A review of services for allergy

The epidemiology, demand for and provision of treatment and effectiveness of clinical interventions

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Foreword

In this review, we have heard from many individuals and groups affected by or interested in allergy services. All acknowledge that it is difficult to establish objective, compelling scientific evidence of need and the quality of services, either because the research has yet to be completed or commenced or because the data are not collected. Evidence drawn from the experience of sufferers is compelling.

The review has heard that people with allergies often feel let down by a poor and frequently unobtainable service. For those living with allergy severe enough to require specialist care, the lack of allergy services is a problem which can greatly affect their quality of life. Not-for-profit organisations help, through helplines and other information services, to fulfil an important need that is yet to be addressed by the NHS, but this is not enough.

Some people can wait 3 to 9 months for an appointment to see a consultant in secondary care. As allergy is a multi-organ disease, some may be passed around a number of different clinical departments for the different symptoms, such as respiratory, ENT, dermatology and general paediatrics, which can make diagnosis and optimal treatment difficult.

With high quality information and guidance, those affected by allergy can be empowered to manage the condition and protect themselves from harm, generally by learning to self-administer appropriate medication or to avoid those allergens which cause an allergic reaction.

To address this, general practitioners and others in primary care require clinical knowledge and support systems in order to spot allergy in the early stages, so that an effective management plan can be offered from the start, and patients are not referred unnecessarily to specialists for care of less severe allergic disease. It is vital to recognise the contribution to allergy services made by GPs, respiratory physicians, dermatologists, clinical immunologists and others, whilst also acknowledging the need to remedy the shortage of specialist allergists which the Select Committee highlighted.

Even with a correct diagnosis, those living with severe allergy can face a huge battle every day, and their quality of life and that of their extended family may be greatly affected. In surveys, many people express feelings of constant stress and anxiety. Everyday areas of life may be affected, such as eating out as a family, school trips, school meals and packed lunches, children's parties and other social situations.

This report sets out the evidence that the review team have established over the last year. The ability to identify the need for allergy tests, the skills and competences to administer or interpret the results of these tests, and the training required to advise patients on how to manage their allergy better as a result of them, are key to the delivery of high quality services.

The report acknowledges that, although incomplete, the evidence is sufficient for recommendations to be made for action over the next few years in order to improve services for allergy. It identifies three areas in which initial action will be of key importance:

- local commissioners to establish levels of need for services for allergy in their health community
- SHA workforce planners to work with Deans and providers to explore the scope for creating additional training places for allergists
- the Department of Health to consider the options for commissioning the development of NICE guidelines for allergy, and work with the Royal Colleges on guidance for referral and care pathways.

Ivan Lewis
Paliamentary Under Secretary of State for Care Services.

Executive summary

This report sets out the findings of a review of allergy services, undertaken to fulfil the Government's commitment to the House of Commons Health Committee. The aim of the review was to identify and evaluate the available data and research (including operational research) on:

- the epidemiology of allergic conditions – ie morbidity, mortality, demographic and geographic variations in the burden of the condition
- the demand for and provision of treatment – eg GP consultations, prescribing, hospital admission rates, number of outpatient clinics, profile and configuration of current services
- the effectiveness of relevant interventions, including prevention.

The evidence base includes:

- classification of the types of allergic condition (and their underlying causes, including lifestyle choices) falling within the scope of the review
- needs assessment – epidemiology (prevalence and incidence, morbidity, mortality, geographic and demographic variations)
- key interventions, including prevention, and associated costs
- evidence of clinical and cost effectiveness of those interventions
- existing clinical guidance – NICE guidelines, professional and voluntary bodies, Health Technology Assessments etc
- size of the challenge to the NHS – profile of current services, current demand, activity and capacity of the NHS and other services to deliver
- significant gaps and pressures.

Chapter 2 presents information on numbers of people and recent trends in England for some of the most important allergic conditions. It is informed by a rapid epidemiological analysis commissioned by the Department of Health. With reference to readily available information, the quantitative burden of ill health is described for asthma, allergic rhinitis, atopic eczema, food allergy and anaphylaxis. The cost to the NHS is estimated. How unmet need for services for allergy might be estimated is also discussed.

It notes that there is a considerable body of data on the occurrence of allergic conditions in the population, although the distribution of research studies is heavily weighted towards asthma. There is much less information about the extent to which these conditions are caused by untreated allergy in the community or about the distribution of severity and unmet need for specific services.

It states:

- about a third of the population have some form of allergy at some point in their lives
- about 3 million people per year in England are seen in primary care with conditions that may be allergic in origin
- there were
    - 70,000 admissions to hospital for asthma in 2004, although the age distribution of these suggests that many were not allergic in origin
    - 2,400 admissions for eczema, mainly in children
    - over 3,000 admissions for acute allergic conditions (anaphylaxis) and these seem to be increasing
- numbers of deaths due to allergy are difficult to assess:
    - anaphylaxis causes some 10 to 20 deaths per year but many of these are not recorded as such on the death certificate
    - deaths attributed to asthma (924 in 2004) are heavily skewed towards the elderly and the majority may not be allergic in origin
    - a significant number of deaths could potentially be prevented
- allergy has increased in the population in the last 30 years
- wheezing and asthma seem to be more common in urban communities, in boys rather than girls and in Black Caribbean ethnic groups rather than Asian
- asthma is more common in adult women than men
- people on low income are more likely to report wheeze and asthma, although the differences are not pronounced; if they do have asthma, it is more severe and with a higher potential fatality
- numbers of people with anaphylaxis (an acute manifestation of allergy) are increasing, which may in part be explained by an increase in numbers of people with specific food allergies, although some of the increase may be due to better reporting and better awareness.

Chapter 3 sets out what we know about the nature and the effectiveness of clinical interventions for allergy. By definition, a report of this kind cannot provide an exhaustive account of all clinical research studies but it does set out information drawn from professional input, including guidelines which have, themselves, been informed by this research.

This chapter also summarises evidence drawn from an overview of systematic reviews of the evidence, commissioned by the Department of Health, focusing particularly on service delivery and organisation. Gaps in the evidence and possible areas for further research are identified.

The review of reviews identified significant gaps in research knowledge, including:

- prospective studies of symptomatic treatment comparing types of specialist with generalist settings
- patient knowledge across general practice and specialist settings, and its effect on symptoms, quality of life and health care outcomes, costs and impact on social wellbeing
- evaluation of the impact of shared care on resource allocation and service delivery structures (which should be subject to evaluative studies)
- therapeutic/preventative studies on *all* allergen sensitivities of participants, rather than use of single allergen treatments
- economic evaluation of allergy-immunology services where well-conducted RCTs have established rigorous findings
- case management as a model for service delivery, in extensive controlled trials to follow up the promise of preliminary studies
- the structure of allergy clinics as a component of service delivery, including the effects of specialist care, and role of shared care models, and case management across a range of environments
- the outcomes associated with home based care methods for asthma.

Chapter 4 describes current services and the workforce associated with them. The evidence is drawn from a range of sources but mostly comes from expert opinion, including the views and experiences of people with allergy and their carers.

It notes:

- that the absence of baseline data on the profile of allergy services and the cost makes it difficult to develop a strategic national view of how and where services could be developed
- no published examples of whole-systems modelling of services for people with allergy were discovered

- there has been no analysis of the effects of active demand management of patient flows in allergy care, a situation exacerbated by the absence of agreed service models and protocols, and lack of resolution of the differing perspectives of professional groups
- future development and provision of allergy services will require a much clearer understanding of the skills and competences needed from a diverse workforce, to ensure high quality and cost-effective care at all stages of the patient's journey
- there is also a need for integrated, cohesive commissioning, with an understanding of the framework within which services for allergy should be commissioned.

Chapter 5 sets out the views of stakeholders about current services. It is informed by evidence, correspondence and papers submitted to the review team during the course of the review and by the three stakeholder workshops held in autumn 2005.

Conclusion

Drawing on the views of stakeholders and the evidence available, the review has revealed gaps in:

- knowledge and skills of clinical staff dealing with allergy – especially in diagnosis
- systematic planning and commissioning of services for allergy
- baseline data on NHS services for allergy, relevant service capacity and costs, and workforce
- research.

Chapter 6 acknowledges that, although incomplete, the evidence is sufficient for recommendations to be made for action over the next few years in order to improve services for allergy. It identifies three areas in which initial action will be of key importance:

- local commissioners to establish levels of need for services for allergy in their health community
- SHA workforce planners to work with Deans and providers to explore the scope for creating additional training places for allergists
- the Department of Health to consider the options for commissioning the development of NICE guidelines for allergy, and work with the Royal Colleges on guidance for referral and care pathways.

1. Introduction

1.1 This report sets out the findings of a review of allergy services, undertaken to fulfil the Government's commitment to the House of Commons Health Committee, and identifies the next steps that could be taken to address the gaps and pressures that it reveals.

Background

1.2 The House of Commons Health Committee inquiry into the provision of allergy services (Report, November 2004) concluded that "serious problems exist in the current provision of allergy services. Those working in primary care lack the training, expertise and incentives to deliver services... Many of the deficiencies in primary care are matched by weaknesses in secondary and tertiary care...".

1.3 The Committee's "key recommendation" was its "call for each major teaching hospital to have a consultant-led service". It called on the Department of Health "to issue a strategy document... to show that it takes seriously the growing problem of allergy, and to provide a catalyst for change."

1.4 In response, the Government undertook to "carry out a review of the available data and research on the epidemiology of allergic conditions, the demand for and provision of treatment and the effectiveness of relevant interventions. Developing a sound evidence base [would] be essential to determining the correct future direction for allergy services."

The aim of the allergy services review, its scope and ways of working

Aim

1.5 The aim of the review was to identify and evaluate the available data and research (including operational research) on:

- the epidemiology of allergic conditions – ie morbidity, mortality, demographic and geographic variations in the burden of the condition
- the demand for and provision of treatment – eg GP consultations, prescribing, hospital admission rates, number of outpatient clinics, profile and configuration of current services
- the effectiveness of relevant interventions, including prevention.

Scope

1.6 The evidence base includes:

- classification of the types of allergic condition (and their underlying causes, including lifestyle choices) falling within the scope of the review
- needs assessment – epidemiology (prevalence and incidence, morbidity, mortality, geographic and demographic variations)
- key interventions, including prevention, and associated costs
- evidence of clinical and cost effectiveness of those interventions
- existing clinical guidance – NICE guidelines, professional and voluntary bodies, Health Technology Assessments etc
- size of the challenge to the NHS – profile of current services, current demand, activity and capacity of the NHS and other services to deliver
- significant gaps and pressures.

Ways of working

1.7 Ministers asked that the review of the evidence be submitted by the end of June 2006. A small project team was set up in the Healthcare Quality Directorate (NSFs & Service Reviews Branch), under CMO's oversight, to take it forward.

1.8 The project team received analytical advice and support from the Standards & Quality (S&Q) analytical team. The Research & Development Directorate provided advice on the processes for commissioning of reports and peer review.

1.9 The project team commissioned an epidemiologist, Professor John Newton, to provide specialist epidemiological support to the review. His report brings together and informs the evidence base for section 2 on the burden of allergic conditions.

1.10 The project team also commissioned a systematic reviewer, Professor Jos Kleijnen, to carry out a "review of reviews" of the evidence on key interventions, their clinical and cost effectiveness, and existing clinical guidance. The systematic reviewer's report brings together and informs the evidence base for section 3 on interventions for allergy.

1.11 The evidence base was drawn from a range of sources and supported by systematic reviews. In addition, views and experiences were sought from people with allergies (and their families), patient groups, professional staff and their associations and from

the independent sector and industry. The following typology has been used to distinguish the different levels of evidence:

Level 1: Meta-analyses, systematic reviews of randomised controlled trials, or randomised controlled trials

Level 2: Systematic reviews of case control or cohort studies, or case control or cohort studies

Level 3: Non-analytical studies, eg case reports, case series

Level 4: Expert opinion (in the absence of the above). This includes the views and experiences of people with allergy and their carers.

Engagement with external stakeholders

1.12 The Government Response to the Health Committee recognised that the Department of Health would "need to work with a wide range of key players to ensure future developments in allergy care are credible and command the respect and ownership of those people they are designed to help and the practitioners who care for them." The Department would "consider the best way of involving these stakeholders."

