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COPD

Respir Res

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. 2022 Dec 9;23(1):336.

doi: 10.1186/s12931-022-02256-7.

[Stratification of COPD patients towards personalized medicine: reproduction and formation of clusters](#)

[Cathelijne M van Zelst](#)^{1,2}, [Lucas M A Goossens](#)³, [Jan A Witte](#)⁴, [Gert-Jan Braunstahl](#)^{4,5}, [Rudi W Hendriks](#)⁵, [Maureen P M H Rutten-van Molken](#)³, [Johannes C C M In't Veen](#)⁴

Affiliations expand

- PMID: 36494786
- DOI: [10.1186/s12931-022-02256-7](https://doi.org/10.1186/s12931-022-02256-7)

Abstract

Background: The global initiative for chronic obstructive lung disease (GOLD) 2020 emphasizes that there is only a weak correlation between FEV₁, symptoms and impairment of the health status of patients with chronic obstructive pulmonary disease (COPD). Various

studies aimed to identify COPD phenotypes by cluster analyses, but behavioral aspects besides smoking were rarely included.

Methods: The aims of the study were to investigate whether (i) clustering analyses are in line with the classification into GOLD ABCD groups; (ii) clustering according to Burgel et al. (Eur Respir J. 36(3):531-9, 2010) can be reproduced in a real-world COPD cohort; and (iii) addition of new behavioral variables alters the clustering outcome. Principal component and hierarchical cluster analyses were applied to real-world clinical data of COPD patients newly referred to secondary care (n = 155). We investigated if the obtained clusters paralleled GOLD ABCD subgroups and determined the impact of adding several variables, including quality of life (QOL), fatigue, satisfaction relationship, air trapping, steps per day and activities of daily living, on clustering.

Results: Using the appropriate corresponding variables, we identified clusters that largely reflected the GOLD ABCD groups, but we could not reproduce Burgel's clinical phenotypes. Adding six new variables resulted in the formation of four new clusters that mainly differed from each other in the following parameters: number of steps per day, activities of daily living and QOL.

Conclusions: We could not reproduce previously identified clinical COPD phenotypes in an independent population of COPD patients. Our findings therefore indicate that COPD phenotypes based on cluster analysis may not be a suitable basis for treatment strategies for individual patients.

Keywords: ABCD assessment tool; COPD; GOLD classification; Personalized medicine; Phenotypes.

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- [41 references](#)

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Ann Am Thorac Soc

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. 2022 Dec 9.

Scoping Review of Pulmonary Telemedicine Consults: Current Knowledge and Research Gaps

[Brandon Li](#)¹, [Kari R Gillmeyer](#)², [Brianne Molloy-Paolillo](#)³, [Varsha G Vimalananda](#)^{3,4}, [A Rani Elwy](#)^{5,6}, [Renda Soylemez Wiener](#)^{7,8}, [Seppo T Rinne](#)^{9,10}

Affiliations expand

- PMID: 36490386
- DOI: [10.1513/AnnalsATS.202205-404OC](https://doi.org/10.1513/AnnalsATS.202205-404OC)

Abstract

Rationale: Telemedicine consults, including video consults, telephone consults, electronic consults, and virtual conferences, may be particularly valuable in the management of chronic pulmonary diseases, but there is limited guidance on best practices for pulmonary telemedicine consults.

Objective: This scoping review aims to identify, characterize, and analyze gaps in the published literature on telemedicine consults health providers use to manage patients with chronic pulmonary diseases.

Methods: We searched PubMed, Embase, Web of Science, and Cochrane Library from database origin through July 10, 2021. We included manuscripts describing applications of telemedicine consults for patients with chronic pulmonary diseases (asthma, chronic obstructive pulmonary disease, lung cancer, pulmonary hypertension, and interstitial lung disease). We restricted our review to full-length articles published in English about provider-led (as opposed to nurse-led) telemedicine consults.

Results: Our search yielded 3,118 unique articles; 27 articles met inclusion criteria. All telemedicine consult modalities and chronic pulmonary conditions were well represented in the review except for pulmonary hypertension and interstitial lung disease, which were represented by one and no articles, respectively. Most articles described a small, single-center, observational study that focused on the acceptability, feasibility, utility, and/or clinical effectiveness of the telemedicine consult. Few studies had objectively measured clinical outcomes or included a comparator group, and none compared telemedicine consult modalities against one another.

Conclusion: Our scoping review identified limited literature describing pulmonary telemedicine consults and highlighted several gaps in the literature that warrant increased attention. Providers treating chronic pulmonary diseases are left with limited guidance on best practices for telemedicine consults.

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Eur J Clin Pharmacol



. 2022 Dec 9.

doi: 10.1007/s00228-022-03433-9. Online ahead of print.

[Inhalation therapies in COPD - adverse drug reactions impact on emergency department presentations](#)

[Ingmar Bergs](#)^{1,2}, [Katja S Just](#)³, [Catharina Scholl](#)⁴, [Michael Dreher](#)^{#5}, [Julia C Stingl](#)^{#3}

Affiliations expand

- PMID: 36484792
- DOI: [10.1007/s00228-022-03433-9](https://doi.org/10.1007/s00228-022-03433-9)

Abstract

Purpose: Inhaled drugs have been cornerstones in the treatment of chronic obstructive pulmonary disease (COPD) for decades and show a high prescription volume. Due to the local application, drug safety issues of these therapies are often underestimated by professionals and patients. Data about adverse drug reactions (ADRs) caused by inhaled therapy in patients with COPD and polypharmacy are rare. We aimed to analyze the use

and relevance of inhaled therapies in those patients in relation to ADR complaints, which were severe enough to warrant presentation to the emergency department.

Methods: Emergency department cases due to suspected ADRs of the ADRED database (n = 2939, "Adverse Drug Reactions in Emergency Departments"; DRKS-ID: DRKS00008979, registration date 01/11/2017) were analyzed for inhaled drugs in patients with COPD. ADRs in cases with overdosed inhaled drugs were compared to non-overdosed cases. ADRs, potentially caused by inhaled drugs, were evaluated, clustered into complexes, and assessed for association with inhaled drug classes.

Results: Of the 269 included COPD cases, 67% (n = 180) received inhaled therapy. In 16% (n = 28), these therapies were overdosed. Overdosed cases presented the complexes of malaise and local symptoms more frequently. Related to the use of inhaled anticholinergics, local (dysphagia-like) and related to inhaled beta-2 agonists, local (dysphagia-like) and sympathomimetic-like ADRs presented more frequently.

Conclusion: Overdosed inhaled therapies in patients with COPD lead to relevant ADRs and impact on emergency room presentations. These are rarely associated to inhaled therapy by healthcare professionals or patients. Due to the high volume of inhaled drug prescriptions, pharmacovigilance and patient education should be more focused in patients with COPD. German Clinical Trial Register: DRKS-ID: DRKS00008979.

Keywords: Adverse drug reaction; COPD; Clinical pharmacology; Emergency department; Inhaled medications.

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- [40 references](#)

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MMWR Morb Mortal Wkly Rep

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. 2022 Dec 9;71(49):1550-1554.

doi: 10.15585/mmwr.mm7149a3.

Chronic Obstructive Pulmonary Disease Mortality by Industry and Occupation – United States, 2020

[Girija Syamlal](#)¹, [Laura M Kurth](#)¹, [Katelynn E Dodd](#)¹, [David J Blackley](#)¹, [Noemi B Hall](#)¹, [Jacek M Mazurek](#)¹

Affiliations expand

- PMID: 36480469
- DOI: [10.15585/mmwr.mm7149a3](https://doi.org/10.15585/mmwr.mm7149a3)

Abstract

Chronic obstructive pulmonary disease (COPD), a progressive lung disease, is characterized by long-term respiratory symptoms and airflow limitation (1). COPD accounts for most of the deaths from chronic lower respiratory diseases, the sixth leading cause of death in the United States in 2020.* Workplace exposures and tobacco smoking are risk factors for COPD; however, one in four workers with COPD have never smoked (2-4). To describe COPD mortality among U.S. residents aged ≥ 15 years categorized as ever-employed (i.e., with information on their usual industry and occupation), CDC analyzed the most recent 2020 multiple cause-of-death data[†] from 46 states and New York City.[§] Among 3,077,127 decedents, 316,023 (10.3%) had COPD[†] listed on the death certificate. The highest age-adjusted** COPD death rates per 100,000 ever-employed persons were for females (101.3), White persons (116.9), and non-Hispanic or Latino (non-Hispanic) persons (115.8). The highest proportionate mortality ratios (PMRs)^{††} were for workers employed in the mining industry (1.3) and in food preparation and serving related occupations (1.3). Elevated COPD mortality among workers in certain industries and occupations underscores the importance of targeted interventions (e.g., reduction or elimination of COPD-associated risk factors, engineering controls, and workplace smoke-free policies) to prevent COPD from developing and to intervene before illness becomes symptomatic or severe.

Conflict of interest statement

All authors have completed and submitted the International Committee of Medical Journal Editors form for disclosure of potential conflicts of interest. No potential conflicts of interest were disclosed.

[Proceed to details](#)

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ERJ Open Res

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. 2022 Dec 5;8(4):00254-2022.

doi: 10.1183/23120541.00254-2022. eCollection 2022 Oct.

[Arterial remodelling in smokers and in patients with small airway disease and COPD: implications for lung physiology and early origins of pulmonary hypertension](#)

[Prem Bhattarai](#)¹, [Wenying Lu](#)^{1,2}, [Archana Vijay Gaikwad](#)¹, [Surajit Dey](#)¹, [Collin Chia](#)^{1,2,3}, [Josie Larby](#)^{1,3}, [Greg Haug](#)^{1,3}, [Ashutosh Hardikar](#)^{1,3}, [Andrew Williams](#)¹, [Gurpreet Kaur Singhera](#)^{4,5}, [Tillie-Louise Hackett](#)^{5,6}, [Mathew Suji Eapen](#)¹, [Sukhwinder Singh Sohal](#)^{1,2}

Affiliations expand

- PMID: 36478915
- PMCID: [PMC9720549](#)
- DOI: [10.1183/23120541.00254-2022](#)

Abstract

Introduction: Pulmonary vascular remodelling in chronic obstructive pulmonary disease (COPD) has detrimental consequences for lung physiology. The aim of our study was to

provide a comprehensive size-based morphometric quantification of pulmonary arterial remodelling in smokers and in patients with small airway disease (SAD) or COPD.

Method: Movat's pentachrome staining was performed on lung resections for 46 subjects: 12 never-smoker normal controls (NC), six normal lung function smokers (NLFS), nine patients with SAD, nine patients with mild-to-moderate COPD who were current smokers (COPD-CS) and 10 patients with mild-to-moderate COPD who were ex-smokers (COPD-ES). Following a size-based classification of pulmonary arteries, image analysis software was used to measure their number, total wall thickness, individual layer thickness and elastin percentage.

Results: All pathological groups showed decreased numbers of pulmonary arteries compared with the NC group in all artery sizes. Arterial wall thickness was greater in NLFS and COPD-CS than in NC. Thickness in COPD-ES was decreased compared with COPD-CS. Intimal thickness was greater in all pathological groups in all arterial sizes than in the NC group. Medial thickness was also greater in small and medium arteries. Intimal thickness of larger arteries in COPD-CS correlated negatively to forced expiratory volume in 1 s/forced vital capacity (FVC) % and forced expiratory flow at 25-75% of FVC. Elastin deposition in small arteries was greatest in COPD-CS. Intimal elastin deposition had a more negative correlation with intimal thickness in NLFS and SAD than in COPD-CS.

Conclusion: Smoking, SAD and mild-to-moderate COPD are associated with pruning and a decrease in the number of pulmonary arteries, increased wall thickness and variable elastin deposition. These changes were associated with worse airway obstruction.

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Conflict of interest statement

Conflict of interest: S.S. Sohal reports personal fees for lectures from Chiesi outside the submitted work. The other authors do not have any conflict of interest to declare.

- [46 references](#)
- [8 figures](#)

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Ann Am Thorac Soc

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. 2022 Dec 7.

doi: 10.1513/AnnalsATS.202204-318OC. Online ahead of print.

[Access to Pulmonary Rehabilitation Among Medicare Beneficiaries with COPD](#)

[Gargya Malla](#)¹, [Sandeep Bodduluri](#)², [Vivek Sthanam](#)², [Gulshan Sharma](#)³, [Surya P Bhatt](#)⁴

Affiliations expand

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- DOI: [10.1513/AnnalsATS.202204-318OC](https://doi.org/10.1513/AnnalsATS.202204-318OC)

Abstract

Rationale: Pulmonary rehabilitation (PR) remains substantially underutilized as a treatment modality for chronic obstructive pulmonary disease (COPD). A major barrier to the uptake of PR is the poor availability of and access to PR.

Objective: To quantify patients' access to PR centers in the United States.

Methods: Using the 100% Medicare population with coverage for the year 2018, four geodesic distance-based buffers of 10-, 15-, 25- and 50-mile radii around the geographic centroid of each zip code with at least one beneficiary with COPD were created. Street addresses of PR centers across the continental US were geocoded. We calculated the distance between the residential zip code centroid and the closest PR center. The proportion of individuals with least one PR center available within the four distance buffers were calculated overall as well as in metropolitan, micropolitan, small-town, and rural areas.

Results: Of 62,930,784 Medicare beneficiaries, 10,376,949 (16.5%) had COPD. There were 1,696 PR centers across the United States, with one PR center for every 6,030 individuals with COPD. Mean distance to the nearest PR center was 12.4 (SD16.6) miles. Overall, the proportion of individuals with COPD who had a PR center available within 10-, 15-, 25-, and 50-mile radii was 61.5%, 73.2%, 86.6%, and 97.1%, respectively. Proportions for rural areas were 11.3%, 24.3%, 53.4%, and 88.6%, respectively. Compared to those living in

metropolitan areas, those living in rural areas were 95% less likely to have a PR center within 10 miles of their residence (odds ratio 0.048, 95% CI 0.039 to 0.057).

Conclusions: In a nationally representative sample of Medicare beneficiaries, we found that two-fifths of adults with COPD overall, and eight out of nine of those in rural areas, have poor access to PR.

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Microbiol Spectr

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. 2022 Dec 8;e0386022.

doi: 10.1128/spectrum.03860-22. Online ahead of print.

