli Tas](#)<sup>2</sup>, [Aysun Aynaci](#)<sup>3</sup>

Affiliations [expand](#)

- PMID: 37314187
- DOI: [10.1080/02770903.2023.2225605](https://doi.org/10.1080/02770903.2023.2225605)

### Abstract

**Objectives:** Asthma is a complex disease characterized by inflammation of the airways, involving epigenetic changes, in which genetic and environmental factors act together. MicroRNAs as candidate biomarkers stand out as target molecules in the diagnosis and treatment of immunological and inflammatory diseases. Our aim of this study is to identify

miRNAs that are thought to be effective in the pathogenesis of allergic asthma and to reveal candidate biomarkers associated with the disease.

**Methods:** Fifty patients, aged between 18-80 years, who were diagnosed with allergic asthma and 18 healthy volunteers were included in the study. After the collection 2 mL of total blood from volunteers, RNA isolation and cDNA synthesis were performed. For miRNA profile screening, expression analysis was performed by real-time PCR method using miScript miRNA PCR Array. GeneGlobe Data Analysis Center was used to evaluate dysregulated miRNAs.

**Results:** In the allergic asthma group, 9 (18%) of the patients were male and 41 (82%) of them were female. In the control group, 7 (38.89%) were male and 11 (61.1%) were female (P:0.073). As a result of the research, the expression levels of miR-142-5p, miR-376c-3p and miR-22-3p were down-regulated, while miR-27b-3p, miR-26b-5p, miR-15b-5p and miR-29c-3p detected as up-regulated.

**Discussion:** The results of our study suggest that miR142-5p, miR376c-3p and miR22-3p promote Ubiquitin-mediated proteolysis by inhibiting TGF- $\beta$  expression through a mechanism involving the p53 signaling pathway. The deregulated miRNAs may be used as a diagnostic and prognostic biomarker in asthma.

**Keywords:** Asthma; PCR array; biomarker; miRNA.

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J Asthma

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. 2023 Jun 21;1-8.

doi: 10.1080/02770903.2023.2225607. Online ahead of print.

## [Childhood asthma in the Bronx, NY; the impact of pollutants on length of hospital stay](#)

[Jennifer Hardell](#)<sup>1</sup>, [Ellen J Silver](#)<sup>1</sup>, [Ilias Kavouras](#)<sup>2</sup>, [Diana S Lee](#)<sup>3</sup>, [Elissa Gross](#)<sup>4</sup>

Affiliations expand

- PMID: 37310769
- DOI: [10.1080/02770903.2023.2225607](https://doi.org/10.1080/02770903.2023.2225607)

## Abstract

**Objective:** The length of hospital stay (LOS) is a proxy of asthma exacerbation severity and healthcare cost. The study aims to estimate the effect of ambient air pollution on pediatric asthma LOS in the Bronx, NY.

**Methods:** A total of 1,920 children admitted to the hospital in Bronx, NY due to asthma during 2017-2019 period were included in the study. Demographic and clinical parameters were obtained from medical records. Daily ozone (O<sub>3</sub>) and fine particulate matter (PM<sub>2.5</sub>) measurements were obtained from local air quality networks. Poisson regression adjusting for gender, age, weight status, respiratory infections including influenza, and ambient temperature was applied to determine whether there was an association of air pollution with length of hospital stay.

**Results:** The mean LOS varied by age, sex, weight status, influenza vaccination status, respiratory viral panel (RVP) results, asthma controller use, and asthma classification. After controlling for these factors in Poisson regression, the mean LOS increased up to 10.62% (95%CI: 0.78-21.41; *p* = 0.03) for an increase of 10 µg/m<sup>3</sup> of PM<sub>2.5</sub> exposure on admission day, and 3.90% (95%CI = 0.06-7.88; *p* = 0.05) for an increase of 10 ppbv of O<sub>3</sub> concentration during the previous day.

**Conclusion:** Ambient particulate and ozone pollution is associated with lengthier hospital stays for pediatric asthma, potentially indicating more severe asthma exacerbations.

**Keywords:** Bronx; Pediatric asthma; ambient air pollution; environmental justice; fine particles; hospitalization; ozone.

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J Asthma

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. 2023 Jun 20;1-9.

doi: 10.1080/02770903.2023.2220795. Online ahead of print.

