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Clinical Practice Guideline: Allergic Rhinitis Executive Summary

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Abstract

The American Academy of Otolaryngology—Head and Neck Surgery Foundation (AAO-HNSF) has published a supplement to this issue featuring the new Clinical Practice Guideline: Allergic Rhinitis. To assist in implementing the guideline recommendations, this article summarizes the rationale, purpose, and key action statements. The 14 recommendations developed address the evaluation of patients with allergic rhinitis, including performing and interpretation of diagnostic testing and assessment and documentation of chronic conditions and comorbidities. It will then focus on the recommendations to guide the evaluation and treatment of patients with allergic rhinitis, to determine the most appropriate interventions to improve symptoms and quality of life for patients with allergic rhinitis.

Keywords allergic rhinitis, runny nose, nasal congestion, rhinitis, allergies

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Allergic rhinitis (AR) is one of the most common diseases affecting adults.[1] It is the most common chronic disease in children in the United States today[2] and is the fifth most chronic disease in the United States overall.[3] Allergic rhinitis is estimated to affect nearly 1 in every 6 Americans and generates $2 to $5 billion in direct health expenditures annually.[4,5] It can impair quality of life and, through loss of work and school, is responsible for as much as $2 to $4 billion in lost productivity annually.[4,5] Not surprisingly, there are myriad diagnostic tests and treatments used in managing patients with this disorder, yet there is considerable variation in their use. This clinical practice guideline (CPG) was undertaken to optimize the care of patients with AR by addressing quality improvement opportunities through an evaluation of the available evidence and an assessment of the harm-benefit balance of various diagnostic and management options.

For the purpose of this guideline, AR is defined as an immunoglobulin E (IgE)–mediated inflammatory response of the nasal mucous membranes after exposure to inhaled allergens. Symptoms include rhinorrhea (anterior or postnasal drip), nasal congestion, nasal itching, and sneezing. Allergic rhinitis can be seasonal or perennial, with symptoms being intermittent or persistent. **Table 1** summarizes the common terminology used for this guideline.

Defining Allergic Rhinitis

Allergic rhinitis (AR) is an inflammatory, IgE-mediated disease characterized by nasal congestion, rhinorrhea (nasal drainage), sneezing, and/or nasal itching. It can also be defined as inflammation of the inside lining of the nose, which occurs when a person inhales something he or she is allergic to, such as animal dander or pollen; examples of the symptoms of AR are sneezing, stuffy nose, runny nose, postnasal drip and/or itchy nose.

Allergic rhinitis may be classified by (1) the temporal pattern of exposure to a triggering allergen as seasonal (eg, pollens), perennial/year round (eg, dust mites), or episodic (environmental from exposures not normally encountered in the patient's environment, eg, visiting a home with pets); (2) frequency of symptoms; and (3) severity of symptoms.

Table 1. Abbreviations and Definitions of Common Terms.

Term	Definition
Allergic rhinitis (AR)	Allergic rhinitis is an IgE-mediated inflammatory response of the nasal mucous membranes after exposure to inhaled allergens. Symptoms include rhinorrhea (anterior or posterior nasal drainage), nasal congestion, nasal itching, and sneezing.
Seasonal allergic rhinitis (SAR)	Caused by an IgE-mediated inflammatory response to seasonal aeroallergens. The length of seasonal exposure to these allergens is dependent on geographic location and climatic conditions.
Perennial allergic rhinitis (PAR)	Caused by an IgE-mediated inflammatory response to year-round environmental aeroallergens. These may include dust mites, mold, animal allergens, or certain occupational allergens.
Intermittent allergic rhinitis	Caused by an IgE-mediated inflammatory response and is characterized by frequency of exposure/symptoms (<4 days/week or <4 weeks/year).
Persistent allergic rhinitis	Caused by an IgE-mediated inflammatory response and is characterized by persistent symptoms (>4 days/week and >4 weeks/year).
Episodic allergic rhinitis	Caused by an IgE-mediated inflammatory response and can occur if an individual is in contact with an exposure that is not normally a part of the individual's environment (ie, a cat at your friend's house).

Classifying AR in this manner may assist in choosing the most appropriate treatment strategies for an individual patient.

