Clinical topics

Allergy and asthma

Australasian Society of Clinical Immunology and Allergy (ASCIA) estimates that approximately 80% of people with asthma have evidence of allergic sensitisation.[ASCIA 2024]

Key points

Asthma and allergies are closely linked.

Most people with asthma have allergic asthma.

Allergy testing not is required to make the diagnosis of asthma, but may be useful for identifying clinically relevant allergic triggers.

Seasonal allergic rhinitis, which in Australia is typically associated with sensitisation to perennial ryegrass (*Lolium perenne*), is an important risk factor for thunderstorm asthma.

Allergic asthma is managed as for non-allergic asthma, with management of related allergic conditions such as allergic rhinitis, and with additional considerations of allergen avoidance where feasible, and allergen immunotherapy.

Most allergen reduction strategies do not improve asthma symptom control or reduce exacerbations.

Patients with severe allergic asthma may benefit from treatment with omalizumab, an anti-IgE monoclonal antibody therapy.

Links between allergies and asthma

Allergic asthma phenotype

Allergic asthma is the most prominent asthma phenotype. It is associated with childhood onset of asthma, and with personal or family history of allergic disease such as eczema, allergic rhinitis, or food or drug allergy, and with eosinophilic airway inflammation. Allergic asthma typically responds well to inhaled corticosteroid treatment.[GINA 2025]

Allergic asthma accounts for approximately 50% of childhood asthma [Comberiati 2017] and fewer than 50% of cases of new-onset asthma in adults.[Pakkasela 2020]

Airborne allergens commonly reported to trigger asthma symptoms in sensitised patients include animal dander, cockroach allergens, house dust mite allergens, moulds, and pollens. Hundreds of sensitisers in workplaces are associated with occupational asthma.

Allergic rhinitis and asthma

Allergic rhinitis and asthma are mediated by similar allergic mechanisms.[Taramarcaz 2003] Allergic rhinitis is an independent risk factor for developing asthma.[Brożek 2017]

An estimated 15% to 38% of people with allergic rhinitis have asthma, and up to 85% of patients with asthma have allergic or nonallergic rhinitis.[Brożek 2017]

Uncontrolled moderate-to-severe allergic rhinitis is associated with poor asthma control.[Brożek 2017]

See Managing allergic rhinitis in patients with asthma below.

Thunderstorm asthma

For people sensitised to ryegrass pollen, exposure to high concentrations of airborne pollen during thunderstorms can cause severe acute asthma.[Price 2021, Girgis 2000, Marks 2001, D'Amato 2016]

More information on **thunderstorm asthma**.

Allergy considerations in asthma assessment and investigation

Physical examination in a patient with suspected asthma should include inspection of the upper airway for signs of allergic rhinitis (see Managing allergic rhinitis in patients with asthma, below).

Allergic sensitisation is not necessary for the diagnosis of asthma, and does not rule asthma in or out. However, identifying clinically relevant airborne allergic triggers is useful to guide management. Either spin-prick testing or allergen-specific IgE antibody testing can be used to identify clinically relevant aeroallergens.[ASCIA 2024, ASCIA 2020]

Managing allergic asthma

Allergen avoidance

Alert Avoidance is essential for patients with confirmed sensitiser-induced occupational asthma

Allergen avoidance for patients with proven sensitivity to airborne allergens should only be considered if the allergen is a clinically significant asthma trigger, and if avoidance strategies are likely to be effective and feasible.

Most strategies for avoiding indoor and outdoor allergens are not supported by evidence for clinical benefits.

For patients living in mouldy houses, building repairs to reduce dampness in homes (e.g. leak repair, improvement of ventilation, removal of water-damaged materials) may reduce asthma symptoms.[Sauni 2015]

Limited evidence supports the use of cockroach baits in the homes of patients allergic to cockroaches,[GINA 2025, NAEPP 2020] and for integrated pest management systems in the homes of those allergic to pest rodents.[GINA 2025]

For other allergen reduction strategies, there is limited evidence that they reduce allergen levels, but do not improve asthma symptom control or reduce exacerbations.[GINA 2025]

For patients allergic to pets, clinical trial evidence does not support removal of pets, HEPA filter air cleaners, replacement of carpet with hard flooring, or use of vacuum cleaners with HEPA filters and double-thickness bags.[GINA 2025]

