

How to diagnose allergy in adults in primary care

Despite the prevalence of allergy, it is often confused with a range of other immune disorders, food intolerances, and dermatological conditions. Within these conditions there are a number of symptoms which at first presentation may not necessarily be attributed to allergy, and as such may result in poor patient management. It is therefore important to use symptoms, clinical history and diagnostic tests to complete the full clinical picture for diagnosis.

Manifestations of allergy

Allergic Rhinitis:

Stuffed up nose
Runny nose
Post nasal drip
Watering eyes
Repeated sneezing
Headache
Nasal Itching
Facial Pain
Tiredness

Eczema:

Abnormally dry skin
Dry depigmented patches
Erythrodermic rash
Itching
Oozing vesicles
Crusted vesicles
Eroded vesicles
Erythematous plaques
Lichenified, slightly pigmented & excoriated plaques
Exhaustion
Thick, pale excoriated plaque

Drug allergy

Mascular-papular rash
Itchiness
Angio-oedema of face
Wheezing
Severe Anaphylaxis

Food Allergy

Mild/Moderate Anaphylaxis:

Itching in the mouth
Intense itching
Swelling of the face
Feeling very hot or cold
Rising anxiety
Pale/flushed appearance
Mild wheezing or cough
Abdominal pain
Nausea

Severe & Anaphylaxis:

Difficulty Breathing
Itchy throat or mouth
Collapse
Unresponsive
Dizziness

Allergic Asthma:

Wheezing
Breathlessness
Chest tightness

Venom allergy

Hives & itching
Severe Anaphylaxis
Nausea vomiting or diarrhoea

How to take a clinically focused history

An allergy-focused clinical history should be tailored to the presenting symptoms and age of the patient. For questions around a general allergy these should include:

- ❖ What the suspected allergen is
- ❖ Any personal history of atopic disease (allergic asthma, eczema or allergic rhinitis)
- ❖ Any individual and family history of atopic disease (such as allergic asthma, eczema or allergic rhinitis) or food allergy in parents or siblings
- ❖ Age when symptoms first started
- ❖ Speed of onset of symptoms after contact with allergen
- ❖ Duration of symptoms
- ❖ Severity of reaction
- ❖ Frequency of occurrence
- ❖ Setting of reaction (for example, at school, home or work)
- ❖ Cultural and religious factors that affect the symptoms or foods eaten
- ❖ Any changes which have occurred since allergy started (new house, new cleaning products, new foods etc.)

For allergies relating to food you may also want to think about the following questions:

- ❖ Reproducibility of symptoms on repeated exposure, including whether common allergenic foods such as milk, eggs, peanuts, tree nuts, soy, wheat and seafood are usually eaten without symptoms happening
- ❖ What food and how much exposure to it causes a reaction
- ❖ Details of any previous treatment, including medication, for the presenting symptoms and the response to this
- ❖ Any response to eliminating and reintroducing foods
- ❖ The person's dietary history

Please note: it is important not to confuse food allergy with food intolerance. A delay of more than 2 hours between food ingestion and onset of symptoms is extremely rare in **true food allergy**. Gastro-intestinal symptoms (e.g. bloating, abdominal cramps, nausea, vomiting, diarrhoea) if occurring in isolation is unlikely to be due to food allergy and food intolerance should be considered.

Other useful resources available which may also be helpful for diagnosing allergy:

- <https://allergyai.com/uk/allergy/how-to-test/>
- <https://www.thermofisher.com/diagnostic-education/hcp/gb/en/tests/tests-for-allergy.html>
- <https://www.bsaci.org/resources/most-common-allergies>

How to test for allergies

Please **only** request these tests if you suspect an IgE mediated allergy and after taking a detailed history. Specific IgE tests can be requested via your ICE ordering system. Within the system you will see a wide variety of specific IgE mixes available. To see a full list of allergy mixes that we offer and which allergens are included in these mixes please see the appendix at the end of this document.

Specific IgE mixes are useful due to the fact they contain a variety of specific allergens; this allows you to test a broad category of allergens in one single test which can be a useful tool in aiding the diagnosis of allergy as well as being more cost effective. A positive result indicates the presence of specific IgE antibodies to one or more of the allergens within that mix which provides focus towards a specific cause of the allergy.

Important note: If the mixed nut or food panel is reported as positive (i.e. >0.35 KUA/L) then the individual allergens within this mix will **automatically** be added on and results will follow. Please do not request allergen mixes as well as the individual allergens included in these panels. Samples which have greater than 10 specific IgE tests requested may not be processed.

Individual specific IgE tests can be requested through ICE however this should only be used if the clinical history supports a specific allergen.