In the United States, AR has traditionally been viewed as either seasonal or perennial, and it is this classification system that the Food and Drug Administration (FDA) uses when approving new medications for AR. However, it is recognized that this classification system has limitations, as the length of the aeroallergen pollen season is dependent on geographic location and climatic conditions. When the pollen season is year round (eg, tropical locations), it can be very difficult based on history to distinguish allergic symptoms provoked by exposure to pollen from symptoms caused by exposure to allergens that are perennial in temperate zones (eg, dust mites). Mold has been considered both a seasonal and a perennial allergen.[6] Furthermore, it is recognized that many patients with AR have perennial AR exacerbated by seasonal pollen exposure, and many patients are polysensitized so the clinical implications of seasonal vs perennial are not as clear.[6]

Classifying a patient's symptoms by frequency and severity allows for more appropriate treatment selection. Allergic rhinitis symptom frequency has been divided into *intermittent* (<4 days/week or <4 weeks/year) and *persistent* (>4 days/week and >4 weeks/year).[6] However, this classification of symptom frequency has limitations. For example, the patient who has symptoms 3 days/week year round would be classified as "intermittent" even though he or she would more closely resemble a "persistent" patient. It may be best for the patient and the provider to determine which frequency category is most appropriate and would best guide the treatment plan. Based on these definitions, it is possible that a patient may have intermittent symptoms with perennial AR or persistent symptoms with seasonal AR.

Allergic rhinitis severity can be classified as *mild* (when symptoms are present but are not interfering with quality of life) or *more severe* (when symptoms are bad enough to interfere with quality of life).[6,7] Factors that may lead to a more severe classification include exacerbation of coexisting asthma; sleep disturbance; impairment of daily activities, leisure, and/or sport; and impairment of school or work.

Purpose

The primary purpose of this guideline is to address quality improvement opportunities for all clinicians, in any setting, who are likely to manage patients with AR, as well as to optimize patient care, promote effective diagnosis and therapy, and reduce harmful or unnecessary variations in care. The guideline is intended to be applicable for both pediatric and adult patients with AR. Children younger than 2 years were

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Table 2. Topics and Issues Considered in Allergic Rhinitis Guideline Development.[a]

Diagnosis/Testing	Treatment	Prevention/Education/Risk Factors	Other Therapies	Outcomes
• Diagnosis of allergic rhinitis	• First-line therapy on diagnosis	• Methods for preventing the development of allergic rhinitis	• Role of acupuncture	• Initial evaluation of the patient
• Differentiating nonallergic nasal conditions from allergic rhinitis	• When does combining 2 different classes of allergy pharmacology benefit the patient	• Role of patient education	• Role of herbal medicines	• Improve accurate diagnosis; avoidance of unnecessary testing
• When should a patient be referred to an allergy specialist	• Pharmacology and the different medication classes that offer additive vs negative effects	• When is it appropriate to manage symptoms over the phone (or Internet)	• Role of homeopathy	• Reduction in care variation and unnecessary radiation exposure from sinonasal imaging
• Differentiating perennial or seasonal allergic rhinitis	• Self-directed therapy or over-the-counter medications vs physician-directed or prescription medications	• Role of dietary modifications	• Role of nasal rinses	• Expenditure reduction for ineffective environmental measures

[a]This list was created by the Guideline Development Group to refine content and prioritize action statements; not all items listed were ultimately included in the guideline.

excluded in this CPG because rhinitis in this population may be different than in older patients and is not informed by the same evidence base.

The guideline is intended to focus on a select number of quality improvement opportunities deemed most important by the working group and is not intended to be a comprehensive reference for diagnosing and managing AR. The recommendations outlined in the guideline are not intended to be an all-inclusive guide for patient management, nor are the recommendations intended to limit treatment or care provided to individual patients. The guideline is not intended to replace individualized patient care or clinical judgment. Its goal is to create a multidisciplinary guideline with a specific set of focused recommendations based on an established and transparent process that considers levels of evidence, harm-benefit balance, and expert consensus to resolve gaps in evidence.[8] These specific recommendations may then be used to develop performance measures and identify avenues for quality improvement. **Table 2** highlights the topics and issues considered in the development of this guideline.