1.13 A National Allergy Advisory Group (NAAG), which included service users, health professionals and NHS managers, was set up to advise the project team in mapping and quality assuring the evidence base to be used in the review. Dr David Walker (Acting Regional Director of Public Health for the North East) chaired the NAAG, which met formally four times during the course of the review. Members of the NAAG are listed at *Annex A*.

1.14 Members of the NAAG, and other external experts, also guided the work of the epidemiologist and the research reviewer as members of their small advisory groups.

1.15 The project team held three stakeholder workshops in October, November and December 2005. Participants represented key user and professional groups – including patient organisations, allergists, clinical immunologists, organ-based specialists, GPs, nurses, pharmacists, service commissioners and the pharmaceutical industry. These events mirrored the main areas of the review work. The third one focused on current services for people with allergies, and contributed significant evidence for section 4 of this report.

1.16 The project team also engaged with external stakeholders, and gathered further evidence, through:

- meetings with individuals and organisations
- correspondence
- visits to a number of allergy services.

A list of meetings and visits is at *Annex B*.

2. The quantitative burden of allergic conditions

Introduction

2.1 This chapter presents information on numbers of people and recent trends in England for some of the most important allergic conditions. It is informed by a rapid epidemiological analysis commissioned by the Department of Health. With reference to readily available information, the quantitative burden of ill health is described for asthma, allergic rhinitis, atopic eczema, food allergy and anaphylaxis. The cost to the NHS is also estimated.

What is allergy?

2.2 The terms allergy and hypersensitivity were first used to refer to both helpful and harmful host responses to external stimuli. Gradually, however, the terms came to mean a reaction (or over reaction) that was actually or potentially harmful to the host organism.

2.3 Illness states due to different forms of allergy are many and varied. The concept of allergy most widely understood by the public is an immediate hypersensitivity with symptoms due to immune activation occurring after encountering some external stimulus or stimuli, usually foreign protein structures such as house dust mites, pollens and foods.

2.4 Atopy is defined as the presence of immune reactivity to such proteins, whether or not causing symptoms (see below). Atopy is largely genetically determined and so its prevalence would not be expected to change much over time. The presence of atopy is often implied from measuring blood levels of IgE or by undertaking skin tests to identify hypersensitivity to specific compounds. The detection of atopy on testing does not necessarily mean an allergic illness is present but it can give important clues that help interpret the clinical picture. More and more atopic individuals do seem to be manifesting symptoms of allergy (and more severe symptoms). The reasons for this important change are unclear.

> *"Atopy is a personal or familial tendency to produce IgE antibodies in response to low doses of allergens, usually proteins, and, as a consequence, to develop typical symptoms such as asthma, rhinoconjunctivitis or the atopic eczema/dermatitis syndrome (AEDS)."*
>
> European Academy of Allergology & Clinical Immunology
> http://www.eaaci.org/allergydefinitions/english.htm

2.5 Allergic illnesses such as asthma or eczema are due to local reactions in tissues (the lung or the skin) leading to local inflammation. However, in systemic anaphylaxis the reaction is sufficiently generalised to cause massive release of active chemicals into the

bloodstream. These compounds then have profound effects on the circulatory system that may in turn lead to collapse and even death.

2.6 Other reactions to external proteins (or allergens) are mediated by different mechanisms, for example extrinsic allergic alveolitis (pigeon-fancier's lung) is a so-called Type III hypersensitivity reaction involving a different group of antibodies from atopy. Adverse drug and food reactions can be mediated by one or more different pathological mechanisms.

2.7 As well as atopic eczema, skin allergies may be urticarial, when immediate hypersensitivity is important, or a form of eczema known as contact dermatitis. This is a delayed type of allergy following contact of an allergen directly with the skin. The response to the allergen may be delayed for several days, and is difficult to diagnose without appropriate testing. Whilst immediate allergy may be detected by prick testing or by the detection of specific antibodies in the blood, contact allergy is detected by patch testing where allergens are left in contact with the skin for 48 hours. Contact allergy is a significant cause of occupational dermatitis (and occupational skin disease is second only to musculoskeletal disorders as a cause of lost work time).

2.8 A number of other important allergic or hypersensitivity diseases are not due to exposure to common external agents and so do not generally fit the lay view of an "allergy". These include diseases due to aberrant functioning of the normal host response which may not require a precipitating external cause (although sometimes the cause may simply be obscure). Examples include haemolytic disease of the newborn, vasculitis of various forms, autoimmune diseases such as thyroid disease and certain forms of diabetes, post-infectious arthritis or glomerulo-nephritis and a large number of other relatively uncommon conditions.

2.9 There are some forms of immunological illness such as coeliac disease that for various reasons do not generally get included in the set of conditions that generate work for specialist clinical allergy services. It also seems likely that there are conditions where allergy contributes to the illness but that the role of allergy is only sometimes recognised, for example in the case of food allergy as a cause of reflux oesophagitis and enteropathies very similar in presentation to coeliac disease.

2.10 There are illnesses caused by reaction to environmental factors that do not have an immune basis. Many of these present to and tend to be managed by allergy services nevertheless (for example some drug reactions and food intolerance due perhaps to an inborn error of metabolism or even a toxic reaction). These conditions are therefore

significant in relation to the workload of allergy services but are not allergic in nature and not covered in this report.

2.11 Allergic processes contribute to a range of conditions, many of which also occur in the absence of a specific allergy. For example, asthma or urticaria can often be triggered by exercise or an external physical irritant, or more often occur without an obvious cause, allergic or otherwise.

2.12 The spectrum of allergic conditions can be categorised in various ways. Conditions can be grouped according to the pathological process involved (either in terms of the hypersensitivity mechanism or the mechanism of tissue damage), the clinical manifestation of the allergy, the agent to which the person is allergic, or the service or services from which the relevant patients could benefit.

2.13 For the purpose of this report, epidemiological data and findings are discussed in relation to the main groups of conditions associated with hypersensitivity and seen in atopic individuals, namely asthma, rhinitis and eczema. Other conditions covered include anaphylaxis and food and drug allergy. Conditions not specifically covered include allergic eye disease, urticaria and angioedema, contact dermatitis and other occupational allergies, and insect allergy. These are all important conditions that the review should be considering at some level in its deliberations.

2.14 It should be remembered that various allergic conditions often co-exist in the same individuals. Also, some individual allergic disorders cause symptoms in several organ systems simultaneously. For example, food allergy may affect the upper airway, the lower respiratory tract, the skin and the cardiovascular system. In those patients most severely affected, multiple manifestations of more than one allergic process may be seen in a single individual. For example one patient might have atopic eczema due to egg allergy, asthma and rhinitis due to house dust mite and pollen allergy, and nut allergy causing periodic episodes of anaphylaxis among other symptoms.

Possible causes, modifiers and aetiological hypotheses

2.15 A good deal is known about the mechanisms of allergic processes. However, the underlying causes of allergic conditions in individuals and populations are more difficult to understand. Thus, apparent changes in prevalence over the last three decades cannot be reliably explained although a number of theories have been considered to do with changes in our environment as a consequence of increasing affluence and modern lifestyles.[1]

2.16 A variety of factors have been identified as possible causes or modifiers of allergic illness. These include genetic factors, early allergen exposure, maternal and infant

feeding practices, viral infections, environmental tobacco smoke and other pollutants, pet contact, family size and rural living.

2.17 Family history is clearly an important risk factor for allergy. The chance of developing asthma by age fifty may be ten times higher in people with a first degree relative with asthma. Twin studies have suggested that as much as 75% of the risk of developing allergic rhinitis may be genetic. It is no surprise that family studies have identified a number of genes that predispose to developing both asthma and atopy.[2,3]

2.18 The early environment may be extremely important. Exposure to infections or allergens before and immediately after birth may be significant.[4] Allergy is also less likely to develop in children with older siblings and possibly also in children brought up on farms or in close contact with animals.[5] Breast feeding probably reduces the risk of infant wheezing but may not reduce the chance of developing asthma or other significant allergies later in life.[6] Maternal smoking during pregnancy and in the first few years increases the risk of asthma.[7] Obesity also makes asthma more likely.

2.19 Allergies, once established, tend to be lifelong despite treatment, although some forms do frequently resolve (for example, egg and milk allergy in infants).

Asthma

2.20 Asthma is a common condition affecting some 5 million people in England. Fortunately, although generally a lifelong tendency, in many cases asthma is mild or its effects can be substantially alleviated through treatment. However, many patients may be more severely affected and experience considerable ill health over a prolonged period due to their asthma despite receiving standard therapy. Because of the variability in the clinical presentation of asthma, measuring meaningful occurrence rates in the population is difficult. Results are highly dependent on the methods and definitions used.

2.21 Asthma frequently presents early but many children who experience wheezing (often in connection with respiratory infections) do not go on to develop asthma or other allergic conditions, nor do they have evidence of atopy on skin testing.[8] It is now recognised that a number of distinct clinical subtypes of wheezing (phenotypes) exist in childhood.[9] These phenotypes evolve differently in the first few years of life, although patterns of wheezing seem to be established by age six years.[10] Children who have evidence of allergy as infants (for example, food allergy) are much more likely to go on to develop persistent wheeze and asthma.[8] The Children's National Service Framework asthma exemplar recommends testing for allergy in infants who wheeze as a guide to treatment and prognosis.

2.22 Many people with asthma can be shown to have specific allergies. In the Isle of Wight cohort study, among children aged 10 years with persistent wheeze half were found to have positive skin tests to various allergens.[8] Other studies have reported higher rates of allergy (70%) in older children with asthma. However, not all asthma is caused by allergy. Among adults in the Health Survey for England, 32% of those reporting wheeze and 22% of those with an asthma diagnosis were not considered to be allergic on the basis of measured levels of IgE in blood samples.[11]

2.23 In surveys, about a quarter of school children have had asthma at some time. At the age of 12 years, approximately 1 in 6 children will have had some asthma in the last year, and 1 in 16 children will have had more than four episodes of wheeze in the last year.

2.24 In adults, general practice data show that about 1 in 20 people consult their GP for asthma each year. Demand for care is slightly more common in young adults and teenagers than in older adults. It seems that about 40% of people with asthma are diagnosed after the age of 18, with 25% not being diagnosed until after the age of 35.

2.25 The Health and Safety Executive estimate that between 1,500 and 3,000 people develop occupational asthma each year in England, although some authorities believe this is underestimated by 50%.

2.26 Wheezing and asthma seem to be more common in urban communities rather than rural ones (although findings are inconsistent between studies), in boys rather than girls and in Black Caribbean ethnic groups rather than Asian. Asthma is more common in adult women than men.

2.27 Wheeze is three times more common in young adult smokers compared with non-smokers.

2.28 Low income individuals are more likely to report wheeze and asthma but the differences are not pronounced. Social class variations in asthma are mainly seen in the non-allergic cases. About a quarter of variation in hospital admission rates for asthma is explained by differences in deprivation among the communities concerned.

2.29 There were 70,000 admissions to hospitals in England for asthma in 2004/05, of which 42% were for children under the age of 15 years. Admissions for children under 10 years were much more common in boys than girls. There is evidence that admissions are frequently triggered by viral infections in combination with allergy in adults and children.

