# Complete Summary

## GUIDELINE TITLE

Stinging insect hypersensitivity: a practice parameter update.

## BIBLIOGRAPHIC SOURCE(S)

Moffitt JE, Golden DB, Reisman RE, Lee R, Nicklas R, Freeman T, deShazo R, Tracy J, Bernstein IL, Blessing-Moore J, Khan DA, Lang DM, Portnoy JM, Schuller DE, Spector SL, Tilles SA. Stinging insect hypersensitivity: a practice parameter update. J Allergy Clin Immunol 2004 Oct;114(4):869-86. [72 references] PubMed

## GUIDELINE STATUS

This is the current release of the guideline.

## COMPLETE SUMMARY CONTENT

SCOPE
METHODOLOGY - including Rating Scheme and Cost Analysis
RECOMMENDATIONS
EVIDENCE SUPPORTING THE RECOMMENDATIONS
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INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES
IDENTIFYING INFORMATION AND AVAILABILITY
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## SCOPE

### DISEASE/CONDITION(S)

Stinging insect hypersensitivity

### GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Treatment

### CLINICAL SPECIALTY

Allergy and Immunology
Dermatology
Emergency Medicine
Family Practice
Internal Medicine
Pediatrics

## INTENDED USERS

Physicians

## GUIDELINE OBJECTIVE(S)

- To improve the care for patients with stinging insect hypersensitivity
- To refine guidelines for the use and interpretation of diagnostic methods and for the institution and implementation of measures to manage stinging insect hypersensitivity, with particular emphasis on the appropriate use of immunotherapy

## TARGET POPULATION

Patients with suspected or known stinging insect hypersensitivity

## INTERVENTIONS AND PRACTICES CONSIDERED

### Evaluation/Diagnosis

1. History and physical examination
2. Evaluation of current symptoms
3. Hypersensitivity skin tests and further testing (in vitro testing, repeat skin testing) if needed

### Management/Treatment/Prevention

1. Patient education in avoidance measures and possible medical identification bracelet or necklace
2. Venom immunotherapy (VIT)
3. Symptomatic treatment including cold compresses, oral antihistamines, oral analgesics, and oral corticosteroids
4. Epinephrine
5. Referral to an allergist-immunologist, if applicable

## MAJOR OUTCOMES CONSIDERED

- Symptom relief
- Rate of subsequent reactions
- Efficacy of venom immunotherapy on reducing the risk of subsequent systemic sting reactions
- Efficacy of symptomatic treatment at reducing pain, itching, swelling of cutaneous reactions
- Adverse effects of treatment

## METHODOLOGY

### METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

### DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

A comprehensive search of the medical literature was conducted with various search engines, including PubMed, and "immunotherapy," "stinging insect allergy," "anaphylaxis," "venom," and related search terms were used.

### NUMBER OF SOURCE DOCUMENTS

Not stated

### METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

### RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

**Category of Evidence**

Ia Evidence from meta-analysis of randomized controlled trials

Ib Evidence from at least 1 randomized controlled trial

IIa Evidence from at least 1 controlled study without randomization

IIb Evidence from at least 1 other type of quasiexperimental study

III Evidence from nonexperimental descriptive studies, such as comparative studies, or relation studies, and case-controlled studies

IV Evidence from expert committee reports, opinions or clinical experience of respected authorities, or both

LB Evidence from laboratory-based studies

### METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

### DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Published clinical studies were rated by category of evidence and used to establish the strength of a clinical recommendation.

## METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

## DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

## RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

A. Directly based on category I evidence
B. Directly based on category II evidence or extrapolated from category I evidence
C. Directly based on category III evidence or extrapolated from category I or II evidence
D. Directly based on category IV evidence or extrapolated from category I, II, or III evidence
E. Directly based on category LB evidence
F. Based on consensus of the Joint Task Force on Practice Parameters

## COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

## METHOD OF GUIDELINE VALIDATION

Peer Review

## DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

A work group chaired by Dr John Moffitt prepared the initial draft, which was subsequently reviewed by the Joint Task Force.

