ACE CLINICAL GUIDELINE

Published: **15 May 2026**
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Allergic rhinitis

Diagnosis and management

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Objective	Scope	Target audience
To enhance diagnosis and management of perennial allergic rhinitis (AR)	Diagnosis and management of perennial AR, including pharmacological therapy and allergen avoidance in adults and children with AR	This clinical guideline is relevant to all healthcare professionals caring for patients with AR especially those providing primary or generalist care

The prevalence of allergic rhinitis (AR) is estimated to be more than 30% in Singapore,[1,2] with most cases observed in the paediatric and young adult population.[3] It is commonly perceived as a benign and self-limiting condition, leading to symptom normalisation, reliance on intermittent self-treatment, and delays in seeking care.[4] While AR is not associated with severe outcomes, a recent local study found that approximately 85% of AR cases are undiagnosed and 73% untreated, where most had moderate-to-severe disease. Moreover, poorly controlled or untreated AR can lead to complications such as asthma, sinusitis, or otitis media with effusion. Therefore, these findings highlight a hidden disease burden among individuals with AR despite the availability of effective therapies.

AR is classified into perennial and seasonal forms. In Singapore's warm, humid climate, perennial AR predominates and is mainly driven by indoor allergens,[5] particularly house dust mites (HDM). Over 80% of the local population is sensitised to HDM,[6] primarily *Dermatophagoides pteronyssinus*, *Dermatophagoides farinae*, and *Blomia tropicalis*, with mite droppings being the main trigger of symptoms. Seasonal AR, usually related to pollen that appear seasonally, is uncommon in Singapore and is therefore out of scope for this guideline.[5]

This ACE Clinical Guideline (ACG) emphasises that AR is a chronic condition which requires regular assessment and a planned approach to treatment, rather than episodic symptom relief. It provides evidence-based recommendations for the diagnosis and management of AR in the primary and generalist care setting.

Statement of Intent

This ACE Clinical Guideline (ACG) provides concise, evidence-based recommendations and serves as a common starting point nationally for clinical decision-making. It is underpinned by a wide array of considerations contextualised to Singapore, based on best available evidence at the time of development. The ACG is not exhaustive of the subject matter and does not replace clinical judgement. The recommendations in the ACG are not mandatory, and the responsibility for making decisions appropriate to the circumstances of the individual patient remains at all times with the healthcare professional.

ACE agency for care effectiveness

MINISTRY OF HEALTH SINGAPORE

Academy of Medicine, Singapore
Chapter of Family Medicine Physicians
Chapter of Otorhinolaryngologists, CSS
College of Paediatrics and Child Health, Singapore
Section of Clinical Immunologists and Allergists
Chapter of Respiratory Physicians, CPS

College of Family Physicians Singapore

Diagnosis

Recommendation 1 **Diagnose allergic rhinitis based on the patient's history, particularly their symptoms, combined with a physical examination.**

For most patients, a combination of patient history and physical examination are required, and in themselves sufficient, to maximise the likelihood of a correct AR diagnosis (Figure 1).[7]

Figure 1. Patient history and physical examination for AR diagnosis

Patient history

1 Assess the extent and impact of patient symptoms

Symptoms of AR include:[8]
- Anterior or posterior rhinorrhoea
- Nasal congestion
- Nasal pruritus
- Sneezing

Diagnosis is made clinically when all the following are present:[9]

≥2 symptoms + Symptoms for ≥2 consecutive days + Symptoms for >1 hour on most days

Patients with AR may also suffer from ocular symptoms such as ocular pruritus, erythema, or tearing, which may be suggestive of concurrent allergic conjunctivitis.