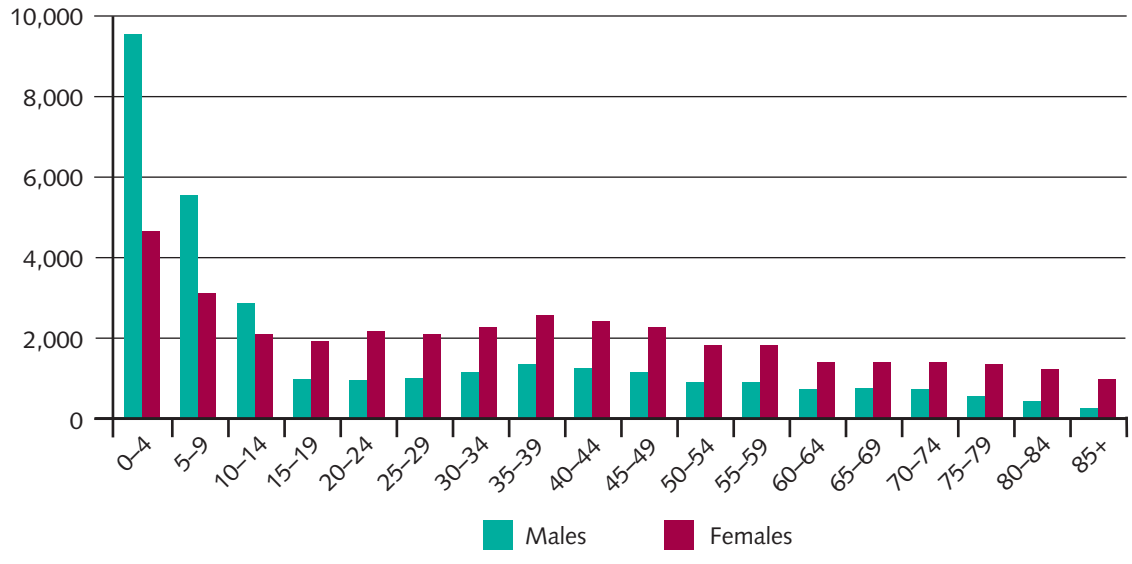
2.30 There were 924 deaths from asthma in England in 2004. Most of these were in older people and may not be directly attributed to uncontrolled allergy. Confidential enquiries into asthma deaths in young people have shown that most such deaths occur in unusual circumstances, although a proportion of such cases could probably be prevented by more effective health and social services including specific allergy services. For example, the Eastern Region Confidential Enquiry indicated that in 75% of the cases reviewed the final asthma attack was not sudden and "may have been preventable". The study also showed that 81% of cases showed significant psychosocial and behavioural problems. Other studies have shown high levels of food allergy in patients with unstable severe asthma.

Annual prevalence (of consultation) per 10,000 by age and gender

	Age standardised (95% CI)	All age	<1	1–4	5–14	15–24	25–44	45–64	65–74	75+
Asthma (493)										
M	412 (403–422)	409	41	440	690	441	353	323	429	396
F	482 (472–493)	484	16	282	501	609	472	488	546	411

Source = RCGP Weekly Returns Service

Episodes of admission to hospital for asthma in 2004 in England



NB Admissions for asthma as the main diagnosis only (i.e. admissions for asthma not with asthma), ICD10 codes J45 – J46

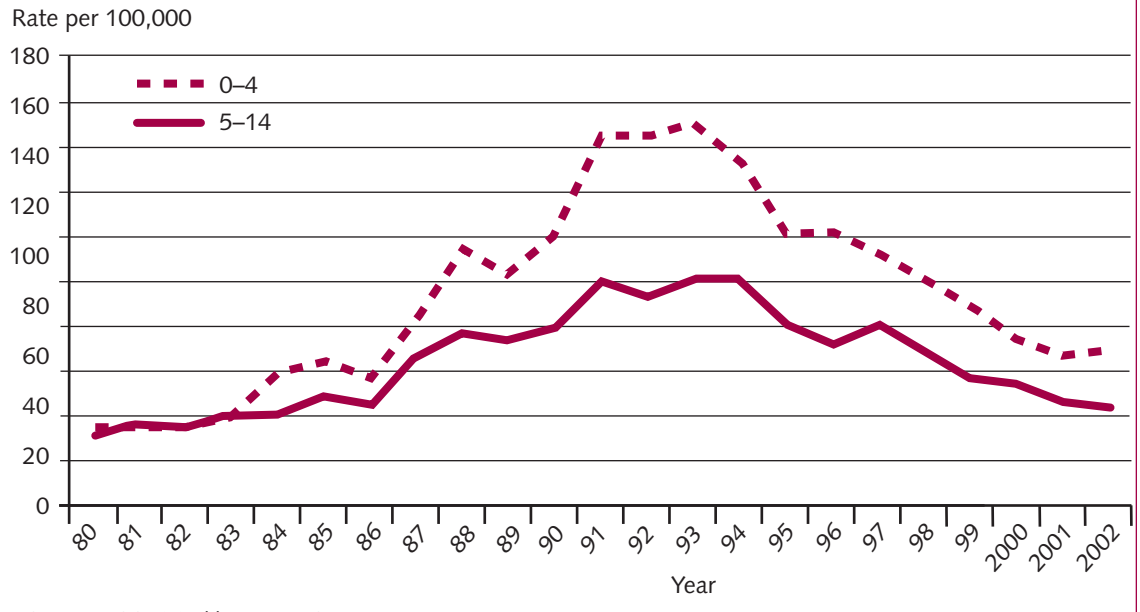
2.31 It is generally accepted that the prevalence of asthma (and probably also of other allergic conditions) increased markedly from the 1950s to the 1990s. There is a good deal of evidence now available that the rates peaked somewhere around 1993 and that the prevalence is now either static or decreasing, particularly in children.[1,12–14]

2.32 The most recent data from the ISAAC study for the UK among 12–14 year olds show a 19% drop in the prevalence of wheeze from 1995 to 2002 (prevalence decreased from 34% to 28%).[13] The relative reductions were greater for frequent or severe attacks. Some authors dispute the conclusion that asthma is falling in prevalence. For example, in a very recent publication, Burr et al report an increase in asthma symptoms in Welsh children in 2003, compared with 1988.[15] This study also showed much greater use of inhaled steroids in children with asthma in 2003 compared with 1988.

2.33 The ISAAC data are consistent with the view that although underlying prevalence and severity of asthma and atopy may be static or decreasing, changes in awareness and diagnostic fashion mean that the term "asthma" is being applied more often to less severe disease.[14]

2.34 Of those who complain of wheeze in surveys, about half of adults and a third of children have been given treatment for it by their GP. But demand for care in general practice also seems to be declining, possibly because of effective preventive treatment as shown by Burr et al. The asthma consultation rates appear to have peaked in 1993 and have now fallen to where they were in the late 1980s (see below).[16]

Episodes of consultation for asthma in general practice (mean weekly incidence by year for 0–4 year olds and for 5–14 year olds)[16]



Source: RCGP Weekly Returns Service

2.35 Hospital admission rates for asthma (age-sex-standardised) were declining from 1997 to 2001. However, that decline seems to have partially reversed as the rate has climbed again in 2004.

2.36 There is some uncertainty over the extent of the increase in prevalence of allergic illness up to the 1990s. Some authors have argued that an unknown amount of the increase could be accounted for by increases in reported symptoms or attributed diagnoses. This is because most studies are based on surveys of reported symptoms and few are supported by changes in objective measurements.[17,18] However, authorities generally accept that the apparent increase represents a combination of increased reporting and diagnostic custom and an increase in true underlying prevalence. Diagnostic changes have probably had little effect in recent years. Recent evidence suggests that the increase in prevalence may be partly due to changes in prevalence of atopy in successive birth cohorts.[19] If true, this would suggest that the high rates in young people in the last few years will persist in those cohorts as they get older.

Rhinitis

2.37 Rhinitis is a common heterogeneous condition with many different causes in children and adults.[20] About half of all cases of rhinitis will be caused by allergy and nearly all cases of seasonal rhinitis will be allergic. There is a strong genetic component as shown by twin studies and genetic linkage studies.[21] Common allergens include pollens, moulds, animal dander, and house dust mite. The epidemiology of allergic rhinitis is hard to investigate because many cases are likely to be unrecognised both by patients and their doctors.[22] Seasonal allergic rhinitis (hayfever) is easier to investigate than perennial allergic rhinitis because it has a more characteristic pattern of symptoms.[20] These conditions should now be described as intermittent or persistent rhinitis, however most of the available literature uses the older terms. There is considerable overlap between asthma and rhinitis (most patients with asthma will also have rhinitis) such that it has even been suggested that they are elements of the same syndrome.[23]

2.38 Epidemiological studies suggest that seasonal allergic rhinitis is present in approximately 10% of the general population and that perennial allergic rhinitis is found in another 10–20%. A recent survey found a prevalence of confirmed allergic rhinitis of 26% in the UK.[24] The majority of cases of allergic rhinitis arise in childhood, with some 40% of cases becoming apparent before the age of six and a further 30% arising in teenagers.

2.39 Although not a serious condition in itself allergic rhinitis can be highly debilitating. The cost to society of treating the condition is substantial but probably much less than the cost of lost productivity as a result of the condition. The condition can also have an impact on educational attainment of school students.[25]

2.40 In a survey of 10 year old children, one in five had current allergic rhinitis symptoms. A quarter of the children with current symptoms said that those symptoms interfered with daily activity but only 4% had "a lot of impairment of daily activity because of their condition".[26] Two thirds of the children with rhinitis required treatment for it.

2.41 The ISAAC data show a 16% reduction in symptoms of allergic rhinitis among 12–14 year olds from 1995 to 2002.[13] However, the RCGP Weekly Returns Service consultation rates for hay fever do not show the same declining trend seen for asthma. The rate in 2004 is very similar to that experienced in the 1980s. Approximately 2–3% of teenagers consult their GP for rhinitis each year. Many more may be obtaining treatment from community pharmacists.

Annual prevalence (of consultation) rates per 10,000

	Age Standardised (95% CI)	All ages	<1	1–4	5–14	15–24	25–44	45–64	65–74	75+
Allergic rhinitis (477)										
M	152 (147–158)	152	5	112	308	241	143	86	84	77
F	171 (165–177)	173	0	73	224	305	214	121	89	70

Source = RCGP Weekly Returns Service

Eczema

2.42 Terminology can be confusing in the case of eczema and dermatitis. The World Allergy Organization suggests that dermatitis should be used as the overarching term that encompasses eczema (which may be atopic or non-atopic) and dermatitis (which may be allergic contact, non-allergic contact or of some other cause).[27]

2.43 It seems that two thirds of patients with clinically defined "atopic eczema" are not in fact atopic on investigation,[27] although most cases in children under 5 years old are due to allergy. Around 10% of children with "atopic eczema" may have a significant allergy to food that is directly relevant to their skin disease. Infants with severe atopic eczema were found to be six times more likely to have a food allergy than those without eczema among an Australian cohort of children with a family history of allergy.[28] In general, the younger the patient the more likely that allergy testing will show specific underlying allergies. Approximately 35–40% of patients with eczema will have delayed or contact allergies that may be unsuspected without appropriate investigation by patch testing.

2.44 Like other allergic conditions, there is considerable variation worldwide in prevalence rates. In countries such as China and Iran about 2% of children have eczema whereas in Western Europe, Australia and the USA rates are nearer 20%.

2.45 At least one in three people in England have eczema during their life, mostly in childhood. Some 10 to 20% of older school children will have had some form of eczema in the last year. Prevalence is similar in boys and girls.

2.46 The RCGP Weekly Returns Service provides figures on demand in primary care for skin conditions excluding infections and psoriasis, most of which are likely to be accounted for by eczema of various forms (see below). The figures show extremely high consulting rates for infants and young children and substantial rates for other age groups.

Annual consultation prevalence rates per 10,000

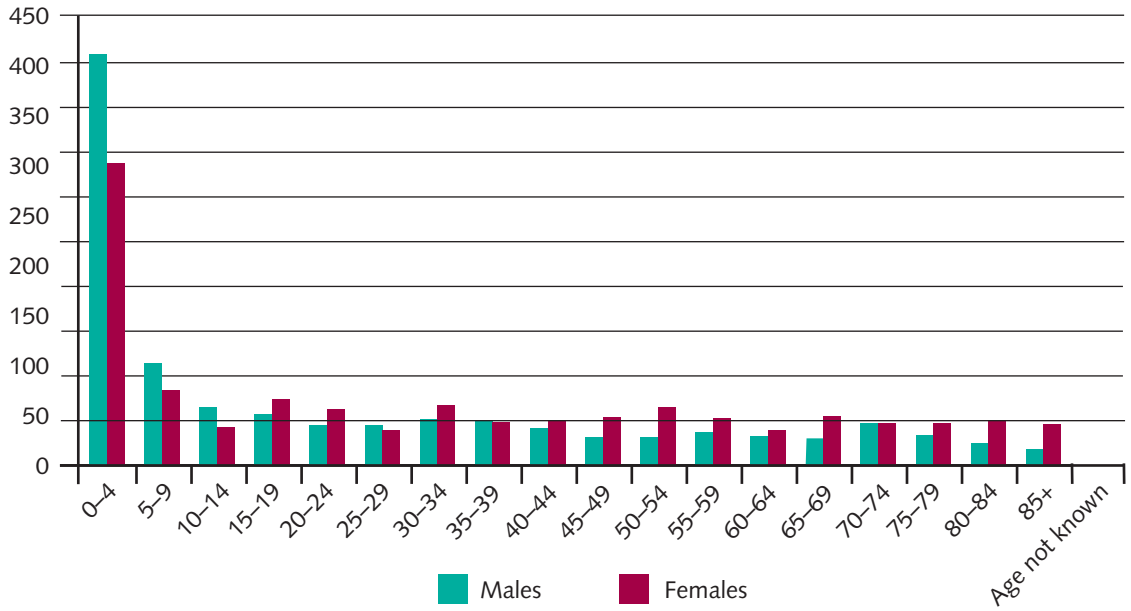
	Age Standardised (95% CI)	All ages	<1	1–4	5–14	15–24	25–44	45–64	65–74	75+
Skin & subcutaneous tissue other inflam cond (690~698)										
M	564 (552–575)	554	2280	1525	558	360	381	497	723	823
F	750 (737–763)	746	2201	1592	691	743	637	668	745	821

Source = RCGP Weekly Returns Service

2.47 The ISAAC data show a 30% drop in symptoms of atopic eczema among 12–14 year olds from 1995 to 2002.[13] However, as for asthma the recently published survey from Wales shows a continuing increase from 16% to 23% in 12 year olds.