[Genetic Adaptation and Acquisition of Macrolide Resistance in Haemophilus spp. during Persistent Respiratory Tract Colonization in Chronic Obstructive Pulmonary Disease \(COPD\) Patients Receiving Long-Term Azithromycin Treatment](#)

[Anna Carrera-Salinas](#)¹, [Aida González-Díaz](#)^{1,2}, [Rachel L Ehrlich](#)³, [Dàmaris Berbel](#)^{1,2}, [Fe Tubau](#)^{1,2}, [Xavier Pomares](#)⁴, [Junkal Garmendia](#)^{2,5}, [M Ángeles Domínguez](#)^{1,6,7}, [Carmen Ardanuy](#)^{1,2,7}, [Daniel Huertas](#)⁸, [Alicia Marín](#)^{2,9}, [Conchita Montón](#)⁴, [Joshua Chang Mell](#)³, [Salud Santos](#)^{2,10,11}, [Sara Marti](#)^{1,2,11}

Affiliations expand

- PMID: 36475849

- DOI: [10.1128/spectrum.03860-22](https://doi.org/10.1128/spectrum.03860-22)

Abstract

Patients with chronic obstructive pulmonary disease (COPD) benefit from the immunomodulatory effect of azithromycin, but long-term administration may alter colonizing bacteria. Our goal was to identify changes in *Haemophilus influenzae* and *Haemophilus parainfluenzae* during azithromycin treatment. Fifteen patients were followed while receiving prolonged azithromycin treatment (Hospital Universitario de Bellvitge, Spain). Four patients (P02, P08, P11, and P13) were persistently colonized by *H. influenzae* for at least 3 months and two (P04 and P11) by *H. parainfluenzae*. Isolates from these patients (53 *H. influenzae* and 18 *H. parainfluenzae*) were included to identify, by whole-genome sequencing, antimicrobial resistance changes and genetic variation accumulated during persistent colonization. All persistent lineages isolated before treatment were azithromycin-susceptible but developed resistance within the first months, apart from those belonging to P02, who discontinued the treatment. *H. influenzae* isolates from P08-ST107 acquired mutations in 23S rRNA, and those from P11-ST2480 and P13-ST165 had changes in L4 and L22. In *H. parainfluenzae*, P04 persistent isolates acquired changes in *rlmC*, and P11 carried genes encoding MefE/MsrD efflux pumps in an integrative conjugative element, which was also identified in *H. influenzae* P11-ST147. Other genetic variation occurred in genes associated with cell wall and inorganic ion metabolism. Persistent *H. influenzae* strains all showed changes in *licA* and *hgpB* genes. Other genes (*lex1*, *lic3A*, *hgpC*, and *fadL*) had variation in multiple lineages. Furthermore, persistent strains showed loss, acquisition, or genetic changes in prophage-associated regions. Long-term azithromycin therapy results in macrolide resistance, as well as genetic changes that likely favor bacterial adaptation during persistent respiratory colonization. **IMPORTANCE** The immunomodulatory properties of azithromycin reduce the frequency of exacerbations and improve the quality of life of COPD patients. However, long-term administration may alter the respiratory microbiota, such as *Haemophilus influenzae*, an opportunistic respiratory colonizing bacteria that play an important role in exacerbations. This study contributes to a better understanding of COPD progression by characterizing the clinical evolution of *H. influenzae* in a cohort of patients with prolonged azithromycin treatment. The emergence of macrolide resistance during the first months, combined with the role of *Haemophilus parainfluenzae* as a reservoir and source of resistance dissemination, is a cause for concern that may lead to therapeutic failure. Furthermore, genetic variations in cell wall and inorganic ion metabolism coding genes likely favor bacterial adaptation to host selective pressures. Therefore, the bacterial pathoadaptive evolution in these severe COPD patients raise our awareness of the possible spread of macrolide resistance and selection of host-adapted clones.

Keywords: *Haemophilus influenzae*; *Haemophilus parainfluenzae*; adaptation; azithromycin; macrolide resistance; persistence.

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Chronic Obstr Pulm Dis



. 2022 Dec 5.

doi: 10.15326/jcopdf.2022.0351. Online ahead of print.

[Persistent Steroid Exposure Before Coronavirus Disease 2019 Diagnosis and Risk of Hospitalization in Patients With Chronic Obstructive Pulmonary Disease](#)

[Laura C Myers](#)^{1,2}, [Richard K Murray](#)³, [Bonnie M K Donato](#)⁴, [Vincent X Liu](#)^{1,2}, [Patricia Kipnis](#)¹, [Patricia Kipnis](#)², [Asif Shaikh](#)⁵, [Jessica Franchino-Elder](#)⁴

Affiliations expand

- PMID: 36472621
- DOI: [10.15326/jcopdf.2022.0351](https://doi.org/10.15326/jcopdf.2022.0351)

Free article

Abstract

Background: It is unclear whether persistent inhaled steroid exposure in chronic obstructive pulmonary disease (COPD) patients before coronavirus disease 2019 (COVID-19) is associated with hospitalization risk.

Objective: To examine the association between persistent steroid exposure and COVID-19-related hospitalization risk in COPD.

Study design and methods: This retrospective cohort study used electronic health records from the Kaiser Permanente Northern California healthcare system (February 2, 2020, to September 30, 2020) for patients aged ≥ 40 years with COPD and a positive polymerase chain reaction test result for COVID-19. Primary exposure was persistent oral and/or inhaled steroid exposure defined as ≥ 6 months of prescriptions filled in the year before COVID-19 diagnosis. Multivariable logistic regression was performed for the primary outcome of COVID-19-related hospitalization or death/hospice referral. Steroid exposure in the month before COVID-19 diagnosis was a covariate.

Results: Of >4.3 million adults, 697 had COVID-19 and COPD, of whom 270 (38.7%) had COVID-19-related hospitalizations. Overall, 538 (77.2%) were neither exposed to steroids in the month before COVID-19 diagnosis nor persistently exposed; 53 (7.6%) exposed in the month before but not persistently; 23 (3.3%) exposed persistently but not in the month before; and 83 (11.9%) exposed both persistently and in the month before. Adjusting for all confounders including steroid use in the month before, the odds ratio for hospitalization was 0.77 (95% CI 0.41-1.46) for patients persistently exposed to steroids before COVID-19 diagnosis.

Interpretation: No association was observed between persistent steroid exposure and the risk of COVID-19-related hospitalization in COPD patients.

Keywords: chronic obstructive pulmonary disease; coronavirus disease 2019; steroids.

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Tuberc Respir Dis (Seoul)

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. 2022 Dec 5.

doi: 10.4046/trd.2022.0119. Online ahead of print.

Definition of chronic obstructive pulmonary disease exacerbation: the essentials of the Rome Proposal

[Yeon-Mok Oh](#)¹

Affiliations expand

- PMID: 36470245
- DOI: [10.4046/trd.2022.0119](https://doi.org/10.4046/trd.2022.0119)

Free article

No abstract available

Keywords: COPD; definition; exacerbation.

FULL TEXT LINKS



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J Am Heart Assoc

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. 2022 Dec 6;11(23):e025730.

doi: 10.1161/JAHA.122.025730. Epub 2022 Nov 16.

Do Not Attempt Resuscitation Order Rates in Hospitalized Patients With Heart Failure, Acute Myocardial Infarction, Chronic Obstructive Pulmonary Disease, and Pneumonia

[Supriya Shore](#)^{1,2}, [Michael O'Leary](#)^{1,2}, [Neil Kamdar](#)^{1,2}, [Molly Harrod](#)³, [Maria J Silveira](#)^{1,4}, [Scott L Hummel](#)^{1,2,3}, [Brahmajee K Nallamothu](#)^{1,2,3}

Affiliations expand

- PMID: 36382963
- DOI: [10.1161/JAHA.122.025730](https://doi.org/10.1161/JAHA.122.025730)

Free article

Abstract

Background Descriptions of do not attempt resuscitation (DNAR) orders in heart failure (HF) are limited. We describe use of DNAR orders in HF hospitalizations relative to other common conditions, focusing on race. Methods and Results This was a retrospective study of all adult hospitalizations for HF, acute myocardial infarction (AMI), chronic obstructive pulmonary disease (COPD), and pneumonia from 2010 to 2016 using the California State Inpatient Dataset. Using a hierarchical multivariable logistic regression model with random effects for the hospital, we identified factors associated with DNAR orders for each condition. For racial variation, hospitals were divided into quintiles based on proportion of Black patients cared for. Our cohort comprised 399 816 HF, 190 802 AMI, 192 640 COPD, and 269 262 pneumonia hospitalizations. DNAR orders were most prevalent in HF (11.9%), followed by pneumonia (11.1%), COPD (7.9%), and AMI (7.1%). Prevalence of DNAR orders did not change from 2010 to 2016 for each condition. For all conditions, DNAR orders were more common in elderly people, women, and White people with significant site-level variation across 472 hospitals. For HF and COPD, hospitalizations at sites that cared for a higher proportion of Black patients were less likely associated with DNAR orders. For AMI and pneumonia, conditions such as dementia and malignancy were strongly associated with DNAR orders. Conclusions DNAR orders were present in 12% of HF hospitalizations, similar to pneumonia but higher than AMI and COPD. For HF, we noted significant variability across sites when stratified by proportion of Black patients cared for, suggesting geographic and racial differences in end-of-life care.

Keywords: acute myocardial infarction; chronic obstructive pulmonary disease; do not attempt resuscitation; heart failure; pneumonia.

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Occup Med (Lond)



. 2022 Dec 7;72(8):527-533.

doi: 10.1093/occmed/kqac079.

[Co-occurrence of pneumoconiosis with COPD, pneumonia and lung cancer](#)

[N T Rayens](#)¹, [E A Rayens](#)², [R M Tighe](#)³

Affiliations expand

- PMID: 35932472
- DOI: [10.1093/occmed/kqac079](https://doi.org/10.1093/occmed/kqac079)

Abstract

Background: Pneumoconiosis is a well-documented occupational disease that is linked to conditions such as chronic obstructive pulmonary disease (COPD), pneumonia and congestive heart failure. Pneumoconiosis prevalence has decreased in the United States, but it remains implicated in tens of thousands of deaths worldwide per year.

Aims: To provide a recent update on associations of pneumoconiosis and smoking status with various pulmonary diseases in the United States.

Methods: The CDC's National Vital Statistics System was analysed on the entity axis using ICD-10 codes for pulmonary disease and potential lung injury with a cohort of those aged 15 and older during the years 2010-2019. The cases of evaluated diseases were scaled to rates per 100 000 and compared through analysis of variance.

Results: Pneumoconiosis and smoking history were each associated with an increased rate of COPD, but combined, were associated with an even higher rate of COPD than either factor alone. Smoking history was associated with an increased rate of lung cancer, but pneumoconiosis status was only linked to increased lung cancer prevalence in non-smokers. Both pneumoconiosis and smoking were associated with an increased rate of pneumonia, but combined, had no deviation from the pneumonia rate in those with pneumoconiosis alone. Finally, pneumoconiosis status was associated with decreased rates of non-lung cancers and sepsis.

Conclusions: Although pneumoconiosis has become less common in the United States through regulatory and industrial shifts, it is still a significant risk factor for co-occurring pulmonary diseases and will likely remain relevant as international demands for mining, construction and manufacturing change.

Keywords: Occupational health; aerosols; dust; pneumoconiosis; public health; smoking.

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Med Clin (Barc)

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. 2022 Dec 9;159(11):509-514.

Diagnostic value of pulmonary ultrasound in acute exacerbation of chronic obstructive pulmonary disease: A pilot study

[Article in English, Spanish]

[Hong Li](#)¹, [Jian Chen](#)², [Pingxiang Hu](#)³

Affiliations expand

- PMID: 35331547
- DOI: [10.1016/j.medcli.2022.01.022](https://doi.org/10.1016/j.medcli.2022.01.022)

Abstract

Background: To evaluate the value of the pulmonary ultrasound for the diagnosis of acute exacerbation of chronic obstructive pulmonary disease (AECOPD) in emergency departments (EDs).

Materials and methods: Between January 2018 and December 2019, patients admitted to the ED of Shanxi Provincial People's Hospital for suspected AECOPD were prospectively included in this study. Pulmonary ultrasound was performed using a linear transducer. The pulmonary ultrasound findings were evaluated for further discrimination for patients with AECOPD. Then, the diagnostic performance of pulmonary ultrasound was estimated and calculated. The clinical characteristics between groups with and without pneumonia were compared.

Results: A total of 53 patients with AECOPD were included in the final analysis. For diagnosis of AECOPD due to pneumonia, ultrasound findings, such as consolidation, slightly rough pleural line, or irregular and interrupted pleural line had a sensitivity of 92.3% and a specificity of 86.7%. For diagnosis of AECOPD complicating pulmonary fibrosis, fringed pleural line had a sensitivity of 100% and a specificity of 97.5%. In addition, patients with pleural effusion (n=19) or pneumothorax (n=1) were correctly identified and wavy or bulging pleural lines were common in patients with AECOPD (58.5%, 31/53).

Conclusion: Ultrasound findings could offer further discrimination for AECOPD complications and other pathological conditions, such as pneumonia, pulmonary fibrosis, pleural effusion, and pneumothorax in EDs.

Keywords: Acute exacerbation of chronic obstructive pulmonary disease; Exacerbación aguda de la enfermedad pulmonar obstructiva crónica; Línea pleural; Pleural line; Pulmonary ultrasound; Ultrasonido pulmonar.

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Respir Res

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. 2022 Dec 9;23(1):335.

doi: 10.1186/s12931-022-02259-4.

[Bronchial eosinophils, neutrophils, and CD8 + T cells influence asthma control and lung function in schoolchildren and adolescents with severe treatment-resistant asthma](#)

[Miriam Cardoso Neves Eller](#)¹, [Karina Pierantozzi Vergani](#)², [Beatriz Manguiera Saraiva-Romanholo](#)³, [Natália de Souza Xavier Costa](#)⁴, [Jôse Mára de Brito](#)^{4,5}, [Leila Antonangelo](#)^{6,7}, [Caroline Silvério Faria](#)⁷, [Joaquim Carlos Rodrigues](#)², [Thais Mauad](#)⁴

Affiliations expand

- PMID: 36494835
- DOI: [10.1186/s12931-022-02259-4](https://doi.org/10.1186/s12931-022-02259-4)

Abstract

Background: Studies in adult severe treatment-resistant asthma (STRA) have demonstrated heterogeneous pathophysiology. Studies in the pediatric age group are still scarce, and few include bronchial tissue analysis.

Objective: We investigated 6-18-year-old patients diagnosed with STRA in Sao Paulo, Brazil, by characterizing the different lung compartments and their correlations with asthma control and lung function.