Methods

This guideline was developed using an explicit and transparent a priori protocol for creating actionable statements based on supporting evidence and the associated balance of benefit and harm.[9] The Guideline Development Group (GDG) consisted of 20 panel members representing experts in otolaryngology, allergy and immunology, internal medicine, family medicine, pediatrics, sleep medicine, advanced practice nursing, complementary and alternative medicine (acupuncture and herbal therapies), and consumer advocacy. For additional details on methodology, please refer to the complete text of the guideline.[10] The 14 guideline recommendations are summarized in **Table 3**, with the corresponding action statements and profiles reproduced below. Supporting text and complete citations can be found in the guideline proper.[10]

Key Action Statements

STATEMENT 1. PATIENT HISTORY AND PHYSICAL EXAMINATION: Clinicians should make the clinical diagnosis of AR when patients present with a history and physical exam consistent with an allergic cause and one or more of the following symptoms: nasal congestion, runny nose, itchy nose, or sneezing. Findings of AR consistent with an allergic cause include, but are not limited to, clear rhinorrhea, nasal congestion, pale discoloration of the nasal mucosa, and red and watery eyes. *Recommendation based on observational studies, with a preponderance of benefit over harm.*

Action Statement Profile

- *Quality improvement opportunity:* To promote a consistent and systematic approach to initial evaluation of the patient with allergic rhinitis
- *Aggregate evidence quality:* Grade C, based on observational studies
- *Level of confidence in evidence:* High
- *Benefits:* Avoid unnecessary treatment or testing, have appropriately timed referral, institute a specific therapy, improve quality of life (QOL) and productivity, improve accurate diagnosis
- *Risks, harms, costs:* Inappropriate treatment, potential misdiagnosis from using history and physical alone
- *Benefit-harm assessment:* Preponderance of benefit over harm

Table 3. Summary of Guideline Action Statements.

Statement	Action	Strength
1. Patient History and Physical Examination	Clinicians should make the clinical diagnosis of allergic rhinitis (AR) when patients present with a history and physical exam consistent with an allergic cause and one or more of the following symptoms: nasal congestion, runny nose, itchy nose, or sneezing. Findings of AR consistent with an allergic cause include, but are not limited to, clear rhinorrhea, nasal congestion, pale discoloration of the nasal mucosa, and red and watery eyes.	Recommendation
2. Allergy Testing	Clinicians should perform and interpret, or refer to a clinician who can perform and interpret, specific IgE (skin or blood) allergy testing for patients with a clinical diagnosis of allergic rhinitis who do not respond to empiric treatment, or when the diagnosis is uncertain, or when knowledge of the specific causative allergen is needed to target therapy.	Recommendation
3. Imaging	Clinicians should *not* routinely perform sinonasal imaging in patients presenting with symptoms consistent with a diagnosis of allergic rhinitis.	Recommendation (against)
4. Environmental Factors	Clinicians may advise avoidance of known allergens or may advise environmental controls (ie, removal of pets, the use of air filtration systems, bed covers, and acaricides [chemical agents that kill dust mites]) in allergic rhinitis patients who have identified allergens that correlate with clinical symptoms.	Option
5. Chronic Conditions and Comorbidities	Clinicians should assess patients with a clinical diagnosis of allergic rhinitis for, and document in the medical record, the presence of associated conditions such as asthma, atopic dermatitis, sleep-disordered breathing, conjunctivitis, rhinosinusitis, and otitis media.	Recommendation
6. Topical Steroids	Clinicians should recommend intranasal steroids for patients with a clinical diagnosis of allergic rhinitis whose symptoms affect their quality of life (QOL).	Strong Recommendation
7. Oral Antihistamines	Clinicians should recommend oral second-generation/less sedating antihistamines for patients with allergic rhinitis and primary complaints of sneezing and itching.	Strong Recommendation
8. Intranasal Antihistamines	Clinicians may offer intranasal antihistamines for patients with seasonal, perennial, or episodic allergic rhinitis.	Option
9. Oral Leukotriene Receptor Antagonists (LTRAs)	Clinicians should *not* offer oral leukotriene receptor antagonists as primary therapy for patients with allergic rhinitis.	Recommendation (against)
10. Combination Therapy	Clinicians may offer combination pharmacologic therapy in patients with allergic rhinitis who have inadequate response to pharmacologic monotherapy.	Option
11. Immunotherapy	Clinicians should offer, or refer to a clinician who can offer, immunotherapy (sublingual or subcutaneous) for patients with allergic rhinitis who have inadequate response to symptoms with pharmacologic therapy with or without environmental controls.	Recommendation
12. Inferior Turbinate Reduction	Clinicians may offer, or refer to a surgeon who can offer, inferior turbinate reduction in patients with allergic rhinitis with nasal airway obstruction and enlarged inferior turbinates who have failed medical management.	Option
13. Acupuncture	Clinicians may offer acupuncture, or refer to a clinician who can offer acupuncture, for patients with allergic rhinitis who are interested in nonpharmacologic therapy.	Option
14. Herbal Therapy	No recommendation regarding the use of herbal therapy for patients with allergic rhinitis.	No Recommendation