2.48 There were 2,389 episodes of admission to hospital in England for eczema in the year beginning April 2004, involving 2,179 people. Of these, 37% were for children under 10 years of age. Admissions for eczema increased from 17 to 24 per 100,000 per year over the period from 1997 to 2004.

Episodes of admission to hospital for eczema in 2004 in England



Co-morbidity

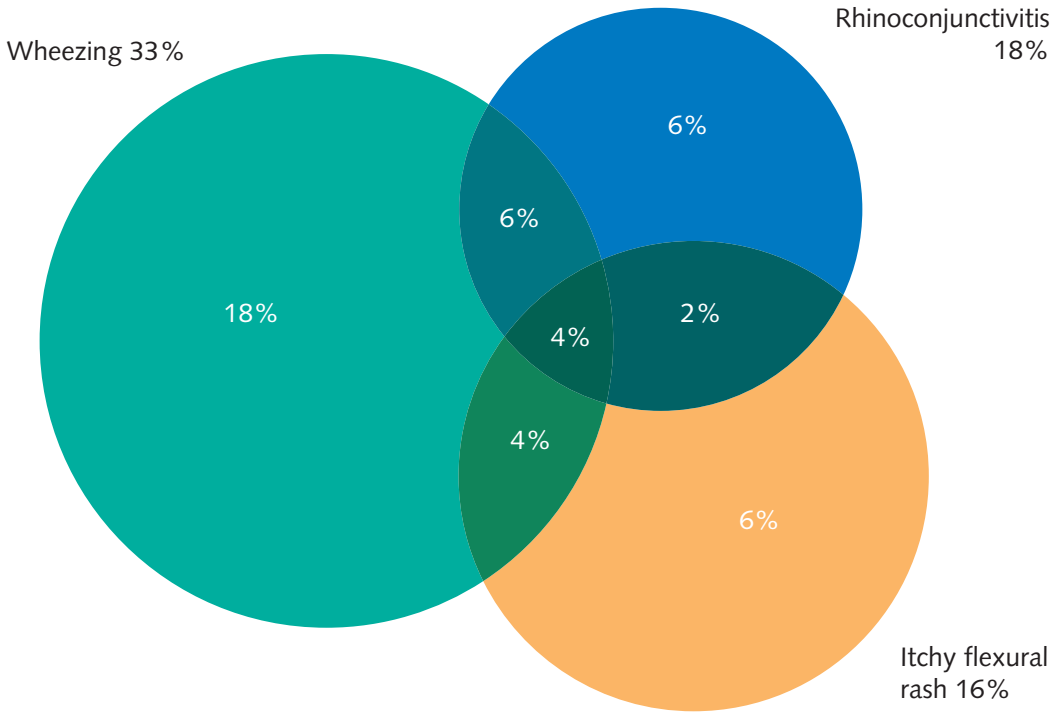
2.49 As mentioned above, allergic conditions due to atopy often occur together because they result from a common allergic tendency. The extent to which conditions occur in the same individuals has been studied in a number of settings. Results vary, partly because problems of diagnostic variability and ascertainment are multiplied when more than one case definition and ascertainment method is concerned. Rates of co-morbidity are often higher in clinical studies that are not population-based[29] suggesting some selection bias, although better ascertainment is likely to play a part as well. It is clear, however, that allergic rhinitis is generally present in at least half of people with asthma (and it increases the cost of their care when it is).[30]

Prevalence (%) of co-morbidity for asthma, eczema and allergic rhinitis (Gupta et al, 2004)

Number of diagnosed atopic conditions	Age group (years)			
	13/14	*2–15*	*16–44*	*45+*
1	33	28	25	19
2	15	9	8	4
3	4	2	2	1
At least one	52	39	35	24

2.50 The co-morbidity data for children aged 12–14 years from the ISAAC study are presented in a figure below.

Prevalence of symptoms of atopic diseases within the past twelve months in 12–14 year old children in the UK in 1994–95



Source: Austin et al, 1999[31]

Anaphylaxis

2.51 The term anaphylaxis is used to refer to the sudden onset of generalised and often severe allergic symptoms. True anaphylaxis is a hypersensitivity reaction mediated by immunoglobulin E (IgE). So-called "anaphylactoid" reactions are similar in their presentation and treatment, but do not depend upon hypersensitivity.[32] Both are generally caused by an external stimulus of some kind, for example an insect bite, ingestion of a particular food or being given a particular medical compound, such as X-ray contrast media or anaesthetics.[32]

2.52 Patients with anaphylaxis may have angio-oedema, urticaria, breathlessness and low blood pressure. They are also often said to experience a "sense of impending doom". Severely affected patients may die from acute irreversible asthma or laryngeal oedema, sometimes without having any more generalised problems. Cardiovascular collapse may also occur especially when anaphylaxis is caused by an intravenous drug or an insect sting.[33] Prompt treatment with adrenaline can be life-saving and recovery is normally complete.[32]

2.53 In relation to the epidemiology, diagnostic uncertainty is a significant problem. Indeed, guidelines for the management of anaphylaxis assume that there will be diagnostic errors.[33] When interpreting the routine data this uncertainty must be borne in mind.

2.54 In recent years, numbers of admissions for anaphylaxis in England seem to have been rising. A twofold increase has been reported between 1991 and 1994 in the number of hospital discharges in England identified as being for anaphylaxis (from 415 to 876).[34] We found that admission rates for anaphylaxis increased from 7 to 12 per 100,000 people per year from 1997 to 2004. In 2004, 1,355 males were recorded as being admitted with anaphylaxis and 1,816 females. This is more than three times the number reported in 1994.[34]

2.55 These two sets of data cannot be directly compared because the earlier numbers are based on ICD–9 diagnostic codes and the later ones on ICD–10. It is also possible that awareness of the condition and use of the codes has changed. However, the increase in numbers remains a striking one.

2.56 The age distribution of patients admitted with anaphylaxis is given below. It shows a wide age spread and a female preponderance.

Episodes of admission to hospital for anaphylaxis in 2004 in England

NB Admissions with any mention of anaphylaxis, ICD10 codes T780, T782, T782, T805, T886

2.57 The number of cases of anaphylaxis in the population of England will be much greater than the number of hospital admissions for anaphylaxis. Many cases of anaphylaxis present directly to accident and emergency departments and many of these are not admitted to hospital.[35] A survey conducted among a volunteer sample of members of the Anaphylaxis Campaign found that half of all reactions were treated at hospital and one in five resulted in admission to hospital (often to an A&E ward).[36]

2.58 In one accident & emergency department there were nine cases of severe anaphylaxis (involving loss of consciousness or fainting) in one year. The severe symptoms had resolved in six of these cases before they arrived at the hospital. The most common cause of severe anaphylaxis was insect bite or sting.[37] A further fifteen cases presented with less severe but still generalised allergic reactions (defined as including some respiratory involvement).[37] Based on the department's estimated catchment population, the authors calculated that these results equated to an incidence of anaphylaxis of 1 in 3,500 per year.

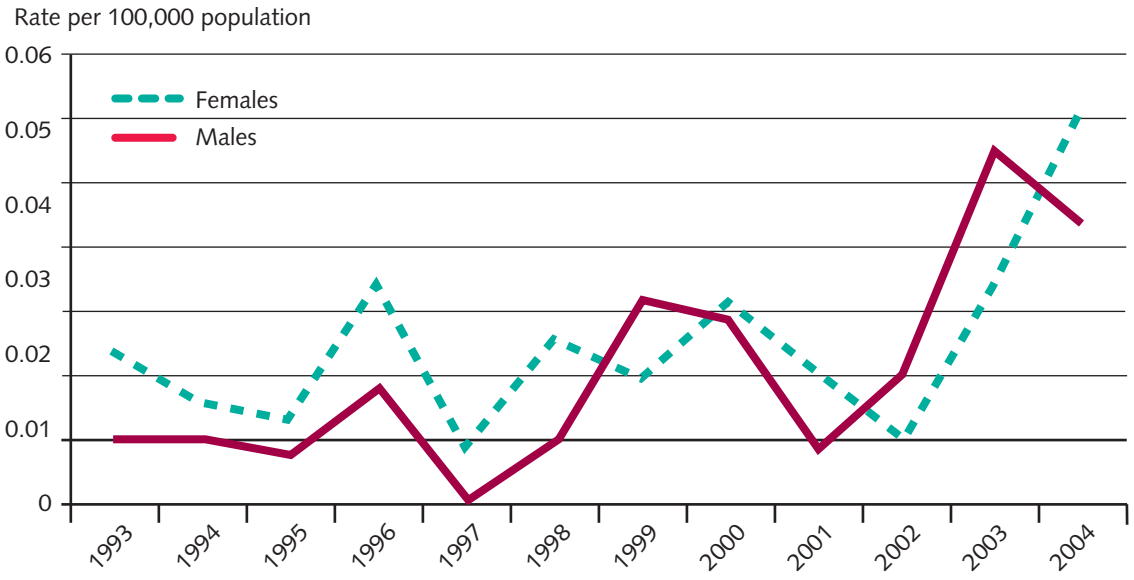
2.59 A general practice study of anaphylaxis found that causes were insect sting (32%), medicines (30%), food allergy (22%) and other (16%). The level of severity was severe for 9% of patients, moderate for 45%, and mild for 29%. There was one death among 675 cases. Among hospitalised patients with anaphylaxis, drug allergy was the commonest recorded cause.[34]

2.60 Mortality statistics obtained for this review show that from 1993 to 2002, there were approximately 10 deaths per year in England and Wales in which anaphylaxis was a contributing cause (see below). In the last twelve years, there have been a total of 125 deaths in which anaphylaxis was recorded on the death certificate, although curiously never as the underlying cause.

2.61 The rate almost doubled in the last 2 years, which is a cause for concern. However, the numbers involved are small and any apparent trend is difficult to interpret. Some random variation is to be expected and any change in certification due to greater awareness of anaphylaxis could have a profound effect.

2.62 Pumphrey identified almost twice the number of officially recorded deaths over a similar period by constructing a fatal anaphylaxis register. Some of these were apparently certified as deaths from asthma.[38] Among those anaphylaxis deaths for which a cause was apparent, 55 (44%) were due to medical treatments, 37 (30%) due to food, and 32 (26%) due to insect venom.

Mortality rates for anaphylaxis in England and Wales



NB: Rates are based on secondary cause of death by anaphylaxis. Rates have been directly age standardised to the European Standard Population. The ICD9 to ICD10 code change occurred in 2001. ICD9 codes used (1993–2000): 995.0 Anaphylactic shock; 995.3 Allergy, unspecified. ICD10 codes used (2001–2004): T78.0 Anaphylactic shock due to adverse food reaction; T78.2 Anaphylactic shock, unspecified; T78.4 Allergy, unspecified; T80.5 Anaphylactic shock due to serum; T88.6 Anaphylactic shock due to adverse effect of correct drug or medicament properly administered. No adjustments for the code change have been made.