# Based on what parameters is safe to discontinue inhaled corticosteroids in children with asthma?

[Iva Mihatov Štefanović<sup>1,2</sup>](#), [Renata Vrsalović<sup>1</sup>](#)

Affiliations expand

- PMID: 37262011
- DOI: [10.1080/02770903.2023.2220795](https://doi.org/10.1080/02770903.2023.2220795)

## Abstract

**Objective:** Remission of childhood asthma has not been widely studied. Patients in clinical remission continue to have some degree of bronchial hyperresponsiveness (BHR). The aim of this study was to investigate whether clinical parameters and lung function test are good parameters for discontinuation of inhaled corticosteroids (ICS) in asthmatic children, including patients with persistent BHR, as measured by the methacholine challenge test (MCT).

**Methods:** One year after discontinuation of inhaled corticosteroids (ICS), MCT was performed in a group of 40 asthmatic children to confirm or exclude BHR. In all patients, ICS treatment was discontinued based on the same parameters: symptoms, spirometry, daily PEF, and negative bronchodilator test. After achieving complete asthma control for at least 6 to 12 months, ICS treatment was stepped down and discontinued. Clinical course and spirometry were followed up after ICS discontinuation.

**Results:** Positive MCT was found in 50% of the patients. There was no statistically significant difference between the positive and negative MCT groups in age at initiation and discontinuation of ICS therapy, duration of ICS therapy, duration of stepping down period, FEV1, and PEF at the time of withdrawal of ICS and one year later. ICS treatment had to be restarted in two patients from the positive MCT group, due to recurrence of asthma symptoms.

**Conclusion:** Clinical parameters, normal spirometry, daily PEF values, and a negative bronchodilator test are good parameters for discontinuing ICS treatment in asthmatic children, even in patients with persistent BHR. Children should continue to be monitored, as symptoms may recur.

**Keywords:** Airway hyperresponsiveness; bronchial provocation test; childhood asthma; control, guidelines, inhaled corticosteroids.

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. 2023 Jun 20;870:147326.

doi: 10.1016/j.gene.2023.147326. Epub 2023 Apr 1.

## [Aspirin-Exacerbated Respiratory Disease Polymorphisms; a review study](#)

[Aida Fathollahpour](#)<sup>1</sup>, [Fahimeh Abdi Abyaneh](#)<sup>2</sup>, [Behzad Darabi](#)<sup>3</sup>, [Mohsen Ebrahimi](#)<sup>4</sup>, [Wesam Kooti](#)<sup>5</sup>, [Rasoul Nasiri Kalmarzi](#)<sup>6</sup>

Affiliations expand

- PMID: 37011853
- DOI: [10.1016/j.gene.2023.147326](https://doi.org/10.1016/j.gene.2023.147326)

### Abstract

Aspirin exacerbated respiratory disease (AERD) is a condition caused by increased bronchoconstriction in people with asthma after taking aspirin or another NSAID. Molecular analysis of the human genome has opened up new perspectives on human

polymorphisms and disease. This study was conducted to identify the genetic factors that influence this disease due to its unknown genetic factors. We evaluated research studies, letters, comments, editorials, eBooks, and reviews. PubMed/MEDLINE, Web of Sciences, Cochrane Library, and Scopus were searched for information. We used the keywords polymorphisms, aspirin-exacerbated respiratory disease, asthma, allergy as search terms. This study included 38 studies. AERD complications were associated with polymorphisms in ALOX15, EP2, ADRB2, SLC6A12, CCR3, CRTH2, CysLTs, DPCR1, DPP10, FPR2, HSP70, IL8, IL1B, IL5RA, IL-13, IL17RA, ILVBL, TBXA2R, TLR3, HLA-DRB and HLA-DQ, HLA-DR7, HLA-DP. AERD was associated with heterogeneity in gene polymorphisms, making it difficult to pinpoint specific gene changes. Therefore, diagnosing and treating AERD may be facilitated by examining common variants involving the disease.

**Keywords:** Allergy; Aspirin-Exacerbated Respiratory Disease; Asthma; Polymorphisms.

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## 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

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. 2023 Jun 22;61(6):2201763.

doi: 10.1183/13993003.01763-2022. Print 2023 Jun.