The working draft of "Stinging insect hypersensitivity: a practice parameter update" was reviewed by a large number of experts in allergy and immunology. These experts included reviewers appointed by the American College of Allergy, Asthma, and Immunology (ACAAI) and American Academy of Allergy, Asthma, and Immunology (AAAAI). Copies of the working draft were distributed at the American College of Allergy, Asthma, and Immunology annual meeting in the fall of 2002 and the American Academy of Allergy, Asthma, and Immunology annual meeting in the spring of 2003. The authors carefully reviewed and considered additional comments from these reviewers. The revised final document presented here was approved by the sponsoring organizations and represents an evidence-based, broadly accepted consensus parameter.

# RECOMMENDATIONS

## MAJOR RECOMMENDATIONS

This practice parameter includes an algorithm for the management of stinging insect reactions accompanied by annotations (numbered to correspond to the algorithms). Guideline recommendations are presented in the form of summary statements. After each statement is a letter in parentheses that indicates the strength of the recommendation. Categories of evidence (Ia, Ib, IIa, IIb, III, IV, LB) and strength of recommendations (A-F) are defined at the end of the "Major Recommendations" field.

**Box 1: Patient presents with a history of insect sting reaction**

Although insects sting many persons each year, most individuals do not have significant reactions and do not need medical attention. Most who are stung have only local reactions and require only symptomatic, if any, treatment. Persons who have a history of insect stings causing systemic reactions require evaluation and usually treatment. Reactions can range from large local swelling to life-threatening systemic reactions. Delayed or toxic reactions might also occur. Taking a careful history can usually make the diagnosis of insect sting reaction.

**Box 2: History and physical examination**

Identification of the insect responsible might be helpful in diagnosis and treatment. Patients should be encouraged to bring the offending insect, if available, to the physician for identification. Factors that might be helpful in identification include the following:

- The patient's activity at the time of the sting (e.g., cutting a hedge)
- The location of the person at the time of the sting (e.g., close to an insect nest)
- The type of insect activity in the area where the patient was stung
- Visual identification of the insect

Young children present special problems with identification of the culprit insect. The presence of a stinger, which is left primarily by honeybees, or the presence of a pustule as a result of a fire ant sting (up to 24 hours later) might help in insect identification.

**Box 3: Was there a systemic reaction?**

Most insect stings result in local reactions. These include the following:

- Redness
- Swelling
- Itching and pain

Large local reactions usually include the following features:

- Increase in size for 24 to 48 hours
- Swelling to more than 10 cm in diameter
- Possible involvement of more than one joint area
- 5 to 10 days to resolve

Systemic reactions include a spectrum of manifestations ranging from mild to life-threatening. These include the following:

- Cutaneous responses (e.g., urticaria and angioedema)
- Bronchospasm
- Large airway obstruction (tongue or throat swelling, laryngeal edema)
- Hypotension and shock

The key feature that distinguishes a systemic reaction from a large local reaction is the nature of the systemic symptoms and involvement of parts of the body not contiguous with the site of the sting.

**Box 4, A and B: Provide symptomatic treatment if needed**

Most insect stings cause local reactions that are of little serious medical consequence, and no specific treatment is usually required. Some local reactions are manifested by extensive erythematous swelling surrounding the sting site that might persist for several days or more and can be accompanied by itching, pain, or both. Cold compresses might help to reduce local pain and swelling. Oral antihistamines and oral analgesics might also help to reduce the pain or itching associated with cutaneous reactions. Many physicians use oral corticosteroids for large local reactions; several reports support their effectiveness, although definitive proof of efficacy through controlled studies is lacking. Because the swelling is caused by mediator release and not by infection, antibiotics are not indicated unless there is evidence of secondary infection (a common misdiagnosis).

Large local reactions can be immunoglobulin E (IgE) mediated but are almost always self-limited and rarely create serious health problems. Patients who have previously experienced large local reactions often have large local reactions to subsequent stings, and up to 10% might eventually have a systemic reaction. Some patients who have had large local reactions might seek guidance on insect avoidance measures. It is optional but usually not necessary to prescribe an injectable epinephrine kit for use if the patient experiences a systemic reaction in the future. The vast majority of patients with large local reactions need only symptomatic care and are not candidates for testing for venom-specific IgE or venom immunotherapy (VIT). Immunotherapy has, however, been shown to reduce the severity of large local reactions with future stings in a patient with a history of severe local reactions and venom-specific IgE, but a previous report found immunotherapy to be ineffective in preventing reoccurrence of large local reactions.