For patients with dust mite allergy, the use of impermeable mattress and pillow covers as a single intervention has been shown to be ineffective in improving asthma symptom control.[NAEPP 2020] Multicomponent house dust mite avoidance strategies may have a small benefit for children,[Morgan 2004] but have not been shown to improve asthma outcomes in adults.[Crocker 2011, Gøtzsche 2008]

Complex multi-trigger strategies to reduce allergens in the home may improve quality of life in children with asthma, but have not been shown to improve asthma outcomes in adults.[Crocker 2011]

Some outdoor allergens, such as pollens and moulds, are impossible to avoid completely.[GINA 2025]

Management of concomitant allergic rhinitis

Effective treatment allergic rhinitis, if present, is important in the management of asthma.[ASCIA 2022]

See Managing allergic rhinitis in patients with asthma below.

Medical treatment

Allergic asthma is managed as for other phenotypes. Allergic asthma typically responds well to ICS.[GINA 2025]

Monoclonal antibody therapy

Omalizumab (anti-IgE therapy) can be considered for some patients with allergic asthma. It is approved by the TGA: [Australian PI omalizumab]

- for the treatment of patients aged ≥ 12 years with moderate-to-severe allergic asthma already using ICS, and serum IgE levels within a specified range
- as add-on treatment in patients aged 6 years to <12 years with severe allergic asthma with exacerbations despite daily high-dose ICS, and serum IgE levels within a specified range.

It is also indicated as add-on treatment for adults ≥ 18 years who have chronic rhinosinusitis with nasal polyps with inadequate response to intranasal corticosteroids.[Australian PI omalizumab]

Allergen immunotherapy

Specific-allergen immunotherapy involves administration of allergen extracts in precisely calculated doses to induce desensitisation and/or tolerance. There are two routes of administration: sublingual (tablet or drops administered under the tongue) and subcutaneous. Treatment is usually continued for at least 3 years.

In most patients are allergic to aeroallergens, allergen immunotherapy reduces, but does not eliminate, allergic reactions to aeroallergens.[ASCIA 2024]

ASCIA advises that allergen immunotherapy can be considered for patients aged 5 years and over with allergic asthma or allergic rhinitis who meet criteria that include clear evidence of clinically significant symptoms triggered by exposure to the allergen and sensitivity demonstrated by specific IgE blood testing or skin-prick testing.[ASCIA 2024]

Sublingual immunotherapy

Sublingual immunotherapy preparations are available for a range of aeroallergens including pollens, house dust mites, certain animals and moulds.[ASCIA 2024]

Based on evidence with high uncertainty from two studies, a 2020 Cochrane review found that the addition of sublingual immunotherapy to asthma treatment may reduce the risk of asthma exacerbation requiring OCS. [Fortescue 2020]

Allergen immunotherapy using house dust mite allergens and grass pollen allergens has undergone more clinical trial testing than allergen immunotherapy using other allergens.[GINA 2025] Standardised house dust mite sublingual immunotherapy in adults and adolescents with well-controlled or partially controlled mild-to-moderate allergic asthma is associated with reduction in ICS dose and improvement in asthma symptoms.[Wongsa 2022]

Sublingual immunotherapy is contraindicated in patients with severe, unstable asthma.[ASCIA 2024]

Subcutaneous immunotherapy

The Australian Register of Therapeutic Goods lists a wide range of allergen preparations for sublingual or subcutaneous immunotherapy. [ARTG, ASCIA 2023] However, availability of allergen immunotherapy products is limited by supply shortages and approval processes. [ASCIA 2023]

Subcutaneous immunotherapy involves an induction phase, during which the dose is progressively increased, followed by a maintenance phase.[ASCIA 2024]

Systematic reviews have reported that the addition of subcutaneous immunotherapy to asthma treatment was associated with reduction in ICS dose requirement, reduction in reliever use, and reduction in the need for systemic corticosteroids, and that it may improve asthma-specific quality of life and lung function.[GINA 2025] Severe allergic reactions occur in an estimated <0.5–0.7% of patients treated with subcutaneous immunotherapy.

Referral

Referral to a suitable specialist (allergist, respiratory physician, or occupational physician) may be required to investigate allergies in a patient with severe or unstable allergic asthma, a history of anaphylaxis, suspected or confirmed work-related asthma, or other significant allergic disease (e.g. suspected food allergies or severe eczema).