How to interpret results

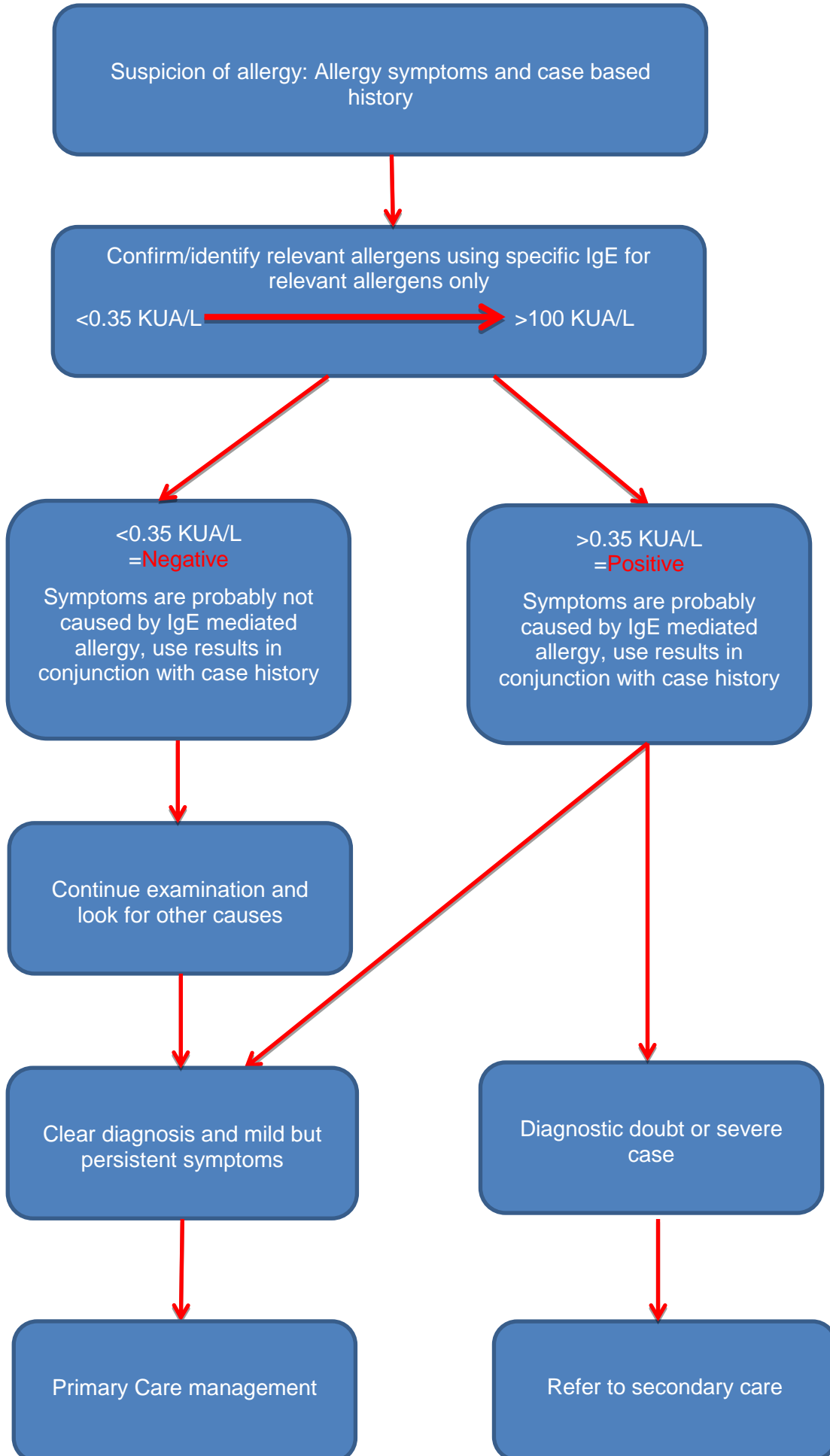
A definitive diagnosis cannot be made solely on the basis of an allergen specific IgE result. A diagnosis should only be made after all clinical & laboratory findings have been evaluated. Results of other investigations performed such as skin prick tests should also be considered. A negative test usually has an 80-90% Negative Predictive Value (NPV).

See appendix at the end of the document for specific IgE reference ranges and classes.

Please be aware that the level of IgE present **does not** correlate to the severity of an allergic reaction, and when a childhood allergy has been outgrown, a positive specific IgE may still be present. It is possible to have a positive specific IgE result to an antigen that is not a cause of allergy in the patient. Allergen-specific IgE antibodies can be found without clinical reactions, especially in atopic individuals. They are **NOT** proof of allergy and are therefore not useful for screening.