# Preterm birth and asthma and COPD in adulthood: a nationwide register study from two Nordic countries

[Anna Pulakka](#)<sup>1,2</sup>, [Kari Risnes](#)<sup>3,4</sup>, [Johanna Metsälä](#)<sup>5</sup>, [Suvi Alenius](#)<sup>5,6</sup>, [Katriina Heikkilä](#)<sup>5</sup>, [Sara Marie Nilsen](#)<sup>3,7</sup>, [Pieta Näsänen-Gilmore](#)<sup>5,8,9</sup>, [Peija Haaramo](#)<sup>10</sup>, [Mika Gissler](#)<sup>11,12,13</sup>, [Signe Opdahl](#)<sup>14</sup>, [Eero Kajantie](#)<sup>5,9,14</sup>

Affiliations expand

- PMID: 36990472
- PMCID: [PMC10285109](#)
- DOI: [10.1183/13993003.01763-2022](#)

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## Abstract

**Background:** Preterm birth affects lungs in several ways but few studies have follow-up until adulthood. We investigated the association of the entire spectrum of gestational ages with specialist care episodes for obstructive airway disease (asthma and chronic obstructive pulmonary disease (COPD)) at age 18-50 years.

**Methods:** We used nationwide registry data on 706 717 people born 1987-1998 in Finland (4.8% preterm) and 1 669 528 born 1967-1999 in Norway (5.0% preterm). Care episodes of asthma and COPD were obtained from specialised healthcare registers, available in Finland for 2005-2016 and in Norway for 2008-2017. We used logistic regression to estimate odds ratios (ORs) for having a care episode with either disease outcome.

**Results:** Odds of any obstructive airway disease in adulthood for those born at <28 or 28-31 completed weeks were 2-3-fold of those born full term (39-41 completed weeks), persisting after adjustments. For individuals born at 32-33, 34-36 or 37-38 weeks, the odds were 1.1- to 1.5-fold. Associations were similar in the Finnish and the Norwegian data and among people aged 18-29 and 30-50 years. For COPD at age 30-50 years, the OR was 7.44 (95% CI 3.49-15.85) for those born at <28 weeks, 3.18 (95% CI 2.23-4.54) for those born at 28-31 weeks and 2.32 (95% CI 1.72-3.12) for those born at 32-33 weeks. Bronchopulmonary dysplasia in infancy increased the odds further for those born at <28 and 28-31 weeks.

**Conclusion:** Preterm birth is a risk factor for asthma and COPD in adulthood. The high odds of COPD call for diagnostic vigilance when adults born very preterm present with respiratory symptoms.

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## Conflict of interest statement

Conflict of interest: All authors have nothing to disclose.

## Comment in

- [Prematurity-related chronic respiratory disease across the life course.](#)  
Duijts L. *Eur Respir J.* 2023 Jun 22;61(6):2300662. doi: 10.1183/13993003.00662-2023. Print 2023 Jun. PMID: 37348899 No abstract available.
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. 2023 Jun 22;104095.

doi: 10.1016/j.resp.2023.104095. Online ahead of print.

**[Exposure to ambient air pollutants and short-term risk for exacerbations of allergic rhinitis: a time-stratified, case-crossover study in the three largest urban agglomerations in Poland](#)**

[Piotr Dąbrowiecki](#)<sup>1</sup>, [Andrzej Chciałowski](#)<sup>2</sup>, [Agata Dąbrowiecka](#)<sup>3</sup>, [Anna Piórkowska](#)<sup>4</sup>, [Artur Badyda](#)<sup>5</sup>

Affiliations expand

- PMID: 37355057
- DOI: [10.1016/j.resp.2023.104095](https://doi.org/10.1016/j.resp.2023.104095)