Methods: Inflammatory profiles of 13 patients with a confirmed diagnosis of STRA were analyzed using blood, induced sputum, bronchoalveolar lavage, viral and bacterial screens and endobronchial biopsy. Inflammatory cells, cytokines, and basement membrane thickening were tested for correlations with the asthma control test (ACT) and spirometry and plethysmography parameters.

Results: Endobronchial biopsy specimens from 11 patients were viable for analysis. All biopsies showed eosinophilic infiltration. Submucosal (SM) eosinophils and neutrophils were correlated with worse lung function (pre-BD FEV1), and SM neutrophils were correlated with fixed obstruction (post-BD FEV1). Intraepithelial (IE) neutrophils were positively correlated with lung function (pre-BD sGaw). CD8 + T cells had the highest density in the IE and SM layers and were positively correlated with ACT and negatively correlated with the cytokines IL1 β , IL2, IL5, IL7, IL10, IL12, IL17, GCSF, MCP-1, INF- δ , and TNF α in sputum supernatant. The ASM chymase + mast cell density correlated positively with quality-of-life score (pAQLQ) and ACT.

Conclusion: Eosinophils and SM neutrophils correlated with worse lung function, while IE neutrophils correlated with better lung function. Most importantly, CD8 + T cells were abundant in bronchial biopsies of STRA patients and showed protective associations, as did chymase + mast cells.

Keywords: CD8 + T cell; Children; Endobronchial biopsy; Inflammatory cells profile; Severe asthma; Sputum.

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- [44 references](#)

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Nat Commun



. 2022 Dec 9;13(1):7614.

doi: 10.1038/s41467-022-35337-8.

[An umbrella review of the evidence linking oral health and systemic noncommunicable diseases](#)

[João Botelho](#)^{1,2}, [Paulo Mascarenhas](#)³, [João Viana](#)⁴, [Luís Proença](#)^{4,3}, [Marco Orlandi](#)⁵, [Yago Leira](#)^{5,6,7}, [Leandro Chambrone](#)^{3,8,9}, [José João Mendes](#)^{4,3}, [Vanessa Machado](#)^{4,3}

Affiliations expand

- PMID: 36494387
- DOI: [10.1038/s41467-022-35337-8](https://doi.org/10.1038/s41467-022-35337-8)

Abstract

Oral diseases are highly prevalent worldwide. Recent studies have been supporting a potential bidirectional association of oral diseases with systemic noncommunicable diseases (NCDs). Available evidence supports that people with NCDs have a greater

prevalence of oral diseases particularly those with limited ability of oral self-care. Regarding the reverse relationship, the lines of evidence pointing out NCDs as putative risk factors for oral diseases have increased significantly but not with a consistent agreement. This umbrella review of meta-analyses appraises the strength and validity of the evidence for the association between oral health and systemic health (registered at PROSPERO, ID: CRD42022300740). An extensive search included systematic reviews that have provided meta-analytic estimates on the association of oral diseases with NCDs. The overall strength of evidence was found to be unfavorable and with methodological inconsistencies. Twenty-eight NCDs were strongly associated with oral diseases. Among those NCDs are five types of cancer, diabetes mellitus, cardiovascular diseases, depression, neurodegenerative conditions, rheumatic diseases, inflammatory bowel disease, gastric helicobacter pylori, obesity, and asthma. According to fail-safe number statistics, the evidence levels are unlikely to change in the future, indicating a fairly robust consistency.

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- [58 references](#)

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Ann Am Thorac Soc

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. 2022 Dec 9.

doi: 10.1513/AnnalsATS.202205-404OC. Online ahead of print.

[Scoping Review of Pulmonary Telemedicine Consults: Current Knowledge and Research Gaps](#)

[Brandon Li](#)¹, [Kari R Gillmeyer](#)², [Brianne Molloy-Paolillo](#)³, [Varsha G Vimalananda](#)^{3,4}, [A Rani Elwy](#)^{5,6}, [Renda Soylemez Wiener](#)^{7,8}, [Seppo T Rinne](#)^{9,10}

Affiliations expand

- PMID: 36490386
- DOI: [10.1513/AnnalsATS.202205-404OC](https://doi.org/10.1513/AnnalsATS.202205-404OC)

Abstract

Rationale: Telemedicine consults, including video consults, telephone consults, electronic consults, and virtual conferences, may be particularly valuable in the management of chronic pulmonary diseases, but there is limited guidance on best practices for pulmonary telemedicine consults.

Objective: This scoping review aims to identify, characterize, and analyze gaps in the published literature on telemedicine consults health providers use to manage patients with chronic pulmonary diseases.

Methods: We searched PubMed, Embase, Web of Science, and Cochrane Library from database origin through July 10, 2021. We included manuscripts describing applications of telemedicine consults for patients with chronic pulmonary diseases (asthma, chronic obstructive pulmonary disease, lung cancer, pulmonary hypertension, and interstitial lung disease). We restricted our review to full-length articles published in English about provider-led (as opposed to nurse-led) telemedicine consults.

Results: Our search yielded 3,118 unique articles; 27 articles met inclusion criteria. All telemedicine consult modalities and chronic pulmonary conditions were well represented in the review except for pulmonary hypertension and interstitial lung disease, which were represented by one and no articles, respectively. Most articles described a small, single-center, observational study that focused on the acceptability, feasibility, utility, and/or clinical effectiveness of the telemedicine consult. Few studies had objectively measured clinical outcomes or included a comparator group, and none compared telemedicine consult modalities against one another.

Conclusion: Our scoping review identified limited literature describing pulmonary telemedicine consults and highlighted several gaps in the literature that warrant increased attention. Providers treating chronic pulmonary diseases are left with limited guidance on best practices for telemedicine consults.

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The impact of prolonged landscape fire smoke exposure on women with asthma in Australia

[Tesfalidet Beyene](#)^{1,2}, [Vanessa E Murphy](#)^{3,4}, [Peter G Gibson](#)^{3,4,5}, [Vanessa M McDonald](#)^{4,5,6}, [Joe Van Buskirk](#)⁷, [Elizabeth G Holliday](#)³, [Anne E Vertigan](#)^{3,4,8}, [Jay C Horvat](#)⁹, [Graeme R Zosky](#)^{10,11}, [Geoffrey G Morgan](#)⁷, [Edward Jegasothy](#)⁷, [Ivan Hanigan](#)⁷, [Joerg Mattes](#)^{3,4,12}, [Adam M Collison](#)^{3,4}, [Megan E Jensen](#)^{3,4}

Affiliations expand

- PMID: 36482359
- PMCID: [PMC9733231](#)
- DOI: [10.1186/s12884-022-05231-8](#)

Abstract

Background: Little is known about the physical and mental health impact of exposure to landscape fire smoke in women with asthma. This study examined the health impacts and information-seeking behaviours of women with asthma exposed to the 2019/2020 Australian fires, including women who were pregnant.

Methods: Women with asthma were recruited from the Breathing for Life Trial in Australia. Following the landscape fire exposure period, self-reported data were collected regarding symptoms (respiratory and non-respiratory), asthma exacerbations, wellbeing, quality of life, information seeking, and landscape fire smoke exposure mitigation strategies. Participants' primary residential location and fixed site monitoring was used to geolocate and estimate exposure to landscape fire-related fine Particulate Matter (PM_{2.5}).

Results: The survey was completed by 81 pregnant, 70 breastfeeding and 232 non-pregnant and non-breastfeeding women with asthma. Participants had a median daily average of 17 $\mu\text{g}/\text{m}^3$ $\text{PM}_{2.5}$ and 105 $\mu\text{g}/\text{m}^3$ peak $\text{PM}_{2.5}$ exposure over the fire period (October 2019 to February 2020). Over 80% of participants reported non-respiratory and respiratory symptoms during the fire period and 41% reported persistent symptoms. Over 82% reported asthma symptoms and exacerbations of asthma during the fire period. Half the participants sought advice from a health professional for their symptoms. Most (97%) kept windows/doors shut when inside and 94% stayed indoors to minimise exposure to landscape fire smoke. Over two in five (43%) participants reported that their capacity to participate in usual activities was reduced due to prolonged smoke exposure during the fire period. Participants reported greater anxiety during the fire period than after the fire period (mean (SD) = 53(13) versus 39 (13); $p < 0.001$). Two in five (38%) pregnant participants reported having concerns about the effect of fire events on their pregnancy.

Conclusion: Prolonged landscape fire smoke exposure during the 2019/2020 Australian fire period had a significant impact on the health and wellbeing of women with asthma, including pregnant women with asthma. This was despite most women taking actions to minimise exposure to landscape fire smoke. Effective and consistent public health messaging is needed during landscape fire events to guard the health of women with asthma.

Keywords: Asthma; Australia; Bushfire; Landscape fire; Mental health; Pregnant and/or breastfeeding women; Symptoms.

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Conflict of interest statement

The authors declare no competing financial interests.

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

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Comparison of therapeutic response between asthma, COPD, and ACOS patients by evaluation of spirometric findings

[Mohammad Esmail Hejazi](#)¹, [Zahra Pakzad](#)², [Horieh Shojaan](#)¹, [Niusha Kalami](#)¹, [Veghar Hejazi](#)³, [Tahereh Vaezi](#)³

Affiliations expand

- PMID: 36481989
- DOI: [10.47750/jptcp.2022.993](https://doi.org/10.47750/jptcp.2022.993)

Abstract

Asthma and Chronic obstructive pulmonary disease (COPD) both are a common public health problem that affects a large portion of population. Nearly 20% of patients with obstructive lung disease have features of both asthma and COPD called ACOS that GOLD_GINA guidelines defines as persistent airflow limitation with several features of asthma and several features of COPD. Yet there is a little data available about diagnosis and treatment of this entity and current study aimed to compare therapeutic response between asthma, COPD and Asthma-COPD overlap syndrome (ACOS) subjects through spirometric data. In the present cross-sectional study, 30 known patients with mild to moderate asthma, 30 known patients with mild to moderate COPD and 30 known patients with mild to moderate ACOS according to GOLD_GINA guidelines were enrolled. We assessed post bronchodilator the ratio of the forced expiratory volume in the first one second to the forced vital capacity of the lungs (fev1) and the forced expiratory volume in the first one second to the forced vital capacity of the lungs (fev1/fvc) in all patients. Then they took standard treatment for 2 months and after this period spirometry was repeated. Spirometric data's changes was compared between the three groups by SPSS26 statistical software. Fev1 changes in response to treatment did not differ significantly between three

groups ($p > 0.05$) but fev1/fvc changes differed significantly and this parameter in asthma was more than ACOS and in COPD was least. (In asthma, spirometric symbolized therapeutic response is more significant than ACOS, and in ACOS, it is more important than COPD in terms of fev1/fvc changes) and there was not any difference between the three groups regarding to FEV1 changes.

Keywords: ACOS; Asthma; COPD; Therapeutic response; spirometry.

Conflict of interest statement

The authors declare that they have no conflict of interest.

- [29 references](#)

[Proceed to details](#)

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Cytokine

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. 2022 Dec 5;162:156091.

doi: 10.1016/j.cyto.2022.156091. Online ahead of print.

[IL-4 and IL-13, not eosinophils, drive type 2 airway inflammation, remodeling and lung function decline](#)

[George Scott](#)¹, [Seblewongel Asrat](#)¹, [Jeanne Allinne](#)¹, [Wei Keat Lim](#)¹, [Kirsten Nagashima](#)¹, [Dylan Birchard](#)¹, [Subhashini Srivatsan](#)¹, [Dharani K Ajithdoss](#)¹, [Adelekan Oyejide](#)¹, [Li-Hong Ben](#)¹, [Johnathon Walls](#)¹, [Audrey Le Floc'h](#)¹, [George D Yancopoulos](#)¹, [Andrew J Murphy](#)¹, [Matthew A Sleeman](#)¹, [Jamie M Orengo](#)²

Affiliations expand

- PMID: 36481478

- DOI: [10.1016/j.cyto.2022.156091](https://doi.org/10.1016/j.cyto.2022.156091)

Abstract

Rationale: Type 2 (T2) asthma is characterized by airflow limitations and elevated levels of blood and sputum eosinophils, fractional exhaled nitric oxide, IgE, and periostin. While eosinophils are associated with exacerbations, the contribution of eosinophils to lung inflammation, remodeling and function remains largely hypothetical.

Objectives: To determine the effect of T2 cytokines IL-4, IL-13 and IL-5 on eosinophil biology and compare the impact of depleting just eosinophils versus inhibiting all aspects of T2 inflammation on airway inflammation.

Methods: Human eosinophils or endothelial cells stimulated with IL-4, IL-13 or IL-5 were assessed for gene changes or chemokine release. Mice exposed to house dust mite extract received anti-IL-4R α (dupilumab), anti-IL-5 or control antibodies and were assessed for changes in lung histological and inflammatory endpoints.

Measurements and main results: IL-4 or IL-13 stimulation of human eosinophils and endothelial cells induced gene expression changes related to granulocyte migration; whereas, IL-5 induced changes reflecting granulocyte differentiation. In a mouse model, blocking IL-4R α improved lung function by impacting multiple effectors of inflammation and remodeling, except peripheral eosinophil counts, thereby disconnecting blood eosinophils from airway inflammation, remodeling and function. Blocking IL-5 globally reduced eosinophil counts but did not impact inflammatory or functional measures of lung pathology. Whole lung transcriptome analysis revealed that IL-5 or IL-4R α blockade impacted eosinophil associated genes, whereas IL-4R α blockade also impacted genes associated with multiple cells, cytokines and chemokines, mucus production, cell:cell adhesion and vascular permeability.

Conclusions: Eosinophils are not the sole contributor to asthma pathophysiology or lung function decline and emphasizes the need to block additional mediators to modify lung inflammation and impact lung function.

Keywords: Airway inflammation; Anti-IL-4R; Anti-IL-5; Asthma; House dust mite; IL-13; IL-4; Lung remodeling; Type 2 inflammation.

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Conflict of interest statement

Declaration of Competing Interest The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: All authors reports financial support was provided by Regeneron Pharmaceuticals, Inc. and

Sanofi-Aventis France SA. All authors reports a relationship with Regeneron Pharmaceuticals Inc that includes: current or former employment and equity or stock or stock options. Andrew Murphy has patent #HUMANIZED IL-4 AND IL-4Ra ANIMALS issued to Regeneron Pharmaceuticals.

[Proceed to details](#)

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J Allergy Clin Immunol Pract

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. 2022 Dec 5;S2213-2198(22)01247-8.

doi: 10.1016/j.jaip.2022.11.027. Online ahead of print.