- *Value judgments:* Although the GDG recognized that a conclusive diagnosis of allergic rhinitis is difficult without diagnostic testing, making a presumptive diagnosis of allergic rhinitis based on history and physical examination alone is reasonable
- *Intentional vagueness:* The use of the words "clinical diagnosis" acknowledges that this is a presumptive diagnosis not confirmed with testing. The use of the words "when patients present with a history and physical exam consistent with an allergic cause" assumes that a clinician will know how to make an appropriate diagnosis of allergic rhinitis. Specifics of what constitutes a history and physical exam consistent with an allergic cause are provided in the supporting text.
- *Role of patient preferences:* Limited—patient may request additional testing be conducted before deciding on initiation of treatment

- *Exclusions:* None
- *Policy level:* Recommendation
- *Differences of opinion:* None

STATEMENT 2. ALLERGY TESTING: Clinicians should perform and interpret, or refer to a clinician who can perform and interpret, specific IgE (skin or blood) allergy testing for patients with a clinical diagnosis of allergic rhinitis who do not respond to empiric treatment, or when the diagnosis is uncertain, or when knowledge of the specific causative allergen is needed to target therapy. *Recommendation based on randomized controlled trials and systematic reviews, with a preponderance of benefit over harm.*

Action Statement Profile

- *Quality improvement opportunity:* Improve accurate diagnosis and avoid unnecessary testing
- *Aggregate evidence quality:* Grade B, based on randomized controlled trials and systematic reviews
- *Level of confidence in evidence:* High
- *Benefits:* Confirming diagnosis, directing pharmacologic therapy, directing immunotherapy, avoidance strategies, avoidance of ineffective therapy, reducing cost of unnecessary testing
- *Risks, harms, costs:* Cost of testing, adverse events from testing, misinterpretation of results, inaccurate test results (false positives and negatives)
- *Benefit-harm assessment:* Preponderance of benefit over harm
- *Value judgments:* Patients may benefit from identification of specific allergic cause
- *Intentional vagueness:* We did not specify which specific IgE test (blood or skin) to order. We also did not specify which allergens to test as that was beyond the scope of this guideline. We did not specify what constitutes empiric treatment, although this is generally treatment that is initiated prior to confirmatory, IgE-specific testing and could include recommending environmental controls, allergen avoidance, or medical management. Lack of response to empiric treatment is not defined to allow the clinician to exercise judgment in making this determination but is generally thought to include patients with persistent symptoms despite therapy.
- *Role of patient preferences:* Moderate—shared decision making in discussion of harms and benefits of testing; clinicians and patients should discuss potential costs, benefits, adverse effects of additional testing, and type of testing, either skin or blood, if neither is contraindicated
- *Exclusions:* None
- *Policy level:* Recommendation
- *Differences of opinion:* None

STATEMENT 3. IMAGING: Clinicians should *not* routinely perform sinonasal imaging in patients presenting with symptoms consistent with a diagnosis of allergic rhinitis. *Recommendation against based on observational studies, with a preponderance of benefit over harm.*

Action Statement Profile

- *Quality improvement opportunity:* Reduction of variation of care, reduction of potential harm from unnecessary radiation exposure
- *Aggregate evidence quality:* Grade C, based on observational studies
- *Level of confidence in evidence:* High
- *Benefits:* Avoiding unnecessary radiation exposure, reduction of cost, reducing variation in care
- *Risks, harms, costs:* Inaccurate or missed diagnosis of pathology with similar presenting symptoms
- *Benefit-harm assessment:* Preponderance of benefit over harm
- *Value judgments:* None
- *Intentional vagueness:* The word "routine" was used to allow for circumstances where the patient history may warrant imaging for evaluation of another problem besides AR
- *Role of patient preferences:* None
- *Exclusions:* None
- *Policy level:* Recommendation
- *Differences of opinions:* None

STATEMENT 4. ENVIRONMENTAL FACTORS: Clinicians may advise avoidance of known allergens or may advise environmental controls (ie, removal of pets, the use of air filtration systems, bed covers, and acaricides [chemical agents that kill dust mites]) in allergic rhinitis patients who have identified allergens that correlate with clinical symptoms. *Option based on randomized controlled trials with minor limitations and observational studies, with equilibrium of benefit and harm.*

