

Managing allergic rhinitis in people with asthma

KEY RECOMMENDATIONS

- Prescribe or recommend an intranasal corticosteroid (INCS) for adults, adolescents and school-aged children with persistent allergic rhinitis or moderate-to-severe intermittent allergic rhinitis (even if already taking regular inhaled corticosteroids for asthma).*
- Explain that effective treatment for allergic rhinitis is an important part of asthma management.
- Emphasise the need to take INCSs consistently, and reassure patients that these medicines have a good safety profile when taken long term.
- Demonstrate correct technique for using intranasal sprays and check patients' technique regularly.
- Provide an allergic rhinitis treatment plan (available at www.allergy.org.au)
- Consider specialist referral for patients with allergic rhinitis that is difficult to control, poorly controlled asthma, other significant allergic disease (e.g. food allergies or severe eczema), or symptoms that suggest an alternative diagnosis (e.g. unilateral nasal symptoms, persistent nasal obstruction that does not respond to INCSs, or suspected chronic sinusitis).

**Refer to Therapeutic Goods Administration-approved product information for contraindications and precautions before prescribing any medicine for allergic rhinitis.*



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What's new?

- The combination of an INCS plus an intranasal antihistamine is recommended for patients whose symptoms are severe or not controlled by INCS alone.
- During thunderstorms in pollen season, high pollen concentrations in the air could cause acute asthma reactions in people with grass pollen allergic rhinitis, even if they do not have known asthma.
- For people allergic to pollens, treatment starting before the pollen season can reduce worsening of the allergic response that occurs over time with continued pollen exposure.
- Local allergic rhinitis (entopy) may be present despite negative allergy tests.

Definitions and prevalence

Classical allergic rhinitis is an immunoglobulin E (IgE)-mediated inflammatory response of the nasal airways to inhaled allergens. Symptoms include rhinorrhoea, nasal congestion, nasal itching and sneezing. Allergic eye symptoms, such as itching, excessive tear production, redness and puffiness can also occur, due to reflexes originating in the nose as well the direct effects of allergen on the conjunctiva.¹

Allergic rhinitis can be perennial (e.g. in response to house dust mites, moulds, animal allergens or occupational allergens) or seasonal (e.g. in response to pollens from seasonal grasses, weeds, trees or moulds). Pollens and moulds are typically seasonal allergens in southern regions of Australia, but can be perennial in tropical northern regions.² Most people with allergic rhinitis are sensitised to multiple allergens (e.g. pollens and house dust mite).

Food allergies do not cause allergic rhinitis, although a person with asthma may have both allergic rhinitis and food allergies.³

Approximately 19% of Australians have allergic rhinitis,⁴ and many report that it significantly interferes with sleep and with work or school.⁵

Table 1. Classification of allergic rhinitis

	Intermittent	Persistent
PATTERN OF SYMPTOMS	Symptoms present either less than 4 days per week or for less than 4 consecutive weeks	Symptoms present at least 4 days per week for 4 consecutive weeks
SEVERITY	Moderate-to-severe	Mild
	Any of: <ul style="list-style-type: none"> • sleep disturbance • impairment of daily activities, leisure, physical activity • impairment of school or work • troublesome symptoms. 	No effect on sleep, daily activities or quality of life

Source: Bousquet et al. (2008)⁶

Links with asthma

Asthma and allergic rhinitis frequently co-exist – at least 75% of patients with asthma also have rhinitis, although estimates vary widely.⁷

Allergic rhinitis is an independent risk factor for developing asthma in children and adults.⁸⁻¹² The presence of allergic rhinitis is associated with worse asthma control in children and adults.¹³⁻¹⁶

Both rhinitis and asthma can be triggered by the same factors, whether allergic (e.g. house dust mite, pet allergens, pollen, cockroach) or non-specific (e.g. cold air, strong odours, environmental tobacco smoke).

The use of INCSs in patients with concomitant allergic rhinitis and asthma may improve asthma control, especially in patients who are not already taking regular inhaled corticosteroids.¹⁷

Thunderstorm asthma and allergic rhinitis

In pollen season, there can be a high concentration of pollen grains in the air just before and during a thunderstorm.¹⁸

Inhaling outdoor air during a thunderstorm in spring or early summer can cause severe asthma flare-ups in people with asthma.¹⁸ It can also cause acute asthma reactions in people with allergic rhinitis due to pollen allergies, even if they have not had asthma before.^{18, 19} People allergic to ryegrass are at highest risk of thunderstorm asthma.¹⁹ Fungal spores (e.g. *Alternaria*) may also contribute to risk for some people.¹⁹

Thunderstorm asthma epidemics have been reported in October and November, in Melbourne, Geelong, Canberra, Newcastle and Wagga Wagga.¹⁹

People with asthma and allergic rhinitis who are allergic to pollens should:¹⁸

- be warned about thunderstorm asthma if they live in or are travelling to a region with seasonal high grass pollen levels
- take regular inhaled corticosteroids
- start taking intranasal corticosteroid 6 weeks before the pollen season (or exposure) and continue throughout
- avoid being outdoors just before and during a thunderstorm in pollen season
- have an up-to-date asthma action plan that includes thunderstorm advice and advises them to increase their dose of both preventer and reliever when they have asthma symptoms.

Symptoms and history

Symptoms and signs of allergic rhinitis can be local (e.g. nasal discharge, congestion or itch), regional (e.g. effects on ears, eyes, throat or voice), and systemic (e.g. sleep disturbance and lethargy).

Most people with allergic rhinitis experience nasal congestion or obstruction as the predominant symptom, while some mainly experience ocular symptoms (e.g. tearing and itch). Other people with allergic rhinitis are unaware of allergic symptoms.