2 Ask about living, work, and social environments

These environments may be sources of ongoing exposure to allergens that contribute to symptom persistence; knowledge of these exposures help to determine whether the presentation is consistent with AR. For example, perennial nasal symptoms which are triggered by specific indoor settings (e.g. bedrooms, pet exposure), and improve with time away from those settings are consistent with AR.[7]

3 Check past medical and family history

Checking both medical and family history of atopic conditions (e.g. asthma, eczema, or food allergy) strengthens the clinical suspicion of AR, as these disorders commonly coexist and share an underlying allergic tendency.[10-12]

Physical examination

1 Assess for features consistent with AR to strengthen diagnosis

Examinations and findings suggestive of AR include:[8]

- General/facial examination
  - Mouth breathing
  - Nasal itching or presence of a transverse supratip nasal crease
  - Allergic shiners (dark discolouration around the lower eyelids)
  - Periorbital oedema
- Ear examination
  - Possible tympanic membrane retraction or middle ear fluid
- Nasal examination (anterior rhinoscopy)
  - Inferior turbinate hypertrophy
  - Congested or oedematous nasal mucosa
  - Pale discolouration of the mucosa (e.g. grey/purplish-bluish)
  - Clear rhinorrhoea
- Eye examination
  - Conjunctival erythema
  - Chemosis (conjunctival swelling)

2 Consider and rule out alternative diagnoses

Possible differential diagnoses include:

- Infective causes e.g. viral or bacterial upper respiratory tract infections (URTIs)
  - Patients may present with purulent nasal discharge, systemic symptoms, with typically shorter symptom duration than AR.
  - Refer to the *URTI ACG* for further guidance.
- Non-allergic rhinitis e.g. vasomotor, hormonal, drug-induced, or occupational rhinitis
  - These conditions can mimic AR but have different triggers and treatment pathways.
- Systemic or atopic comorbidities e.g. atopic dermatitis or asthma
  - These atopic conditions frequently coexist with AR.
  - Refer to the *Atopic dermatitis ACG* and *Asthma ACG* for further guidance.

Consider other diagnoses in children < 2 years old with persistent nasal symptoms

In the paediatric population, clinicians may observe a phenomenon known as 'atopic march', a sequential development of atopic conditions over the course of infancy and childhood.[13,14]

- The typical atopic march begins with atopic dermatitis in infancy, progressing to food allergy, AR and asthma.
- As a period of allergen exposure is required before the disease develops, it is rare for children <2 years old to have AR.

As such, if a very young child appears to have persistent nasal symptoms, other diagnoses (e.g. infective causes, non-allergic rhinitis) should be considered.

3 Look out for potential red flags

The presence of red flags may warrant consideration of alternative diagnoses or specialist referral e.g.:[8,15]

- Recurrent or persistent epistaxis (particularly if unilateral or severe)
- Unilateral or persistent nasal obstruction or discharge
- Purulent or foul-smelling nasal discharge
- Recurrent sinus infections
- Severe facial or orbital pain, or visual symptoms such as blurred vision

Following diagnosis, AR is classified based on the frequency and severity of symptoms:[15]

Frequency

- Intermittent – symptoms <4 days/week or <4 consecutive weeks
- Persistent – symptoms ≥4 days/week and ≥4 consecutive weeks

Severity

- Mild – symptoms not troublesome and not affecting quality of life (QoL)
- Moderate-severe – symptoms affecting QoL, through ≥1 of the following:
  - Sleep disturbance
  - Impaired daily activity, leisure or sport
  - Impaired school or work attendance and performance

While there is no single definitive symptom scale for AR, validated symptom severity or control tools such as the Visual Analog Scale (VAS) may be helpful to establish a baseline level of symptom severity.[16] These tools can then be used to monitor ongoing symptom control and inform treatment adjustments.

Telemedicine and AR

As a physical examination cannot be conducted via telemedicine, clinicians should use teleconsultations judiciously and refer to prevailing MOH telemedicine guidelines. In-person assessment is recommended when red flags or diagnostic uncertainty are present.

Considering nasal endoscopy when AR diagnosis remains unclear

Nasal endoscopy provides a direct visualisation of the entire nasal cavity. A specialist referral for nasal endoscopy may be considered when structural abnormalities or alternative diagnoses to AR are suspected (e.g. nasal polyps, deviated septum, adenoid hypertrophy, unilateral obstruction, or purulent nasal discharge).