Action Statement Profile

- *Quality improvement opportunity:* Reduce expenditures on environmental measures that do not improve symptoms
- *Aggregate evidence quality:* Grade B, based on randomized controlled trials with minor limitations and observational studies
- *Level of confidence in evidence:* Moderate: with the exception of studies on house dust mites, the majority of the studies were small
- *Benefits:* Decreased allergen levels and possible reduction in symptoms
- *Risks, harms, costs:* Cost of environmental controls, emotional effect (ie, recommending animal avoidance in pet lovers), cost of ineffective recommendation
- *Benefit-harm assessment:* Equilibrium
- *Value judgments:* Many studies have demonstrated a reduction in allergen levels with environmental controls, but benefits in alleviating symptoms are limited. Use of multiple avoidance techniques may be more effective than individual measures

- *Intentional vagueness:* None
- *Role of patient preferences:* Large—shared decision making in discussion of evidence for effectiveness of possible controls and the need to weigh the costs and benefits
- *Exclusions:* None
- *Policy level:* Option
- *Difference of opinion:* None

STATEMENT 5. CHRONIC CONDITIONS AND COMORBIDITIES: Clinicians should assess patients with a clinical diagnosis of allergic rhinitis for, and document in the medical record, the presence of associated conditions such as asthma, atopic dermatitis, sleep-disordered breathing, conjunctivitis, rhinosinusitis, and otitis media. *Recommendation based on randomized trials with some heterogeneity and a preponderance of benefit over harm.*

Action Statement Profile

- *Quality improvement opportunity:* Identification of significant comorbid conditions or complications. Potential for treatment optimization
- *Aggregate evidence quality:* Grade B, based on randomized trials with some heterogeneity
- *Level of confidence in the evidence:* High
- *Benefits:* Increased awareness of these conditions, identification of treatable conditions, and knowledge of these conditions may alter recommendations for allergic rhinitis treatment as comorbid conditions can alter response to treatment
- *Risks, harms, costs:* Potential erroneous diagnosis of comorbid conditions
- *Benefit-harm assessment:* Preponderance of benefit over harm
- *Value judgments:* None
- *Intentional vagueness:* None
- *Role of patient preferences:* None
- *Exclusions:* None
- *Policy level:* Recommendation
- *Differences of opinion:* None

STATEMENT 6. TOPICAL STEROIDS: Clinicians should recommend intranasal steroids for patients with a clinical diagnosis of allergic rhinitis whose symptoms affect their quality of life (QOL). *Strong Recommendation based on randomized controlled trials with minor limitations and a preponderance of benefit over harm.*

Action Statement Profile

- *Quality improvement opportunity:* Optimizing the use of proven effective therapy
- *Aggregate evidence quality:* Grade A, based on randomized controlled trials with minor limitations
- *Level of confidence in the evidence:* High
- *Benefits:* Improved symptom control, improved QOL, better sleep, potential cost saving with monotherapy, targeted local effect
- *Risks, harms, costs:* Topical side effects, epitaxis, drug side effects, potential growth concerns in children, septal perforation, and the cost of medication
- *Benefit-harm assessment:* Preponderance of benefit over harm
- *Value judgments:* None
- *Intentional vagueness:* None
- *Role of patient preferences:* Large—there are multiple classes of effective therapy with differing risks, adverse effects, costs, and benefits. The clinician should use his or her expertise in assisting patients to evaluate the best treatment and to ensure patient compliance.
- *Exclusions:* None
- *Policy level:* Strong Recommendation
- *Differences of opinions:* Minor. There were some differences of opinion as to what the best therapies for mild or intermittent symptoms are, as oral or nasal antihistamines may be adequate therapy for those patients

STATEMENT 7. ORAL ANTIHISTAMINES: Clinicians should recommend oral second-generation/less sedating antihistamines for patients with allergic rhinitis and primary complaints of sneezing and itching. *Strong Recommendation based on randomized controlled trials with minor limitations and a preponderance of benefit over harm.*