In food allergy, circulating IgE antibodies may remain undetectable despite a convincing clinical history. The antibodies may be directed towards allergens that are revealed or altered during industrial processing, cooking or digestion and therefore do not exist in the original food for which the patient is being tested.

For clinical advice please contact the Clinical Immunology team at Hull University Teaching Hospitals on 01482 461312.



Appendix 1:

The Specific IgE tests shown in the boxes below are performed within Clinical Biochemistry at York Teaching Hospital NHS Foundation Trust. All other requests for Specific IgE tests are referred to the Protein Reference Unit at Sheffield Teaching Hospitals NHS Foundation Trust. Please visit <https://tinyurl.com/SpecificIgE> for a complete list of allergen specific IgE tests available at the Protein Reference unit.

<p>NUTS AND SEEDS</p> <p>ALMOND BRAZIL NUT CASHEW NUT COCONUT HAZELNUT PEANUT PECAN PINE NUT PISTACHIO SESAME SEED WALNUT</p>	<p>FISH & SEAFOOD</p> <p>BLUE MUSSEL COD CRAB LOBSTER PRAWN SALMON</p>	<p>BIRDS AND ANIMALS</p> <p>CAT DANDER CHICKEN FEATHERS DOG DANDER GUINEA PIG EPITHELIUM HAMSTER EPITHELIUM HORSE DANDER RABBIT EPITHELIUM</p>
<p>FRUIT</p> <p>APPLE BANANA GRAPE KIWI STRAWBERRY TOMATO</p>	<p>OTHER FOOD</p> <p>CHEESE CHEESE MOULD CHOCOLATE EGG WHITE GLUTEN MILK</p>	<p>MISCELLANEOUS</p> <p>TIMOTHY GRASS LATEX BEE ASPERGILLUS FUMIGATUS ASPERGILLUS NIGER</p>

PANELS

MIXED INHALANT PANEL: (Timothy Grass, Alternaria alternata, Cladosporium herbarum, Birch, Mugwort)

MIXED NUTS: (Hazel, Brazil, Almond, Peanut and Coconut)

FISH (Cod, Shrimp, Blue Mussel, Tuna and Salmon)

FOOD MIX (Milk, Egg, Cod, Wheat, Peanut and Soy bean)

GRAIN MIX (Wheat, Rye, Barley, Rice)

WEED PANEL (Ox-eye daisy, dandelion, Plantain, Goldenrod and Lamb's Quarters)

TREE PANEL (Alder, Silver Birch, Hazel, Oak and Willow)

MOULD PANEL (Penicillium chrysogenum, Cladosporium herbarum, Aspergillus fumigatus, Candida Albicans,

Setomelanomma rostrata and Alternaria alternate)

RODENTS PANEL (Guinea Pig, Hamster, Rabbit, Rat, Mouse)

FEATHERS PANEL (Goose, Chicken, Duck, Turkey)

CAGED BIRDS (Budgerigar feathers, Canary bird feathers, Parakeet feathers, Parrot feathers, Finch feathers)

Interpretation of results

Specific IgE result (KUA/L)	Class
<0.35	0
0.35 – 0.70	1
0.70 – 3.50	2
3.50 – 17.5	3
17.5 – 50.0	4
50.0 – 100.0	5
>100.0	6

References:

Nice.org.uk. 2020. Quality Statement 2: Diagnosing Ige-Mediated Food Allergy | Food Allergy | Quality Standards | NICE. [online] Available at: <<https://www.nice.org.uk/guidance/qs118/chapter/Quality-statement-2-Diagnosing-IgE-mediated-food-allergy>> [Accessed 13 March 2020].

Allergy Insider. 2020. *Allergy Testing: Different Types & How To Get One* | Allergy Insider. [online] Available at: <<https://www.thermofisher.com/diagnostic-education/patient/gb/en/testing-for-allergy-triggers.html>> [Accessed 13 March 2020].

Allergy & Autoimmune Disease. 2020. Allergic Diseases | Allergy & Autoimmune Disease. [online] Available at: <<https://allergyai.com/uk/allergy/how-to-test/>> [Accessed 13 March 2020].

Yorkhospitals.nhs.uk. 2020. York Teaching Hospital NHS Foundation Trust - Advice For Requesters - Clinical Biochemistry. [online] Available at: <<https://www.yorkhospitals.nhs.uk/our-services/a-z-of-services/lab-med/general-information/information-for-health-care-professionals1/advice-for-requesters-clinical-biochemistry/>> [Accessed 13 March 2020].