Role of allergy testing

Recommendation 2

Conduct allergy testing only when clinically warranted, for example when diagnosis is unclear, or when optimised pharmacotherapy provides inadequate symptom control.

Allergy testing is not routinely required for AR diagnosis and management.[17] However, it may be helpful in certain situations, for example where:

- There is diagnostic uncertainty despite a thorough patient history and physical examination[5]
- AR symptoms persist and/or remain severe despite optimised pharmacotherapy[7]
- Allergens need to be identified to enable allergen-specific avoidance measures[7]
- Allergen immunotherapy is being considered[7]
- The patient presents with multiple atopic conditions[18]

Both skin prick test (SPT) and serum-specific immunoglobulin E (sIgE) detect sensitisation rather than clinical allergy, and should be interpreted alongside the patient's history, exposure, and symptom patterns. Key considerations to guide appropriate test selection are summarised in Table 1 below.

Table 1. Comparison between SPT and sIgE blood test

Attribute	Skin prick test (SPT)	Serum-specific immunoglobulin E (sIgE) blood test
What it measures	Immediate IgE-mediated skin reactivity to allergen extracts	Circulating allergen-specific IgE antibodies from a blood sample
Diagnostic performance	Sensitivity and specificity greater than 80% for common aeroallergens[19-22]	Sensitivity of 67-96% and specificity of 80-100%; may detect low-level sensitisation of uncertain clinical relevance[7]
Time to results	15–20 minutes	Several days (typically)
Cost and resource requirements	Lower cost per allergen; requires clinic-based facilities and consumables Requires trained personnel and allergen extracts	Higher cost than SPT; also dependent on laboratory equipment and reagents Requires blood draw and laboratory processing
Patient suitability	SPT is not suitable for: • Patients with diffuse dermatological conditions (e.g. atopic dermatitis), as SPT requires normal healthy skin • Patients who are unable to stop long-term antihistamines May be a preferred test for younger children due to less discomfort compared to a blood test	Preferred alternative when SPT is contraindicated or impractical
Safety considerations	Very rare risk of systemic allergic reactions	No risk of provoking allergic reactions
Example of appropriate indication	When rapid results or targeted panel testing in one sitting is useful	When antihistamines cannot be discontinued or when existing skin disease affects suitability for SPT

Broad testing of allergens is not routinely necessary in Singapore as house dust mites (HDM) are the predominant allergen. Other less common allergens include mould spores (in damp or poorly ventilated areas), pet dander and perennial pollens (e.g. oil palm pollen). Testing for these should only occur if suggested by patient history.[5]

Non-allergenic irritants such as tobacco smoke are recognised triggers that may exacerbate AR symptoms but are not detectable through allergy testing; their identification relies on clinical history and exposure assessment.

Management – pharmacotherapy

Recommendation 3

Prescribe intranasal corticosteroid, oral antihistamine (2nd generation or later), or combination intranasal corticosteroid and intranasal antihistamine to manage allergic rhinitis.

Pharmacotherapy plays a crucial role in AR management due to its effectiveness in achieving symptomatic control and improving patients' daily functioning, sleep, and QoL.

Three classes of medications are recommended as initial treatment options:

- Intranasal corticosteroids (INCS)
- Oral antihistamines (OAH) – 2nd generation or later
- Combination intranasal corticosteroid and intranasal antihistamine (INCS+INAH)

While these options differ in efficacy and onset of action, ultimately, patient preferences, tolerability, and access should guide the choice of initial treatment[23] (Table 2).

Pharmacotherapy should be continued until symptoms resolve, after which treatment review and step-down can be considered. If AR symptoms recur, pharmacotherapy should be restarted on the previous most effective dose.