Managing allergic rhinitis in patients with asthma

Assessment of allergic rhinitis

Clinical history includes asking about:

- timing of symptoms – perennial (year round) or seasonal
- impact of symptoms on function – mild (no effect on day-day function) or moderate-severe (impairment of day-day function due to symptoms)
- frequency of symptoms – intermittent (< 4 days/week or < 4 weeks) or persistent (≥ 4 days/week and for ≥ 4 weeks)
- triggers, including exposures at home and/or work
- presence of other allergic conditions such as eczema.

Physical examination includes inspection of the upper airway for swollen turbinates, transverse nasal crease (from rubbing nose upwards), reduced nasal airflow, mouth breathing, and darkness and swelling under eyes caused by sinus congestion.

Allergy tests (skin-prick testing or serum allergen-specific immunoglobulin E assay) can be considered to identify aeroallergen triggers. However, treatment for allergic rhinitis can be started without waiting for diagnostic allergy testing. [ASCIA 2022]

Test results must be interpreted by clinicians experienced in performing and interpreting these tests, in conjunction with the patient's clinical history. Positive tests do not prove the allergen is causing the symptoms.[ASCIA 2022] Skin-prick test wheal size or serum specific IgE level cannot be used to determine the clinical significance of the trigger.[ASCIA 2022]

Adenoid hypertrophy should be suspected in children whose signs and symptoms do not respond to treatment within 4 weeks.

Treatment of allergic rhinitis

Aeroallergen avoidance is difficult to achieve for house dust mite and pollens. House dust mite minimisation is possible, but eradication is not possible.[ASCIA 2022]

Intranasal corticosteroids sprays or combined intranasal corticosteroid-antihistamine sprays are recommended first-line treatments for allergic rhinitis.[ASCIA 2022] Intranasal corticosteroids are effective in improving sneeze, nasal itch, runny nose, nasal congestion, and ocular symptoms. Age restrictions vary between products.

Intranasal corticosteroids should be prescribed for people with persistent allergic rhinitis or moderate-to-severe intermittent allergic rhinitis, even if the person is already taking regular inhaled corticosteroids for asthma.

Patients with asthma and allergic rhinitis should continue using ICS-containing treatment and should not use intranasal corticosteroids as a substitute for inhaled (intrabronchial) administration.[Taramarcaz 2003] ICS-containing treatment is indicated for all adults and adolescents with asthma, and for some children. In patients with asthma and allergic rhinitis, intranasal corticosteroid treatment was associated with improvements in asthma symptom scores and lung function in some studies, but meta-analysis found no statistically significant improvements in asthma outcomes, compared with

placebo.[Taramarcaz 2003] Intranasal corticosteroids might improve asthma control only in those who are not already receiving maintenance treatment with inhaled corticosteroids.[Lohia 2013]

Second-generation (less sedating) oral H_1-antihistamines can be trialled for adults and children with mild intermittent symptoms, or preschool children who will not tolerate intranasal sprays. If signs and symptoms do not improve significantly within a few weeks, switch to intranasal corticosteroid or intranasal corticosteroid-antihistamine sprays.

Adjunctive non-pharmacological strategies, such as saline sprays or rinses, can be considered.

Referral

Referral to a clinical immunology/allergy specialist to consider/initiate allergen immunotherapy should be considered when severe or inadequately controlled allergic rhinitis persists despite intranasal corticosteroid treatment, or if the person has other atopic comorbidities.[ASCIA 2022]

Patients with refractory nasal obstruction should be referred to ear, nose and throat surgeon.[ASCIA 2022]

Pharmacists should advise people with both asthma and allergic rhinitis to consult their GP for thorough investigation if rhinitis symptoms are not well controlled by self-management with over-the-counter medicines (e.g. intranasal corticosteroids, intranasal corticosteroids-antihistamines, or oral antihistamines), or if there are any complications (e.g. pain, loss of hearing or sense of smell, or persistent cough).

References

ASCIA. Asthma and allergy. Frequently asked questions. Australasian Society of Clinical Immunology and Allergy, 2024.

ASCIA. Laboratory investigation for allergic diseases. Australasian Society of Clinical Immunology and Allergy, 2020.

ASCIA. Skin prick testing guide for diagnosis of allergic diseases. Australasian Society of Clinical Immunology and Allergy, 2024.

ASCIA. Aeroallergen Immunotherapy. A Guide for Clinical Immunology/Allergy Specialists. Australasian Society of Clinical Immunology and Allergy, 2024.