**Box 5: Prescribe epinephrine for self-administration/refer to an allergist-immunologist/recommend insect avoidance**

Preventive management includes measures to prevent subsequent stings and to prevent subsequent systemic reactions if the patient is stung. Injectable epinephrine should be provided, and the patient should be instructed on its proper administration and use. Patients should also consider obtaining a medical identification bracelet or necklace. A patient with a history of severe reaction should have injectable epinephrine prescribed because even if the test result for venom-specific IgE is negative, there is a small risk of a systemic reaction. For

those patients with very mild or questionable systemic reactions and negative test results for venom-specific IgE, there is no consensus regarding prescription of injectable epinephrine because many physicians believe it is not warranted, whereas others prefer to prescribe it in this situation. Referral to an allergist is appropriate for any patient who has had an allergic reaction and is indicated for any patient who is a potential candidate for immunotherapy, as outlined in Box 6.

**Box 6, A, B, and C: Is the patient a child whose reaction was limited to the cutaneous system?**

The usual criteria for immunotherapy include a systemic reaction to an insect sting and demonstration of venom-specific IgE by either skin or in vitro testing. However, immunotherapy is usually not prescribed for patients 16 years of age and younger who have experienced only cutaneous systemic reactions after an insect sting. They only have about a 10% chance of having a systemic reaction if re-stung, and if a subsequent systemic reaction does occur in these children, it is very unlikely to be worse than the initial isolated cutaneous reaction. Therefore VIT is generally not necessary for patients 16 years of age and younger who have experienced only cutaneous systemic reactions. VIT is still an acceptable option if there are special circumstances, such as lifestyle considerations, that place the child at risk for frequent or multiple stings or if the parents or guardians request venom immunotherapy. Although there is still some controversy in regard to adults who have experienced only cutaneous systemic reactions, there is insufficient evidence to justify withholding VIT for that group of individuals at this time. Although most physicians generally apply the same criteria in selecting patients to receive immunotherapy for fire ant allergy, it is not established that children with only systemic cutaneous reactions are not at risk for serious systemic reactions to subsequent stings. Because the natural history of fire ant hypersensitivity in children who have only cutaneous manifestations has not been well elucidated and there is increased risk of fire ant stings in children who live in areas in which fire ants are prevalent, immunotherapy can be considered for such children.

**Box 7: Perform skin testing**

Skin tests should be performed on patients for whom venom immunotherapy might be indicated. Skin prick tests with a concentration in the range of 1.0 micrograms/mL are often performed before intracutaneous tests but are not used by all allergists.

Intracutaneous tests usually start with a concentration in the range of 0.001 to 0.01 micrograms/mL. If intracutaneous test results at this concentration are negative, the concentration is increased by 10-fold increments until a positive skin test response occurs or a maximum concentration of 1.0 micrograms/mL is reached. Increasing concentrations of fire ant extract are also used (see text section on fire ants in original guideline document). Positive and negative controls should be placed during skin testing. Because the insect that caused the sting reaction often cannot be identified, testing is usually done with all of the commercially available venom extracts. However, fire ant is only included under special circumstances (see text in original guideline document). Venoms might contain shared antigenic components. Cross-sensitization and extensive immunologic cross-reactivity have been demonstrated between hornet and yellow

jacket venoms (vespids); cross-reactivity is also fairly common, although less extensive, between wasp and other venoms and is uncommon between honeybee and vespid venoms. Fire ant venom has very limited cross-reactivity with other stinging insect venoms.

**Box 8: Positive skin test response?**

Venom immunotherapy is recommended for patients who have had a systemic insect sting reaction, who have a positive skin test response, and who meet the criteria outlined in the annotation for Box 6. There is no absolute correlation between the skin test reactivity or the level of venom-specific IgE and the severity of the reaction to a sting. Near-fatal and fatal reactions have occurred in patients with barely detectable venom IgE antibodies by means of skin or *in vitro* testing.