## Abstract

Allergic rhinitis (AR) affects 10% of the world population, with an increased prevalence in regions with substantial air pollution, but the association between exposure to air pollutants and the short-term risk of AR exacerbations is unclear. We used a time-series approach to analyze the risk of hospital admissions due to AR over 8 days from exposure to various air pollutants. Distributed lag nonlinear models were used to analyze data gathered between 2012 and 2018 in the three largest urban agglomerations in Poland. The analyses were carried out separately for the warm (April - September) and cold seasons (October - March). Overall, there were 1407 admissions due to AR. In the warm season, the rate ratio (95% confidence interval) for admission per 10 $\mu$ g/m<sup>3</sup> was 1.202 (1.044, 1.384) for particulate matter less than 10 microns (PM<sub>10</sub>); 1.094 (0.896, 1.335) for particulate matter less than 2.5 microns (PM<sub>2.5</sub>); 0.946 (0.826, 1.085) for nitrogen dioxide (NO<sub>2</sub>); 0.837 (0.418, 1.677) for sulfur dioxide (SO<sub>2</sub>); and 1.112 (1.011, 1.224) for ozone (O<sub>3</sub>). In the cold season, the rate ratio for admission per 10 $\mu$ g/m<sup>3</sup> was 1.035 (0.985, 1.088) for PM<sub>10</sub>; 1.041 (0.977, 1.108) for PM<sub>2.5</sub>; 1.252 (1.122, 1.398) for NO<sub>2</sub>; 0.921 (0.717, 1.181) for SO<sub>2</sub>; and 1.030 (1.011, 1.050) for O<sub>3</sub>. In conclusion, the risk of admission due to AR increased significantly after exposure to O<sub>3</sub> in the warm and cold seasons. Exposure to PM<sub>10</sub> was associated with a significantly increased risk of AR hospitalizations in the warm season only, whereas exposure to NO<sub>2</sub> was associated with a significantly increased risk of AR admission in the cold season.

**Keywords:** PM<sub>10</sub>; air pollution; allergic rhinitis; nitrogen dioxide; ozone; sulfur dioxide.

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# Risk factors for recurrent wheezing after bronchiolitis

[Y H Fan](#)<sup>#1</sup>, [P L Zhang](#)<sup>#1</sup>, [Y J Huang](#)<sup>2</sup>, [C Xie](#)<sup>1</sup>, [T Ai](#)<sup>1</sup>

Affiliations expand

- PMID: 37353732

- DOI: [10.1186/s12887-023-04108-9](https://doi.org/10.1186/s12887-023-04108-9)

## Abstract

**Background:** This study aimed to determine whether there was an association between certain factors in patients with bronchiolitis and recurrent wheezing in childhood.

**Method:** In 2021 we tracked children hospitalized for bronchiolitis at Chengdu Women's and Children's Central Hospital in 2017. The patients were classified into recurrent wheezing group (RWG) and non-recurrent wheezing group (NRWG). Possible risk factors including maternal age, school-age siblings, allergic history, atopic dermatitis, allergic rhinitis, atopic family history, severity of the condition, duration of hospitalization, nasopharyngeal secretions culture, blood eosinophil counts, FeNO and skin prick test were compared between the two groups. Continuous variables were analyzed by independent sample t-test for normal distribution and Mann-Whitney U-test for non-normal distribution. Categorical variables were tested using chi-square tests. Multifactor analysis was conducted by stepwise logistics regression analysis.

**Results:** In total 167 participants were included, of which 26 and 141 were in RWG and NRWG respectively. In RWG children represented higher maternal age ( $P = 0.02$ ) and greater probability of allergic history, atopic dermatitis, allergic rhinitis, atopic family history (odds ratio [OR] = 4.0, 3.7, 7.8, 10.9 respectively,  $P < 0.01$ ). However, school-age siblings, severity of the condition, duration of hospitalization, blood eosinophil counts, fractional exhaled nitric oxide and skin prick test results seemed unrelated to recurrent wheezing. In the subgroup analysis of nasopharyngeal secretion culture, there were more

Moraxella catarrhalis-positive in RWG(P = 0.043). Atopic dermatitis, allergic rhinitis and atopic family history were identified as independent risk factors for recurrent wheezing.

**Conclusion:** Some children with bronchiolitis will develop recurrent wheezing, and the risk factors are allergic history, Moraxella catarrhalis infection or colonization, atopic dermatitis, allergic rhinitis and atopic family history; the latter three are independent risk factors.

**Keywords:** Bronchiolitis; Infant; Recurrent wheezing.

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- [35 references](#)

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Chemosphere

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. 2023 Jun 21;139296.

doi: 10.1016/j.chemosphere.2023.139296. Online ahead of print.