[Bidirectional associations between asthma and types of mental disorders](#)

[Xiaoqin Liu](#)¹, [Oleguer Plana-Ripoll](#)², [John J McGrath](#)³, [Liselotte V Petersen](#)⁴, [Shyamali C Dharmage](#)⁵, [Natalie C Momen](#)⁴

Affiliations expand

- PMID: 36481421
- DOI: [10.1016/j.jaip.2022.11.027](https://doi.org/10.1016/j.jaip.2022.11.027)

Abstract

Background: Asthma and mental disorders frequently co-occur. Studies of their comorbidity have generally focused on associations related to a subset of mental disorders.

Objective: To estimate bidirectional associations between asthma and 10 broad types of mental disorders.

Methods: In a population-based cohort study, including all individuals born in Denmark between 1955 and 2011 (N=5,053,471), we considered diagnoses of comorbid mental disorders among those with asthma, and vice versa, between 2000 and 2016. We used Cox regression models to calculate overall and time-dependent hazard ratios (HRs) for mental disorder-asthma pairs and competing-risks survival analyses to estimate absolute risks.

Results: Altogether, 376,756 individuals were identified as having an incident mental disorder and 364,063 incident asthma during follow-up. An increased risk was seen for all bidirectional mental disorder-asthma pairs. Following an asthma diagnosis, adjusted HRs for different subsequent mental disorders ranged from 1.75 (95% CI 1.64, 1.87) for organic disorders to 2.75 (95% CI 2.69, 2.81) for personality disorders. Following a prior mental disorder diagnosis, HRs for asthma ranged from 1.06 (95% CI 1.00, 1.12) for developmental disorders to 2.33 (95% CI 2.28, 2.39) for substance use disorders. Risks varied with time since prior disorder diagnosis but remained elevated. Cumulative incidence of (i) asthma after a mental disorder and (ii) a mental disorder after asthma was higher in those with prior disorders than in matched reference groups.

Conclusion: Our findings provide evidence of bidirectional associations between asthma and each of the mental disorder types, suggesting possible shared etiological factors or pathophysiologic processes.

Keywords: Asthma; comorbidity; epidemiology; mental disorder; register-based research.

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Am J Respir Crit Care Med

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. 2022 Dec 8.

doi: 10.1164/rccm.202211-2062LE. Online ahead of print.

[Modeling the Natural Course of Atopic Multimorbidity: Correlates of Early-Life States and Exposures](#)

[Arthur H Owora](#)¹

Affiliations expand

- PMID: 36480962
- DOI: [10.1164/rccm.202211-2062LE](https://doi.org/10.1164/rccm.202211-2062LE)

No abstract available

Keywords: Modeling; Pediatric asthma; transition states.

[Proceed to details](#)

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Review

Health Expect

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. 2022 Dec 7.

doi: 10.1111/hex.13670. Online ahead of print.

[Influences on indoor environmental trigger remediation uptake for children](#)

and young people with asthma: A scoping review

[Grace Lewis](#)^{1,2}, [Linda Milnes](#)^{1,2}, [Alexandra Adams](#)^{2,3}, [Jürgen Schwarze](#)^{2,4}, [Alistair Duff](#)^{1,2,3}

Affiliations expand

- PMID: 36478049
- DOI: [10.1111/hex.13670](https://doi.org/10.1111/hex.13670)

Abstract

Introduction: Children and young people (CYP) with asthma can benefit from reduced exposure to indoor environmental allergens and triggers but may not consistently have avoidance strategies implemented. To inform future interventions to increase trigger and allergen avoidance and enhance asthma control, a greater understanding of the influences on avoidance behaviours is necessary.

Methods: A systematic scoping review was selected to summarize evidence on what influences family uptake of indoor environmental asthma trigger avoidance strategies for CYP with asthma and identify research gaps. Primary studies of any design, including CYP (≤ 18 years) with asthma, and/or parent-carers, available in English and conducted since 1993, were eligible. Searches included nine databases, hand-searching reference lists and citation searching.

Findings: Thirty-three articles were included and are summarized narratively due to heterogeneity. Influences appear complex and multifactorial and include barriers to strategy uptake, health beliefs and personal motivation. Research specifically related to family understanding of allergic sensitisation status and exposure risks, and how these may inform avoidance implementation is required. Patient and public involvement (PPI) was not reported in included articles, although two studies used participatory methods.

Conclusion: There is limited research on family asthma trigger management, particularly what influences current management behaviours. Variation in families' ability to identify important triggers, understand exposure risk and consistently reduce exposures warrants further exploratory research to explain how families reach avoidance decisions, and what future interventions should aim to address. Further PPI-informed research to address such gaps, could enable theory-based, person-centred interventions to improve the uptake of asthma trigger remediation.

Patient or public contribution: An asthma-specific PPI group contributed to the decision-making for the funding for the wider project this review sits within. The findings of this scoping review have informed the subsequent phases of the project, and this was discussed with PPI groups (both adult and CYP groups) when proposing the next phases of the project.

Keywords: allergic sensitisation; asthma; asthma triggers; behavioural influences; children and young people; parent-carer; scoping review.

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- [73 references](#)

SUPPLEMENTARY INFO

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Ann Work Expo Health

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. 2022 Dec 7;wxac079.

doi: 10.1093/annweh/wxac079. Online ahead of print.

[Main Causal Agents of Occupational Asthma in France, Reported to the National Network for Occupational Disease Vigilance and Prevention \(RNV3P\) 2001–2018](#)

[D Lucas](#)^{1,2}, [C Robin](#)¹, [N Vongmany](#)³, [J D Dewitte](#)^{1,4}, [B Loddé](#)^{1,2}, [R Pougnet](#)^{1,4}, [L Larabi](#)³, [RNV3P members](#)

Affiliations expand

- PMID: 36477519
- DOI: [10.1093/annweh/wxac079](https://doi.org/10.1093/annweh/wxac079)

Abstract

Objectives: The definition of work-related Asthma (WRA) has changed in recent years and new etiologies and agents have been identified. The aim of this study is to describe the main causal agents of WRA in France in the period 2001-2018 in the main work sectors.

Methods: Data were collected from the French national network of occupational health surveillance and prevention [Réseau National de Vigilance et de Prévention des Pathologies Professionnelles (RNV3P)], Data between 2001 and 2018 with at least a probable or certain association with one occupational agent, were included.

Results: Work sectors with more cases OF WRA included personal service activities (10.6%), food industry (10.2%) and healthcare activities (7.6%). WRA cases were most frequently related to flour (10%), quaternary ammoniums compounds (5.3%), isocyanates (5.1%) and cleaning products (4.8%).

Conclusion: Occupational exposure to specific agents capable of causing WRA is still present, and four agents represent more than 25% of the cases. Actions to prevent respiratory exposure are still relevant.

Keywords: causal agents; national network; occupational asthma.

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Ann Epidemiol

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. 2022 Dec 4;S1047-2797(22)00302-7.

doi: 10.1016/j.annepidem.2022.11.009. Online ahead of print.

Parental occupational exposures prior to conception and offspring wheeze and eczema during first year of life

[Forster Felix](#)¹, [Heumann Christian](#)², [Schaub Bianca](#)³, [Böck Andreas](#)⁴, [Nowak Dennis](#)⁵, [Vogelberg Christian](#)⁶, [Radon Katja](#)⁵

Affiliations expand

- PMID: 36476404
- DOI: [10.1016/j.annepidem.2022.11.009](https://doi.org/10.1016/j.annepidem.2022.11.009)

Abstract

Purpose: Parental exposures prior to conception might influence asthma and allergy risk in offspring. As occupational exposures are established risk factors for asthma and allergies, we investigated if parental occupational exposures prior to conception cause wheeze and eczema in offspring during the first year of life.

Methods: We analysed data of 436 families from an offspring cohort based on a follow-up study of German participants of the International Study of Asthma and Allergies in Childhood (ISAAC). Offspring cohort data was collected between 2009 and 2019. Occupational exposures were based on participants' work histories and measured by a Job-Exposure-Matrix. We used Bayesian logistic regression models for analysis. Inference and confounder selection were based on directed acyclic graphs.

Results: In mothers, for both allergic and irritative occupational exposures prior to conception suggestive effects on offspring eczema during the first year of life were found (allergens: odds ratio (OR) 1.22, 95% compatibility interval (CI) 0.92-1.57; irritants: OR 1.36, 95% CI 0.99-1.77), while no relation with wheeze was suggested.

Conclusions: Our results suggest that reduction of asthma-related occupational exposures might not only reduce the burden of disease for occupationally induced or aggravated asthma and allergies in employees but also in their children.

Keywords: asthma; dermatitis, atopic; maternal exposure; occupational exposure; paternal exposure.

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Conflict of interest statement

Declaration of competing interest None declared

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J Appl Physiol (1985)

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. 2022 Dec 8.

doi: 10.1152/jappphysiol.00491.2022. Online ahead of print.

Differences in respiratory oscillometry measurements using mouthpiece, mouth- and nasal mask in healthy adults

[Malak Alshlowi](#)¹, [Ali Hakizimana](#)^{1,2}, [Afnan Alraimi](#)¹, [Pooja Devani](#)^{1,2}, [Lennart K A Lundblad](#)³, [Caroline S Beardsmore](#)^{1,2}, [Erol A Gaillard](#)^{1,2}

Affiliations expand

- PMID: 36476160
- DOI: [10.1152/jappphysiol.00491.2022](https://doi.org/10.1152/jappphysiol.00491.2022)

Abstract

Airway resistance measurements using oscillometry provide a potential alternative to spirometry in assessing airway obstruction and dynamics due to measurements taken during tidal breathing. Oscillometry typically requires participants to form a tight seal

around a mouthpiece which can prove challenging in some people. To address this challenge, we conducted a prospective study to evaluate the effect of different interfaces: mouthpiece, mouth mask and nasal mask; on respiratory impedance results from oscillometry in a cohort of healthy adults. Ten healthy adults (seven females; mean age: 38.9 years (SD \pm 15.5) underwent oscillometry using each of the three interfaces. We measured resistance at 5Hz (R_{rs5}); frequency dependence of resistance at 5 -20Hz (R_{rs5-20}); and reactance area (A_x). R_{rs5} was not different when using the mouthpiece compared to the mouth mask (mean 2.98 cmH₂O.l-1.s (SD \pm 0.68) vs mean 3.2 cmH₂O.l-1.s (SD \pm 0.81; $p=0.92$; 95% CI -0.82 to +0.38) respectively. Nasal mask R_{rs5} measurements were significant higher than mouthpiece measurements (mean 7.31 cmH₂O.l-1.s; SD \pm 2.62; $p < 0.01$; 95%CI -6.91 to -1.75). With A_x we found a mean of 4.01 cm H₂O/l (SD \pm 2.04) with the mouth mask compared to a mean of 4.02 cm H₂O/l (SD \pm 1.87; $p=1.0$ 95% CI -1.86 to +1.87) for the mouthpiece, however, we found a significant difference between the mouthpiece and nasal mask for A_x (mean= 10.71; SD \pm 7.0 H₂O/l; $p=0.04$, 95% CI -12.96 to -0.43). Our findings show that oscillometry using a mouth mask may be just as effective as using a mouthpiece in assessing airway dynamics and resistance.

Keywords: Lung function; airway resistance; asthma; wheeze.

SUPPLEMENTARY INFO

Grant supportexpand

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Ann Work Expo Health

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. 2022 Dec 6;wxac074.

doi: 10.1093/annweh/wxac074. Online ahead of print.

[The Relationship Between Potential Occupational Sensitizing Exposures and](#)

Asthma: An Overview of Systematic Reviews

[Annett Dalbøge](#)^{1,2}, [Henrik Albert Kolstad](#)¹, [Charlotte Suppli Ulrik](#)³, [David Lee Sherson](#)^{4,5}, [Harald William Meyer](#)⁶, [Niels Ebbehøj](#)⁶, [Torben Sigsgaard](#)⁷, [Jan-Paul Zock](#)⁸, [Xaver Baur](#)⁹, [Vivi Schlünssen](#)^{10,7}

Affiliations expand

- PMID: 36472234
- DOI: [10.1093/annweh/wxac074](https://doi.org/10.1093/annweh/wxac074)

Abstract

Objectives: The aim was to identify, appraise, and synthesize the scientific evidence of the relationship between potential occupational sensitizing exposures and the development of asthma based on systematic reviews.

Methods: The study was conducted as an overview of systematic reviews. A systematic literature search was conducted for systematic reviews published up to 9 February 2020. Eligibility study criteria included persons in or above the working age, potential occupational sensitizing exposures, and outcomes defined as asthma. Potential occupational sensitizing exposures were divided into 23 main groups comprising both subgroups and specific exposures. Two reviewers independently selected studies, extracted study data, assessed study quality, and evaluated confidence in study results and level of evidence of the relationship between potential occupational sensitizing exposures and asthma.

Results: Twenty-seven systematic reviews were included covering 1242 studies and 486 potential occupational sensitizing exposures. Overall confidence in study results was rated high in three systematic reviews, moderate in seven reviews, and low in 17 reviews. Strong evidence for the main group of wood dusts and moderate evidence for main groups of mites and fish was found. For subgroups/specific exposures, strong evidence was found for toluene diisocyanates, Aspergillus, Cladosporium, Penicillium, and work tasks involving exposure to laboratory animals, whereas moderate evidence was found for 52 subgroups/specific exposures.

Conclusions: This overview identified hundreds of potential occupational sensitizing exposures suspected to cause asthma and evaluated the level of evidence for each exposure. Strong evidence was found for wood dust in general and for toluene diisocyanates, Aspergillus, Cladosporium, Penicillium, and work tasks involving exposure to laboratory animals.

Keywords: Allergen; allergy; lung disease; respiratory symptom; work.

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Review

Cochrane Database Syst Rev

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. 2022 Dec 6;12(12):CD013799.

doi: 10.1002/14651858.CD013799.pub2.

[Effectiveness and tolerability of dual and triple combination inhaler therapies compared with each other and varying doses of inhaled corticosteroids in adolescents and adults with asthma: a systematic review and network meta-analysis](#)

[Yuji Oba](#)¹, [Sumayya Anwer](#)², [Tinashe Maduke](#)¹, [Tarang Patel](#)¹, [Sofia Dias](#)²

Affiliations expand

- PMID: 36472162
- PMCID: PMC9723963 (available on 2023-12-06)
- DOI: [10.1002/14651858.CD013799.pub2](https://doi.org/10.1002/14651858.CD013799.pub2)

Abstract

Background: Current guidelines recommend a higher-dose inhaled corticosteroids (ICS) or adding a long-acting muscarinic antagonist (LAMA) when asthma is not controlled with medium-dose (MD) ICS/long-acting beta2-agonist (LABA) combination therapy.