Children with allergic rhinitis may seem generally unwell and fatigued, often with a cough, but may not report rhinorrhoea and nasal and ocular itch unless asked specifically.¹

Observational findings and research studies have shown that continued pollen exposure can lead to increased upper airway reactivity to both the allergen and to irritant triggers, due to a 'priming' effect of initial exposure.^{6, 20} The priming effect has been shown to be reduced with use of intranasal corticosteroids.²¹ Accordingly, treatment should begin before the start of the pollen season.

Consider the possibility of allergic rhinitis in a patient with any of the following:

- symptoms that suggest continuous or recurrent upper respiratory tract infections
- frequent sore throats
- hoarse voice
- persistent mouth breathing, especially in children
- snoring
- feeling of pressure over sinuses
- recurrent headaches
- recurrent serous otitis media, especially in children
- coughing, especially in children (e.g. persistent throat-clearing, or habitual cough soon after lying down at night)
- poor sleep and daytime fatigue or poor concentration
- persistent respiratory symptoms despite stable, well-controlled asthma, appropriate treatment and good lung function on spirometry.

Ask about:

- symptoms (runny nose, sneezing, blocked nose, itchy/runny eyes)
- impact on sleep
- onset, duration and pattern of symptoms over the day or year
- family and personal history of allergic conditions (e.g. asthma, atopic dermatitis)
- factors that trigger or relieve symptoms
- use of medicines (including non-prescription and complementary medications) and response
- home, work and leisure environments
- any systemic symptoms (e.g. daytime fatigue).

Phone apps or symptom questionnaires can be useful to record severity of symptoms and monitor response to treatment.

Review recent asthma symptom control (see Australian Asthma Handbook information on [adults](#) and [children](#)).

How are cough, post-nasal drip and ocular symptoms related to allergic rhinitis?

Allergic rhinitis, non-allergic rhinitis and asthma are all associated with cough.^{22, 23}

Allergic airway inflammation can increase the expression of chemoreceptors in airway sensory nerves that are involved in cough.²³ The presence of upper airway inflammation increases the probability of lower airway inflammation.²³ Nasal obstruction compromises the process of warming, filtering and humidifying respired air, which lowers the cough threshold to irritants.²³

Gastro-oesophageal reflux disease (GORD) can cause cough due to laryngeal reflux and an inflammatory bronchitis and laryngitis, which can be misdiagnosed as allergic rhinitis.²³

Chronic cough is often multifactorial. The three most common causes in adults are rhinitis, asthma and GORD.²² These can occur in combination.

In children, chronic cough can be the main symptom of chronic rhinosinusitis.²³

Acute cough is most commonly due to viral infection.

The links between cough and the sensation of post-nasal mucus ('post-nasal drip') are complex. When anterior nasal discharge is present, post-nasal mucus potentially stimulates cough via secondary laryngeal irritation caused by inflammatory mucus.²³ In the absence of anterior discharge from the nose, the perception of post-nasal or pharyngeal mucus (including cough) is likely to be due to primary irritation of the mucosa, including laryngopharyngeal reflux or allergy.^{24, 25} Aspiration of secretions is seen only in patients with neurological impairment.

Physical examination and investigations

Physical examination

Examine the upper and lower airway, nasal cavity (including inspection of mucosa and septum), eyes and orbital areas, ears and oropharynx. The absence of abnormal findings does not exclude intermittent allergic rhinitis.

If possible, visualise the turbinates via nasal endoscopy. Allergic rhinitis is characterised by pallor and hypertrophy of the inferior turbinate and head of the middle turbinate, a cobblestoned appearance of mucosa, and congestion.²⁶

Middle turbinate oedema is caused by direct deposition of inhaled allergens. It has a high positive predictive value (but low sensitivity) for inhalant allergy.²⁶

Investigations

Review asthma control, including spirometry before and after bronchodilator. Refer to the Australian Asthma Handbook for more information on reviewing asthma control in [adults](#) and [children](#). Spirometry is also necessary when considering and planning specific allergen immunotherapy.

Consider arranging allergy tests (skin prick test or allergen-specific IgE/RAST* blood test):

- to confirm a diagnosis of allergy
- if the diagnosis of allergic rhinitis is uncertain
- before advising allergen avoidance
- before considering specific allergen immunotherapy (desensitisation).

*Although standard radioallergosorbent tests are no longer used in most pathology laboratories, the term 'RAST' is still commonly used to refer to specific allergen immunoassays

Allergy tests should be interpreted by a doctor trained in their interpretation. False negative and false positive results can occur.

For skin-prick testing, refer to the Australasian Society of Clinical Immunology and Allergy (ASCI) manual.²⁷

Interpreting negative allergy tests

Patients with rhinitis or asthma and negative IgE tests may have non-allergic disease.

However, there is accumulating evidence that local allergy (entopy) can occur in non-atopic individuals.²⁸ The allergen most often responsible for this kind of allergy is house dust mite.²⁹ Systemic allergy tests do not detect local allergic rhinitis within the nose in these patients.²⁶

It is now recognised that rhinitis or asthma might also be driven by T-cell mediated, delayed hypersensitivity, typically in patients with history of allergic dermatitis²⁹ and due to occupational exposures.

If a patient has a strong history of allergic triggers, but skin prick tests or IgE tests are negative, consider referral to an allergist or clinical immunologist.

Diagnosis

Consider allergic and non-allergic conditions (Table 2).

The absence of classical symptoms does not rule out the diagnosis of allergic rhinitis. It may present as any combination of rhinorrhoea, itching or sneezing, and blockage (including blockage alone).

Patients can mistake symptoms of allergic rhinitis for asthma. Allergic rhinitis is sometimes more easily recognised only after asthma has been stabilised.

Allergic rhinitis that starts early in life is usually due to a classical IgE hypersensitivity. Adult-onset asthma or inflammatory airway conditions typically have more complex causes.

Adenoid hypertrophy should be suspected in children who snore and have significant nasal obstruction or discharge in the absence of other allergic symptoms.

Nasal symptoms in reaction to food (e.g. spicy foods, wine) are not due to allergy, but can be non-allergic rhinitis due to irritation or a chemical intolerance.