## [Intrauterine and early postnatal exposure to air pollution associated with childhood allergic rhinitis](#)

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- DOI: [10.1016/j.chemosphere.2023.139296](https://doi.org/10.1016/j.chemosphere.2023.139296)

## Abstract

**Background:** Despite mounting evidence linking allergic rhinitis (AR) to air pollution, it remains unclear which major air pollutant(s) and critical window(s) of exposure play important roles in children's AR.

**Objective:** To examine the effects of intrauterine and early postnatal exposure to outdoor air pollution on children with doctor-diagnosed allergic rhinitis (DDAR).

**Methods:** A retrospective cohort study involving 8689 kindergarten children was conducted in Changsha, China, from 2019 to 2020. A questionnaire survey was conducted to collect information on the health status of children and their family members, as well as their living habits and home environment. Personal exposure to daily outdoor air pollutants (PM<sub>2.5</sub>, PM<sub>2.5-10</sub>, PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>2</sub>, and CO) was estimated during 40 gestational weeks, three trimesters, the entire pregnancy, and the first year after birth. Multiple logistic regression models were used to assess the associations between air pollution and children's DDAR.

**Results:** Children's DDAR was associated with intrauterine CO exposure, with adjusted ORs (95% CI) of 1.18 (1.03-1.34) for each IQR increase in CO exposure. The second and third trimesters were critical windows for PM<sub>2.5</sub> and CO exposure in relation to DDAR. Furthermore, early postnatal exposure to PM<sub>2.5-10</sub> and PM<sub>10</sub> in first year of life was associated with DDAR development, with adjusted ORs (95% CI) of 1.11 (1.01-1.22) and 1.27 (1.09, 1.47). The entire pregnancy and the first year of life were critical windows for CO and PM<sub>10</sub> exposure. Some children were predisposed to DDAR risk due to exposure to traffic-related air pollution (TRAP).

**Conclusion:** Our findings support the hypothesis of "fetal origin of allergic rhinitis" by demonstrating that intrauterine and early postnatal exposure to air pollution plays an important role in children's DDAR.

**Keywords:** Childhood allergic rhinitis; Early life exposure; Particulate matters; Pregnancy; TRAP.

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## 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.

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Review

Int Immunopharmacol

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doi: 10.1016/j.intimp.2023.110495. Online ahead of print.

## [Aiming to IgE: Drug development in allergic diseases](#)

[Xiao-Jing Ling](#)<sup>1</sup>, [Ji-Fu Wei](#)<sup>2</sup>, [Ying Zhu](#)<sup>3</sup>

[Affiliations expand](#)

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- DOI: [10.1016/j.intimp.2023.110495](https://doi.org/10.1016/j.intimp.2023.110495)

### Abstract

The incidence of allergic disease significantly increases in recent decades, causing it become a major public health problem all over the world. The common allergic diseases such as allergic dermatitis, allergy rhinitis, allergic asthma and food allergy are mediated, at least in part, by immunoglobulin E (IgE), and so IgE acts as a central role in allergic diseases. IgE can interact with its high-affinity receptor (FcεR I ) which is primarily expressed on tissue-resident mast cells and circulating basophils, initiating intracellular signal transduction and then causing the activation and degranulation of mast cells and basophils. On the other hand, IgE interaction with its low-affinity receptor (CD23), can regulate various IgE-mediated immune responses including IgE-allergen complex presentation, IgE synthesis, the growth and differentiation of both B and T cells, and the secretion of pro-inflammatory mediators. With the deeper mechanism research for allergic diseases, new therapeutic strategies for interfering IgE are developed and receive a great attention. In this review, we summarize a current profile of therapeutic strategies for

interfering IgE in allergic diseases. Besides, we suggest that targeting memory B cells (including long-lived plasma cells and (or) IgE<sup>+</sup> memory B cells) may help to completely control allergic diseases, and highlight that the development of drugs synergistically aiming to multiple targets can be a better choice for improving treatment efficacy which results from allergic diseases as the systemic disorders caused by an impaired immune system.