2.63 Using the register, Pumphrey was able to establish that when anaphylaxis is sufficiently severe to be fatal, death is likely to occur very soon after contact with the stimulus. For those with food reactions, respiratory arrest occurred after 30–35 minutes, for insect stings collapse from shock was after 10–15 minutes, and for medicines death occurred most commonly after 5 minutes. Death never occurred more than six hours after contact with the stimulus.[39]

Food allergy

2.64 Food allergy is an area of current concern. This is partly because it appears to be increasing faster than other allergies and is in any case already very common. Also, it can occasionally have severe consequences.[40]

2.65 Approximately 6% of children less than 3 years old are probably affected by food allergy. The most common allergens in this group being milk[41] and egg.[42] The allergies of infancy tend to improve over time. By the age of five years 80% of infants who were allergic to milk will become tolerant.[42] Other allergies replace them in some individuals. It seems that about 4% of adults will have a food allergy of some sort with shellfish and nuts being the most common causes.[42] Food allergies when present are often associated with other inhalant allergies.[43]

2.66 The Isle of Wight studies showed a twofold increase in reported peanut allergy (0.5% to 1.0%) between children born in 1989 and 1994.[44] Sensitisation to peanuts (shown by skin prick testing) increased threefold (1.0% to 3.0%). More than one in a hundred children have confirmed peanut allergy.

2.67 Among 13,971 pre-school children, the ALSPAC study identified 36 (0.25% of the total cohort) children with a history of peanut allergy, in 23 (0.16%) of whom peanut allergy was confirmed by challenge.[45] However, later skin testing of all children at 7 years of age showed that 1.4% reacted positively to peanuts and 1.0% to tree nuts. It is not clear yet how many of the children with positive tests have clinical allergy.[43]

2.68 As well as the increase in peanut allergy documented in cohort studies, clinicians have reported an apparent increase in a range of unusual food allergies to new allergens, for example melon, sesame seed, kiwi fruit, chick pea etc. Epidemiological data to confirm these reports is not yet available.

2.69 An increasing number of adults and older children are apparently being affected by food allergies caused by a cross-reaction to pollen in which some people with pollen allergy experience severe swelling of the mouth and even anaphylaxis – so-called Oral Allergy Syndrome (also caused by allergy to stone fruits).

2.70 Perceived food intolerance in adults is very common and usually not due to food allergy. In 1994, Elspeth Young and colleagues found that 20% of a population sample believed they had food intolerance. However, the intolerance was only reproduced in a fifth of these individuals on placebo-controlled double-blind testing.[46] More recent studies show a similar picture. The correct diagnosis of food intolerance generates a very substantial workload for services.

2.71 The British Paediatric Surveillance Unit instituted a prospective survey of fatal and severe food allergy in children.[47] There were eight deaths from 1990 to 2000 of which half were identified from death certificates. Almost all the children who died or nearly died from food allergy also had asthma.[47] This study has been extensively criticised on the grounds that it substantially underestimates the true incidence of serious food allergy.

Drug allergy

2.72 A good deal of drug allergy may not be recognised, but also many patients who believe they are allergic to commonly prescribed drugs are not. For example, 80% of people who think they are allergic to penicillin are not when tested. The topic of adverse drug reactions (only some of which are true drug allergies[48]) is a large and complex area of research and beyond the scope of this review. However, it has been

noted that a third of cases of anaphylaxis in primary care[35] and possibly two thirds of hospitalised cases[34] are caused by therapeutic medicines or diagnostic compounds.

The cost of allergy

2.73 The direct cost to the NHS of managing allergic diseases has recently been estimated at over £1 billion per annum in the UK.[49]

2.74 Estimates for primary care (GP consultations) ranged from £211 to £311 million and estimates for secondary care (hospital inpatient) ranged from £56 to £83 million. Primary care prescribing costs represented the most significant proportion of costs at over £0.7 billion (latest data are below).

2.75 The indirect and intangible costs of allergic diseases, such as school or work days lost, lower productivity or diminished quality of life, are also potentially huge. A survey in the late 1990s found that 38% of children and 16% of adults in the UK had lost school/work days due to their asthma in the past year.[50] In 1994/95 it was estimated that 17 million work days were lost due to asthma, costing an estimated £1.1 billion.[51] Studies have also reported the economic burden due to reduced productivity at work to be greater than that resulting from the treatment of allergic rhinitis and its symptoms.[52]

Analysis of 2004 prescribing costs data

2.76 The data show that 72.6 million community prescriptions were dispensed for asthma and other allergic problems in England in 2004. These were mainly for asthma (38.9 million), nasal allergies (4.5 million) and eczema (20.4 million). The costs of these conditions were around £0.9 billion, or 11% of the total drugs budget. The majority of this cost is for asthma, which alone accounts for nearly £0.7 billion, over 8% of the total budget. In comparison, 8% of the total budget is spent on gastro-intestinal disorders and 27% for cardiovascular diseases.

Table: Breakdown of community prescriptions and costs for treating allergic diseases

Ref	BNF Section	Number (000s)	Cost (£000s)	% Cost
3.1	Bronchodilators	24,785	253,586	3.1%
3.2	Corticosteroids (Respiratory)	13,480	410,727	5.1%
3.3	Cromoglycate,Rel,Leukotriene Antagonists	670	21,219	0.3%
	Total (asthma)	**38,935**	**685,531**	**8.5%**
12.2.1	Drugs used in nasal allergy	4,504	40,524	0.5%
	Total (nasal allergy)	**4,504**	**40,524**	**0.5%**
13.2.1	Emollients	8,039	36,759	0.5%
13.4	Topical Corticosteroids	12,199	48,043	0.6%
13.5.1	Preparations For Eczema	186	5,078	0.1%
	Total (eczema)	**20,424**	**89,880**	**1.1%**
3.4	Allergic Disorders	8,741	62,174	0.8%
	Allergy Total (all of above)	**72,604**	**878,111**	**10.9%**
	All drugs	**686,139**	**8,079,567**	

Notes

1. *Based on selected British National Formulary (BNF) classifications.*
2. *Prescription Cost Analysis data for England, 2004.*
3. *Cost of the drug before discounts and does not include any dispensing costs or fees.*
4. *Number of items dispensed for a prescription item refers to a single item prescribed by a doctor (or dentist/nurse) on a prescription form.*

Over the counter sales data

2.77 Estimates from Electronic Point of Sale data collection (EPOS) supplied by IMS Pharmatrend suggest that over the counter (OTC) treatments also represent a significant cost. Allergy treatments cost over £60 million in 2005 in OTC products (although these data will be an underestimate because two large chains are not included in IMS data – see notes below). This is around one third of the total annual prescription costs for allergy excluding asthma. Allergy products account for around 3% of total OTC sales – a similar proportion to prescription costs data (excluding asthma).

2.78 Other data provided to the review showed that in the year to 18 February 2006, OTC sales of allergy remedies through all included outlets in the UK had a total value of almost £80 million (a 5.3% increase on the previous year). Oral medications accounted for about 78% of the sales by value, nasal sprays 14% and eye drops 8%. Community pharmacies have around a 74% share of the market and supermarkets the remaining 26%.

Table: Cost of over the counter treatments for allergy

£000s	Year to September 2004	Year to September 2005
Nasal allergy	60,909	51,764
Eye allergy	433	385
Other allergy (topical antihistamines)	4,407	4,129
Topical corticosteroids	4,295	6,042
Total OTC allergy	**70,044**	**62,320**
Total OTC	2,068,066	2,114,742
Percentage	3.4%	2.9%

Source = IMS HEALTH Pharmatrend

Notes:

1. *Estimates for UK.*
2. *Data are taken from EPOS data (ie using the bar code scanning machines) at actual prices paid by customers through a variety of different channels including:*
   Grocery outlets: includes data from all of the main supermarkets etc but not Boots or Superdrug (although this should change very soon). Pharmacies: projected from a sample of multiple and independent retail pharmacies. Newsagents/ petrol forecourts: projected from a c40% sample to a national total.
3. *Data do not match the BNF categories exactly in terms of classification but are allocated at brand level to match as closely as possible.*

How might unmet need for services for allergy be estimated?

2.79 In health services research terms, need is defined as the ability to benefit from health care. This may be perceived or unperceived by the patient. A perceived need may be translated into demand for care if care-seeking actions are taken such as visiting a GP or requesting a referral. Demand may be termed clinically appropriate when it corresponds to a clinically-defined need or inappropriate when it does not. Unmet need or unmet demand is manifest when waiting times for services are long or when patients cannot be referred for investigations or treatments because the service is not available at all. A good deal of unmet need is hidden because it represents the gap in quality between actual services and optimum services.

2.80 The level of unmet need nationally would be determined from (1) evidence that defined groups of patients would benefit from access to certain services, (2) information suggesting how many patients fall into those groups in England, and (3) information on the proportion of them that currently have access to the required service at the required level of quality.

2.81 This evidence is very hard to acquire from routine data sources and would probably require special large-scale population-based studies.[53] The epidemiological data presented above do not differentiate patient groups according to need for care. Numbers of patients consulting or treated does not imply numbers with an unresolved problem. Nor can use of health services be assumed to be proportional to

need for care in different groups.[54] However, these data do provide at least a quantitative background on which to base judgements of the need for particular services in particular settings.

2.82 Where the current review of evidence of effectiveness suggests that specific interventions are supported by good evidence (for example, this might be true for desensitisation therapy for pollen or venom[55]), it might be appropriate to then go on to establish directly the level of unmet need in the population and how that compares with current levels of supply and met need.

2.83 Even without definitive evidence of effectiveness, it is possible to use some figures from the basic epidemiology to estimate the order of magnitude of need for certain forms of care. Two examples of how local service commissioners might estimate unmet need in their community are articulated at *Annex C*, for

- making a specific allergy diagnosis in children with atopy and allergy
- aftercare for patients with anaphylaxis.

Summary of main findings and conclusions

2.84 There is a considerable body of data on the occurrence of allergic conditions in the population, although the distribution of research studies is heavily weighted towards asthma. There is much less information about the extent to which these conditions are caused by untreated allergy in the community or about the distribution of severity and unmet need for specific services.

2.85 Allergy is very common with about a third of the population having some form of allergy at some point in their lives. Very large numbers of patients (about 3 million per year in England) are seen in primary care with conditions that may be allergic in origin. There were 70,000 admissions to hospital for asthma in 2004, although the age distribution of these suggests that many were not allergic in origin. Also in 2004, there were 2,400 admissions for eczema mainly in children, and over 3,000 admissions for acute allergic conditions (anaphylaxis).

2.86 Numbers of deaths due to allergy are surprisingly difficult to assess. There is evidence that anaphylaxis causes some 10 to 20 deaths per year but many of these are not recorded as such on the death certificate. Conversely, deaths attributed to asthma (924 in 2004) are heavily skewed towards the elderly and the majority may not be allergic in origin. Despite these limitations it seems possible that a significant number of deaths could be prevented by improved services for allergy (assuming evidence of effectiveness of the relevant interventions).

2.87 There is good evidence that allergy has increased in the population in the last 30 years, but in the last ten years some studies suggest that it has not increased, and may even have fallen (for example the latest ISAAC study data from the UK). Other studies show a continued rise in allergy symptoms (notably Burr et al, 2006). There is evidence that more effective treatment of asthma may be limiting the level of demand for care in primary care for that condition but not for others. Even if the upward secular trends in allergy prevalence are attenuating, this would not be a cause to be complacent since the numbers involved remain huge. Certainly some objective manifestations of allergy do not seem to be falling (for example, demand for rhinitis and eczema care in general practice).

2.88 There is also good evidence that numbers of people with anaphylaxis in particular are increasing, which may in part be explained by an increase in numbers of people with specific food allergies. Some of the apparent increase in anaphylaxis may be due to better reporting, due in turn to better awareness of anaphylaxis. However, this clearly cannot explain the whole of the rise.

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3. Clinical interventions for allergy

Introduction

3.1 This chapter sets out what we know about the nature and the effectiveness of clinical interventions for allergy. By definition, a report of this kind cannot provide an exhaustive account of all clinical research studies but it does set out information drawn from professional input, including guidelines which have, themselves, been informed by this research. This chapter also summarises evidence drawn from an overview of systematic reviews of the evidence, commissioned by the Department of Health, focusing particularly on service delivery and organisation. Gaps in the evidence and possible areas for further research are identified.