Table 2. Key considerations for selecting an initial pharmacotherapy option for AR

	INCS	OAH – 2nd generation or later	INCS+INAH
Medications	beclomethasone, budesonide, fluticasone, **mometasone**, triamcinolone	2nd generation: **cetirizine**, desloratadine, fexofenadine, levocetirizine, **loratadine** 3rd generation: bilastine, rupatadine	fluticasone + azelastine, mometasone + olopatadine
Registered indication for AR *(varies by preparation)**	≥2 years old	≥2 years old†	≥6 years old
Efficacy *(based on available evidence)*	More efficacious in overall symptom control than OAH, especially for nasal congestion[24-26]	Controls AR symptoms, but not as well as INCS[27]	More efficacious than INCS alone, but only by a moderate amount[28]
Onset of action	6-12 hours	1-3 hours	30 mins
Time to maximal effect	1-2 weeks	2-3 hours	2-3 days
Common side effects (≥1%)	Nasal irritation or dryness, epistaxis	Sedation, anticholinergic side effects (e.g. dry mouth)	Local effects similar to INCS monotherapy; bitter taste, sedation (associated with INAH component)
Cost	Subsidised preparations available	Subsidised preparations available	No subsidised preparations available
Other factors	Needs intranasal technique counselling; younger patients may not be keen on intranasal preparations	Oral formulation; likely to be more acceptable to patients, especially younger patients	Needs intranasal technique counselling; bitter taste from INAH but manageable through counselling

All medicines listed are locally registered for AR treatment. The information is sourced from international literature[7, 8,17, 29] and local medication information resources.[5,30]

The information in this table is not exhaustive. Refer to product information leaflets (PILs) and medication information resources for further details, including contraindications, interactions, and doses.

Bolding denotes availability on government subsidy list at the time of publication; underlining denotes availability on Healthier SG Medication List at the time of publication.

*Due to the atopic march (see information on page 3), alternative diagnoses (other than AR) should be considered in children <2 years old with persistent nasal symptoms.

†There is safety data for children aged 6-24 months for cetirizine, levocetirizine (from 12 months), and desloratadine, with follow up ranging from one week to 18 months.[31-34] Studies included children with atopic conditions, or currently/previously requiring antihistamine therapy;[31-34] one study included children with AR.[33]

Intranasal corticosteroids

The INCSs provide effective AR symptom control, including for nasal congestion, rhinorrhoea, sneezing, sleep disturbance, and improve QoL.[7] Their safety profile is well established when used at recommended doses, and they are widely used in the long-term management of AR. For information on INCS dosages, refer to their accompanying product information leaflets (PILs) for details on starting doses and dosing adjustments.

Oral antihistamines

Second-generation (and later) OAH provide effective symptom control with generally acceptable safety profiles and are widely available as over-the-counter medications.[7] OAHs have faster onset than INCSs, although the latter are more effective in addressing nasal congestion.[27] First-generation oral antihistamines (e.g. chlorpheniramine, hydroxyzine, ketotifen and promethazine) are not recommended for the treatment of AR because of their central nervous system and anticholinergic side effects.

Intranasal corticosteroid and intranasal antihistamine combination

INCS+INAH combinations demonstrate the greatest efficacy and most rapid onset of action compared to INCS or OAH monotherapy.[28] INCS+INAH are effective in improving nasal symptoms, ocular symptoms and QoL. For patients with AR on INCS monotherapy, INCS+INAH combination is often recommended as a step-up option. However, their uptake may be limited by their bitter aftertaste and higher cost.

Switching between treatment options

If initial treatment options remain insufficient in achieving adequate symptom control despite optimal adherence, clinicians may consider switching to a different medication.[35] For example:

- Switching from OAH to INCS monotherapy
- Switching from INCS monotherapy to INCS+INAH combination

The decision to switch and what medication to use is guided by similar considerations applied to the initial treatment decision, such as patient preferences, tolerability, and access.

Other oral treatments for AR

Leukotriene receptor antagonists (LTRAs) provide inferior symptom control compared with the recommended first-line therapies for AR.[7] However, they may be considered as a treatment option for AR in patients with concomitant asthma, either as an alternative to first-line therapies if they are contraindicated, or as an adjunct to INCS.[7] Montelukast, an LTRA, is associated with a serious but rare risk of neuropsychiatric adverse effects.[35] If prescribing montelukast is unavoidable, review the HSA advisory and follow the recommended risk mitigation principles, including appropriately counselling the patient.