**Keywords:** Allergy diseases; Challenge; Drug development; IgE; Therapeutic strategies.

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**[Increase in the prevalence of follicular regulatory T cells correlates with clinical efficacy of sublingual immunotherapy with house dust mites](#)**

[Takuya Murao](#)<sup>1</sup>, [Hideaki Kouzaki](#)<sup>1</sup>, [Hiroyuki Arai](#)<sup>1</sup>, [Koji Matsumoto](#)<sup>1</sup>, [Keigo Nakamura](#)<sup>1</sup>, [Kento Kawakita](#)<sup>1</sup>, [Ichiro Tojima](#)<sup>1</sup>, [Shino Shimizu](#)<sup>1</sup>, [Atsushi Yuta](#)<sup>2</sup>, [Takeshi Shimizu](#)<sup>1</sup>

Affiliations expand

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## Abstract

**Background:** Allergic rhinitis (AR) impairs quality of life and affects nearly 40% of the Japanese population. Sublingual immunotherapy (SLIT) is the disease-modifying treatment for AR, but requires the selection of a biomarker associate with clinical efficacy in patients with AR who are treated with SLIT. The present study sought to examine objective biomarkers used for assessing the clinical efficacy of SLIT.

**Methods:** We examined the effects of one year of SLIT treatment with house dust mites (HDM) using peripheral blood mononuclear cells (PBMCs) and serum from patients with AR. The prevalences of follicular regulatory T (Tfr) cells, type 2 follicular T helper (Tfh2) cells, type 2 helper (Th2) cells, conventional regulatory T (Treg) cells, and type 1 regulatory T (Tr1) cells were examined by flow cytometry. Serum concentrations of HDM-specific IgA, IgE, and IgG4 antibodies, and HDM-induced production of IL-5 and IL-10 from cultured PBMCs were evaluated by ELISA.

**Results:** Following one year of SLIT, the prevalences of Tfr cells, conventional Treg cells, and Tr1 cells were significantly increased, whereas that of Th2 cells and Tfh2 cells were significantly decreased; the serum concentration of HDM-specific IgG4 was significantly increased; and HDM-induced production of IL-5 from PBMCs was significantly decreased, while that of IL-10 was significantly increased. The increase in the prevalence of Tfr cells after SLIT correlated positively with the improvement of clinical symptom scores.

**Conclusion:** An increase in Tfr cells may play an important role in SLIT, and may be a useful indicator for the clinical efficacy of SLIT. This article is protected by copyright. All rights reserved.

**Keywords:** allergic rhinitis; clinical score; follicular regulatory T cell; house dust mites; sublingual immunotherapy.

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# Development of a method of nasal secretions sampling for local nasal inflammation studies

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Affiliations expand

- PMID: 37339336
- DOI: [10.1080/1744666X.2023.2228493](https://doi.org/10.1080/1744666X.2023.2228493)

## Abstract

**Background:** Analysis of immune markers in nasal secretions has become crucial in the study of nasal diseases. We proposed the cotton piece method, a modified method, for the collection and processing of nasal secretions.

**Methods:** The nasal secretions of 31 healthy control participants and 32 patients with nasal diseases were collected by the traditional sponge method and the cotton piece method, respectively. The concentrations of 14 cytokines and chemokines related to nasal diseases were detected.

**Results:** The properties of nasal secretions collected by the cotton piece method were more uniform than the sponge method. The concentration of IL-6 in the disease group collected by the cotton piece method was significantly higher than that in the control group ( $P = 0.002$ ), and the cotton piece method could distinguish the positive detection

rates of IL-1 $\beta$  ( $P = 0.031$ ) and TNF- $\alpha$  ( $P = 0.001$ ) between the control and disease groups. The levels of inflammatory mediators in nasal secretions could preliminarily distinguish different nasal diseases.

**Conclusions:** The cotton piece method is a noninvasive and reliable method for collecting nasal secretions, which is beneficial for detecting local inflammatory and immune responses of the nasal mucosa.