If signs and symptoms are consistent with allergic rhinitis and there are no findings that require further investigation or referral (Table 3), conduct a treatment trial. Both allergic and non-allergic rhinitis can respond to INCSs.

Table 2. Differential diagnosis

Common
Adenoid hypertrophy in young children
Bacterial and viral respiratory infections
Overuse of topical decongestant sprays (rhinitis medicamentosa)
Non-allergic rhinitis (also known as vasomotor rhinitis or intrinsic rhinitis)
Gastro-oesophageal reflux disease
Uncommon
Adverse effects of medicines
Hormonal effects (e.g. due to pregnancy, hypothyroidism, oral contraceptives)
Chronic rhinosinusitis with nasal polyps
Anatomical abnormalities (e.g. deviated septum)
Foreign bodies
Occupational irritants
Cocaine abuse
Cerebrospinal rhinorrhoea (unilateral discharge)
Rare
Tumours
Granulomatous conditions (e.g. granulomatosis with polyangiitis)
Vasculitic disease
Ciliary defects
Atrophic rhinitis (very rare in humid regions)
Polycythaemia vera
Choanal atresia

Table 3. When to consider further investigation or referral

Finding	Refer to*
Persistent rhinitis symptoms (including nasal obstruction) that have not responded to an adequate trial of INCS treatment	Allergist, clinical immunologist or ENT
Persistent nasal obstruction, congestion, post-nasal drip and a reduced sense of smell for ≥ 12 weeks (suggests chronic sinusitis) [#]	Allergist, clinical immunologist or ENT Arrange CT
Poorly controlled asthma despite appropriate treatment and good adherence	Allergist or clinical immunologist
Difficult-to-treat eczema	Allergist or clinical immunologist
Food allergies	Allergist or clinical immunologist
Persistent obstruction despite INCS (unilateral nasal obstruction suggests foreign body or tumour)	ENT
Persistent unilateral crusting and bleeding (suggests tumour, a granulomatous condition or vasculitis)	ENT [§] (high priority)
Suspected diffuse nasal polyps (with or without asthma)	Allergist, clinical immunologist or ENT
Cacosmia or reduced sense of smell	ENT
Unilateral watery rhinorrhoea	ENT (urgent)

ENT: ear, nose and throat physician/surgeon with a special interest in allergic rhinitis

* In regions where referral access is limited, consider consultation with any suitable specialist

[#] Chronic rhinosinusitis with polyps is not a simple allergic condition and generally needs specialist care

[§] In first instance; referral to other specialists may also be required

Managing allergic rhinitis in adults

The management of allergic rhinitis in adults is summarised in Figure 1. Refer to *Prescribing notes* for a summary of evidence on each class of medicines.

Persistent or moderate-to-severe intermittent symptoms

Prescribe or recommend an INCS (even if the person is already using regular inhaled corticosteroids for asthma). INCSs can be used alone or in combination with an intranasal antihistamine (e.g. azelastine or levocabastine).

If nasal symptoms are troublesome, consider initially adding an agent with a rapid onset of action, e.g. oral H₁-antihistamine (if not already using) or short-term intranasal decongestant.

If symptoms do not improve significantly within 3–4 weeks:

- review the diagnosis
- check adherence and intranasal administration technique
- consider allergy testing.

If the response to an INCS alone is inadequate, despite regular daily use and correct spray technique, add an intranasal antihistamine and continue INCS.

Mild intermittent symptoms

Consider starting treatment with an intranasal H₁-antihistamine or second-generation less sedating oral H₁-antihistamine. Do not use sedating antihistamines.

If symptoms do not improve significantly within 2 weeks, switch to an INCS.

For adults with seasonal allergic rhinitis, montelukast can be considered as an alternative to antihistamines.

Ocular symptoms

Advise patients that INCS, intranasal antihistamines or oral antihistamines will often relieve eye itching and redness without the need for eye drops.

If ocular symptoms are troublesome, consider initial use of topical H₁-antihistamines (e.g. azelastine, ketotifen, lecocabastine or olopatadine).

