

# ABC of allergies

## Good allergy practice

A B Kay

Allergic diseases result from an exaggerated response of the immune system to external substances. They are a common and increasing cause of illness and in Britain affect about 1 in 6 of the population. The annual cost to the NHS and the Department of Health for asthma alone is in excess of £750m. Although the public is concerned that the NHS has inadequate facilities for diagnosing and treating allergic diseases, there are many allergy clinics in the NHS. These are usually linked to specific specialties (such as chest diseases; ear, nose, and throat disease; paediatrics; dermatology; and gastroenterology). The British Society for Allergy and Clinical Immunology provides a regularly updated list of allergy clinics in the NHS (obtainable from the BSACI Secretariat, Membership Services, 66 Weston Park, Thames Ditton, Surrey, KT7 0HL).

## Resources required

### Allergy specialists

An overlap exists between allergology and other organ specialties. Hospital based allergy specialists in the NHS will usually be of consultant status and have appropriate training and experience. They will be either “physician immunologists”—trained in clinical immunology and allergy—or organ based specialists with an interest in allergy. In the future, specialist training will lead to a certificate of completion of specialist training in allergy. All health districts probably need at least one specialist in allergic diseases; if they do not have a consultant allergist or physician immunologist they should have an organ based specialist with an interest in allergy.

### Outpatient facilities

Hospitals should have designated areas for both adult and paediatric allergy clinics organised by appropriately trained staff. Allergy consultations are often lengthy, and therefore a well organised appointments system is needed. The average consultation time for a new patient should be at least 30 minutes. For follow up visits no doctor should see more than four patients in an hour. Patients should be seen by, or have their cases discussed with, the consultant at the first visit and on regular occasions when follow up attendance is needed. Allergy clinics should provide opportunities for specialist training.

Facilities should be available for skin testing, spirometry (including peak flow measurements), supervising a patient's inhaler technique, providing asthma education and advice on avoiding allergens, instructing on self administration of adrenaline, and giving specific allergen injection immunotherapy (hyposensitisation) with an appropriate observation area. Allergen injection immunotherapy should be used routinely only in hay fever that is inadequately controlled by antiallergic drugs and in anaphylaxis resulting from hypersensitivity to wasp or bee venom; there must be immediate access to resuscitative facilities, and patients should be observed for 60 minutes (longer if even mild symptoms of hypersensitivity reactions develop).

Where appropriate, facilities should also be available for patients to have a chest x ray examination at the time of the clinic visit and for the radiographic film to be available for the consultation.

### Most major hospitals have facilities for allergy testing

### Good allergy practice

- Teamwork by doctors, nurses, and dietitians is essential
- The investigation of allergic diseases includes skin tests and challenge procedures—that is, tests for food allergy—as well as various specialised laboratory investigations
- Good clinical practice by providers and the effective use of allergy services by purchasers should improve prognosis and cut the costs of treating allergic diseases

### Areas covered by allergy specialists

- Summer hay fever (seasonal, allergic, conjunctivorhinitis)
- Perennial rhinitis
- Allergic asthma (including occupational asthma)
- Allergy to stinging insects (especially wasps and bees)
- Allergy to drugs
- Allergy related skin disorders—namely, urticaria, angio-oedema, atopic eczema, and contact dermatitis
- Food allergy and intolerance
- Anaphylaxis

### Summary of guidelines on specific allergen injection immunotherapy\*

- Use only high quality standardised allergen extracts
- Administer in hospitals or specialised clinics only. Doctors should have appropriate experience and training in immunotherapy
- Adrenaline should always be immediately available
- Ready access to resuscitative facilities; attendant staff should be trained in resuscitative techniques
- Patients should be kept under close supervision for the first 60 minutes after each injection

\*From the Royal College of Physicians and Royal College of Pathologists

The support of an allergy clinic nurse is strongly recommended. Nurses with appropriate training can sometimes help in obtaining an allergy history. They can also perform skin tests and give advice on environmental control—for example, for minimising exposure to the house dust mite.