Clinical interventions for allergy

3.2 Good practice guidelines have been drawn up by a number of Royal Colleges and professional bodies for specific conditions. Those that are allergy based include the following:

- Good allergy practice (RCP and RCPath, 1994)[1]
- Allergy – Conventional and alternative concepts (RCP Clinical Immunology and Allergy Committee, 1992)
- Provision of allergy care for optimal outcome in the UK[2]
- Global Initiative for Asthma (GINA) management and prevention (NIH, revised 2002)
- Allergic rhinitis and its impact on asthma (ARIA) (WHO, 2001)[3]
- Prevention of Allergy and Allergic Asthma – World Allergy Organization project report and guidelines[4]
- Allergy section in Consultant Physicians Working with Patients (RCP, 3rd edition 2005, pp1–52)
- Position paper on allergen immunotherapy: report of a BSACI working party (1993)[5]
- Suspected anaphylactic reactions associated with anaesthesia – Association of Anaesthetists of Great Britain and Ireland and BSACI (3rd edition, 2003, pp 1–20)
- BSACI guidelines on the management of rhinitis (2006)
- BSACI guidelines on the management of urticaria (2006).

3.3 There are also US, European and Australian guidelines on allergy, including those from the American Academy of Allergy, Asthma and Immunology (AAAAI), the World Allergy Organization (WAO), and the European Academy of Allergology and Clinical Immunology (EAACI).

3.4 There are other guidelines which are organ based and focus on symptomatic drug treatment, not depending on an allergy diagnosis, for example:

- asthma – British Thoracic Society/SIGN
- asthma (and COPD) – RPSGB
- occupational asthma – British Occupational Health Research Foundation
- atopic eczema – Primary Care Dermatology Society/BAD
- contact dermatitis – BAD
- urticaria and angio-oedema – BAD
- anaphylaxis emergency treatment – Resuscitation Council.

3.5 The BSACI, in papers submitted to the review team, identified a number of research studies which demonstrate the effectiveness of tests and treatments for a number specific conditions. They drew attention to a review paper by Zeiger and Schatz (2000)[6] on allergists' general contribution to the understanding of the risk factors, immunomodulation and prevention of atopic disorders and outcomes research in asthma, allergic rhinitis, anaphylaxis, drug and food allergy. The review team's attention has also been drawn to studies that seek to demonstrate the effectiveness of providing services from a specialist allergy centre.

3.6 However, neither the review team nor the NAAG was able to identify nationally agreed, evidence based clinical guidelines which address allergic conditions as a whole – nor nationally agreed clinical guidelines or protocols addressing how patients with less serious allergies can be treated in primary care. Consultation and referral guidelines drawn up by the AAAAI are discussed below.

3.7 The Royal College of Pathologists has produced a generalist guide for patients and relatives to help steer the lay reader through this complex area. Revised in 2005, it sets out clearly the difference between allergy, which involves the immune system and tends to occur on each and every exposure to an allergen, and intolerance which does not involve the immune system. It points out that, whilst from the patient's perspective the symptoms might feel similar, it is vital to ensure that a correct diagnosis is made in order for the appropriate treatment to be given. Diagnoses are made on the basis of the clinician's assessment of the patient's medical history and the

need for allergy tests. These fall into two groups – skin prick tests, and blood tests to measure the amount of IgE allergy antibody in the blood sample. If these are negative, it is frequently necessary to introduce a series of exclusion diets. If these achieve improvements, then formal challenges are required, mostly as in-patients or day-case attenders.

3.8 The WAO has recently produced comprehensive descriptions of the training and competencies required for all levels of allergy practice.

3.9 The clinician's ability to identify the need for the tests, Royal Colleges' evaluation of the skills and competences needed to administer and interpret the results of these tests, and the training required to prescribe treatment as a result of them, are key to the delivery of high quality services.

Diagnosis of allergy

3.10 The key step in allergy management is making an allergy diagnosis – deciding whether the patient's symptoms are caused by allergy and, if so, identifying the allergic triggers as precisely as possible. An accurate diagnosis therefore targets the appropriate clinical intervention and allows avoidance of the allergic trigger and amelioration or resolution of symptoms.

3.11 Leung and Schatz (2006)[7] developed a guideline on behalf of the AAAAI, using the combination of an extensive literature search and expert opinion to develop recommendations, including material from the United Kingdom.

3.12 It suggests that allergists-immunologists have a central role in skin testing and subsequent management of lower respiratory allergy. Accurate diagnosis can best be achieved through a combination of approaches that are currently largely the domain of allergists-immunologists rather than general practitioners. For example, while a GP may offer a diagnosis based on case history, or other singular features such as clinical presentation, and/or limited diagnostic testing, allergists-immunologists can conduct a series of tests that include skin-prick tests and blood tests to identify and confirm a correct final diagnosis.

3.13 It flows from this that accurate and full diagnosis may prevent the initiation of either inappropriate clinical interventions or patient education/management plans, which could have adverse effects on the patient's health, employment, quality of life or financial status.

3.14 The guideline notes that accurate diagnosis (as conducted by allergists-immunologists) is indicative of an extensive, ongoing training and education programme. It further suggests that this also enables advanced levels of service delivery.

3.15 For example, specific clinical skills of allergists-immunologists include skin testing, RAST tests, immunotherapy, comprehensive medication review, self-management education, and identification of allergens across all susceptible body systems and environmental causes.

3.16 Using rhinitis as an exemplar, the guideline cites evidence that allergists-immunologists can differentiate allergic from non-allergic presentations, leading to effective treatment and improved patient outcomes across a range of illnesses, many with non-specific presentations.

3.17 This publication also covers eczema, contact dermatitis, drug and food allergy, conjunctivitis, cough, insect hypersensitivity, occupational asthma, anaphylaxis, urticaria, angio-oedema, hypersensitivity pneumonitis, ABPA and immune deficiency.

3.18 Morris, in "Is allergy testing cost-effective?"[8], argues that negative allergy tests will liberate individuals from unnecessary avoidance measures and wheezers from over-zealous pharmacotherapy.

Treatments for allergy

3.19 There are four broad categories of treatment in widespread use at present, with a fifth kind under development:

- ***symptom control:*** these approaches, which may well be self administered, do not rely on a precise diagnosis based on identification of the allergen responsible for the symptoms. Examples include use of over the counter antihistamine creams and steroid creams for eczema, and antihistamine tablets for rhinitis. Many patients are treated for more serious conditions symptomatically (eg asthma with inhalers, eczema with skin creams or anaphylaxis with adrenaline autoinjectors) without first having identified whether the condition is allergic in origin
- ***allergen avoidance:*** used particularly for food, drug, venom, latex and animal allergy, as well as occupational allergy and to a lesser extent in some asthma, rhinitis and eczema, depending on the suspected cause. It is important to note that there are complex cross-reactivities between, for instance, latex and many fruits and vegetables, tree pollen and fresh tree fruits. Allergen avoidance may be difficult to achieve, expensive and may not always be successful at relieving symptoms (eg house dust mite avoidance)

- ***rescue medication:*** as part of an emergency self-treatment plan for acute attacks, such as for acute tongue swelling or anaphylaxis
- ***immunotherapy:*** involves administration of the allergen, both by subcutaneous injection and via the sublingual route, in order to try to reintroduce immunological tolerance to that allergen. It is used principally for pollen rhinitis and asthma, venom and cat allergy. Occasionally, drug desensitisation is necessary. There are many new modified vaccines in development that will undoubtedly have a major impact on future practice
- ***new experimental therapies:*** new therapies are being developed that are aimed at modifying the underlying immunological processes that either cause or mediate clinical allergy. One such treatment, anti-IgE therapy, is presently licensed in the UK only for severe asthma, but could potentially be used in the management of other severe IgE mediated allergic problems.

Review of reviews

3.20 The full report of the review of systematic reviews, commissioned by the Department of Health, is available. An overview is provided in the executive summary of this report, which is reproduced as *Annex D* to this report.

3.21 The review examined a range of databases for systematic reviews, economic evaluations, and guidelines. In addition, lists of citations were checked, and the advice of experts and key stakeholders sought. Over 27,900 references were assessed by the reviewers, 457 papers were retrieved, and 118 were included in the report. Twenty-three reviews related to service delivery and organisation, and 95 to specific therapies.

3.22 Key interventions considered were:

- diagnosis (and exclusion) of an allergy
- preventative measures/services for allergies
- treatments (including immunotherapy and alternative/complementary therapies, and mixed interventions).

3.23 The nature of high quality systematic reviews is that they bring together multiple studies with similar characteristics, and where appropriate combine their outcomes in a meta-analysis. This level of synthesis is widely considered to provide the highest quality level of evidence for the effectiveness of interventions. However, it is also associated with a number of limitations, including:

- little evidence on diagnostic studies has been subject to systematic review, so this area appears under represented in the evidence summary; it is an inherent characteristic of systematic reviews that specifics of particular diagnostic tests are under reported in synthesised literature
- systematic reviews do not provide detail of specific interventions from included studies
- systematic reviews and guidelines use varying definitions and criteria for service delivery and types of specialist.

Other limitations are described in the full report of the review of reviews.

3.24 The review of reviews was able to show that:

- clinician delivered patient education as an adjunct to medical treatment may improve symptoms when compared to medical treatment alone
- care by specialists appeared to be associated with improved clinical outcomes when compared with the care provided by generalist physicians
- shared care under certain circumstances can be as effective as hospital led care in the treatment of adults
- self management education involving a written action plan, self monitoring and regular medical review, may result in a reduction in use of health care services, and have beneficial effects on other outcomes
- less than adequate knowledge regarding allergy treatment exists among patients in general medical practice
- few data exist objectively comparing generalist and specialist practice characteristics
- despite suggestions that referrals are made to specialists based on severity of symptoms, little empirical data have been published to support that specialist practice deals with more severely affected patients.

3.25 The review of reviews also identified significant gaps in research knowledge, which we believe the research community should consider:

- prospective studies of symptomatic treatment comparing types of specialist with generalist settings

- patient knowledge across general practice and specialist settings, and its effect on symptoms, quality of life and health care outcomes, costs and impact on social wellbeing
- evaluation of the impact of shared care on resource allocation and service delivery structures (which should be subject to evaluative studies)
- therapeutic/preventative studies on all allergen sensitivities of participants, rather than use of single allergen treatments
- economic evaluation of allergy-immunology services where well-conducted RCTs have established rigorous findings
- case management as a model for service delivery, in extensive controlled trials to follow up the promise of preliminary studies
- the structure of allergy clinics as a component of service delivery, including the effects of specialist care, and role of shared care models, and case management across a range of environments
- the outcomes associated with home based care methods for asthma.

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4. Current services for people with allergies

Introduction

4.1 The previous sections explored the available epidemiological and clinical evidence associated with allergies. This section provides a description of current services and the workforce associated with them. The evidence is drawn from a range of sources but mostly falls within Level 4, expert opinion, including the views and experiences of people with allergy and their carers.† Where there was no evidence the review team generated its own by running a series of independently facilitated workshops aimed at seeking stakeholders' views of current care pathways.

What is the current profile of allergy services?

4.2 The review team sought to establish a profile of current services, geographical spread, activity, capacity and human resources. However, neither DH nor the NHS collects baseline data which could provide a ***full*** profile of services for allergy in England. In view of this the review team complemented data from national data sources with other data generated by key stakeholders.

Self care and use of the independent sector

4.3 Estimates of over the counter (OTC) sales for allergy products in community pharmacies and the major chains, and general sales list (GSL) medicines through general retailers, indicate that many people with an allergy (actual or perceived) self care, using not the NHS but any one of a range of alternative sources of support.

4.4 The review team established, for example, that many people purchased over the counter medicines from community pharmacists or high street chains. According to the Pharmacy Services Negotiating Committee, there are 12,360 registered community pharmacies; 6 million people visit a community pharmacy every day, and 94% of the population use their local pharmacy at least once a year.

4.5 In principle, these pharmacists would be available to provide advice on allergy symptoms. The allergy symptoms most commonly dealt with in community pharmacy could be defined as including:

- respiratory problems – allergic rhinitis/hay fever
- skin conditions – eczema, dermatitis
- eye and ear – allergic conjunctivitis
- childhood conditions – napkin rash, viral rash.

† See paragraph 1.11

4.6 Allergy treatments available for community pharmacists to provide, without a prescription, include systemic antihistamines, topical antihistamines, topical antipruritics including calamine, systemic decongestants, topical decongestants, some topical steroids and some intra-nasal steroids such as beclometasone and fluticasone nasal sprays.