Action Statement Profile

- *Quality improvement opportunity:* Avoidance of sedating antihistamine use and promotion of use of effective symptom-directed therapy
- *Aggregate evidence quality:* Grade A, based on randomized controlled trials with minor limitations
- *Level of confidence in evidence:* High
- *Benefits:* Rapid onset of action, oral administration, relief of symptoms, over-the-counter availability, potentially cost saving (generic brand), relief of eye symptoms
- *Risks, harms, costs:* Systemic side effects (sedation), dry eyes, urinary retention
- *Benefit-harm assessment:* Preponderance of benefit over harm
- *Value judgments:* None
- *Intentional vagueness:* None
- *Role of patient preferences:* Large—shared decision making in considering the benefits, harms, costs, and evaluation of the best treatment options. Clinicians should offer a comparison of evidence for the effectiveness of oral vs nasal administration of antihistamines and nasal steroids that will provide good patient adherence and treatment efficacy
- *Exclusions:* None
- *Policy level:* Strong Recommendation
- *Differences of opinions:* None

STATEMENT 8. INTRANASAL ANTIHISTAMINES: Clinicians may offer intranasal antihistamines for patients

with seasonal, perennial, or episodic allergic rhinitis. *Option based on randomized controlled trials with minor limitations and observational studies, with equilibrium of benefit and harm.*

Action Statement Profile

- *Quality improvement opportunity:* Improve awareness of this class of medications as another effective treatment for allergic rhinitis that may be an alternative to other medication classes
- *Aggregate evidence quality:* Grade A, based on randomized controlled trials with minor limitations and observational studies
- *Level of confidence in evidence:* High, but most of the trials were of short duration
- *Benefits:* Rapid onset, increased effectiveness over oral antihistamines for nasal congestion
- *Risks, harms, costs:* Increased cost relative to oral antihistamines, poor taste, sedation, more frequent dosing, epistaxis, local side effects
- *Benefit-harm assessment:* Equilibrium
- *Value judgments:* The GDG felt that in general, this class of medications would represent second-line therapy after failure of nasal steroids or oral antihistamines due to poor acceptance due to taste and cost but that there may be specific patients in whom this class would be an appropriate first-line therapy
- *Intentional vagueness:* None
- *Role of patient preferences:* Large—there is equilibrium of benefits to risks when using intranasal antihistamine. Shared decision making may help ensure that the patient understands the potential benefits vs harms of undergoing this treatment, while also promoting patient compliance with medication
- *Exclusions:* Not approved for children younger than age 5 years
- *Policy level:* Option
- *Differences of opinion:* Minor; there are reasonable data supporting their use, but there was some debate regarding the harm-benefit ratio leading this to be an option. Several panel members thought these should be recommended at the same level as oral antihistamines

STATEMENT 9. ORAL LEUKOTRIENE RECEPTOR ANTAGONISTS (LTRAs): Clinicians should *not* offer oral leukotriene receptor antagonists as primary therapy for patients with allergic rhinitis. *Recommendation against based on randomized controlled trials and systematic reviews, with a preponderance of benefit over harm.*

Action Statement Profile

- *Quality improvement opportunity:* Reduced use of a less effective agent for initial therapy
- *Aggregate evidence quality:* Grade A, based on randomized controlled trials and systematic reviews
- *Level of confidence in evidence:* High
- *Benefits:* Avoid ineffective or less effective therapy, cost saving, decreased variations in care
- *Risks, harms, costs:* There may be a subset of patients who would benefit from this medication (ie, patient with both AR and asthma)
- *Benefit-harm assessment:* Preponderance of benefit over harm
- *Value judgments:* The panel was concerned with the cost of this medication in combination with the evidence that it is less effective than first-line medications
- *Intentional vagueness:* None
- *Role of patient preferences:* Low—rare patients with intolerance of intranasal therapy and concerns regarding somnolence may benefit from consideration of use of this class of medicine
- *Exclusions:* Patient with concurrent diagnosis of asthma. These patients may benefit from oral leukotriene receptor antagonists as a first-line therapy
- *Policy level:* Recommendation
- *Differences of opinion:* None

STATEMENT 10. COMBINATION THERAPY: Clinicians may offer combination pharmacologic therapy in patients with allergic rhinitis who have inadequate response to pharmacologic monotherapy. *Option based on randomized controlled trials with minor limitations and observational studies, with equilibrium of benefit and harm.*

Action Statement Profile

- *Quality improvement opportunity:* Reduce variations in care, improve symptom control
- *Aggregate evidence quality:* Grade A, based on randomized controlled trials with limitations, observational studies
- *Level of confidence in evidence:* High. There is strong evidence supporting the use of some combinations and the ineffectiveness of other combinations
- *Benefits:* Improved effectiveness and symptom control of combined therapy
- *Risks, harms, costs:* Increased cost, overuse of medication, use of ineffective combinations, multiple medication side effects, drug interactions
- *Benefit-harm assessment:* Equilibrium
- *Value judgments:* None
- *Intentional vagueness:* The term "combination therapy" is nonspecific as there are multiple different combinations. The details are elaborated in the supporting text. The term "inadequate response to monotherapy" also allows for some interpretation by clinicians and patients
- *Role of patient preferences:* Moderate—shared decision making in consideration of evidence for benefits, harms and cost of combinations, effective dosing, and potential medication interactions to assist the patient in more effective treatment compliance