Qualified adult and paediatric dietitians should also be available, especially in clinics that deal with many cases of food allergy. They give detailed advice on exclusion diets—which commonly exclude peanuts, milk and milk products, fish, shellfish, egg, wheat and other foods as indicated by the history and investigations. Dietitians also assess the adequacy of diets that patients have used at their own or others' instigation—this may entail advising on the reintroduction of foods which either had been withdrawn from the diet with minimal indication of intolerance or may now be tolerated. Advice is also given on diets that reduce colorants, additives, or salicylates when indicated.

Special facilities at regional centres should include facilities for measuring non-specific bronchial hyper-responsiveness and challenge chambers for use with occupational agents (and occasionally common aeroallergens).

### Skin prick tests

A diagnosis of allergy is based first on a careful clinical history. Skin tests should be used to support (or discount) a diagnosis of allergy. The skin prick test is the method of choice for diagnosing immediate-type (IgE mediated) hypersensitivity. In general, allergy testing by intradermal injection is not recommended, although it is sometimes used in diagnosing venom allergy. Skin test solutions must be standardised (biological standardisation is the most reliable) and should have a United Kingdom product licence. In Britain virtually all atopic subjects will give a positive reaction to an extract of one or more of the following: grass pollen, tree pollen, house dust mite, and cat and dog. These are the commonest allergens in allergic rhinitis and allergic asthma.

Other skin test solutions can be used less frequently—that is, when suggested by the clinical history. These include moulds (for example, *alternaria* or *cladosporium*), weeds, certain foods (for example, egg, milk, some nuts, fish and shellfish, where skin test solutions are known to have an established value), stinging insects (for example, bee and wasp venom), drugs (for example, penicillin derivatives, anaesthetic agents), and other animals (for example, horse, hamster).

### Patch tests

Most cases of contact dermatitis are irritant dermatitis, but up to 40% are due to cell mediated allergic reactions, and the sensitising agent can be identified by patch testing. This procedure requires a comprehensive knowledge of the chemical allergens to which patients are exposed in specific work and leisure activities, as well as the nature of cross reacting chemicals. Interpreting allergic versus irritant reactions and appraising the significance of patch test results can be difficult even for clinicians experienced in this technique.

Dermatologists or allergists can best advise on avoidance and on the appropriate topical or systemic treatment.

### Food allergy tests

Facilities should be available for open exclusion and reintroduction of food for allergy diagnosis as well as double blind, placebo controlled tests to identify or disprove food intolerance by giving suspected foods in disguised forms. For this purpose some pharmacies at specialist centres stock foodstuffs contained in special capsules, with placebo controls of similar appearance.

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### Role of specialist nurse in allergy clinic

- Skin testing
  - Spirometry (including peak flow measurements)
  - Supervision of a patient's inhaler technique
  - Provision of asthma education
  - Advice on the avoidance of allergens
  - Instruction in self-administration of adrenaline
  - Involvement in specific allergen injection immunotherapy (hyposensitisation)
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### Role of dietitian in allergy clinic

- Advice on exclusion diets
  - Adequacy of diets
  - Reintroduction of foods that have been withdrawn
  - Advice on reducing colorants, additives, or salicylates when indicated
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### Performing a skin prick test

- A positive (histamine 10 mg/ml) and negative (diluent) control must always be included when performing skin prick tests (antihistamine drugs can blunt or inhibit the reactions)
  - Ideally, antihistamines should be discontinued for 48 hours (long acting antihistamines for 21 days) before skin prick tests
  - A positive reaction is usually regarded as being a weal  $\geq 2$  mm greater than the negative control
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Skin prick testing showing positive and negative control

### Laboratory investigations

Allergists should have access to routine haematology and biochemistry services as well as to certain immunological tests. If immunology tests cannot be done at an allergist's own hospital then samples should be sent to a regional immunology centre that has a consultant (or equivalent) immunologist and is accredited by Clinical Pathology Accreditation UK (the national accrediting body).

