

Testing Patients with Asthma for Allergy



1. When is it appropriate to do allergy testing?

According to the National Heart, Lung, and Blood Institute (NHLBI) 2007 guidelines, all patients with persistent asthma requiring daily medication should be assessed for allergy. This includes obtaining a history of sensitivity to seasonal and perennial allergens and may include skin or blood tests for further assessment.

When do you need to verify that allergies are involved in patient's asthma?

- To identify specific allergens and thus guide avoidance measures and anticipatory planning
- To identify the seasons that symptoms occur to proactively start medication before the season starts (nasal corticosteroids take about a week to start working)
- In considering immunotherapy for a patient with continued symptoms despite treatment

Clinical Pearl: In children, allergies usually manifest as rhinitis first. In adults, there may not be any associated rhinitis (just worsening asthma symptoms).

2. What types of allergy testing are available?

RAST testing (radioallergosorbent test) is a blood test that measures antibodies (specifically IgE) to allergens. The positive result alone does not confirm an allergy. The patient's history must support the allergy finding as well. Results are usually available within a week.

Several brands of RAST testing are widely available and offer "panels" of tests and individual tests. Local allergists recommend that tests be ordered individually based on patient history. (See "What test should I order?" below.)

Note: Some of these RAST testing products will report each allergen in a panel with its own result. Others will report "positive" or "negative" for the whole panel; therefore, you will not know which allergen(s) was positive.

Skin testing deposits small amounts of the allergen cutaneously via a small prick. The patient is checked for a reaction after 15 minutes. Newer skin tests are much less painful than previous tests.

3. Comparing RAST and skin tests

Do RAST tests with:

- **Young children** (less than 2 years old)
- **Food allergy patients**, if there is a concern for systemic reaction to the skin test.
- **Patients with identified food allergies** in order to follow levels. Dropping levels can indicate when they might outgrow the allergy. (See Clinical Pearl below.)

Skin testing:

- Is better for ruling out an allergy, because it has a better negative predictive value.
- Measures more of what is happening in the tissues. Large skin reaction results better predict how severe the allergy is.

Clinical Pearl: Do not rely on a negative/undetectable RAST test to say a patient has stopped reacting a severe food allergy or to decide it is safe to do a food challenge. Instead, use skin testing to be sure the allergy is outgrown and the food challenge is safe to attempt in a controlled setting. Fifteen percent of peanut allergic persons will react on a peanut challenge even when their peanut RAST has gone to undetectable.

Practical Considerations: Skin testing is easier and less expensive than RAST testing in a clinic equipped to do it. However, there is a "hassle factor" to consider. The actual allergen dilutants are expensive and need to be carefully stored (like vaccines). If your clinic tests fewer than 20 patients per week, your clinic would probably lose money on skin testing due to expiration of allergens.

4. What tests should I order?

Patient has symptoms in:	Main Allergens in Minnesota	Specific Allergen	Comments
Spring: (late March through Memorial Day)	Trees/Tree pollen	In order: Maple Box Elder Birch (<i>especially in Northern Europeans</i>) Elm Oak	
Summer: (Memorial Day through Labor Day) Peaks in June-mid July	Grass	Timothy Grass Red Top Grass Kentucky Grass June Grass (<i>Bermuda Grass in Southern U.S.</i>)	All grasses cross-react; just pick one to test
Fall: (2 nd week August until frost) Peaks around Labor Day	Weeds	Ragweed	Most patients react to Ragweed, so test for it. Peak prevalence is at age 20.
From snow melt in spring to snow cover in fall/winter	Outdoor Molds	Alternaria (July-October) Cladosporium Helmithasporium	Peak prevalence is at age 5-10. Do not let these kids jump in leaves.
Throughout the year	Dust Mites Animals Indoor Mold	Penicillium Aspergillus Platasporium	See below.

Allergens with symptoms throughout the year:

- **Cats**—Test when there is a history of exposure and worsening symptoms with exposure
- **Other Pets**—In decreasing order of prevalence: dogs, guinea pigs, gerbils, hamsters
- **Dust Mites**—Species *Dermatophagoides farinae* (Df) and *Dermatophagoides pteronyssinus* (Dp)
- **Indoor Molds**—Use history of known exposure

5. What about food allergies?

Food allergies rarely manifest as worsening asthma symptoms with the exception of some acute, severe asthma flare-ups require ICU care and may represent anaphylaxis.

This is an area where the expertise and resources of an allergist are particularly helpful. Patients with a history of a food allergy require appropriate testing and education. This includes prescribing an EpiPen and teaching its use; reviewing food allergy and avoidance measures; educating about foods to avoid (that may contain specific food or its derivatives or cross react); sharing resources about food allergies; and creating a food allergy plan (much like an asthma action plan).

6. When do we need to draw an IgE level?

It is usually not necessary to draw an IgE level. Levels above 100 indicate a patient is very allergic. Other conditions may raise levels as well.

7. Who should be referred for monoclonal antibody treatments?

Presently monoclonal anti-IgE therapy is FDA approved for asthma only. Patients must be >12, have an IgE level between 30 and 700, and have moderate to severe asthma that is not well controlled on appropriate medication and with allergen avoidance. Also, the patient must have skin test or RAST test evidence of a perennial allergy. Monoclonal anti-IgE therapy is not available for food allergies.

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