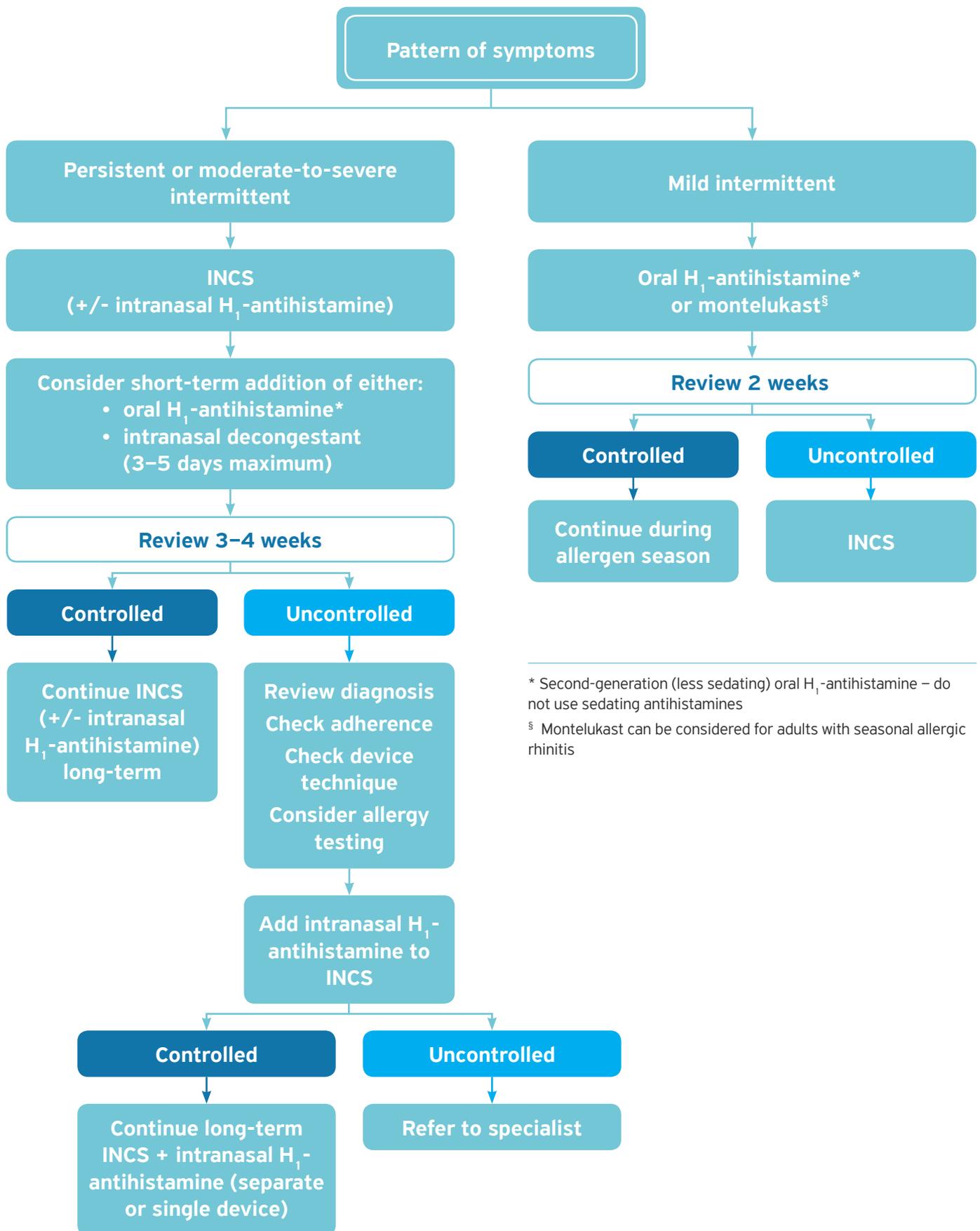
If long-term treatment is necessary, consider a topical mast-cell stabiliser (e.g. cromoglycate or lodoxamide). Onset of therapeutic effect may take up to 2–4 weeks.

Avoid topical alpha agonist vasoconstrictors (including in combination with antihistamines) – these can cause conjunctivitis medicamentosa.

When to refer

If allergic rhinitis symptoms are uncontrolled despite regular use of an INCS alone or in combination with an intranasal antihistamine, consider specialist referral.

Figure 1. Managing allergic rhinitis in adults and adolescents



* Second-generation (less sedating) oral H₁-antihistamine – do not use sedating antihistamines

§ Montelukast can be considered for adults with seasonal allergic rhinitis

Managing allergic rhinitis in children

The management of allergic rhinitis in children is summarised in Figure 2. Refer to *Prescribing notes* for a summary of evidence on each class of medicines.

School-aged children

Persistent or moderate-to-severe intermittent symptoms

In school-aged children, prescribe or recommend an INCS (even if the child is already using regular inhaled corticosteroids for asthma).

If symptoms do not improve significantly within 3–4 weeks:

- review the diagnosis
- check adherence and intranasal administration technique
- consider allergy testing.

Mild intermittent symptoms

Consider starting treatment with an intranasal H₁-antihistamine, second-generation (less sedating) oral H₁-antihistamine or montelukast. Do not use sedating antihistamines.

Montelukast can be considered as an alternative to antihistamines in children with seasonal allergic rhinitis.

If symptoms do not improve significantly within 2–4 weeks, switch to an INCS.

Preschool children

For preschool aged children or those who will not tolerate intranasal medication, start treatment with a second-generation (less sedating) oral H₁-antihistamine approved for use in this age group (e.g. cetirizine, fexofenadine, loratadine). Do not use sedating antihistamines.

Montelukast can be considered as an alternative to antihistamines.

If symptoms do not improve significantly within 2–4 weeks, switch to an INCS if possible.

Review

If allergic rhinitis symptoms are uncontrolled despite regular use of INCSs, review the diagnosis and consider specialist referral.

Adenoid hypertrophy should be suspected in children who do not respond to treatment within 4 weeks.

For children who are taking an inhaled corticosteroid for asthma and who have persistent allergic rhinitis symptoms despite treatment with an INCS, consider adding montelukast.

What to tell patients and parents

Asthma and allergic rhinitis are part of the same condition.

Both conditions involve airway inflammation and sensitivity throughout the respiratory system – this means it is important to treat the nose as well as the lungs.

If INCSs are recommended they should be used continuously – just like inhaled corticosteroids for asthma.

People with asthma who have allergic rhinitis symptoms should see their GP for a thorough check-up.

Intranasal corticosteroids are the most effective treatment.

Antihistamines are not the most effective treatment, even though they are heavily advertised in pharmacies.

If an antihistamine is not controlling symptoms, switch to an INCS straight away, without first trying a different oral antihistamine (oral antihistamines don't 'wear off' over time, and there is no proven benefit for switching between brands).

Allergic rhinitis medicines have a good safety profile.

At recommended doses, all allergic rhinitis medicines have a good safety record.

INCSs do not cause thinning of the nose lining. Nosebleeds are usually caused by damage to the nose through poor spray technique.

INCSs help children get better sleep by improving their breathing. They do not stunt children's growth when taken at recommended doses.

Treatment must be long-term.

Even though a blocked or runny nose may start to improve within the first day, it may take several days of treatment before gaining full benefit.

People who experience allergic rhinitis symptoms all year round may need to continue treatment indefinitely.

Most patients will need to continue treatment for at least several months.

Correct inhaling technique is important with intranasal medicines.