The most commonly used serological allergy tests are measurements of total and specific IgE antibodies to allergens relevant to the patient's symptoms. These tests are relatively expensive and are often unnecessary. They rarely give more information than skin tests, and so requests for such tests must be justified. They are useful in patients who have been taking antihistamines that suppress the skin test reaction; in patients with skin disease that is so extensive that skin tests are difficult to perform or who have dermatographism; when skin test results are equivocal or the patient has a history of anaphylaxis.

A positive specific IgE antibody test indicates a level of biological sensitivity to the relevant allergen, which may persist in the absence of symptoms. Therefore, as with skin tests, they must be interpreted in the context of the patient's history.

Other laboratory tests sometimes needed include immunochemical and functional measurements of the C1 esterase inhibitor for diagnosing hereditary and acquired angio-oedema; IgG antibodies (for example, precipitin tests) to fungal and avian products and other relevant material for use in diagnosing extrinsic allergic alveolitis. Very occasionally, specialist tests may be appropriate—for example, lymphocyte transformation for drug and venom allergy, and measurements of urinary and plasma mediators such as histamine and tryptase in the differential diagnosis of anaphylaxis.

## Paediatric allergy

Allergic diseases are particularly important in children, and paediatricians should always participate in the diagnosis and management of children referred for specialist care. However, although paediatricians study allergy in their general training, they may decide to consult with, or refer a child to, an adult allergy specialist. The progression of allergies in children differs from that in adults—for example, food allergies and insect venom anaphylaxis. Drug treatments are different for children both in dosage and side effects. The inherent dangers of unnecessary dietary restriction for treating some types of allergic diseases are far greater in children because of disturbances in nutrition and growth, and expert paediatric dietetic advice is usually required. Techniques for cardiopulmonary resuscitation after anaphylaxis are not the same as those in adults.

There seems to be widespread public misunderstanding about the contribution of allergies to diverse children's diseases, such as hyperactivity, other forms of behavioural disorder, recurrent abdominal pain, and chronic headaches. Such children must be seen by paediatricians within the framework of a comprehensive children's department.

The illustration of allergenic foods was prepared by Jan Croot.

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The ABC of allergies is edited by Stephen Durham, honorary consultant physician in respiratory medicine at the Royal Brompton Hospital, London. It will be published as a book towards the end of 1998.



Common allergenic foods

### Patients with allergy and the role of alternative practitioners\*

#### More trials needed in

- Homoeopathy
- Acupuncture
- Hypnosis
- Enzyme potentiated desensitisation (enzyme digested substances scratched into the skin)

#### Not recommended

- Tests used by clinical ecologists or "environmentalists"—neutralisation provocation (Miller) test and neutralisation vaccines (based on multiple skin tests to foods and environmental agents such as smoke, petrol, and tobacco)
- Leucocytotoxic tests
- Hair analysis
- Vega testing (a "black box" electrical test)
- Applied kinesiology (allergy tests based on "muscle weakness")
- Auricular cardiac reflex testing (allergy tests based on the pulse rate)
- Treatments based on the "candida hypersensitivity syndrome" and "allergy" to mercury or dental amalgam

\*According to Royal College of Physicians

### What is a good allergy clinic? Guidance for purchasers

- The person in charge of an allergy clinic should be of consultant status and have had approved higher medical training in a field related to allergy
- There should be adequate support staff, which would normally include an allergy clinic nurse and access to a qualified dietician
- There should be facilities for skin testing and access to an approved laboratory for investigations such as measurements of specific IgE antibodies and other immunological tests as appropriate
- Allergy clinics that offer allergen injection immunotherapy should follow recommended guidelines
- Allergy clinics should use methods of diagnosis and treatment of proved efficacy

This article is based on the report *Good Allergy Practice—Standards of Care for Providers and Purchasers of Allergy Services within the National Health Service* by the Royal College of Physicians and the Royal College of Pathologists, reproduced in *Clinical and Experimental Allergy* and edited by Professor A B Kay.