- *Exclusions:* Decongestants that are part of some combined products are not approved for children younger than age 4 years
- *Policy level:* Option
- *Differences of opinion:* None

STATEMENT 11. IMMUNOTHERAPY: Clinicians should offer or refer to a clinician who can offer immunotherapy (sublingual or subcutaneous) for patients with allergic rhinitis who have inadequate response to symptoms with pharmacologic therapy with or without environmental controls. *Recommendation based on randomized controlled trials and systematic reviews, with a preponderance of benefit over harm.*

Action Statement Profile

- *Opportunity for quality improvement:* Increased appropriate use of immunotherapy and reduce variation in care, increased awareness of immunotherapy
- *Aggregate evidence quality:* Grade A, based on randomized controlled trials and systematic reviews
- *Level of confidence in evidence:* High
- *Benefits:* Altered natural history, improved symptom control, decreased need for medical therapy, long-term cost effectiveness, may improve or prevent asthma or other comorbidities, and may prevent new sensitizations
- *Risks, harms, costs:* Local reactions, and systemic reactions including anaphylaxis, increased initial cost, frequency of treatment (logistics), pain of injection, delayed onset of symptom control (months)
- *Benefit-harm assessment:* Preponderance of benefit over harm
- *Value judgments:* None
- *Intentional vagueness:* We elected to use the term "inadequate response" to medical therapy as there are circumstances where immunotherapy may be beneficial for symptom control even if there is some response to medical therapy since immunotherapy addresses the underlying pathophysiology of atopy
- *Role of patient preferences:* Large—there are potential risks, harms, and costs associated with the use of immunotherapy and a delayed onset. Shared decision making may help the patient understand the potential harms of undergoing this treatment. In addition, the efficacy of using this mode of therapy also depends on patient compliance with frequency and duration of treatment, as well as delay in onset of effect with immunotherapy
- *Exclusions:* Uncontrolled asthma
- *Policy level:* Recommendation
- *Differences of opinion:* Minor; some panel members felt that immunotherapy could be offered as first-line treatment to patients who elect not to use medical therapy

STATEMENT 12. INFERIOR TURBINATE REDUCTION: Clinicians may offer, or refer to a surgeon who can offer, inferior turbinate reduction in patients with allergic rhinitis with nasal airway obstruction and enlarged inferior turbinates who have failed medical management. *Option based on observational studies, with a preponderance of benefit over harm.*

Action Statement Profile

- *Quality improvement opportunity:* Improved nasal breathing and QOL
- *Aggregate evidence quality:* Grade C, based on observational studies
- *Level of confidence in the evidence:* Moderate
- *Benefits:* Improved symptoms, improved QOL, improved medication delivery, reduced medication use, better sleep
- *Risks, harms, costs:* Unnecessary surgery, cost of surgery, risks of surgery, atrophic rhinitis
- *Benefit-harm assessment:* Balance of benefit and harm
- *Value judgments:* The panel felt that despite the lack of head-to-head trials between medical and surgical therapy, surgery should be reserved for patients failing medical therapy due to the higher risk of any surgical management
- *Intentional vagueness:* The panel elected to use the term "failure of medical therapy" as there are circumstances where inferior turbinate reduction may be beneficial for symptom control even if there is some response to medical therapy
- *Role of patient preferences:* Large—clinicians should use a shared decision-making process about the risks, benefits, and costs of undergoing surgery and associated use of anesthesia
- *Exclusions:* Patients who are not surgical candidates
- *Policy level:* Option
- *Differences of opinion:* Minor difference of opinion whether allergic rhinitis is an independent risk factor for turbinate hypertrophy

STATEMENT 13. ACUPUNCTURE: Clinicians may offer acupuncture, or refer to a clinician who can offer acupuncture, for patients with allergic rhinitis who are interested in nonpharmacologic therapy. *Option based on randomized controlled trials with limitations, observational studies with consistent effects, and a preponderance of benefit over harm.*