**Box 8A: Is further testing needed?**

Although skin testing has generally been the most reliable diagnostic method used to identify venom-specific IgE and remains the preferred testing modality for most patients, it has been recognized that rare patients might have venom-specific IgE, which is not detected by means of skin testing. Therefore it is recommended that further evaluation for detection of venom-specific IgE be performed if the skin test result is negative in a patient with a history of a severe systemic reaction. There is no clear scientific evidence that defines the severity of a reaction requiring further evaluation for venom-specific IgE. Patients with a history of wheezing with dyspnea or increased respiratory effort, stridor, or other signs of large airway obstruction; hypotension; shock; or loss of consciousness usually need further evaluation.

**Box 8, B, C, and D**

For patients who have had a severe systemic reaction, as described in the preceding annotation, to an insect sting and who have negative venom skin test responses, it would be prudent to verify this result with repeat skin testing or in vitro testing before concluding that VIT is not necessary. If such test responses are positive, VIT is indicated. If repeat test responses fail to demonstrate the presence of IgE antibodies, there is no indication for venom immunotherapy.

**Box 9: Recommend and give VIT**

VIT greatly reduces the risk of systemic reactions in stinging insect-sensitive patients with an efficacy of 95 to 97%. Patients who have had a systemic reaction from an insect sting and evidence of venom-specific IgE should therefore be advised to receive VIT. The goal of VIT is primarily to prevent life-threatening reactions. A secondary benefit is that it might alleviate anxiety related to insect stings.

Candidates for VIT should be informed in writing or verbally with documentation in the record about the potential benefits and risks related to the procedure. Patients should receive a description of the procedure and be informed that, although the risk of anaphylaxis is small, they must wait for 20 to 30 minutes after each injection and follow any other specific policies and rules of the provider of the VIT.

In the opinion of some experts, all venoms eliciting positive responses for venom-specific IgE should be included in the immunotherapy vaccine, whereas others contend that if the insect that caused the reaction can be clearly identified, only that venom is needed for VIT, even if skin or *in vitro* test responses for other stinging insects are positive. Depending on the culprit insect, it is likely that other positive skin test or in vitro test responses will be obtained. Immunotherapy for patients with fire ant hypersensitivity consists of injections with a whole-body vaccine and should be initiated in patients with a history of a systemic reaction to a fire ant sting who have a positive skin test response with whole-body vaccine or a positive *in vitro* assay result.

VIT injections are generally administered at weekly intervals, beginning with doses no greater than 0.1 to 0.5 micrograms and increasing to a maintenance dose of up to 100 micrograms per venom. The dosage schedule for fire ant immunotherapy is less well defined in terms of starting dose and rapidity of buildup. Although most experts recommend a maintenance dose of 0.5 mL of a 1:100 wt/vol dilution, and there is increasing evidence that this dose is protective, a 1:10 wt/vol maintenance concentration has been recommended by some. The interval between maintenance dose injections can be increased to 4-week intervals during the first year of VIT and eventually to every 6 to 8 weeks during subsequent years. Rapid desensitization protocols have been used successfully and safely to treat flying Hymenoptera and fire ant sting allergy.

Patients with insect sting allergy who are taking beta-adrenergic blocking agents are at greater risk for more serious anaphylaxis to VIT or a sting. Therefore patients who have stinging insect hypersensitivity should not be prescribed beta-adrenergic blocking agents unless absolutely necessary. If the patient who has stinging insect hypersensitivity cannot discontinue the beta-adrenergic blocking agent, the decision to administer immunotherapy should be made on an individual basis after analysis of potential risks and benefits. There are some reports that taking angiotensin-converting enzyme inhibitors might also increase risk.

**Box 10 and 10A: Immunotherapy failure**

VIT at an accepted maintenance dosage is very effective but does not protect all patients. For patients who have allergic reactions to insect stings while receiving maintenance immunotherapy, it is first necessary to identify the culprit insect. If the insect is the same as that causing the initial reaction, an increase in venom dose of up to 200 micrograms per injection might provide protection.