Objectives: To assess the effectiveness and safety of dual (ICS/LABA) and triple therapies (ICS/LABA/LAMA) compared with each other and with varying doses of ICS in adolescents and adults with uncontrolled asthma.

Search methods: We searched multiple databases for pre-registered randomised controlled trials (RCTs) of at least 12 weeks of study duration from 2008 to 18 February 2022.

Selection criteria: We searched studies, including adolescents and adults with uncontrolled asthma who had been treated with, or were eligible for, MD-ICS/LABA, comparing dual and triple therapies. We excluded cluster- and cross-over RCTs.

Data collection and analysis: We conducted a systematic review and network meta-analysis according to the previously published protocol. We used Cochrane's Screen4ME workflow to assess search results and Grading of Recommendations Assessment, Development and Evaluation (GRADE) to assess the certainty of evidence. The primary outcome was steroid-requiring asthma exacerbations and asthma-related hospitalisations (moderate to severe and severe exacerbations).

Main results: We included 17,161 patients with uncontrolled asthma from 17 studies (median duration 26 weeks; mean age 49.1 years; male 40%; white 81%; mean forced expiratory volume in 1 second (MEF 1) 1.9 litres and 61% predicted). The quality of included studies was generally good except for some outcomes in a few studies due to high attrition rates. Medium-dose (MD) and high-dose (HD) triple therapies reduce steroid-requiring asthma exacerbations (hazard ratio (HR) 0.84 [95% credible interval (CrI) 0.71 to 0.99] and 0.69 [0.58 to 0.82], respectively) (high-certainty evidence), but not asthma-related hospitalisations, compared to MD-ICS/LABA. High-dose triple therapy likely reduces steroid-requiring asthma exacerbations compared to MD triple therapy (HR 0.83 [95% CrI 0.69 to 0.996], [moderate certainty]). Subgroup analyses suggest the reduction in steroid-requiring exacerbations associated with triple therapies may be only for those with a

history of asthma exacerbations in the previous year but not for those without. High-dose triple therapy, but not MD triple, results in a reduction in all-cause adverse events (AEs) and likely reduces dropouts due to AEs compared to MD-ICS/LABA (odds ratio (OR) 0.79 [95% CrI 0.69 to 0.90], [high certainty] and 0.50 [95% CrI 0.30 to 0.84], [moderate certainty], respectively). Triple therapy results in little to no difference in all-cause or asthma-related serious adverse events (SAEs) compared to dual therapy (high certainty). The evidence suggests triple therapy results in little or no clinically important difference in symptoms or quality of life compared to dual therapy considering the minimal clinically important differences (MCIDs) and HD-ICS/LABA is unlikely to result in any significant benefit or harm compared to MD-ICS/LABA.

Authors' conclusions: Medium-dose and HD triple therapies reduce steroid-requiring asthma exacerbations, but not asthma-related hospitalisations, compared to MD-ICS/LABA especially in those with a history of asthma exacerbations in the previous year. High-dose triple therapy is likely superior to MD triple therapy in reducing steroid-requiring asthma exacerbations. Triple therapy is unlikely to result in clinically meaningful improvement in symptoms or quality of life compared to dual therapy considering the MCIDs. High-dose triple therapy, but not MD triple, results in a reduction in all-cause AEs and likely reduces dropouts due to AEs compared to MD-ICS/LABA. Triple therapy results in little to no difference in all-cause or asthma-related SAEs compared to dual therapy. HD-ICS/LABA is unlikely to result in any significant benefit or harm compared to MD-ICS/LABA, although long-term safety of higher rather than MD- ICS remains to be demonstrated given the median duration of included studies was six months. The above findings may assist deciding on a treatment option when asthma is not controlled with MD-ICS/LABA.

Trial

registration: ClinicalTrials.gov [NCT00424008](#) [NCT01686633](#) [NCT01099722](#) [NCT00646594](#) [NCT03158311](#) [NCT00772538](#) [NCT00776984](#) [NCT02571777](#) [NCT02924688](#) [NCT02175771](#) [NCT00394368](#) [NCT00651768](#) [NCT01475721](#) [NCT02554786](#) [NCT02676076](#) [NCT02676089](#) [NCT00381485](#) [NCT01147848](#) [NCT01202084](#) [NCT00901368](#) [NCT00350207](#) [NCT02301975](#) [NCT01018186](#) [NCT01257230](#) [NCT01277523](#) [NCT03358147](#) [NCT00379288](#) [NCT01570478](#) [NCT02892344](#) [NCT03376932](#) [NCT01244984](#) [NCT01340209](#) [NCT01316380](#) [NCT00565266](#) [NCT02139644](#) [NCT03063086](#) [NCT01290874](#) [NCT01471340](#) [NCT03387241](#) [NCT04191434](#) [NCT04191447](#) [NCT04609878](#) [NCT04609904](#).

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Conflict of interest statement

Y. Oba: has provided consultation and received honoraria from Genentech unrelated to the current review.

T Patel: none known.

S Anwer: none known.

T Maduke: none known.

S Dias: none known.

Update of

- doi: 10.1002/14651858.CD013799

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances, Associated dataexpand

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Trials

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. 2022 Dec 5;23(1):975.

doi: 10.1186/s13063-022-06916-3.

[Symptom-driven inhaled corticosteroid/long-acting beta-agonist therapy for adult patients with asthma who are non-adherent to daily maintenance inhalers: a study protocol for a pragmatic randomized controlled trial](#)

[James G Krings](#)¹, [Kaitlyn M Wojcik](#)², [Vanessa Chen](#)², [Tejas C Sekhar](#)³, [Kelly Harris](#)⁴, [Abigail Zulich](#)³, [Kaharu Sumino](#)³, [Ross Brownson](#)², [Eric Lenze](#)⁵, [Mario Castro](#)⁶

Affiliations expand

- PMID: 36471430
- DOI: [10.1186/s13063-022-06916-3](https://doi.org/10.1186/s13063-022-06916-3)

Free article

Abstract

Background: While inhaled corticosteroids (ICS) are considered the essential foundation of most asthma therapy, ICS inhaler nonadherence is a notoriously common problem and a significant cause of asthma-related morbidity. Partially acknowledging the problem of nonadherence, international organizations recently made paradigm-shifting recommendations that all patients with mild-to-moderate persistent asthma be considered for symptom-driven ICS-containing inhalers rather than relying on adherence to traditional maintenance ICS inhalers and symptom-driven short-acting beta-agonists (SABA). With this new approach, asthma patients are at least exposed to the important anti-inflammatory effects of ICS-containing inhalers when their symptom reliever inhaler is deployed due to acute symptoms.

Methods: This study will (Part 1) complete a pragmatic randomized controlled trial to evaluate if an inhaler strategy that utilizes symptom-driven ICS inhalers is particularly beneficial in maintenance ICS inhaler non-adherent asthma patients, and (Part 2) use a dissemination and implementation (D&I) science conceptual framework to better understand patients' and providers' views of inhaler nonadherence. This study, which will have an option of taking place entirely remotely, will use a Food and Drug Administration (FDA)-approved electronic sensor (Hailie® sensor) to monitor inhaler adherence and includes semi-structured interviews guided by the Consolidated Framework for Implementation Research (CFIR).

Discussion: This study is assessing the problem of nonadherence using a D&I implementation science research lens while testing a new inhaler approach to potentially ameliorate the detrimental consequences of maintenance inhaler nonadherence. We hypothesize that the use of a symptom-driven ICS/LABA management strategy, as compared to traditional maintenance ICS treatment and symptom-driven SABA, will lead to improved adherence to an asthma treatment strategy, decreased asthma-related morbidity, less cumulative ICS exposure, and greater patient satisfaction with an inhaler approach.

Trial registration: ClinicalTrials.gov [NCT05111262](https://clinicaltrials.gov/ct2/show/study/NCT05111262). Registered on November 8, 2021.

Keywords: Asthma; Inhaler; Medication adherence; Pragmatic clinical trial; Qualitative.

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- [71 references](#)

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Review

Allergy Asthma Clin Immunol

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. 2022 Dec 5;18(1):102.

doi: 10.1186/s13223-022-00736-5.

[International recommendations on epinephrine auto-injector doses often differ from standard weight-based guidance: a review and clinical proposals](#)

[Sten Dreborg](#)¹, [Graham Walter](#)^{2,3}, [Harold Kim](#)^{4,5,6}

Affiliations expand

- PMID: 36471385
- PMCID: [PMC9724388](#)
- DOI: [10.1186/s13223-022-00736-5](#)

Free PMC article

Abstract

Background: In anaphylaxis, the dosing of injectable epinephrine in medical settings has been arbitrarily recommended to be 0.01 mg/kg of body weight. For ethical reasons, there have been no dose-response studies or double-blind studies performed on patients with active anaphylaxis. Intramuscular delivery of epinephrine has been the standard. Auto-injectors for use in the treatment of anaphylaxis are available in four strengths (0.1, 0.15, 0.3, and 0.5 mg). However, in many countries, only the 0.15 and 0.3 mg strengths are available. Consequently, many adult, heavy patients are prescribed the 0.3 mg dose, which may result in only one-fifth to one-third of the recommended weight-based dose being administered in heavy patients experiencing anaphylaxis. Underdosing may have therefore contributed to mortality in anaphylaxis.

Objective: To review the doses of epinephrine recommended for the treatment of anaphylaxis in the community, and assess whether recommendations should be made to increase dosing for heavy adult patients in hopes of avoiding future deaths from anaphylaxis.

Methods: We reviewed multiple national and international recommendations for the dosing of epinephrine. We also reviewed the literature on adverse drug reactions from epinephrine, lethal doses of epinephrine, and epinephrine dose-finding studies.

Results: The majority of national and regional professional societies and authorities recommend epinephrine delivered by auto-injectors at doses far lower than the generally accepted therapeutic dose of 0.01 mg/kg body weight. Furthermore, we found that the recommendations vary even within regions themselves.

Conclusions: We suggest prescribing more appropriate doses of epinephrine auto-injectors based on weight-based recommendations. There may be some exceptions, such as for patients with heart disease. We hypothesize that these recommendations will lead to improved outcomes of anaphylaxis.

Keywords: Age; Auto-injector; Dose; Epinephrine; Intramuscular; LD50; Subcutaneous; Weight.

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Conflict of interest statement

SD has been a consultant to Bausch and Lomb. HK has been on the advisory boards and speaker bureaus for Bausch Health, Kaleo, and Pfizer. GW has no conflicts to declare.

- [29 references](#)
- [3 figures](#)

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Int Arch Allergy Immunol

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. 2022 Dec 5;1-9.

doi: 10.1159/000525846. Online ahead of print.

Effects of Benralizumab on Three-Dimensional Computed Tomography Analysis in Severe Eosinophilic Asthma

[Fumito Tsubokawa](#)¹, [Toshiyuki Koya](#)¹, [Yui Murai](#)¹, [Kentaro Tanaka](#)¹, [Yuchi Tsutsui](#)¹, [Shun Naramoto](#)¹, [Natsumi Sakai](#)¹, [Ami Aoki](#)¹, [Kenjiro Shima](#)¹, [Yosuke Kimura](#)¹, [Satoshi Watanabe](#)¹, [Takashi Hasegawa](#)², [Toshiaki Kikuchi](#)¹

Affiliations [expand](#)

- PMID: 36470233
- DOI: [10.1159/000525846](https://doi.org/10.1159/000525846)

Abstract

Introduction: Benralizumab, an anti-interleukin-5 receptor chain monoclonal antibody, is used to treat severe asthma and control asthma symptoms or exacerbations. The aim of this study was to examine the changes in airway morphology using computed tomography (CT) images in accordance with clinical efficacy following the administration of benralizumab.

Methods: The clinical efficacy of benralizumab was evaluated in 11 patients with severe asthma by analyzing the changes in parameters, such as the asthma control test, asthma quality of life questionnaire, pulmonary function, and exacerbation count. We also investigated the airway wall thickness of the right bronchus (B1) and the total airway count (TAC) using CT images.

Results: Most patients treated with benralizumab showed improvements in asthma symptoms and exacerbations. CT imaging analyses showed a decrease in the right B1 airway wall thickness and an increase in the TAC. Correlations between blood eosinophil count and changes in CT imaging were observed.

Discussion/conclusion: The data suggested that benralizumab has the potential to improve airway wall thickening and ventilation by alleviating the obstruction and clearing an obstructed airway.

Keywords: Airway wall thickening; Benralizumab; Blood eosinophil; Severe asthma; Total airway count.

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[P2X3- P2X7 SNPs and Gene-Gene and Gene-Environment Interactions on Pediatric Asthma](#)

[Lingxue Li](#)¹, [Bing Wei](#)¹, [Jingjing Jia](#)^{1,2}, [Mo Li](#)¹, [Mengyang Ren](#)^{1,2}, [Shinan Zhang](#)¹

Affiliations expand

- PMID: 36469748
- DOI: [10.1080/02770903.2022.2155184](https://doi.org/10.1080/02770903.2022.2155184)

Abstract

Background: To investigate the relationship between polymorphisms of *P2X3*, *P2X7* genes and environment interaction with susceptibility of childhood asthma.

Methods: We conducted a matched case-control study with 170 cases and 175 healthy controls. The rs10896611, rs2276038, rs3781899 in *P2X3* and rs1718119, rs3751143 in *P2X7* polymorphisms were genotyped using the technique of an improved multiplex ligation detection reaction. Gene-gene, gene-environment and haplotype-environment interactions were tested using the generalized multi-factor dimensionality reduction method.

Results: There were no differences between cases and controls in allele or genotype frequencies of *P2X3* and *P2X7*. The C/C, G/C genotypes of rs10896611, and C/C, C/T genotypes of rs2276038 and G/G, G/A genotypes of rs3781899 were associated with asthmatic cough ($p > 0.05$). The haplotype GCT of *P2X3* reduced the risk of asthma (OR = 0.48, $p = 0.048$), and the haplotypes AGT (OR = 0.45, $p = 0.001$) and GCC (OR = 2.16, $p = 0.002$) were associated with asthmatic cough. The haplotype AA of *P2X7* increased risk of asthma severity ($p < 0.05$). The three-locus model indicated a potential haplotype-environment interaction in GCT, ETS, and pet ($p = 0.001$).