Oral corticosteroids also have unfavourable safety profiles if used long term, and lack additional benefit compared with the initial treatment options listed above for AR symptom management.[7]

Oral decongestant monotherapy lacks effectiveness for AR symptom relief other than nasal congestion and is associated with increased risk of adverse effects.[7] However, when combined with OAH for a short term, the combination provides AR symptom relief, including for rhinorrhoea, nasal congestion, nasal itching, and sneezing.[7] Chronic use of oral decongestants are not recommended due to an increased risk of adverse effects (e.g. insomnia, headache, nervousness).

Enhancing treatment effectiveness in AR

Suboptimal disease control in AR is commonly observed, driven by poor treatment acceptance and adherence, together with limited understanding of the condition.[13] Therefore, targeted patient education and counselling would improve acceptance of steroid-containing intranasal therapies and the correct intranasal technique.

Improving patient acceptance of steroid-containing preparations

Several barriers can impede the use of steroid-containing preparations, including safety concerns and undesirable sensations associated with intranasal administration.[37] To support patient confidence, remind patients that these intranasal preparations have good safety profiles which have been established through evidence, are safer than oral corticosteroids, and rarely cause serious side effects, with most local side effects manageable through correct technique.

Intranasal technique counselling

Counsel on correct intranasal spray technique to optimise treatment outcomes, as suboptimal technique may lead to reduced effectiveness, local side effects (e.g. nasal irritation) or unnecessary dose escalation.[8]

Proper technique includes ensuring appropriate head position, contralateral hand use, and angling the nozzle away from the septum. Patients can be directed to the medication PILs for detailed steps.

Use of digital tools to support AR management

Digital tools, such as reminder systems, treatment trackers or monitoring applications, can serve as enablers to support adherence and AR symptom management.[38] These tools have the potential to help patients with AR recognise if their symptoms are worsening, adjust their actions accordingly or seek care.

Additional treatment options

In patients with AR who have persistent symptoms despite initial therapy, adjunct treatment options may be added to improve symptom control (see Table 3).

Table 3. Additional treatment options for AR

Treatment‡	Summary
Intranasal saline	• A safe and effective adjunct for AR as it improves nasal symptoms and QoL,[39] with additional benefit when combined with other pharmacotherapy options like INCS and OAH[40]
Intranasal decongestants	• Used together with INCS or OAH for persistent nasal congestion • Use for a maximum of 5 days due to risks of rhinitis medicamentosa[7]

‡Intranasal anticholinergics have been shown to reduce the duration and severity of rhinorrhoea, and can be used together with INCS or OAH if rhinorrhoea persists.[8] However, products are not yet registered by the Health Sciences Authority and hence not available in primary care.

Considerations for specialist referral

If symptoms persist or remain severe despite optimised pharmacotherapy, clinicians should consider referring to a specialist for further evaluation and management, particularly if:

- AR significantly impacts QoL, including sleep disturbance or impaired school or work performance
- The patient has relevant comorbidities, such as poorly controlled asthma, chronic rhinosinusitis, suspected nasal polyposis, septal or nasal deviation

Specialist assessment may include re-evaluation of the AR diagnosis, additional investigations where appropriate, and consideration of allergen immunotherapy when indicated.

Management – allergen avoidance

Recommendation 4 **Offer allergen avoidance advice to all patients with allergic rhinitis as an adjunct to pharmacological therapy, focusing on accessible and practical strategies.**

Allergen avoidance refers to measures aimed at reducing exposure to allergens that trigger or exacerbate AR symptoms, e.g. HDM or other environmental allergens. For HDM, current evidence is based on international studies and is of low quality, with studies showing limited usefulness of allergen avoidance in improving AR symptoms.[28] However, recognising its practicality, allergen avoidance is recommended as an adjunct to pharmacological therapy. Clinicians should focus on low-risk and accessible strategies for patients, prioritising child-friendly approaches for paediatric patients.