ASCIA. Allergen Immunotherapy FAQ – Availability and Regulation [webpage]. [Updated July 2023] Australasian Society of Clinical Immunology and Allergy.

ASCIA. Allergic rhinitis clinical update. Information for health professionals. Australasian Society of Clinical Immunology and Allergy, 2022.

Australian product information – Xolair (omalizumab) solution for injection and powder for solution for injection. [Revised 4 September 2024] Therapeutic Goods Administration (www.ebs.tga.gov.au)

Brożek JL, Bousquet J, Baena-Cagnani CE, et al. Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines: 2010 Revision. J Allergy Clin Immunol 2010; 126: 466-476.

Comberiati P, Di Cicco ME, D'Elios S, et al. How much asthma is atopic in children? Front Pediatr 2017; 5: 122.

Crocker DD, Kinyota S, Dumitru GG, et al. Effectiveness of home-based, multi-trigger, multicomponent interventions with an environmental focus for reducing asthma morbidity: a community guide systematic review. Am J Prev Med 2011; 41:

S5-32.

D'Amato G, Vitale C, D'Amato M, et al. Thunderstorm-related asthma: what happens and why. Clin Exp Allergy 2016; 46: 390-6.

Fortescue R, Kew KM, Leung MST. Sublingual immunotherapy for asthma. Cochrane Database Syst Rev 2020; 9: CD011293.

Girgis ST, Marks GB, Downs SH et al. Thunderstorm-associated asthma in an inland town in south-eastern Australia. Who is at risk? Eur Respir J 2000; 16: 3-8.

Global Initiative for Asthma (GINA). Global Strategy for Asthma Management and Prevention, 2025. Available from: www.ginasthma.org

Gøtzsche PC, Johansen HK. House dust mite control measures for asthma: systematic review. Allergy 2008; 63: 646-659.

Lohia S, Schlosser RJ, Soler ZM. Impact of intranasal corticosteroids on asthma outcomes in allergic rhinitis: a meta-analysis. Allergy 2013; 68: 569-579.

Marks GB, Colquhoun JR, Girgis ST, et al. Thunderstorm outflows preceding epidemics of asthma during spring and summer. Thorax 2001; 56: 468-71.

Morgan WJ, Crain EF, Gruchalla RS, et al. Results of a home-based environmental intervention among urban children with asthma. N Engl J Med 2004; 351: 1068-1080.

National Asthma Education and Prevention Program Coordinating Committee Expert Panel Working Group. 2020 focused updates to the asthma management guidelines. US National Heart, Lung and Blood Institute, Department of Health and Human Services: 2020.

Pakkasela J, Ilmarinen P, Honkamäki J, et al. Age-specific incidence of allergic and non-allergic asthma. BMC Pulm Med 2020; 20: 9.

Price D, Hughes KM, Thien F, Suphioglu C. Epidemic thunderstorm asthma: lessons learned from the storm down-under. J Allergy Clin Immunol Pract 2021; 9: 1510-1515.

Sauni R, Verbeek JH, Uitti J, et al. Remediating buildings damaged by dampness and mould for preventing or reducing respiratory tract symptoms, infections and asthma. Cochrane Database Syst Rev 2015; 2015: CD007897.

Taramarcaz P, Gibson PG. Intranasal corticosteroids for asthma control in people with coexisting asthma and rhinitis. Cochrane Database Syst Rev 2003; 2003: CD003570.

TGA. Australian Register of Therapeutic Goods (ARTG) [webpage].

Wongsa C, Phinyo P, Sompornrattanaphan M, et al. Efficacy and safety of house dust mite sublingual immunotherapy tablet in allergic asthma: a systematic review of randomized controlled trials. J Allergy Clin Immunol Pract 2022; 10: 1342-1355.e24.

Resources

National Asthma Council Australia's Thunderstorm asthma information paper

ASCIA's Laboratory investigation for allergic diseases (2020)

ASCIA's Skin prick testing guide for diagnosis of allergic diseases (2025)

ASCIA's Allergic rhinitis clinical update (2022)

ASCIA's Allergic rhinitis e-training for health professionals

ASCIA's Pollen calendar

ASCIA's Allergen immunotherapy e-training for health professionals

ASCIA's list of TGA-approved allergen immunotherapy products

ASCIA's treatment plans for sublingual immunotherapy

National Asthma Council Australia's Monoclonal antibody therapy for severe asthma information paper