**Box 11: Consider stopping VIT after 3 to 5 years**

Guidelines for discontinuation of VIT are evolving. Whereas the package insert for the venom extract product recommends that VIT be continued indefinitely, a decrease in serum venom-specific IgE to insignificant levels or conversion to a negative skin test response have been used as criteria for discontinuing treatment. An increasing body of evidence suggests that despite the persistence of a positive skin test response, approximately 90% of patients will not have a systemic reaction to an insect sting if VIT is stopped after 3 to 5 years, and it is therefore reasonable to consider discontinuation in most patients after therapy of this duration or after losing skin test reactivity. However, there remains a small risk that future sting reactions could occur. In addition, severe reactions have

occurred several years after stopping VIT in a small number of patients whose skin test responses became negative while receiving venom immunotherapy. Conversely, although some patients will lose their skin reactivity to stinging insect venom, the persistence of such reactivity does not mean that all such patients are at increased risk of having a systemic reaction if subsequently stung. A decision about the duration of VIT is made individually after discussion between the patient and physician and might involve consideration of lifestyle, occupation, coexistent disease, medications, severity of sting reactions, and other factors. Patients with a history of severe anaphylaxis (shock or loss of consciousness), even after 5 years of immunotherapy, still might be at continued risk for a systemic reaction if VIT is stopped. For this reason, some recommend that immunotherapy be continued indefinitely in such patients (see text in original guideline document for details).

The optimal duration of imported fire ant immunotherapy has not been clearly established. Skin reactivity appears to be a poor indicator of the risk for a systemic reaction to fire ant venom after fire ant immunotherapy. As a result, there is a great deal of variation in recommendations regarding the duration of immunotherapy for fire ant allergy, with some allergists recommending indefinite treatment. Most allergists recommend stopping immunotherapy after a specific period (usually 4 to 5 years), either empirically or when skin test responses become negative. Until further data are available, a definitive recommendation about the duration of immunotherapy for fire ants cannot be made.

## Summary Statements

### Summary Statement 1

Individuals with a history of a systemic reaction to an insect sting are at increased risk for subsequent systemic sting reactions. This risk can be significantly reduced with VIT. (A)

### Summary Statement 2

Individuals who have a history of systemic reactions to insect stings should:

- Be educated in ways to avoid insect stings (D)
- Carry epinephrine for emergency self-treatment (D)
- Undergo specific IgE testing for stinging insect sensitivity and be considered for immunotherapy (testing is optional for those patients who would not be candidates for immunotherapy if test responses were positive) (A)
- Consider obtaining a medical identification bracelet or necklace (D)

### Summary Statement 3

Immediate hypersensitivity skin tests with stinging insect venoms are indicated for individuals who are candidates for VIT. (A)

Skin tests, rather than *in vitro* assays, should be used for initial measurement of venom-specific IgE, except in special circumstances. If skin test responses are negative and the patient has had a severe allergic reaction, further testing (*in vitro* testing, repeat skin testing, or both) is recommended. (C)

**Summary Statement 4**

VIT is recommended for all patients who have experienced a systemic reaction to an insect sting and who have specific IgE to venom allergens, with the following special considerations:

- VIT is generally not necessary in children 16 years of age and younger who have experienced cutaneous systemic reactions without other systemic manifestations of a reaction after an insect sting from a wasp, hornet, yellow jacket, or bee. **C**
- Adults who have experienced only cutaneous manifestations to an insect sting are generally considered candidates for VIT, although the need for immunotherapy in this group of patients is controversial. **D**
- Because the natural history of fire ant hypersensitivity in children who have only cutaneous manifestations has not been well elucidated and there is increased risk of fire ant stings in children who live in areas where fire ants are prevalent, immunotherapy might be considered for such children. **D**

**Summary Statement 5**

Once begun, VIT should usually be continued for at least 3 to 5 years. Although most patients can then safely discontinue immunotherapy, some patients might need to continue immunotherapy indefinitely. **C**

**Definitions**:

**Strength of Recommendations**

A. Directly based on category I evidence
B. Directly based on category II evidence or extrapolated from category I evidence
C. Directly based on category III evidence or extrapolated from category I or II evidence
D. Directly based on category IV evidence or extrapolated from category I, II, or III evidence
E. Directly based on category LB evidence
F. Based on consensus of the Joint Task Force on Practice Parameters

**Category of Evidence**

Ia Evidence from meta-analysis of randomized controlled trials

Ib Evidence from at least 1 randomized controlled trial

IIa Evidence from at least 1 controlled study without randomization

IIb Evidence from at least 1 other type of quasi-experimental study

III Evidence from nonexperimental descriptive studies, such as comparative studies, correlation studies, and case control studies

IV Evidence from expert committee reports or opinions or clinical experience of respected authorities, or both

LB Evidence from laboratory-based studies

### CLINICAL ALGORITHM(S)

An algorithm is provided in the original guideline document for the management of stinging insect reaction