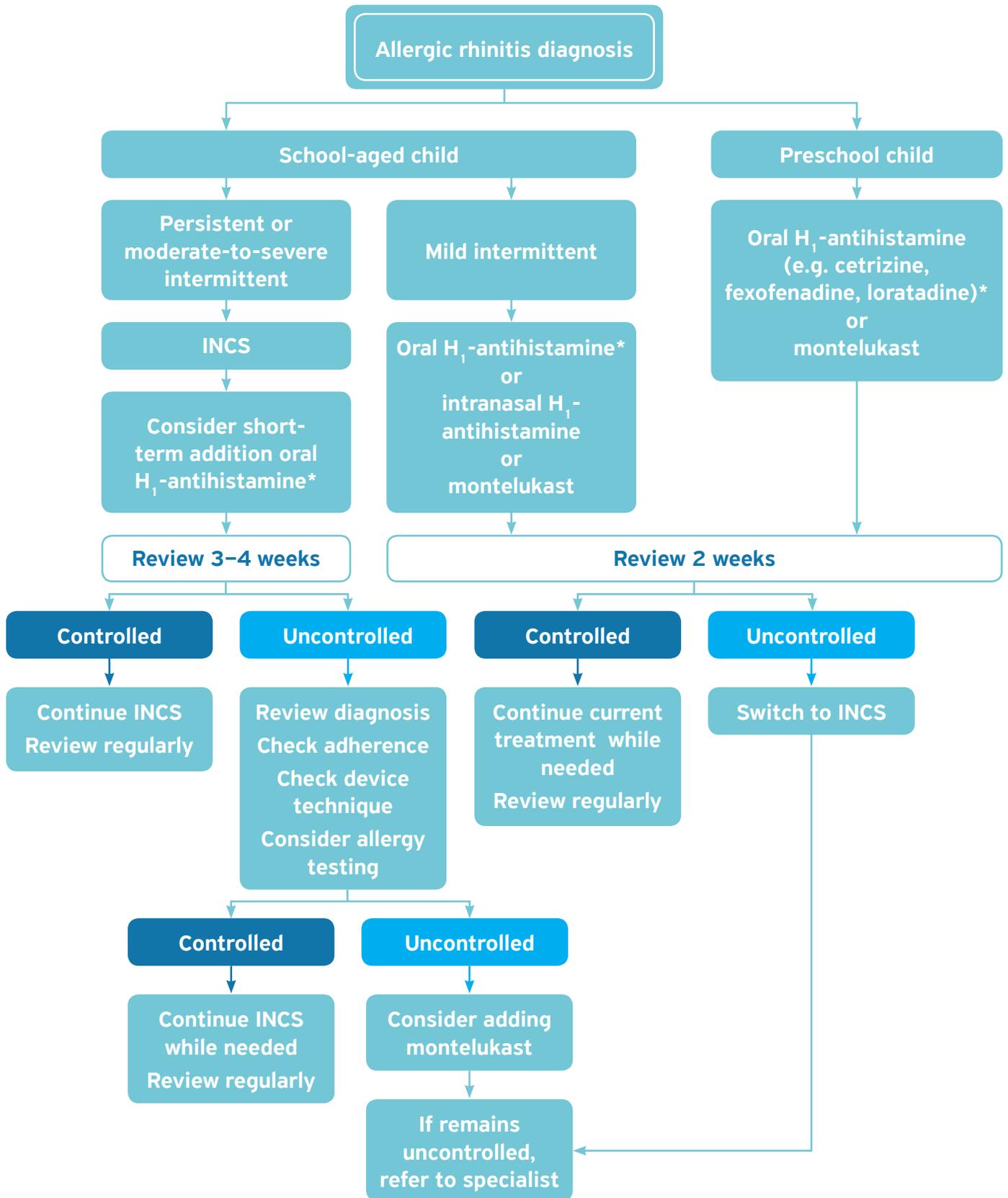
Patients need careful training to use intranasal sprays correctly.

Health professionals should demonstrate correct technique (Table 4), recheck the person's device technique from time to time, and provide a personalised allergic rhinitis treatment plan to reinforce correct use of treatments.

Detailed information and instructional videos for health professionals and patients are available on the National Asthma Council Australia website (www.nationalasthma.org.au).

Allergic rhinitis treatment plan templates are available from ASCIA (www.allergy.org.au/patients/allergic-rhinitis-hay-fever-and-sinusitis/allergic-rhinitis-treatment-plan).

Figure 2. Managing allergic rhinitis in children under 12 years



For all products, refer to product information for age restrictions.

*Second-generation (less sedating) oral H₁-antihistamine – do not use sedating antihistamines

Table 4. How to use intranasal sprays for allergic rhinitis

Follow the manufacturer's directions for the specific product.
1. Prime the spray device according to the manufacturer's instructions (the first time and after a period of non-use, as instructed).
2. Shake the bottle before each use.
3. Blow nose before spraying (if blocked by mucus) or use saline irrigation.
4. Tilt head slightly forward and gently put nozzle into nostril. Avoid pushing it in hard – this could damage the septum.
5. Aim the spray away from the septum (e.g. tilt spray bottle away from midline using the opposite hand). At the same time, aim nozzle inwards towards nasal cavity, not just directly upwards into tip of nose (e.g. hold the nozzle parallel to roof of mouth).
6. Breathe in gently. Avoid sniffing hard during or after spraying. Sniffing could force the spray into the back of the throat instead of inside the nose where it needs to work.
7. Wipe the tip of the spray device with a dry handkerchief or tissue, and put the cap back on.

Review

At each review, check symptom control, adherence to medications and topical therapy technique, as for asthma.

Inspect nasal mucosa at least twice per year for resolution of turbinate hypertrophy and any evidence of local crusting or bleeding.

Refer to an ear, nose and throat surgeon for review if turbinate hypertrophy does not respond to 12 months of regular INCS treatment.

Offer referral to a specialist if:

- symptoms are persistent, severe or unresponsive
- the patient is contemplating expensive or significant life-changing measures (e.g. moving house, changing jobs) due to allergic rhinitis
- the diagnosis is uncertain.