4.7 The over the counter market includes pain relief, skin treatment, cough/cold/sore throat remedies, gastrointestinal medicines, medicated mouthwash, hay fever remedies, eye care treatment, sleeping aids, smoking cessation aids, vitamins and minerals. As well as community pharmacies, the main suppliers of over the counter medicines are chain pharmacies and supermarkets.

4.8 Additionally, community pharmacists may supply alternative or complementary therapies, relating for example to allergen avoidance (advice and referral), food intolerance and allergy (home test) and herbal remedies (specialist ranges).

4.9 In addition to over the counter pharmacy, significant specialist advice and support is provided by patient groups. The helplines run by the charities offer advice on treatments and control of allergic conditions.

Primary care services

4.10 In the NHS, the mainstay of allergy care is in primary care. Patients with a clear diagnosis, and mild but persistent symptoms, are usually managed in general practice without referral.

4.11 However, the review team could find only one published example of an allergy clinic in primary care set up by a PCT to improve local services for allergy. In 2005/06, Harrow PCT funded a dedicated allergy clinic, staffed by a nurse and a GP with an allergy interest, as a local enhanced service (funding ceased on 31 March 2006). To ensure appropriate referrals from local GPs and to standardise the patient pathway, a detailed referral pathway was developed and circulated to all GPs in the PCT.

4.12 Core activities of the clinic were to assess and advise on those with rhinitis, urticaria, food allergy and intolerance, drug, latex and insect venom allergy and anaphylaxis. Skin prick testing for aeroallergens and its interpretation was performed in-house and a specific IgE assay was available from a local laboratory. Protocols for referral to an allergist, clinical immunologist (or other organ-based specialist) were created, and the clinic acted as a resource centre for other local primary care professionals.

4.13 In the first 9 months, the clinic received 140 referrals from 39 practices, serving a population of 220,000. GPs stated that, if the clinic had not been available, most

(90 of 138) patients would have been referred to secondary care. Of these, 46% would have been to an allergy clinic and 28% to a dermatology clinic.

4.14 Clinical outcomes from the clinic were not reported. 10 patients – 8% of the total seen (124) – were referred by the clinic on to secondary care. 71 patients who attended the clinic completed a consultation satisfaction score, with an overall median score of 75%.

4.15 In a postal survey of a randomly selected sample of 500 UK GPs in 2002, 81.5% of the 240 respondents judged NHS care for people with allergy to be of poor quality. Only 50% had undergone training in managing allergic problems, mostly (78%) as undergraduates.[1]

Secondary care

4.16 If the GP considers referral for a specialist opinion to be necessary – because there is diagnostic doubt or more severe disease – there are different options depending on local service provision. Services are delivered in three main ways:

- in an allergy clinic run by either an allergist or a paediatric allergist
- in an allergy clinic run by a consultant in another specialty (such as immunology, respiratory or dermatology) – many of which restrict the type of disease they deal with eg to disease presentation or to the clinical specialty for the organ in which the allergic symptoms are manifest
- within children's services (although many children are seen within adult services).

4.17 The British Society for Allergy and Clinical Immunology (BSACI) has estimated that approximately 50% of allergy referrals to secondary care are seen by consultant allergists, 40% by clinical immunologists and 10% by organ-based specialists with an interest in allergy.

4.18 There are approximately 94 allergy clinics in England, of which the BSACI identifies 66 provided by its members. The BSACI is currently updating the information on clinics on its website (www.bsaci.org).

4.19 Of these 94 clinics, six offer services led by full-time specialist allergists – three in London and one each in Southampton, Cambridge and Leicester. All except Leicester were developed as academic units with university funding.

4.20 The 94 clinics include:

- 27 organ-based allergy clinics – 14 respiratory, 4 ENT, 1 rhinology, 7 dermatology, 1 ophthalmology; 16 of the 27 see children
- 38 allergy clinics seeing adult patients – 14 run by allergists, 24 by clinical immunologists; 29 of the 38 see children
- 29 paediatric-only clinics – 18 run by general paediatricians with an interest, 7 by paediatric allergists, 2 by paediatric clinical immunologists, 1 by a paediatric dermatologist and 1 by a paediatric gastroenterologist.

4.21 Clinical immunologists carried out a survey[2] in 2003/04, which showed that almost all of the 17 immunology centres – included in the 94 clinics referred to above – offered the complete repertoire of a specialised allergy service (as defined in the DH Specialised Services Definition No.17 – see under commissioning below), apart from inpatient beds. They were the exclusive providers of such a service for an estimated 32 million people.

4.22 Secondary care allergy services vary, not only in terms of the background of the specialists, but in numbers of outpatient clinics undertaken and types of patients being seen. Moreover, the geographical distribution of allergy clinics is unequal, with a relative paucity in the north and the south west. A map of those allergy clinics provided by its members is available on the BSACI website.

Which clinical staff, and how many, provide allergy care?

4.23 There is a range of clinical staff who may be involved in allergy care; a description of their roles is set out in *Annex E*. It should be borne in mind that the vast majority of staff in each professional group have no or minimal involvement with allergy.

4.24 According to the September 2005 NHS workforce census for England, there were 10 consultants with a specialty of allergy – compared with 26 at the September 2004 census. However, the 2005 census does not give a true picture: some NHS Trusts appear to have coded allergists under other specialties. The RCPath's own 2005 census records a headcount of 34 allergy consultants.

4.25 The September 2005 NHS workforce census shows 66 immunology consultants (67 in September 2004). Some clinical immunologists provide specialised services in clinical allergy, but many do not. Headcount and FTE equivalents for these and other clinical staff groups who may deal with people with allergies are shown in the table at *Annex F*.

4.26 The numbers in the table are, of course, totals for each staff group. The numbers actually involved in allergy care will be much smaller. Also, the NHS workforce census does not identify the specialist areas in which nurses and other non-medical staff are employed. The review team therefore asked members of the NAAG for any available information; the facts obtained are included in *Annex F*.

How are health care professionals trained to treat allergies?

4.27 Responsibility for the content, standards, management and delivery of medical education is shared between regulatory bodies (eg the General Medical Council), professional bodies, universities, DH and the NHS.

4.28 Allergy has been a specialty distinct from clinical immunology, with its own training curriculum and Certificate of Specialist Training (CST), since 2001.

4.29 Centrally funded training opportunities are limited. DH allocated 1 additional centrally-funded National Training Number (NTN) to allergy in 2004/05, and 1 centrally-funded and 1 locally-funded NTN in 2005/06. There are currently only 8 NTNs in total for allergy, which is not sufficient to replace predicted retirements. There are 32 NTNs in post for clinical immunology. Individual Workforce Development Confederations and Deaneries are in charge of managing and allocating posts at local level, monitored by the Workforce Development Team.

4.30 Information on the training of clinical staff who may be involved in allergy care, taken from relevant websites and augmented by NAAG members and other stakeholders, is given at *Annex G*. This shows that most such staff groups will receive little or no specific formal training in allergy.

4.31 Training for GPs begins during their undergraduate degree and continues throughout their entire career, through specific training posts and effective Continuous Professional Development and Continuing Medical Education. GPs receive training in the basic science of immunology, but not its clinical translation. GPs receive much training in different diseases where an allergy might be involved, but no training in the allergic aspects of these diseases or on clinical allergy diagnosis and management. There is no specific reference to allergy in the new GP curriculum.

4.32 There is a range of accredited training in allergy aimed particularly at GPs and practice nurses, including:

- Education for Health in Warwick runs degree and diploma level modules and short courses on allergy

- the University of Southampton School of Medicine offers an MSc allergy programme
- Allergy UK arranges one-day allergy "masterclasses" around the country and has recently set up an on-line allergy diploma course, accredited by the University of Greenwich
- the BSACI also runs one-day courses, and its annual conference includes a primary care day
- allergy centres hold regular one-day courses for local doctors and nurses
- other ad hoc courses are provided by eg the RCP and the RSM
- the General Practice Airways Group website has asthma and allergy-related resources for primary care professionals
- the British Dietetic Association runs one-day courses for dietitians and nurses
- the pharmaceutical industry also arranges one-day courses.

There remains a lack of *clinical* training opportunities for those who may attend such courses.

4.33 Delegates at the third stakeholder workshop for the review suggested that the following competences, skills and training were required by the allergy workforce generally, and primary care staff specifically:

- increased awareness of allergy
- understanding of multi-systemic allergy
- diagnosis and interpretation of diagnostic tests
- treatment options
- when and where to refer
- education and communication skills with the patient.

4.34 At its third meeting, the NAAG started to brainstorm the skills and competences that would be required by a "fit for purpose" health professional involved at each key decision point along the patient pathway. They used as a basis an outline generic pathway derived from the four individual patient pathways mapped out for different allergic symptoms at the December stakeholder workshop. The suggested skills and competences and their possible application to the patient pathway are set out, colour coded, at *Annex H*. This work is picked up in the proposed next steps.

How are services for allergy commissioned?

4.35 DH recognises allergy services as specialised services – defined as services with planning populations of more than one million people, for which PCTs are responsible for establishing collaborative commissioning arrangements. Definition No.17 of the Specialised Services National Definitions Set (second edition, 2002) covers specialised services for allergy (all ages).

4.36 Definition No.17 covers all allergy activity that takes place in the 6 existing centres led by full-time allergists (see above). Specialised services for allergy include both specific disorders and allergic disease where this is severe, multi-system, not controlled or where an allergic aetiology is suspected. It is assumed that most patients with simple allergic disease will be dealt with in general practice, with some being seen by organ-based specialists with an interest in allergy; the more complex cases should be seen in specialist allergy centres.

4.37 The Definition establishes the elements of a specialised service and sets out conditions that should only be seen or procedures performed in specialist allergy centres. It also details the BSACI's recommended standards for the requirements for such a specialist centre.

4.38 The definitions in the national set are not service specifications. Nor do they prescribe service models or set service standards. They are intended to provide a helpful basis for service reviews and strategic planning.

4.39 According to a DH survey, as of April 2005 2 (of 8) Specialised Commissioning Groups (SCGs) and 7 (of 25) Local Specialised Commissioning Groups (LSCGs) had collective commissioning arrangements for specialised allergy services (Definition No.17). However, only 5 LCSGs said that they were actually collectively procuring allergy services.

4.40 The North West SCG provides an example of the funding constraints. It set out a proposal in January 2003 to create a North West Integrated Clinical Allergy Service (NWICAS). However, whilst local PCTs support the creation of NWICAS in principle, no funding has yet been identified and service development remains localised and sporadic.

4.41 In February 2005, Allergy UK wrote to all PCTs in England to ask what level of support they had made available, or planned, to develop allergy services. 141 PCTs (just over half of those contacted) responded.

4.42 The evidence from the Allergy UK survey is that:

- PCTs are doing little or no commissioning of allergy
- PCTs are largely unaware of allergy and have little understanding of their role as far as allergy commissioning is concerned, as services are mainly delivered under the umbrella of other specialties
- in most areas there are no specialist allergy providers, and so no one to push for service development and argue the case for funding
- financial constraints are a further reason why there appears to be little or no prospect of the situation changing.

4.43 Only 12% of replies mentioned specialist commissioning as an avenue for securing allergy referrals. The dominant pattern was for the PCT to have a general agreement with provider Trusts to deliver services for allergy as part of an undifferentiated package of care. Allergy might be contained within general medicine, dermatology, clinical immunology, respiratory medicine, ophthalmology, ENT and so on. The PCT typically knew neither how much allergy was provided for nor the level of service.

4.44 An independent review of commissioning arrangements for specialised services reported to Ministers in May 2006. DH has taken account of the review's recommendations in the commissioning framework published in July 2006.

Summary and conclusions

4.45 The absence of baseline data on the profile of services for allergy and the cost makes it difficult to develop a strategic national view of how and where services could be developed.

4.46 The review team was unable to identify any published examples of whole-systems modelling of services for people with allergy. Similarly, there has been no analysis of the effects of active demand management of patient flows in allergy care, a situation exacerbated by the absence of agreed service models and protocols, plus the presence of differing perspectives of professional groups (see chapter 5).

4.47 Such information will be essential in order to make meaningful comments on the existing and desirable capacity of services for allergy.

4.48 Future development and provision of services for allergy will also require a much clearer understanding of the skills and competences needed from a diverse workforce, to ensure high quality and cost-effective care at all stages of the patient's journey.