## EVIDENCE SUPPORTING THE RECOMMENDATIONS

### TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified for each recommendation (see "Major Recommendations").

## BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

### POTENTIAL BENEFITS

#### Overall Benefit

Appropriate management of stinging insect hypersensitivity

#### Specific Benefits

Venom immunotherapy (VIT) has proved to be an extremely effective form of treatment for individuals at risk of insect sting anaphylaxis. VIT has been shown to reduce the risk of a subsequent systemic sting reaction to less than 5% compared with the risk of such reactions in untreated patients, for whom the risk might be as high as 60%.

### POTENTIAL HARMS

- Epinephrine could have possible cardiac effects
- About 20% of patients who do not react to a sting challenge will react after a second challenge. In addition, serious allergic reactions, such as anaphylaxis necessitating intensive care treatment, have occurred from these challenges.
- The major risk of venom immunotherapy (VIT), as with other types of allergen immunotherapy, is anaphylaxis.
- Patients who are taking beta-adrenergic blocking agents might not respond readily to treatment if they experience an allergic reaction. Therefore patients who have stinging insect hypersensitivity should not take beta-adrenergic blocking agents unless absolutely necessary.

## QUALIFYING STATEMENTS

### QUALIFYING STATEMENTS

- This is a complete and comprehensive document at the current time. The medical environment is a changing environment, and not all recommendations will be appropriate for all patients.
- Because this document incorporated the efforts of many participants, no single individual, including those who served on the Joint Task Force, is authorized to provide an official American Academy of Allergy, Asthma, and Immunology (AAAAI) or American College of Allergy, Asthma, and Immunology (ACAAI) interpretation of these practice parameters. Any request for information about or an interpretation of these practice parameters by the AAAAI or ACAAI should be directed to the Executive Offices of the AAAAI, the ACAAI, and the Joint Council of Allergy, Asthma, and Immunology.
- This parameter was edited by Dr Nicklas in his private capacity and not in his capacity as a medical officer with the Food and Drug Administration. No official support or endorsement by the Food and Drug Administration is intended or should be inferred.

## IMPLEMENTATION OF THE GUIDELINE

### DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

### IMPLEMENTATION TOOLS

Clinical Algorithm

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

## INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

### IOM CARE NEED

Getting Better
Staying Healthy

### IOM DOMAIN

Effectiveness
Timeliness

## IDENTIFYING INFORMATION AND AVAILABILITY

### BIBLIOGRAPHIC SOURCE(S)

Moffitt JE, Golden DB, Reisman RE, Lee R, Nicklas R, Freeman T, deShazo R, Tracy J, Bernstein IL, Blessing-Moore J, Khan DA, Lang DM, Portnoy JM, Schuller DE, Spector SL, Tilles SA. Stinging insect hypersensitivity: a practice parameter update. J Allergy Clin Immunol 2004 Oct;114(4):869-86. [72 references] PubMed

## ADAPTATION

Not applicable: The guideline was not adapted from another source.

## DATE RELEASED

2004 Oct

## GUIDELINE DEVELOPER(S)

American Academy of Allergy, Asthma and Immunology - Medical Specialty Society
American College of Allergy, Asthma and Immunology - Medical Specialty Society
Joint Council of Allergy, Asthma and Immunology - Medical Specialty Society

## SOURCE(S) OF FUNDING

Funded by the American Academy of Allergy, Asthma, and Immunology (AAAAI), the American College of Allergy, Asthma, and Immunology (ACAAI) and the Joint Council of Allergy, Asthma and Immunology (JCAAI).

## GUIDELINE COMMITTEE

Joint Task Force on Practice Parameters

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### FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

### GUIDELINE STATUS

This is the current release of the guideline.

### GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the Journal of Allergy, and Clinical Immunology Web site.

Print copies: Available from JCAAI, 50 N. Brockway, Ste 3-3 Palatine, IL 60067; E-mail: info@jcaai.org.

### AVAILABILITY OF COMPANION DOCUMENTS

None available

### PATIENT RESOURCES

None available

### NGC STATUS

This NGC summary was completed by ECRI on May 10, 2005. The information was verified by the guideline developer on May 23, 2005.

### COPYRIGHT STATEMENT

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