Pharmacy checklist

What to ask

Before providing non-prescription allergic rhinitis medicines, ask about:

- the duration, timing and severity of symptoms
- allergies, including a history of atopy (e.g. eczema) and known allergens – if allergic to pollens, warn about thunderstorm asthma (see box on page 2)
- pregnancy and breastfeeding
- prior treatment and results.

When to refer

Advise GP consultation if:

- the patient is a child under 12 years experiencing allergic rhinitis symptoms for the first time
- rhinitis symptoms are not well controlled by self-management with over-the-counter medicines (e.g. S2 INCSs, oral antihistamines)
- rhinitis treatment is needed for more than 4 weeks at a time
- there are symptoms suggesting infection or undiagnosed asthma
- symptoms could be caused by other medicines (e.g. aspirin, nonsteroidal anti-inflammatory drugs, antihypertensive agents, overuse of nasal decongestants)
- there are any complications (e.g. pain, loss of hearing or sense of smell, persistent cough, bleeding, any of the signs and symptoms listed in Table 3).

Non-pharmacological measures

Smoke avoidance

Advise patients to avoid tobacco smoke and parents to provide a smoke-free environment for children with allergic rhinitis.

Smoking may worsen both asthma and rhinitis, and reduce the effectiveness of treatment in adults and children.^{30, 31}

Nasal irrigation

Consider nasal irrigation with saline solution as well as drug treatment.

Nasal irrigation (via a syringe, rinse bottle or other device) can improve nasal symptoms, mucociliary clearance, and quality of life.³² Saline was instilled at least twice daily in most studies that showed a benefit.³²

Isotonic solution is preferable to hypertonic solution because it supports optimal mucociliary clearance.³² Isotonic saline solution is inexpensive and has no known adverse effects.³² Patients can use either commercially manufactured saline solutions or home-made normal saline: 1 teaspoon (5 g) rock or sea salt in 500 mL of water (preferably bottled or boiled).

There is not enough evidence to determine:

- whether solutions should be buffered or non-buffered, sterile or non-sterile
- whether various additives provide any advantage
- whether inhaling steam or an irritant decongestant (e.g. eucalyptus, menthol) before saline irrigation provides any extra benefit. However, patients are more likely to adhere to simple and convenient regimens, regardless of theoretical advantages.

If patients are using saline irrigation and an INCS or intranasal H₁-antihistamine at the same time, they should perform saline irrigation first. Saline can be used again after waiting at least an hour after using an INCS.

Allergen avoidance

Before contemplating allergen avoidance measures, confirm which allergens are clinically important. Consider referral to an allergist for detailed allergy assessment.

The house dust mite is a very common allergen source in humid areas of Australia. Warn patients that house dust mite avoidance measures can be expensive and time consuming, and may not be effective in individuals.

Exposure to airborne pollens is highest in the morning, on windy days and during thunderstorms (see box on page 2).

There is more information on allergen avoidance for people with allergic rhinitis or asthma in the [Australian Asthma Handbook](#).

Surgical turbinate reduction

Turbinate reduction surgery can be considered when nasal obstruction is due to turbinate hypertrophy and symptoms do not respond to medical treatment. It should not be performed in young children except after thorough investigation and review.

Inferior turbinate hypertrophy secondary to inflammation is a common cause of nasal obstruction in patients with allergic rhinitis.³³ Several surgical procedures are available to correct this problem.¹ The ideal surgical reduction should preserve the mucosa and physiological function.³³

Short-term adverse outcomes of inferior turbinate reduction include nasal bleeding, scarring and crusting. Rarely, it may worsen symptoms when patients have non-specific rhinitic conditions or sino-nasal somatisation disorders ('empty nose syndrome').¹ There is no evidence that turbinate surgery creates these conditions, but sino-nasal surgery may exacerbate the symptoms.

Specific allergen immunotherapy

Consider specific allergen immunotherapy in patients with allergic rhinitis or allergic asthma who have a history of proven, clinically important sensitisation to a particular allergen that cannot feasibly be avoided and for which specific allergen immunotherapy is available.

Specific allergen immunotherapy is available as sublingual immunotherapy (SLIT) and subcutaneous immunotherapy (SCIT).

Specific allergen immunotherapy should not be started unless the patient has stable asthma, defined as spirometry-demonstrated forced expiratory volume in 1 second (FEV₁) greater than 80% predicted for SCIT and greater than 70% predicted for SLIT.^{34, 35} For patients with unstable asthma (e.g. frequent symptoms, marked variability in airflow measured by spirometry or peak flow monitor), the risks of treatment should be considered. These patients will need specialist supervision during treatment.

Consider SLIT for adults with allergic rhinitis who are sensitised to house dust mite or grass (*Phleum pratense*) and experience asthma flare-ups despite regular treatment with inhaled corticosteroids (contraindicated if FEV₁ is less than 70% predicted).

Make sure the patient or parents understand that treatment must be long term (3–5 years), and understand the cost and risks of the treatment.

Although some specific allergen therapies can be prescribed by primary care health professionals, it is recommended that they are initiated under the care of an allergy specialist (allergist or clinical immunologist), where possible.

Specific allergy immunotherapy can be repeated.

Overview of efficacy

There is strong evidence that allergen immunotherapy is effective in the treatment of seasonal and perennial allergic rhinitis.³⁶⁻³⁸ There is less evidence supporting specific allergen immunotherapy in children than in adults.³⁷ Specific allergen immunotherapy in children with seasonal allergic rhinoconjunctivitis might prevent development of asthma,³⁹ but this has not been proven.⁴⁰

Single-allergen specific allergen immunotherapy is effective in patients sensitised to one allergen and those sensitised to multiple allergens. In selected cases more than one allergen may be administered as separate extracts. There is weak evidence for the efficacy of allergen mixes.⁴¹

A systematic review of studies directly comparing SCIT and SLIT in the treatment of allergic rhinoconjunctivitis and asthma found:⁴²

- low-grade evidence that SCIT is more effective than SLIT for reducing asthma symptoms and for reducing a combined measure of rhinitis symptoms and medication use.
- moderate-grade evidence that SCIT is more effective than SLIT for reducing nasal and/or eye symptoms.