**Keywords:** Allergic rhinitis; chronic rhinosinusitis; cotton piece; cytokines; nasal secretions; sponge.

FULL TEXT LINKS



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

PLoS Genet

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# Genetic regulators of sputum mucin concentration and their associations with COPD phenotypes

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# Abstract

Hyper-secretion and/or hyper-concentration of mucus is a defining feature of multiple obstructive lung diseases, including chronic obstructive pulmonary disease (COPD). Mucus itself is composed of a mixture of water, ions, salt and proteins, of which the gel-forming mucins, MUC5AC and MUC5B, are the most abundant. Recent studies have linked the concentrations of these proteins in sputum to COPD phenotypes, including chronic bronchitis (CB) and acute exacerbations (AE). We sought to determine whether common genetic variants influence sputum mucin concentrations and whether these variants are also associated with COPD phenotypes, specifically CB and AE. We performed a GWAS to identify quantitative trait loci for sputum mucin protein concentration (pQTL) in the Sub-Populations and Intermediate Outcome Measures in COPD Study (SPIROMICS,  $n = 708$  for total mucin,  $n = 215$  for MUC5AC, MUC5B). Subsequently, we tested for associations of mucin pQTL with CB and AE using regression modeling ( $n = 822$ -1300). Replication analysis was conducted using data from COPDGene ( $n = 5740$ ) and by examining results from the UK Biobank. We identified one genome-wide significant pQTL for MUC5AC (rs75401036) and two for MUC5B (rs140324259, rs10001928). The strongest association for MUC5B, with rs140324259 on chromosome 11, explained 14% of variation in sputum MUC5B. Despite being associated with lower MUC5B, the C allele of rs140324259 conferred increased risk of CB (odds ratio (OR) = 1.42; 95% confidence interval (CI): 1.10-1.80) as well as AE ascertained over three years of follow up (OR = 1.41; 95% CI: 1.02-1.94). Associations between rs140324259 and CB or AE did not replicate in COPDGene. However, in the UK Biobank, rs140324259 was associated with phenotypes that define CB, namely chronic mucus production and cough, again with the C allele conferring increased risk. We conclude that sputum MUC5AC and MUC5B concentrations are associated with common genetic variants, and the top locus for MUC5B may influence COPD phenotypes, in particular CB.

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## Conflict of interest statement

I have read the journal's policy and the authors of this manuscript have the following competing interests: EKS received grant support from GlaxoSmithKline and Bayer. ESW received honoraria from Pri-Med. JAK reports a grant from U.S. National Institutes of Health (NIH) paid to the institution during the conduct of the study. He also reports personal fees from GlaxoSmithKline consulting on antibodies for acute COVID-19; personal fees from AstraZeneca consulting on antibodies for severe asthma, paid to the institution; personal fees from CereVu Medical consultant for medical device for dyspnea, paid to the institution; and personal fees from BData consultant for severe asthma registry outside the submitted work. MCN has received grant support from GlaxoSmithKline. MHC has received grant support from GlaxoSmithKline and Bayer, consulting fees from AstraZeneca, and

speaking fees from Illumina. MK received consulting fees from Arrowhead pharmaceuticals and has a patent pending for mucin measurements in chronic bronchitis. MKH reports personal fees from GlaxoSmithKline, AstraZeneca, Boehringer Ingelheim, Cipla, Chiesi, Novartis, Pulmonx, Teva, Verona, Merck, Mylan, Sanofi, DevPro, Aerogen, Polarian, Regeneron, Amgen, UpToDate, Altesa Biopharma, Medscape, NACE, MDBriefcase, Integrity and Medwiz. She has received either in kind research support or funds paid to the institution from the NIH, Novartis, Sunovion, Nuvaaira, Sanofi, Astrazeneca, Boehringer Ingelheim, Gala Therapeutics, Biodesix, the COPD Foundation and the American Lung Association. She has participated in Data Safety Monitoring Boards for Novartis and Medtronic with funds paid to the institution. She has received stock options from Meissa Vaccines and Altesa Biopharma. MVDB reports research grants paid to their institution by GlaxoSmithKline, Novartis, AstraZeneca, Roche and Genentech. SAC received consulting fees from Sanofi/Regeneron, GlaxoSmithKline, AstraZeneca, Glenmark Pharmaceuticals, and Amgen; honoraria from Sanofi/Regeneron, MJH Holdings LLC: Physicians? Education Resource, Sunovion, UpToDate, and Wolters Kluwer Health; travel support from AstraZeneca and GlaxoSmithKline; and sits on the data safety board or advisory boards of Sanofi/Regeneron, and AstraZeneca, and GlaxoSmithKline. TL has stock options from Variant Bio. VEO is on the Data Safety Monitoring Board or Advisory Board for Sanofi and Regeneron. ATH, EVB, GR, HD, SG, SL, SK, SNPK, WKO, and YL have no competing interests to declare.