Conclusions: The rs10896611, rs2276038 and rs3781899 of *P2X3* minor alleles increased the risk of asthmatic cough. Haplotype GCT of *P2X3* was a protective factor for asthma, the haplotype AGT was a protective factor and GCC was a risk factor for asthma with cough. In addition, the interactions of haplotype GCT of *P2X3*, ETS and pet may increase an individual's susceptibility to asthma.

Keywords: P2X3; P2X7; asthma; children; interaction; polymorphism.

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Review

Clin Exp Allergy

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. 2022 Dec 5.

doi: 10.1111/cea.14250. Online ahead of print.

[Landscape of short-acting beta-agonists \(SABA\) overuse in Europe](#)

[Leticia de Las Vecillas](#)¹, [Santiago Quirce](#)¹

Affiliations expand

- PMID: 36468654
- DOI: [10.1111/cea.14250](https://doi.org/10.1111/cea.14250)

Abstract

This review article provides an overview of short-acting beta-agonist (SABA) use and prescribing trends in Europe, summarizing updated data on the results from the industry-funded SABINA program (SABA use IN asthma) and other studies on this matter. SABA use continues to increase worldwide. Overuse has been defined as ≥ 3 canisters/year. Almost a third of European patients with asthma, at all severity levels, overuse SABA. Guidelines recommend close monitoring of patients who overuse SABA and avoiding over-reliance on SABA monotherapy. SABA overuse is associated with increased risk of asthma exacerbations and mortality, increased use of health services and negative physical and mental health outcomes. Reliance on SABA monotherapy can be unsafe and therefore it is necessary to change asthma treatment approaches and policies. Changes in physician and patient behaviours towards SABA use are required to ensure that patients with asthma are not over-reliant on SABA monotherapy. Notwithstanding, the limitations of the studies on the use of SABA should be considered, taking into account that the prescription/purchase of medication canisters does not always represent the actual use of the medication and that associations between SABA overuse and poor asthma outcomes may not be directly causal. National health systems and asthma guidelines must align asthma management with global recommendations and adjust them to local needs.

Keywords: Europe; asthma; overuse; prescription; public health; short-acting $\beta 2$ -agonist.

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[Review](#)

Allergy



. 2022 Dec 4.

doi: 10.1111/all.15609. Online ahead of print.

Sounding the Alarmins - The Role of Alarmin Cytokines in Asthma

[Gail M Gauvreau](#)¹, [Celine Bergeron](#)², [Louis-Philippe Boulet](#)³, [Donald W Cockcroft](#)⁴, [Andréanne Cote](#)², [Beth E Davis](#)⁴, [Richard Leigh](#)⁵, [Irvin Myers](#)⁶, [Paul M O'Byrne](#)¹, [Roma Sehmi](#)¹

Affiliations expand

- PMID: 36463491

- DOI: [10.1111/all.15609](https://doi.org/10.1111/all.15609)

Abstract

The alarmin cytokines thymic stromal lymphopoietin (TSLP), interleukin (IL)-33 and IL-25 and are epithelial cell-derived mediators that contribute to the pathobiology and pathophysiology of asthma. Released from airway epithelial cells exposed to environmental triggers, the alarmins drive airway inflammation through the release of predominantly T2 cytokines from multiple effector cells. The upstream positioning of the alarmins is an attractive pharmacological target to block multiple T2 pathways important in asthma. Blocking the function of TSLP inhibits allergen-induced responses including bronchoconstriction, airway hyperresponsiveness and inflammation, and subsequent clinical trials of an anti-TSLP monoclonal antibody, tezepelumab, in asthma patients demonstrated improvements in lung function, airway responsiveness, inflammation, and importantly, a reduction in the rate of exacerbations. Notably, these improvements were observed in patients with T2-high and with T2-low asthma. Clinical trials blocking IL-33 and its receptor ST2 have also shown improvements in lung function and exacerbation rates, however the impact of blocking the IL-33/ST2 axis in T2-high versus T2-low asthma is unclear. To date there is no evidence that IL-25 blockade is beneficial in asthma. Despite considerable overlap in the cellular functions of IL-25, IL-33 and TSLP, they appear to have distinct roles in the immunopathology of asthma.

Keywords: Alarmin cytokines; asthma; clinical trials; eosinophilia; exacerbation.

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J Am Heart Assoc



. 2022 Dec 6;11(23):e026644.

doi: 10.1161/JAHA.122.026644. Epub 2022 Nov 23.

[Persistent Asthma Is Associated With Carotid Plaque in MESA](#)

[Matthew C Tattersall](#)¹, [Alison S Dasiewicz](#)², [Robyn L McClelland](#)³, [Nizar N Jarjour](#)⁴, [Claudia E Korcarz](#)¹, [Carol C Mitchell](#)¹, [Stephane Esnault](#)⁴, [Moyses Szklo](#)⁵, [James H Stein](#)¹

Affiliations [expand](#)

- PMID: 36416156
- DOI: [10.1161/JAHA.122.026644](https://doi.org/10.1161/JAHA.122.026644)

Free article

Abstract

Background Asthma and atherosclerotic cardiovascular disease share an underlying inflammatory pathophysiology. We hypothesized that persistent asthma is associated with carotid plaque burden, a strong predictor of atherosclerotic cardiovascular disease events. Methods and Results The MESA (Multi-Ethnic Study of Atherosclerosis) enrolled adults free of known atherosclerotic cardiovascular disease at baseline. Subtype of asthma was determined at examination 1. Persistent asthma was defined as asthma requiring use of controller medications, and intermittent asthma was defined as asthma without controller medications. B-mode carotid ultrasound was performed to detect carotid plaques (total plaque score [TPS], range 0-12). Multivariable regression modeling with robust variances evaluated the association of asthma subtype and carotid plaque burden. The 5029 participants were a mean (SD) age of 61.6 (10.0) years (53% were women, 26% were Black individuals, 23% were Hispanic individuals, and 12% were Chinese individuals). Carotid plaque was present in 50.5% of participants without asthma (TPS, 1.29 [1.80]), 49.5% of participants with intermittent asthma (TPS, 1.25 [1.76]), and 67% of participants with persistent asthma (TPS, 2.08 [2.35]) ($P \leq 0.003$). Participants with persistent asthma had higher interleukin-6 (1.89 [1.61] pg/mL) than participants without asthma (1.52 [1.21] pg/mL; $P=0.02$). In fully adjusted models, persistent asthma was associated with carotid plaque presence (odds ratio, 1.83 [95% confidence interval, 1.21-2.76]; $P < 0.001$) and TPS ($\beta=0.66$; $P < 0.01$), without attenuation after adjustment for baseline interleukin-6 ($P=0.02$) or CRP (C-reactive protein) ($P=0.01$). Conclusions Participants with persistent asthma had higher carotid plaque burden and higher levels of inflammatory biomarkers, compared with participants without asthma. Adjustment for baseline inflammatory biomarkers did not attenuate the association between carotid plaque and asthma subtype, highlighting the increased atherosclerotic cardiovascular disease risk among those with persistent asthma may be multifactorial.

Keywords: asthma; carotid plaque; inflammation.

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[Review](#)

Postgrad Med



. 2022 Dec 5;1-9.

doi: 10.1080/00325481.2022.2134624. Online ahead of print.

Eosinophilic granulomatosis with polyangiitis

[Alexandra Villa-Forte](#)¹

Affiliations expand

- PMID: 36259957
- DOI: [10.1080/00325481.2022.2134624](https://doi.org/10.1080/00325481.2022.2134624)

Abstract

This review aims to describe the epidemiology, pathogenesis, clinical manifestations, diagnosis, treatment, and prognosis of eosinophilic granulomatosis with polyangiitis (EGPA). Eosinophilic granulomatosis with polyangiitis is a small to medium vessel necrotizing vasculitis, typically classified with granulomatosis with polyangiitis (GPA) and microscopic polyangiitis (MPA) as antineutrophil cytoplasmic antibody (ANCA)-associated vasculitis (AAV). However, less than 50% of patients with EGPA have a positive ANCA test. Among all the vasculitides, asthma and eosinophilia are unique features of EGPA. Eosinophilic granulomatosis with polyangiitis is very rare and the diagnosis may be missed as the disease evolves over time. Polyneuropathies are common and may be severe, requiring aggressive immunosuppressive therapy. Heart involvement is the most common cause of death in EGPA. Biopsy of involved tissue supports a clinically suspected diagnosis but is not always feasible. Treatment of EGPA is primarily dictated by the severity of disease and prognostic factors. More severe disease frequently requires the use of aggressive therapy such as cyclophosphamide. Once treatment is initiated, patients can achieve good control of symptoms; unfortunately, disease relapses are common and prolonged treatment with corticosteroids is often necessary for asthma management. A better understanding of the disease heterogeneity is needed for the development of better therapies.

Keywords: ANCA-associated vasculitis; Churg-strauss syndrome; allergic angiitis and granulomatosis; vasculitis.

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23

Am J Perinatol



. 2022 Dec 7.

doi: 10.1055/a-1961-2425. Online ahead of print.

[The Association of Prenatal C-Reactive Protein and Interleukin-8 Levels with Maternal Characteristics and Preterm Birth](#)

[Yih-Chieh S Chen](#)^{1,2}, [Hooman Mirzakhani](#)¹, [Hanna Knihtilä](#)¹, [Raina N Fichorova](#)³, [Ngan Luu](#)³, [Nancy Laranjo](#)¹, [Anjali Jha](#)¹, [Rachel S Kelly](#)¹, [Scott T Weiss](#)¹, [Augusto A Litonjua](#)^{#4}, [Kathleen A Lee-Sarwar](#)^{#1,2}

Affiliations expand

- PMID: 36241210
- DOI: [10.1055/a-1961-2425](https://doi.org/10.1055/a-1961-2425)

Abstract

Objective: The determinants of preterm birth remain unknown. Excessive maternal inflammation during pregnancy may play an important role in the pathogenesis of preterm birth. Our objective was to describe the association of prenatal levels of proinflammatory C-reactive protein (CRP) and interleukin-8 (IL-8) with preterm birth in participants of the Vitamin D Antenatal Asthma Reduction Trial.

Study design: Five hundred and twenty-eight patients with available samples of both first- and third-trimester plasma were included in this analysis. CRP and IL-8 were measured from maternal prenatal samples. We examined the association between prenatal CRP and IL-8 with maternal health characteristics and the outcome of preterm birth. We also described the patterns of change in CRP and IL-8 from first to third trimester and their association with preterm birth. A subgroup analysis comparing only those with a spontaneous preterm birth phenotype to those with term birth was also performed.

Results: Maternal characteristics including lower educational attainment, higher prepregnancy body mass index, gestational diabetes, lower vitamin D, and an unhealthy diet were associated with elevated levels of prenatal CRP and IL-8. Higher third trimester CRP and an increase in CRP from first to third trimester were associated with an increased odds of preterm birth when compared to lower levels of CRP (adjusted odds ratio [aOR] = 1.49, 95% confidence interval: 1.02, 2.23, $p = 0.04$) or a decrease in CRP over pregnancy (aOR = 3.06, 95% CI = 1.31, 7.55, $p = 0.01$), after adjusting for potential confounders. These associations were strengthened when comparing only patients with spontaneous preterm birth ($n = 22$) to those with term births.

Conclusion: Higher levels of the proinflammatory markers CRP and IL-8 are associated with indicators of poor maternal health and preterm birth. Prenatal CRP levels may reflect maternal prenatal health status and serve as a predictor of preterm birth, especially among those with spontaneous preterm birth.

Key points: · Elevated prenatal CRP is associated with poor maternal health.. · High prenatal CRP may predict premature birth, especially spontaneous premature birth phenotypes.. · Vitamin D insufficiency may be a modifiable risk factor for prenatal inflammation..

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Conflict of interest statement

A.A.L. has received author royalties from UpToDate, Inc. S.T.W. has received royalties from UpToDate, Inc. H.M. has received research support from NHLBI. K.L.-S., N.L., Y.S.C., R.S.K., and H.K. have nothing to disclose.

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Occup Med (Lond)



. 2022 Dec 7;72(8):541-549.

doi: 10.1093/occmed/kqac087.

Occupational asthma in teachers

[S Burge](#)¹, [V Moore](#)¹, [C Burge](#)¹, [A Robertson](#)¹, [C Huntley](#)¹, [G Walters](#)¹

Affiliations expand

- PMID: 36097688
- DOI: [10.1093/occmed/kqac087](https://doi.org/10.1093/occmed/kqac087)

Abstract

Background: Work-related asthma symptoms are common in teachers and teaching assistants, there are few studies evaluating their causes.

Aims: To identify causes of occupational asthma in teachers and teaching assistants referred to the Birmingham Occupational Lung Disease clinic 2000-20 using evaluation of serial Peak Expiratory Flow (PEF) records.

Methods: Teachers and teaching assistants with possible occupational asthma were asked to record PEF 2-hourly at home and work for 4 weeks. Their records were evaluated with the Oasys programme. Those with a positive score for any of the three scores (area between curves (ABC), timepoint and Oasys score from discriminant analysis) were

included. Repeat records were made as indicated to help identify the cause and the effects of remedial actions.

Results: Thirty-eight teachers or teaching assistants met the inclusion criteria with all three Oasys scores positive in 24, 2/3 scores in nine and 1/3 in five. The building was the likely cause in 17 (in new builds particularly acrylates from carpet adhesives and in old buildings mould and construction dust), bystander exposure to agents in the schools in 12 (cleaning agents, acrylates from photocopiers and chloramines from indoor pools) and materials used in the classroom in 9 (most commonly MDF in design and technology classes). We illustrate how the PEF records helped identify the cause.

Conclusions: Oasys analysis of PEF records is a useful method of evaluating occupational asthma in teachers and identified difficult to confirm causes where successful remediation or redeployment was achieved.

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Meta-Analysis

Sci Total Environ

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. 2022 Dec 10;851(Pt 2):158336.

doi: 10.1016/j.scitotenv.2022.158336. Epub 2022 Aug 26.

Association between temperature and natural mortality in Belgium: Effect modification by individual characteristics and residential environment

[Claire Demoury](#)¹, [Katrien De Troeyer](#)², [Finaba Berete](#)³, [Raf Aerts](#)⁴, [Bert Van Schaeybroeck](#)⁵, [Johan Van der Heyden](#)³, [Eva M De Clercq](#)⁶

Affiliations expand

- PMID: 36037893
- DOI: [10.1016/j.scitotenv.2022.158336](https://doi.org/10.1016/j.scitotenv.2022.158336)

Free article

Abstract

Background: There is strong evidence of mortality being associated to extreme temperatures but the extent to which individual or residential factors modulate this temperature vulnerability is less clear.