SLIT is associated with a lower rate of severe adverse effects (anaphylaxis and death) than SCIT, based on indirect comparison.^{7, 43, 44}

Sublingual immunotherapy

SLIT (self-administered at home) is effective for the treatment of allergic rhinitis in adults and children.^{45, 46} The greatest benefits have been demonstrated in those with allergies to temperate grass pollens or house dust mite.⁴⁶ Therapeutic Goods Administration (TGA)-approved indications for commercially available preparations vary according to age group.

SLIT is generally well tolerated.⁴⁵ Local adverse effects are common in children receiving sublingual immunotherapy.⁷ Systemic adverse reactions, such as anaphylaxis, are very rare.⁷ The majority of adverse events occur soon after beginning treatment.⁴⁶

Subcutaneous immunotherapy

SCIT is effective for the treatment of allergic rhinitis and asthma, particularly when single-allergen immunotherapy regimens are used.⁴³ There is strong evidence that it reduces asthma symptoms, asthma medication usage, rhinitis/rhinoconjunctivitis symptoms, conjunctivitis symptoms, and rhinitis/rhinoconjunctivitis disease-specific quality of life, in comparison to placebo or usual care.⁴³ There is also moderate evidence that SCIT reduces rhinitis/rhinoconjunctivitis medication usage.⁴³

Subcutaneous immunotherapy is associated with local adverse effects (e.g. injection-site swelling) and, less frequently, serious systemic adverse effects.^{7, 46} The most common systemic reactions are respiratory symptoms. There have been few reports of anaphylaxis.⁴³

Prescribing notes

Table 5 summarises the effectiveness of allergic rhinitis medicines for treating specific symptoms.

For all medicines, refer to TGA-approved product information before prescribing or recommending.

Before prescribing, check the individual agent for potential cardiac effects and interactions with other drugs, food supplements or complementary products.

Table 5. Overview of efficacy of allergic rhinitis medicines for specific symptoms

Pharmacological class	Symptom			
	Itching and sneezing	Rhinorrhoea	Nasal congestion	Ocular symptoms
INCS	✓	✓	✓	✓
Oral antihistamines	✓		*	✓
Intranasal antihistamines	✓		✓	✓
Intranasal cromolyn sodium	✓			
Intranasal ipratropium bromide		✓		
Montelukast	*	*	*	*
Antihistamine eye drops				✓
Mast cell stabiliser eye drops				✓

INCS: intranasal corticosteroids

*Small benefit demonstrated

Sources: Bousquet et al (2016),⁴⁷ Brożek et al (2010),⁷ Hong et al (2011),⁴⁸ Seidman et al (2010),¹ Rodrigo et al (2011)⁴⁹

Intranasal corticosteroids

If continuous treatment is required, an INCS is the first-choice treatment unless contraindicated. INCSs are more effective in the treatment of allergic rhinitis than other drug classes including oral H₁-antihistamines, intranasal H₁-antihistamines and montelukast.^{1,7,47} INCSs are most effective when taken continuously.¹

INCSs are effective in reducing congestion, rhinorrhoea, sneezing and itching in adults and school-aged children with allergic rhinitis.^{1,7} The evidence is stronger for adults than for children.⁷ INCSs are also effective for ocular symptoms.⁴⁸

All available INCSs appear to be equally effective.¹ The onset of action is between 3 and 36 hours after first dose, and in practice the full therapeutic effect takes a few days.⁴⁷

The addition of an oral H₁-antihistamine or leukotriene receptor antagonist to an INCS is generally no more effective than INCS monotherapy.⁴⁷

There is limited evidence to guide the treatment of allergic rhinitis in preschool children.⁴⁷

TGA-approved indications vary between age groups. INCSs indicated for children aged under 12 years include fluticasone furoate (age 2 years and over), mometasone furoate (age 3 years and over), and budesonide (age 6 years and over).

INCSs are well tolerated. Common (> 1%) adverse effects include nasal stinging, itching, nosebleed, sneezing, sore throat, dry mouth, cough.⁵⁰ Nose bleeds are usually due to poor spray technique or crusting. INCSs do not cause atrophy of nasal epithelium.⁵¹ Unlike skin, respiratory epithelium has a simple pseudostratified structure that is not susceptible to corticosteroid-induced atrophy.⁵¹ INCSs are protective against squamous metaplasia.⁵¹

INCSs are not generally associated with clinically significant systemic adverse effects in adults or children when given in recommended doses.^{1,52} Studies in adults and children evaluating effects on the hypothalamic-pituitary axis using morning cortisol concentrations, cosyntropin stimulation, and 24-hour urinary free cortisol excretion show no adverse effects.¹ One knemometry study showed reduced lower leg growth rate in children using intranasal budesonide.¹ In studies using stadiometry over 12 months, higher-than-recommended doses of intranasal beclometasone dipropionate were associated with growth suppression, but fluticasone propionate and mometasone furoate showed no effects on growth compared with placebo.¹

In patients with asthma already taking ICS, the corticosteroid dose should be taken into account when determining the total daily corticosteroid dose. Consider prescribing INCS formulations with lower bioavailability (e.g. budesonide, ciclesonide, mometasone or fluticasone). Drug-drug interactions (e.g. with CYP3A4 inhibitors) may increase absorption of corticosteroids administered by any route, increasing the risk of adrenal suppression.⁵⁰

Combination intranasal corticosteroid plus intranasal antihistamines

Combined intranasal fluticasone propionate and azelastine hydrochloride in a single device is more effective than fluticasone propionate alone for a range of nasal and ocular symptoms.^{1,47,53}