Action Statement Profile

- *Quality improvement opportunity:* Increased awareness of acupuncture as a treatment option for allergic rhinitis
- *Aggregate evidence quality:* Grade B, based on randomized controlled trials with limitations, observational studies with consistent effects
- *Level of confidence in evidence:* Low; the randomized trials did not show comparison to traditional medical therapy for allergic rhinitis and had methodological flaws
- *Benefits:* Effective alternative to medical therapies, reduction of symptoms, may more closely align with

patient values, improved quality of life, avoidance of medication use and potential side effects
- *Risks, harms, costs:* Logistics of multiple treatments, need for multiple needle sticks, cost of treatment, rare infections
- *Benefit-harm assessment:* Equilibrium of benefit and harm
- *Value judgments:* Panel members varied in their preconceived bias for or against acupuncture
- *Intentional vagueness:* None
- *Role of patient preferences:* Limited—potential for shared decision making
- *Exclusions:* None
- *Policy level:* Option
- *Differences of opinions:* None

STATEMENT 14. HERBAL THERAPY: No recommendation regarding the use of herbal therapy for patients with allergic rhinitis. *No recommendation based on limited knowledge of herbal medicines, concern about the quality of standardization, and safety.*

Action Statement Profile

- *Quality improvement opportunity:* Not applicable
- *Aggregate evidence quality:* Uncertain
- *Level of confidence in evidence:* Low. Many of the studies were small and of questionable methodology. The meta-analyses were done in English but looked at articles from the Chinese literature, which are not available for assessment by the panel
- *Benefits:* Improved awareness of alternative treatments, improved education of side effects of herbal therapy
- *Risks, harms, costs:* Not applicable
- *Benefit-harm assessment:* Not applicable
- *Value judgments:* There are many herbal therapies, but there is only evidence for a few that have appropriate studies. There is limited knowledge about these products among most of the panel members, and accordingly there was a bias against their use. There is concern about the quality of standardization of herbal medicines and their safety
- *Intentional vagueness:* None
- *Role of patient preferences:* None
- *Exclusions:* None
- *Policy level:* No recommendation
- *Differences of opinion:* None

Disclaimer

The clinical practice guideline is not intended as the sole source of guidance in managing patients with allergic rhinitis (AR). Rather, it is designed to assist clinicians by providing an evidence-based framework for decision-making strategies. The guideline is not intended to replace clinical judgment or establish a protocol for all individuals with this condition and may not provide the only appropriate approach to diagnosing and managing this program of care. As medical knowledge expands and technology advances, clinical indicators and guidelines are promoted as conditional and provisional proposals of what is recommended under specific conditions but are not absolute. Guidelines are not mandates; these do not and should not purport to be a legal standard of care. The responsible physician, in light of all circumstances presented by the individual patient, must determine the appropriate treatment. Adherence to these guidelines will not ensure successful patient outcomes in every situation. The American Academy of Otolaryngology—Head and Neck Surgery Foundation emphasizes that these clinical guidelines should not be deemed to include all proper treatment decisions or methods of care, or to exclude other treatment decisions or methods of care reasonably directed to obtaining the same results.

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Disclosures

Competing interests: Michael D. Seidman, medical director on Scientific Advisory Board–Visalus; founder of Body Language Vitamin Co; National Institutes of Health grant on simulation; 6 patents but related to supplements, aircraft, and the middle ear and brain implant; Sandra Y. Lin, consultant for Wellpoint; Fuad M. Baroody, speaker for Merck, Inc; speaker for GlaxoSmithKline and speaker/consultant for Acclarent/Johnson/Johnson; Mark S. Dykewicz, consultant for Merck and research contract support to Saint Louis University for Novartis; Jesse M. Hackell, GlaxoSmithKline (speakers bureau); Sunovion Pharmaceuticals, Inc (advisory board) and has had discussions regarding nasal corticosteriods; Transit of Venus (advisory board); Joseph K. Han, Medtronic research grant; principal investigator and consultant on clinical study with Intersect; speaker for Merck; Stacey L. Ishman, consultant for First Line Medical; Dana V. Wallace, TEVA (speakers bureau); Sanofi (advisory panel and speakers bureau); Mylan (advisory board and speakers bureau); Sunovian (speakers bureau); MEDA (advisory panel and speakers bureau); ACAAI Executive Committee Chair and Board of Regents, Rhinitis/Sinusitis Committee; AAAAI/ACAAI/JCAAI Practice Parameter Joint Task Force.

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