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. 2023 Jun 20;23(1):657.

doi: 10.1186/s12913-023-09642-x.

## [Practice of pharmaceutical care by community pharmacists in response to self-medication request for a cough: a simulated client study](#)

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- PMID: 37340333
- PMCID: [PMC10283233](#)
- DOI: [10.1186/s12913-023-09642-x](#)

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## Abstract

**Background:** Community pharmacy practice worldwide has been shifting from product-focused to patient-oriented. However, due to the absence of separation between prescribing and dispensing in Malaysia, community pharmacists may have limited roles in the provision of pharmaceutical care to patients with chronic diseases. Therefore, the main functions of community pharmacists in Malaysia are related to self-medication requests for minor ailments and the supply of non-prescription medications. The objective of this study was to determine the practice of pharmaceutical care by community pharmacists within the Klang Valley, Malaysia in response to self-medication requests for a cough.

**Methods:** This study utilised a simulated client method. A research assistant, acting as a simulated client, visited community pharmacies in the Klang Valley, Malaysia to consult the pharmacists on the treatment of a cough experienced by his father. Upon leaving the pharmacy premise, the simulated client entered the pharmacist's responses in a data collection form which was structured based on pharmacy mnemonics for the response to symptoms, OBRA'90 on counselling elements, the five practice principles of pharmaceutical care by the American Pharmacists Association and literature review. Visits to the community pharmacies were conducted from September to October 2018.

**Results:** The simulated client visited a total of 100 community pharmacies. None of these community pharmacists practised adequate patients' data collection, with only a low proportion who practised all the components studied under medication information evaluation (13%), formulating a drug therapy plan (15%) and monitoring and modifying the plan (3%). Of the 100 community pharmacists, 98 recommended treatment but none of them provided all the counselling elements studied in implementing the drug therapy plan.

**Conclusion:** The present study showed that community pharmacists within the Klang Valley, Malaysia were not providing adequate pharmaceutical care services to patients

seeking self-medication for a cough. Such practice may compromise patient safety if inappropriate medicines or advice are given.

**Keywords:** Community pharmacist; Cough; Counselling; Pharmaceutical care; Simulated client.

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## Conflict of interest statement

The authors declare no competing interests.

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

# Non-tuberculosis mycobacterial lung disease: Analyses of 62 cases

[Article in English, Spanish]

[Alicia Ferradas](#)<sup>1</sup>, [Paula Martí-Ortega](#)<sup>2</sup>, [José-Manuel Ramos-Rincón](#)<sup>3</sup>, [Raquel García-Sevila](#)<sup>4</sup>

[Affiliations expand](#)

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- DOI: [10.1016/j.medcli.2023.03.012](https://doi.org/10.1016/j.medcli.2023.03.012)

## Abstract

**Introduction:** The objective of our study was to evaluate the frequency of isolation of respiratory infection by non-tuberculous mycobacteria (NTM) and to analyze the clinical-epidemiological characteristics of patients infected with NTM.

**Methods:** Retrospective observational study of 83 respiratory samples with NTM isolation from 62 patients between 2015 and 2021 at the Doctor Balmis General University Hospital.

**Results:** MNT respiratory infection criteria were met in 15 patients (24.2%). The most frequently isolated NTM's in patients who met infection criteria were those belonging to the Mycobacterium avium complex. Of the 15 infected patients, 11 (73.3%) had respiratory comorbidity and the most frequent respiratory comorbidity in infected patients was bronchiectasis (5 patients; 45.5%). Of the infected patients, targeted antibiotic treatment was prescribed in 83.3% of the cases.

**Conclusion:** One in 7 patients with NTM isolation meets infection criteria. The main role of the species of Mycobacterium avium complex is corroborated, and the relevance of lung structural damage in the development of lung disease due to NTM.

**Keywords:** Enfermedad pulmonar; Lung Diseases; Micobacteria no tuberculosa; Mycobacterium abscessus; Mycobacterium avium cComplex; Mycobacterium avium complex; Nontuberculous mycobacteria.

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