The onset of therapeutic action is approximately 30 minutes after dosing.⁵³

Oral antihistamines

Second-generation (less sedating) antihistamines (e.g. cetirizine, desloratadine, fexofenadine, or loratadine) should be used in preference to older, more sedating antihistamines. Cetirizine is the most likely of the less sedating antihistamines to cause sedation, while fexofenadine and loratadine appear to be the least sedating.^{50,54}

Less sedating oral H₁-antihistamines are effective in managing allergic rhinitis symptoms of rhinorrhoea, sneezing, nasal itching and ocular symptoms,^{47,55} including in preschool children.⁴⁷ They can provide adequate relief for some individuals when taken continuously or intermittently.¹ Available agents appear to be equally effective.⁵²

However, oral antihistamines are less effective than continuous INCSs, especially for nasal congestion.^{1,6} In adults with allergic rhinitis, oral antihistamines usually produce no further improvement when added to INCS treatment.¹ The addition of oral antihistamines to INCSs has not been demonstrated to be an effective strategy in children.⁵⁶

TGA-approved indications vary between age groups. Less sedating oral antihistamines indicated for children under 12 years include cetirizine (1 year and over), loratadine (1 year and over), desloratadine (6 months and over), and fexofenadine (6 months and over).

Common (> 1%) adverse effects include drowsiness, fatigue, headache, nausea and dry mouth.⁵⁰ Oral antihistamines can also cause ocular dryness.⁵⁷

Intranasal antihistamines

Intranasal antihistamines are at least equally effective as second-generation, less sedating oral H₁-antihistamines for the treatment of allergic rhinitis, but are generally less effective than INCSs.⁷

Intranasal antihistamines are more effective than oral antihistamines for reducing nasal congestion.¹ They have a rapid onset of action (15–30 minutes).¹

The most common (> 1%) adverse effect is local irritation.⁵⁰ Bitter taste is more common with intranasal antihistamines than with INCSs.¹

Montelukast

Leukotriene receptor antagonists are no more effective than oral H₁-antihistamines.^{7,47} Montelukast is less effective than INCSs in the treatment of allergic rhinitis.^{1,7} In most studies, adding montelukast to an INCS was not more effective than INCSs alone.⁴⁷

Montelukast is approved by TGA for treatment of asthma in adults and children over 2 years, and the treatment of seasonal allergic rhinitis.

It is generally very well tolerated, but has been associated with neuropsychiatric adverse effects, including suicidal ideation, in children and young people.⁵⁸⁻⁶¹ The potential association of montelukast with behaviour-related adverse events should be mentioned to parents when commencing treatment, and treatment should be stopped if such adverse events are suspected.

Other agents

Nasal sprays

Ipratropium bromide spray is effective in managing persistent rhinorrhoea in patients with allergic rhinitis, but not blockage or itch.⁷ It is indicated for use in adults and children over 12 years old.

Intranasal sodium cromoglycate is less effective than INCSs, but is effective in some patients for prevention and treatment of allergic rhinitis and is associated with minimal adverse effects.⁵²

Eye drops

Topical ocular mast-cell stabilisers (e.g. sodium cromoglycate or lodoxamide eye drops) are effective for ocular symptoms,⁴⁷ but have a slow onset of effect (2–4 weeks).

H₁-antihistamine eye drops (e.g. azelastine, ketotifen, levocabastine or olopatadine) are also effective and have a faster onset of effect.

Medications not recommended for allergic rhinitis

Intranasal decongestants have a limited role in the management of allergic rhinitis because they should only be used for very short courses (up to 5 days maximum). Repeated or long-term use can cause rebound swelling of nasal mucosa necessitating dose escalation (rhinitis medicamentosa), with a risk of atrophic rhinitis. Intranasal decongestants can be considered for a patient with severe nasal congestion to gain rapid relief of symptoms until the full effect of INCSs is achieved.

Oral decongestants (e.g. pseudoephedrine or phenylephrine) should not generally be used in the management of allergic rhinitis. They are indicated for short-term use only (e.g. acute infectious rhinitis). They are associated with adverse effects including palpitations, tachycardia and insomnia.

Oral corticosteroids should be avoided as a treatment for allergic rhinitis. In exceptional circumstances, their use might be considered in consultation with an allergy specialist.

Topical ocular alpha agonist vasoconstrictors (including in combination with antihistamines) should not be used for allergic conjunctivitis because they can cause conjunctivitis medicamentosa.

Other therapies

Capsaicin nasal spray is intended for use in non-allergic rhinitis only. It has not been shown to be effective in allergic rhinitis in adults.⁶²

Helminth therapy is under investigation for various immunological conditions, but there is currently insufficient evidence on its efficacy and tolerability to recommend it for allergic rhinitis.⁶³

Acupuncture may be effective for the symptomatic relief of allergic rhinitis.^{64,65}

The use of probiotics may improve symptoms and quality of life for patients with allergic rhinitis, but these benefits have not been clearly demonstrated.⁶⁶

Overall, clinical trials of traditional Chinese herbal medicine for the treatment of persistent allergic rhinitis do not demonstrate significant benefit.⁶⁷ Information on other complementary therapies that have been promoted for allergies is available from the Australasian Society of Clinical Immunology and Allergy (www.allergy.org.au).

Online resources and apps

Allergy Diary by MACVIA ARIA (app)

Online pollen forecasts for major Australian capital cities (available at: www.pollenforecast.com.au)

Using your nasal spray (National Asthma Council Australia [how-to videos](#))

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More information

Evidence-based publications from National Asthma Council Australia:

Intranasal spray technique for people with allergic rhinitis. Information paper for health professionals.

Epidemic thunderstorm asthma. Information paper for health professionals.

Hay fever (allergic rhinitis) and your asthma. Brochure for patients and carers.

Allergic rhinitis treatments chart

Available at: www.nationalasthma.org.au

For more information about allergy, including the Allergic Rhinitis Treatment Plan, visit the website of the Australasian Society of Clinical Immunology and Allergy (ASCI): www.allergy.org.au

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