For HDM allergy, no single HDM avoidance method is superior.[41] Therefore, allergen avoidance should be individualised, considering patient preference, feasibility within the home or work environment, and overall acceptability. While complete HDM elimination is not feasible, exposure can be reduced through practical measures, e.g.:

- Encasing mattresses, pillows and bolsters with HDM-proof covers[13]
- Washing bedding frequently, preferably in hot water (above 60°C)[13]
- Removing rugs or carpets[13]
- Minimising additional soft items on the bed (e.g. stuffed toys, cushions) that can collect dust
- Avoiding agitation of dust to reduce allergen exposure

Beyond HDM, other less commonly encountered indoor allergens may also warrant allergen-specific environmental interventions, if sensitisation and clinically relevant exposure is identified. These interventions can be included as part of a broader AR management plan but should complement and not replace pharmacological treatment.

References

Click or scan the QR code for the reference list to this clinical guideline

Evidence-to-Recommendation Framework

Click or scan the QR code to view the Evidence-to-Recommendation Framework for the recommendations in this clinical guideline

Google Gemini was used to portray a person experiencing allergic rhinitis symptoms, triggered by house dust mites found on indoor furniture. (Google Gemini, accessed 14 April 2026)

Expert group

Chairpersons

Clin Assoc Prof Charn Tze Choong, Ear, Nose & Throat (SKH)

Dr Tan Wee Hian, Family Medicine (NUP)

Members

Dr Chang Zi Ying, Family Medicine (Sengkang Polyclinic)

Dr Cheng Yew Kuang, Rheumatology, Allergy, and Immunology (Arthritis & Rheumatism Clinic)

Dr Elaine Chua, Family Medicine (Bedok Medical Centre)

Dr Ding Si Yan, Family Medicine (Hougang Polyclinic)

Clin Prof Anne Goh Eng Neo, Paediatrics, Allergy, and Immunology (KKH)

Dr Gui Huey Sywu, Pharmacist (Geylang Polyclinic)

Dr Suraj Kumar, Family Medicine (Drs Bain & Partners)

Adj Prof Lee Bee Wah, Paediatrics, Allergy and Immunology (NUS)

Adj Assoc Prof Ng Chew Lip, Ear, Nose & Throat (NTFGH)

Clin Assoc Prof Siow Jin Keat, Ear, Nose & Throat (TTSH)

Dr Tan Wei Lynn Justina, Rheumatology, Allergy, and Immunology (TTSH)

Mr Teo Yi Liang, Pharmacist (Guardian)

Dr Tham Chengyao Alex, Ear, Nose & Throat (Asian Healthcare Specialists Alvernia)

Dr Nelson Wee, Family Medicine (Silver Cross Medical)

Prof Hugo Van Bever, Paediatrics, Division of Rheumatology, Allergy and Immunology (NUH)

For more information on the Expert Group composition and other details, click here.

About the Agency

The Agency for Care Effectiveness (ACE) was established by the Ministry of Health (Singapore) to drive better decision-making in healthcare by conducting health technology assessments (HTA), publishing healthcare guidelines and providing education. ACE develops ACE Clinical Guidelines (ACGs) to inform specific areas of clinical practice. ACGs are usually reviewed around five years after publication, or earlier, if new evidence emerges that requires substantive changes to the recommendations. To access this ACG online, along with other ACGs published to date, please visit www.ace-hta.gov.sg/healthcare-professionals/ace-repository-for-clinical-guidelines/

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Suggested citation:
Agency for Care Effectiveness (ACE). Allergic rhinitis - diagnosis and management. ACE Clinical Guideline (ACG), Ministry of Health, Singapore. 2026. Available from: go.gov.sg/acg-ar

Agency for Care Effectiveness (ACE)
College of Medicine Building
16 College Road Singapore 169854

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