Methods: We conducted a multi-city study with a time-stratified case-crossover design and used conditional logistic regression to examine the association between extreme temperatures and overall natural and cause-specific mortality. City-specific estimates were pooled using a random-effect meta-analysis to describe the global association. Cold and heat effects were assessed by comparing the mortality risks corresponding to the 2.5th and 97.5th percentiles of the daily temperature, respectively, with the minimum mortality temperature. For cold, we cumulated the risk over lags of 0 to 28 days before death and 0 to 7 days for heat. We carried out stratified analyses and assessed effect modification by individual characteristics, preexisting chronic health conditions and residential environment (population density, built-up area and air pollutants: PM_{2.5}, NO₂, O₃ and black carbon) to identify more vulnerable population subgroups.

Results: Based on 307,859 deaths from natural causes, we found significant cold effect (OR = 1.42, 95%CI: 1.30-1.57) and heat effect (OR = 1.17, 95%CI: 1.12-1.21) for overall natural mortality and for respiratory causes in particular. There were significant effects modifications for some health conditions: people with asthma were at higher risk for cold,

and people with psychoses for heat. In addition, people with long or frequent hospital admissions in the year preceding death were at lower risk. Despite large uncertainties, there was suggestion of effect modification by air pollutants: the effect of heat was higher on more polluted days of O₃ and black carbon, and a higher cold effect was observed on more polluted days of PM_{2.5} and NO₂ while for O₃, the effect was lower.

Conclusions: These findings allow for targeted planning of public-health measures aiming to prevent the effects of extreme temperatures.

Keywords: Air pollution; Effect modification; Mortality; Preexisting conditions; Temperature; Vulnerability.

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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

Publication types, MeSH terms, Substancesexpand

FULL TEXT LINKS



RHINITIS

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BMC Pediatr

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. 2022 Dec 8;22(1):703.

doi: 10.1186/s12887-022-03772-7.

Factors associated with allergy traits around the 2nd year of life: a brazilian cohort study

[Alessandra Karla Oliveira Amorim Muniz](#)¹, [Cecilia Claudia Costa Ribeiro](#)², [Elcio Oliveira Vianna](#)³, [Hellen Cristina Oliveira Amorim Serra](#)¹, [Joelma Ximenes Prado Teixeira Nascimento](#)¹, [Viviane Cunha Cardoso](#)³, [Marco Antonio Barbieri](#)³, [Antonio Augusto Moura da Silva](#)¹, [Heloisa Bettioli](#)³

Affiliations expand

- PMID: 36482361
- PMCID: [PMC9733343](#)
- DOI: [10.1186/s12887-022-03772-7](#)

Abstract

Background: Allergic status has been strongly influenced by early exposures; however, allergic diseases are hard to measure in early life. Thus, this study proposed a latent variable allergy traits around the second year of life and analyzed pre- and perinatal factors associated with this phenomenon.

Methods: The study used data from the BRISA birth cohort, Ribeirão Preto, Brazil (n = 3644). The theoretical model included: family allergy (history of allergic rhinitis, atopic dermatitis, and asthma); gestational period variables (socioeconomic status, mother's skin color, pregestational body mass index - BMI, smoking, gestational diabetes, and hypertension); birth variables (gestational age, 5-minute Apgar score, birth weight, type of delivery), and early life factor (exclusive breast feeding). The outcome was allergy traits around the 2nd year of life, a latent variable deduced from the shared variance among medical diagnosis of allergic rhinitis, atopic dermatitis, and food allergy. The model was analyzed by structural equation modeling.

Results: Higher socioeconomic status (SC = 0.256; p < 0.001) and higher family allergy values (SC = 1.224; p < 0.001) were associated with higher allergy trait values. Hypertension during pregnancy was associated with higher values (SC = 0.170; p = 0.022) and exclusive breast feeding (SC = -0.192; p < 0.001) with low allergy trait values.

Conclusion: Although socioeconomic and environmental factors were associated with allergy traits around the 2nd year of life, the family component of allergy was the exposure that best explained this outcome.

Keywords: Allergic rhinitis; Atopic dermatitis; Birth; Food allergy; Pregnancy; Structural equation modeling.

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Conflict of interest statement

The authors declare that they have no competing interests

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

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Sci Rep

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. 2022 Dec 8;12(1):21258.

doi: 10.1038/s41598-022-25589-1.

[Increased risk of cataract surgery in patients with allergic disease: a population based cohort study](#)

[Ji-Sun Paik](#)^{#1}, [Kyungdo Han](#)^{#2}, [Gahee Nam](#)¹, [Sun-Kyoung Park](#)¹, [Ho Sik Hwang](#)¹, [Yoon Hong Chun](#)³, [Kyung-Sun Na](#)⁴

Affiliations expand

- PMID: 36482171

- DOI: [10.1038/s41598-022-25589-1](https://doi.org/10.1038/s41598-022-25589-1)

Abstract

We investigated the association between cataract and allergic diseases, including atopic dermatitis (AD), allergic rhinitis (AR), and asthma using 2,631,015 subjects' data from the 2009 National Health Insurance Service-Health Screening Cohort in Korea. Each allergic disease was defined as three or more occasions of diagnosis within 1 year with dedicated ICD-10 codes. The primary endpoint was newly received cataract surgery during the follow-up period. In total, 447,883 subjects had at least one allergic disease. During the mean follow-up of 7.8 ± 1.7 years, newly developed cataract surgery was observed in 301,693 subjects (allergic group, $n = 69,321$; non-allergic group, $n = 232,372$). After adjusting for demographic characteristics (age, sex), systemic and ocular comorbidities, socioeconomic status, and lifestyle factors (smoking, drinking, regular exercise), the allergic group had a higher hazard ratio (HR) for cataract development compared with the non-allergic group. We further performed a subgroup analysis for patients regarding sex and age. In the subgroup analysis of subjects with AD, men aged < 50 years had a higher HR compared to women of the same age group. In conclusion, subjects with allergic diseases had a higher risk of cataract surgery than their counterparts, and the combination of AD and AR resulted in the highest risk. Particularly, the association was more evident in male than female patients with AD aged < 50 years.

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- [33 references](#)

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Rhinology

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. 2022 Dec 8.

doi: 10.4193/Rhin22.223. Online ahead of print.

Fluticasone propionate suppresses the SARS-CoV-2 induced increase in respiratory epithelial permeability in vitro

[K Martens](#)^{1,2}, [E Vanhulle](#)³, [A Viskens](#)¹, [P W Hellings](#)^{1,4,5}, [K Vermeire](#)³

Affiliations expand

- PMID: 36479866
- DOI: [10.4193/Rhin22.223](https://doi.org/10.4193/Rhin22.223)

Abstract

Background: Disruption of the nasal epithelial barrier is believed to play a role in Coronavirus Disease-2019 (COVID-19) outcomes. Fluticasone propionate has been shown to restore the nasal epithelial barrier in allergic rhinitis to the level of healthy controls. The therapeutic potential of nasal steroid sprays in COVID-19 has recently been reported. However, further insight into the mode of action is warranted.

Objectives: To explore the in vitro mechanisms of the preventive potential of fluticasone propionate in SARS-CoV-2 infection.

Methods: Human air liquid interface cultures of Calu-3 cells and primary nasal epithelial cells isolated from healthy donors were used to investigate the preventive effect of fluticasone propionate on SARS-CoV-2 induced barrier disruption, virus replication and ACE2 expression.

Results: 48 hours pre-treatment with fluticasone propionate prevented the SARS-CoV-2 induced increase in fluorescein isothiocyanate-dextran 4 kDa permeability and reduced infection with SARS-CoV-2. Pre-treatment with fluticasone propionate also decreased ACE2 expression in SARS-CoV-2 infected Calu-3 cells.

Conclusion: Fluticasone propionate pre-treatment prevented SARS-CoV-2 increased epithelial permeability, reduced ACE2 expression and SARS-CoV-2 infection, underscoring the therapeutic potential of fluticasone propionate in the context of COVID-19.

[Proceed to details](#)

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NPJ Prim Care Respir Med

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. 2022 Dec 6;32(1):54.

doi: 10.1038/s41533-022-00319-2.

[25-year retrospective longitudinal study on seasonal allergic rhinitis associations with air temperature in general practice](#)

[Wendy Schreurs¹](#), [Tjard Ronald Jacob Schermer²](#), [Reinier Peter Akkermans³](#), [Erik Wiely Maria Anton Bischoff⁴](#), [Hilde Dymphna Luijks⁴](#)

Affiliations expand

- PMID: 36473873
- DOI: [10.1038/s41533-022-00319-2](https://doi.org/10.1038/s41533-022-00319-2)

Abstract

Due to climate change, air temperature in the Netherlands has gradually increased. Higher temperatures lead to longer pollen seasons. Possible relations between air temperature and increased impact of seasonal allergic rhinitis (SAR) in general practice have not been investigated yet. We explored trends in timing of frequent seasonal allergic rhinitis

presentation to general practitioners (GPs) over 25 years and explored associations with air temperature. We performed a retrospective exploratory longitudinal study with data from our Family Medicine Network (1995-2019), including all SAR patients and their GP-encounters per week. We determined patients' GP-consultation frequency. Every year we identified seasonal periods with substantial increase in SAR related encounters: peak-periods. We determined start date and duration of the peak-period and assessed associations with air temperature in the beginning and throughout the year, respectively. The peak-period duration increased by a mean of 1.3 days (95% CI 0.23-2.45, P = 0.02) per year throughout the study period. Air temperature between February and July showed a statistically significant association with peak-period duration. We could not observe direct effects of warmer years on the start of peak-periods within distinct years (P = 0.06). SAR patients' contact frequency slightly increased by 0.01 contacts per year (95% CI 0.002-0.017, P = 0.015). These longitudinal findings may help to facilitate further research on the impact of climate change, and raise awareness of the tangible impact of climate change in general practice.

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- [35 references](#)

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Curr Opin Allergy Clin Immunol

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. 2022 Dec 7.

doi: 10.1097/ACI.0000000000000885. Online ahead of print.

[Occupational respiratory allergy to reactive dyes](#)

[Xavier Muñoz](#)^{1,2,3}, [David Clofent](#)^{1,2}, [María-Jesús Cruz](#)^{1,2}

Affiliations expand

- PMID: 36473025

- DOI: [10.1097/ACI.0000000000000885](https://doi.org/10.1097/ACI.0000000000000885)

Abstract

Purpose of review: Reactive dyes have been shown to cause respiratory sensitization in workers with occupational exposure. The present review analyzes the current knowledge of the role of reactive dyes in promoting occupational respiratory allergy. We discuss the current classification of reactive dyes as well as the potential development of occupational respiratory diseases after exposure to these substances.

Recent findings: Few descriptions of the role of reactive dyes in the development of occupational allergy have been published in recent years. Several reactive dyes are considered causes of occupational asthma (OA), mainly in workers in textile industries. Positive skin tests and the presence of specific serum IgE antibodies to reactive dyes suggest that respiratory symptoms provoked by reactive dyes may be immunoglobulin E (IgE)-mediated reactions. It was suggested that airborne dye molecules may act as haptens and induce IgE-mediated hypersensitivity reactions.

Summary: Reactive dyes are widely used in the textile industry, owing to their ability to produce strong covalent bonds to textile fibers. These substances have been identified as potential respiratory sensitizers causing OA and occupational rhinitis. The clinical presentation and phenotype of patients with OA due to reactive dyes is very similar to those presented by patients with OA to high molecular weight agents. The extensive use of reactive dyes in industry means that it is particularly important to describe their implications for health, which in fact are probably underestimated.

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- [34 references](#)

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Sci Rep



. 2022 Dec 5;12(1):21028.

doi: 10.1038/s41598-022-24960-6.

Exome variants associated with asthma and allergy

[Matthias Wjst](#)^{1,2}

Affiliations expand

- PMID: 36470944
- PMCID: [PMC9722654](#)
- DOI: [10.1038/s41598-022-24960-6](#)

Free PMC article

Abstract

The mutational spectrum of asthma and allergy associated genes is not known although recent biobank based exome sequencing studies included these traits. We therefore conducted a secondary analysis of exome data from 281,104 UK Biobank samples for association of mostly rare variants with asthma, allergic rhinitis and atopic dermatitis. Variants of interest (VOI) were tabulated, shared genes annotated and compared to earlier genome-wide SNP association studies (GWAS), whole genome sequencing, exome and bisulfite sequencing studies. 354 VOI were significantly associated with asthma, allergic rhinitis and atopic dermatitis. They cluster mainly in two large regions on chromosome 6 and 17. After exclusion of the variants associated with atopic dermatitis and redundant variants, 321 unique VOI remain in 122 unique genes. 30 genes are shared among the 87 genes with increased and the 65 genes with decreased risk for allergic disease. 85% of genes identified earlier by common GWAS SNPs are not replicated here. Most identified genes are located in interferon γ and IL33 signaling pathway. These genes include already known but also new pharmacological targets, including the IL33 receptor ST2/IL1RL1, as well as TLR1, ALOX15, GSDMA, BTNL2, IL13 and IKZF3. Future pharmacological studies will need to include these VOI for stratification of the study population paving the way to individualized treatment.

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Conflict of interest statement

The author declares no competing interests.

- [50 references](#)
- [3 figures](#)

SUPPLEMENTARY INFO

MeSH terms, Substances [expand](#)

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J Proteomics

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. 2022 Dec 5;272:104787.

doi: 10.1016/j.jprot.2022.104787. Online ahead of print.

[Bilirubin level is decreased in patients with allergic rhinitis](#)

[Na Liu](#)¹, [Jitu Wang](#)¹, [Xueyan Wang](#)², [Sainan Qiu](#)¹, [Man Zhang](#)³

Affiliations [expand](#)

- PMID: 36470582

- DOI: [10.1016/j.jprot.2022.104787](https://doi.org/10.1016/j.jprot.2022.104787)

Abstract

Background: There are limitations in detecting methods for early diagnosis and screening of allergic rhinitis. Considering the anti-inflammatory and anti-oxidative effects of bilirubin, this study aims to explore the relationship between bilirubin and allergic rhinitis and to identify bilirubin-related candidate urinary protein biomarkers associated with allergic rhinitis.

Methods: 63 allergic rhinitis patients (AR group) and 86 healthy controls (NC group) were enrolled. Venous blood was obtained to measure serum total IgE levels and bilirubin parameters. Patients in the AR group were then classified into the AR1 group (IgE > 125 IU/mL) and the AR2 group (IgE ≤ 125 IU/mL). After randomly selecting ten urine samples from the AR1 group, ten samples were chosen from the AR2 and the NC groups, respectively, according to age and gender matching. We employed a Tandem Mass Tag-Based liquid chromatography coupled to tandem mass spectrometry (LC-MS/MS) proteomics approach and targeted parallel-reaction monitoring (PRM) to identify and validate urinary biomarkers for allergic rhinitis.

Results: Compared with the NC group, the bilirubin levels of the AR group, AR1 group, and AR2 group were significantly lower. Although the bilirubin level of the AR1 group was lower than that of the AR2 group, the difference was not significant. Further urinary proteomics analysis found that the expression levels of proteins related to bilirubin metabolism and transportation in the AR1 and AR2 groups, including ABCC1, GSTA1, GSTO1, GSTM3, GSTM5, and BLVRB, were significantly higher than those in the NC group. By PRM-based quantification, GSTA1 and GSTO1 showed significant differences in different degrees of Allergic Rhinitis groups and healthy controls. The AUC of the combined diagnosis of GSTA1 and GSTO1 was 0.79 (95% CI 0.583-0.997, P = 0.007), and the sensitivity and specificity were 100% and 60.0%, respectively.

Conclusions: Bilirubin levels are associated with allergic rhinitis. Our study revealed that urine proteomics has a specific value for exploring the pathophysiological mechanism of bilirubin changes in AR patients and screening possible biomarkers.

Keywords: Allergic rhinitis; Bilirubin; Mass spectrometry; Urine protein.

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Conflict of interest statement

Declaration of Competing Interest All authors declare that they have no competing interests.

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Int Arch Allergy Immunol

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. 2022 Dec 5;1-8.

doi: 10.1159/000527534. Online ahead of print.

[Exploring the Heterogeneity of IgE-Mediated Food Allergy through Latent Class Analysis](#)

[Aysegul Akarsu](#)¹, [Ceyda Oksel Karakus](#)², [Melike Ocak](#)¹, [Nihan Oral](#)³, [Eyüp Bilgi](#)², [Umit Murat Sahiner](#)¹, [Ozge Soyer](#)¹, [Bulent Enis Sekerel](#)¹

Affiliations expand

- PMID: 36470226
- DOI: [10.1159/000527534](https://doi.org/10.1159/000527534)

Abstract

Introduction: Food allergy (FA) is a heterogeneous disease with multiple morbidities and a huge burden for patients and healthcare systems. Variable manifestations, comorbidities (atopic dermatitis [AD], asthma, and/or allergic rhinitis [AR]), severity (anaphylaxis), and outcomes suggest the existence of different endotypes that cluster analyses may reveal. In this study, we aimed to investigate distinct subgroups among patients with FAs using data from 524 children/adolescents.

Methods: 524 patients with IgE-mediated FA (353 male [67%]; median age 4.4 years [IQR:3.0-6.8]), 354 (68%) had multiple FA. The history of AD, asthma, AR, and anaphylaxis was recorded in 59.4%, 35.5%, 24.2%, and 51.2% of the patients, respectively. Latent class

analysis was carried out to distinguish clinical FA phenotypes using five potential markers of allergy severity (single/multiple FA, never/inactive/current asthma and AD, AR, and anaphylaxis).

Results: Three distinct phenotypes were identified: (1) multiple FA with eczema and respiratory multimorbidity (42%), (2) multiple FA with persistent eczema (34%), and (3) single FA with respiratory multimorbidity without eczema (24%). Compared with the single FA cluster, the prevalence of AD was significantly higher in multiple FA groups. Cluster 1 had the highest frequency of AR and allergic asthma, and the lowest rate of total tolerance of FA.

Discussion: We put forward the hypothesis of underlying pathogenesis according to the clinical phenotypes. While skin barrier defect may play a dominant role in the pathogenesis in Cluster 2, immune dysregulation may be dominant in Cluster 3. In Cluster 1, the most severe group, a combination of both skin barrier defects and immune dysregulation may be responsible for the clinical features.

Keywords: Cluster; Food allergy; Immune dysregulation; Pathogenesis; Skin barrier defect.

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Acta Microbiol Immunol Hung

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. 2022 Nov 11;69(4):283-289.

doi: 10.1556/030.2022.01895. Print 2022 Dec 6.

[Respiratory pathogens among ill pilgrims and the potential benefit of](#)

using point-of-care rapid molecular diagnostic tools during the Hajj

[Van-Thuan Hoang](#)¹, [Thi-Loi Dao](#)¹, [Tran Duc Anh Ly](#)^{2,3}, [Tassadit Drali](#)², [Saber Yezli](#)⁴, [Philippe Parola](#)^{2,3}, [Vincent Pommier de Santi](#)^{2,3,5}, [Philippe Gautret](#)^{2,3}

Affiliations expand

- PMID: 36370366
- DOI: [10.1556/030.2022.01895](https://doi.org/10.1556/030.2022.01895)

Abstract

We investigated respiratory pathogens among ill Hajj pilgrims from Marseille. We also discuss the potential role of point-of-care (POC) rapid molecular diagnostic tools for this purpose. Clinical data were collected using a standardised questionnaire. Influenza A and B viruses, human rhinovirus and human coronaviruses, *Staphylococcus aureus*, *Streptococcus pneumoniae*, *Haemophilus influenzae* and *Klebsiella pneumoniae* were investigated using real-time PCR in respiratory samples obtained during travel, at the onset of symptoms. 207 participants were included. A cough, expectorations, rhinitis and a sore throat were the most frequent respiratory symptoms, followed by loss of voice and dyspnoea. 38.7% and 25.1% of pilgrims reported a fever and influenza-like symptoms, respectively. 59.4% pilgrims received antibiotics. Rhinovirus (40.6%) was the most frequent pathogen, followed by *S. aureus* (35.8%) and *H. influenzae* (30.4%). Virus and bacteria co-infections were identified in 28.5% of participants. 25.1% pilgrims who were positive for respiratory bacteria did not receive antibiotic treatment. In the context of the Hajj pilgrimage, it is important to detect infections that can be easily managed with appropriate treatment, and those that can affect prognosis, requiring hospitalisation. POC rapid molecular diagnostic tools could be used for patient management at small Hajj medical missions and to rationalise antibiotic consumption among Hajj pilgrims.

Keywords: Hajj; pilgrims; point-of-care laboratory; respiratory tract infections.

FULL TEXT LINKS



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Occup Med (Lond)

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. 2022 Dec 7;72(8):559-565.

doi: 10.1093/occmed/kqac101.

Flour exposure, sensitization and respiratory health among Alberta trainee bakers

[J Beach](#)¹, [J-M Galarneau](#)¹, [N Cherry](#)¹

Affiliations expand

- PMID: 36170155
- DOI: [10.1093/occmed/kqac101](https://doi.org/10.1093/occmed/kqac101)

Abstract

Background: Sensitization to allergens encountered in baking, and allergic disease including asthma and rhinitis, is recognized. Attempts to reduce this risk have been instituted in some workplaces, but awareness remains low. This study aimed to quantify the current risk among Alberta bakers.

Aims: To estimate the onset of sensitization to bakery allergens and allergic disease among trainee bakers at the outset of their career.

Methods: Trainees attending one of the two bakery programmes were recruited between 2015 and 2018. At entry, an interview was held and spirometry and skin prick tests were performed. Participants were contacted every 6 months by telephone or online interview for 3 years to update work and health information. An exit interview was completed between 2018 and 2019 for all who could be contacted. Exposure was estimated using collected work history and a job exposure matrix was prepared for this study.

Results: A total of 220 individuals participated in the entry interview, 204 completed one or more periodic interviews and 113 completed the exit interview. Six who completed exit testing developed new sensitization to bakery antigens, an incidence of 2.49/100 person-years. Positive skin prick tests for bakery antigens were associated with bread making. Rhinitis symptoms were associated with total flour dust and new-onset rhinitis to months in trade. New-onset asthma was related to cumulative exposure to flour improvers.

Conclusions: Trainee bakers in Alberta remain at risk of sensitization and occupational respiratory disease.

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SUPPLEMENTARY INFO

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OXFORD
ACADEMIC

CHRONIC COUGH

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Sci Rep

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. 2022 Dec 6;12(1):21057.

doi: 10.1038/s41598-022-25520-8.

[Blood monocyte levels predict the risk of acute exacerbations of chronic obstructive pulmonary disease: a retrospective case-control study](#)

[Ching-Hsiung Lin](#) ^{# 1 2 3 4}, [Yi-Rong Li](#) ⁵, [Pei Ru Lin](#) ⁶, [Bing-Yen Wang](#) ⁷, [Sheng-Hao Lin](#) ^{8 9}, [Kuo-Yang Huang](#) ⁸, [Chew-Teng Kor](#) ^{# 10 11}

Affiliations expand

- PMID: 36473925
- PMCID: [PMC9727121](#)
- DOI: [10.1038/s41598-022-25520-8](#)

Free PMC article

Abstract

Monocytes were critical cells in the innate immune system. Monocyte recruitment to the lungs is a crucial process of pathophysiology in chronic obstructive pulmonary disease (COPD). Current evidence on the association between the occurrence of acute exacerbations of COPD (AECOPD) and monocytes was unclear. This study aimed to examine whether blood monocytes are associated with the occurrence of AECOPD and to determine the specific blood monocyte level to predict AECOPD. A retrospective case-control study was conducted at Changhua Christian Hospital. A total of 444 eligible patients with COPD were included between January 2017 and December 2019. Restricted cubic splines were used to analyze the nonlinear relationships between continuous white blood cell values and the occurrence of AECOPD. The association between monocytes and the occurrence of AECOPD was assessed using the logistic, lasso, and ridge regression models. Restricted cubic splines revealed nonlinear associations among the monocyte level, the continuous value of the eosinophil-to-lymphocyte ratio, and the occurrence of AECOPD. The lowest risk of occurrence of AECOPD ranged from 7.4 to 10%; < 7.4% with an absolute count < 0.62 or > 10% indicated significant risk. No significant association was noted between the eosinophil-to-lymphocyte ratio categories in the tertiles (< 0.049, 0.049 to < 0.122, and \geq 0.122) and the risk of AECOPD. A significantly higher risk was noted in the association of the occurrence of AECOPD with the CAT score; mMRC score; wheezing cough; preexisting chronic pulmonary disease; hypertension and malignancy; use of dual- and triple, and oral long-acting bronchodilators for COPD treatment; and WBC count. We reported a nonlinear relationship between monocytes and the occurrence of AECOPD. Patients with monocyte percentage of > 10% or < 7.4% with an absolute count < 0.62 had higher risk of occurrence of AECOPD. Overall, our study demonstrated the specific value of monocytes in identifying high risks of the occurrence of AECOPD; this value is an easy-to-obtain, inexpensive biomarker in patients with AECOPD and should be further investigated in future prospective clinical studies.

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Conflict of interest statement

The authors declare no competing interests.

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

SUPPLEMENTARY INFO

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JMIR Form Res

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. 2022 Dec 6;6(12):e37507.

doi: 10.2196/37507.

[Assessing Associations Between COVID-19 Symptomology and Adverse Outcomes After Piloting Crowdsourced Data Collection: Cross-sectional Survey Study](#)

[Natalie Flaks-Manov¹](#), [Jiawei Bai²](#), [Cindy Zhang³](#), [Anand Malpani³](#), [Stuart C Ray¹](#), [Casey Overby Taylor¹](#)

Affiliations [expand](#)

- PMID: 36343205

- DOI: [10.2196/37507](https://doi.org/10.2196/37507)

Free article

Abstract

Background: Crowdsourcing is a useful way to rapidly collect information on COVID-19 symptoms. However, there are potential biases and data quality issues given the population that chooses to participate in crowdsourcing activities and the common strategies used to screen participants based on their previous experience.

Objective: The study aimed to (1) build a pipeline to enable data quality and population representation checks in a pilot setting prior to deploying a final survey to a crowdsourcing platform, (2) assess COVID-19 symptomology among survey respondents who report a previous positive COVID-19 result, and (3) assess associations of symptomology groups and underlying chronic conditions with adverse outcomes due to COVID-19.

Methods: We developed a web-based survey and hosted it on the Amazon Mechanical Turk (MTurk) crowdsourcing platform. We conducted a pilot study from August 5, 2020, to August 14, 2020, to refine the filtering criteria according to our needs before finalizing the pipeline. The final survey was posted from late August to December 31, 2020. Hierarchical cluster analyses were performed to identify COVID-19 symptomology groups, and logistic regression analyses were performed for hospitalization and mechanical ventilation outcomes. Finally, we performed a validation of study outcomes by comparing our findings to those reported in previous systematic reviews.

Results: The crowdsourcing pipeline facilitated piloting our survey study and revising the filtering criteria to target specific MTurk experience levels and to include a second attention check. We collected data from 1254 COVID-19-positive survey participants and identified the following 6 symptomology groups: abdominal and bladder pain (Group 1); flu-like symptoms (loss of smell/taste/appetite; Group 2); hoarseness and sputum production (Group 3); joint aches and stomach cramps (Group 4); eye or skin dryness and vomiting (Group 5); and no symptoms (Group 6). The risk factors for adverse COVID-19 outcomes differed for different symptomology groups. The only risk factor that remained significant across 4 symptomology groups was influenza vaccine in the previous year (Group 1: odds ratio [OR] 6.22, 95% CI 2.32-17.92; Group 2: OR 2.35, 95% CI 1.74-3.18; Group 3: OR 3.7, 95% CI 1.32-10.98; Group 4: OR 4.44, 95% CI 1.53-14.49). Our findings regarding the symptoms of abdominal pain, cough, fever, fatigue, shortness of breath, and vomiting as risk factors for COVID-19 adverse outcomes were concordant with the findings of other researchers. Some high-risk symptoms found in our study, including bladder pain, dry eyes or skin, and loss of appetite, were reported less frequently by other researchers and were not considered previously in relation to COVID-19 adverse outcomes.

Conclusions: We demonstrated that a crowdsourced approach was effective for collecting data to assess symptomology associated with COVID-19. Such a strategy may facilitate

efficient assessments in a dynamic intersection between emerging infectious diseases, and societal and environmental changes.

Keywords: COVID-19; adverse outcomes; coronavirus; crowdsourcing; data quality; symptomology; symptoms.

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FULL TEXT LINKS