4.49 There is also a clear need for integrated, cohesive commissioning, with an understanding of the framework within which services for allergy should be commissioned.

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5. Stakeholders' views of current services

Introduction

5.1 This chapter sets out the views of stakeholders about current services. It is informed by evidence, correspondence and papers submitted to the review team during the course of the review and by the three stakeholder workshops held in autumn 2005.

Users' experiences of allergy services

5.2 Allergy voluntary organisations provide vital support and information to allergy sufferers. In the year 1 April 2004 to 31 March 2005, Allergy UK received just over 68,000 enquiries, including 18,558 calls to its telephone helpline (it expects this figure to be significantly higher now that it has responded to demand by making more lines available). Asthma UK also had 10,500 calls to its helpline, and 60,000 hits on its website each month. Allergy UK sends out 250,000 fact sheets and leaflets a year; the Anaphylaxis Campaign dispatches another 140,000; Asthma UK dispatched 30,000 copies of its "Asthma Attack" card following a recent TV advertising campaign.

5.3 People with – and parents of children with – allergic conditions shared their experiences at the stakeholder workshops and through membership of the NAAG. The review team also received correspondence from individual service users. Although every story is different, certain common themes have emerged.

5.4 The Anaphylaxis Campaign conducted a survey of its membership in November 2005. From the 1,021 replies, key messages include the view that:

- there is a "postcode lottery" in the provision of services for allergy
- severe allergies can have a crushing effect on quality of life
- severely allergic people feel neglected by the NHS
- the knowledge of GPs about severe allergy and the specialist care available varies considerably
- there is a real need for help, advice and guidance, particularly after diagnosis when many feel abandoned and overwhelmed; this is especially true for the parents of severely allergic children.

5.5 1,117 members of the Anaphylaxis Campaign responded to a second, online, survey in January-February 2006, of whom:

- 59% thought that the NHS was not particularly/at all well equipped to manage the needs of people with allergy

- 76% felt that their GP did not understand the health needs of the allergic person very well
- only 34% were initially diagnosed by an allergy specialist
- of those, 77% were not diagnosed until at least a month after their first reaction; 13% waited for more than 2 years
- 21% had to wait over 2 years after diagnosis to receive an adrenaline auto-injector
- 58% had not received sufficient information from NHS sources
- 50% had received some contradictory advice
- 67% were very/fairly satisfied with the actual treatment of their/their child's allergy.

5.6 Asthma UK conducts a twice-yearly survey, the National Asthma Panel, of a stratified random sample of adults with asthma from across the UK. People surveyed have identified the following common allergens as asthma triggers: dust (90%), cigarette smoke (82%), pollen (80%) and perfume (60%).

5.7 The survey shows that the need to avoid allergens and asthma triggers imposes considerable constraints on people's lives. For example:

- people with the most serious allergies and asthma cannot do many of the things that most people take for granted, such as going out to restaurants or visiting local swimming pools, for fear of having a serious adverse reaction
- 40% of people with asthma encounter triggers at work, and 20% feel excluded from parts of the workplace where people smoke.

5.8 Further evidence from the National Asthma Panel surveys, 2002–04, includes the following:

- 74% of people fail to meet international standards of care
- 25% of people with asthma have emergency visits to their GP or hospital
- 62% have some restriction on their activities as a result of their asthma
- 55% of people with asthma have difficulty sleeping, due to their asthma, at least once a month
- only 56% of people say they have access to doctors and nurses who have specific asthma training
- 47% wanted more information about their asthma from asthma nurses

- only 53% have annual check-ups with their doctor and 60% of consultations are unplanned; 10% are prompted by an attack – this indicates asthma which is not being properly controlled.

5.9 In Asthma UK's recent Asthma Control Test, 20,000 people took a test to assess how controlled their asthma was. A significant number reported that their asthma was not well controlled.

The views of the British Society for Allergy and Clinical Immunology

5.10 As well as membership of the NAAG, representatives of the BSACI presented at all three stakeholder workshops. The BSACI submitted three papers to the review team.

5.11 BSACI paper 1, on the nature and extent of allergy, brings together evidence on the extent of each of the principal allergic disorders and offers views on the service implications. It estimates that:

- 20 million people require allergy to be considered in diagnosis and disease management
- of these, 10 million people can be expected to self manage their allergy or be treated symptomatically within primary care without an allergy diagnosis
- the other 10 million people require an allergy diagnosis for effective care to be provided
- of these, between 3.5 and 7.5 million people require specialist allergy care.

5.12 BSACI paper 2 examines the evidence for the effectiveness of allergy interventions (including diagnosis) and for the extent to which it makes a difference as to who undertakes the intervention. It asks whether there is any added value in investing in specialist allergy services. It offers a number of individual case studies in order to illustrate the value of a specialist centre. For nut allergy, it cites three reported studies showing the added value of diagnosis and management from a specialist allergy centre.

5.13 BSACI paper 3, on the patient journey for allergic disease and a model of allergy service within the NHS, sets out its recommendations for optimal referral pathways and service model. It argues that what is lacking in current service models is a fully resourced, geographically comprehensive network of allergy centres (each led by two FTE consultant adult allergists and two FTE paediatric allergists) which would provide:

- increased capacity for the straightforward allergy problems

- a tertiary referral service
- co-ordination and leadership, both locally and nationally.

5.14 The BSACI observes that "the [allergy] service is fragmented and geographically unequal... on the ground the GP is faced with an often confusing and limited choice of referral options. When combined with the generally poor knowledge of allergy in primary care this can make the patient journey inefficient, slow, frustrating and potentially puts the patient at risk."

5.15 The BSACI considers that "for primary care, improved capacity to undertake basic diagnosis of allergy is essential" and that, "without this, all other providers have to work inefficiently because the basic referral information is not assembled". Moreover, the BSACI believes that a high quality primary care service will not happen without specialist allergy centres to act as an educational platform to reach out to all GPs and their support staff. It anticipates a need for about one such centre per teaching hospital.

5.16 Members of the BSACI, GPs and others met at the RCGP on 20 April 2006 to discuss allergy services in primary care. Those present concluded that:

- an explicit action plan was needed for better allergy management in primary care
- this should include a communications initiative to help all clinical staff in primary care to make themselves more "allergy aware"; this would require financial support if it were to achieve critical mass
- allergy education needed to be brought more into the mainstream of clinical education for all primary care practitioners; allergy education for nurses also needed to be strengthened
- the RCGP syllabus and examination for family doctors could be developed to recognise the widespread existence of allergy
- NHS purchasing must recognise allergy
- clinical guidelines for allergy practice were not being adhered to
- the approach adopted in BSACI paper 1 (see paragraph 5.11) was appropriate; purchasing guidance on allergy management, and the development of appropriate patient pathways, were needed
- allergy must become recognised within the Quality Outcomes Framework
- a range of referral options must be available so that more expert advice and patient management can be accessed; a national network of specialist centres was required, to support education in primary care.

The view of the Royal College of Physicians

5.17 The RCP (in its 2003 report *Allergy: the unmet need*) argued, as does the BSACI, for the development of a network of regional allergy centres and a consequent expansion in the number of allergy consultants. The Health Committee adopted this argument and called on DH to invest in the creation of 40 additional consultant allergist posts by 2008.

The views of clinical immunologists

5.18 As a specialty, the clinical immunology consultant community fully endorses the recommendations of the RCP report. However, as their own 2003/04 survey (referred to in chapter 4) demonstrates, clinical immunologists:

- currently make a major contribution to specialised allergy services at secondary and tertiary level
- have provided leadership and championed the provision of regional services, and
- are likely to remain key providers of tertiary level allergy care in the long term.

5.19 The paper argues that rapid progress in developing the specialty of allergy and securing better access to services for patients in the short term will depend on strengthening the collaborative relationship between allergists and clinical immunologists.

A primary care view

5.20 A January 2005 discussion paper ("Management of allergic problems in primary care: time for a rethink?") in the *Primary Care Respiratory Journal*[1] argues that most mild or moderate allergy symptoms can be managed successfully in primary care with appropriate interest and training. It argues that, for the majority, identification (by skin-prick or blood tests) of specific allergy triggers is not necessary as long as symptoms respond to pharmacotherapy. This view is shared by the recently established Primary Care Allergy Network (see below).

5.21 The authors propose the development of specialist community services for allergy, identifying potential for expanded roles for pharmacists, doctors and nurses (based on recommendations from the RCP). They suggest minimum levels of knowledge for all practitioners, at each level of service, in order to raise the standards of primary care management. They also argue for the creation of Practitioners with a Special Interest (PwSIs) in allergy.

The Primary Care Allergy Network

5.22 A small group of GPs and primary care nurses has recently agreed to set up a Primary Care Allergy Network (PCAN), with administrative support from Allergy UK, to provide support for professional colleagues in this field. This will fill a gap identified by the Health Committee. Over the next two years, PCAN aims to:

- develop a national clinical/scientific network
- create a national database of allergy-trained healthcare professionals in primary care
- identify metrics that could be used to measure quality of care and outcomes in primary medical services
- work with allergy specialists to establish clinical supervision and monitoring opportunities
- promote postgraduate opportunities to develop knowledge, skills and competences
- produce a generic undergraduate module on allergy
- create policy documents, training resources and accreditation procedures.

The views of the Royal College of General Practitioners

5.23 The review team met with Dr Mayur Lakhani (Chairman of Council) and Dr Graham Archard (Vice Chairman). They acknowledged that primary care needed to "raise its game" and suggested that the key would be an education programme to increase the level of understanding of allergy in all GPs. Those with a particular interest could go on to develop as "practitioners with extended knowledge". The RCGP could be invited to develop standards for allergy in primary care. Also needed were service specifications/models to inform commissioning, referral management and national clinical guidelines.

Consensus views: findings of the third stakeholder workshop

5.24 In order to establish whether there was a consensus about current services, the third stakeholder workshop looked at current patient pathways for an adult or child with one of the following sets of specific allergic symptoms:

- rhinitis or asthma – sneezing, wheeze, cough, nasal blockage
- skin – itching, rash, swelling, weals
- suspected food allergy – symptoms develop soon after eating
- suspected anaphylactic episode – reaction to eg nuts, bee/wasp sting.

5.25 Additionally, participants identified where there might be blockages or delays. The generic consensus themes to emerge from this exercise were as follows:

- service users – can be unclear where to turn; they might receive informal advice, eg from a pharmacist; may fall out of the system into a so-called "allergy ghetto", and seek complementary services, with non-validated tests and treatments
- primary care – may have limited knowledge or awareness of allergy; tend to overlook multi-system atopy; lack guidelines for therapy or referral; enhanced services (eg PwSIs, diagnostic tests) are minimal
- paramedics and A&E – also tend to have limited knowledge or awareness of allergy, and not to consider or identify precipitants; paramedics work to limited protocols; patient "hand-offs" result in poor continuity of care
- secondary care – is provided by a range of specialties, with variable knowledge of allergy; delays in cross-referral, and inappropriate interventions, can result.

5.26 There was also consensus on the following major barriers to delivery of high-quality allergy care:

- lack of ring-fenced central funding
- PCTs do not prioritise allergy
- insufficient awareness of allergy, across all sectors
- shortage of appropriate training for primary care health professionals
- professional conflict
- no evidence based clear or agreed service or care model
- lack of referral protocols/guidelines – and of services to which to refer.

Summary

5.27 In conclusion, some key themes that have emerged from the project team's engagement with stakeholders, including at the workshops, concerned:

- public perception and knowledge
- professional knowledge levels (primary care, pharmacists, paramedics, A&E, nurses)
- no agreed service models (and the implications of system reform, plurality, payment by results, practice based commissioning)
- pathways unclear (entry, treatment, referral)

- not a commissioning priority
- non-validated providers (advice, tests, treatment).

5.28 There is also a difference of views and perspectives between the two main clinical specialties providing allergy services. The BSACI acknowledges this, stating, "The two communities to an extent have a different view of their role in delivering allergy services. The polarised and largely unrepresentative views are that on the one hand allergy services should only be led by consultants who see themselves as full time allergists... The alternative view is that clinical immunologists, who currently manage a very substantial number of allergy patients and deliver a high quality allergy service, are both necessary and sufficient to lead NHS allergy services in the future. A logical solution is that both models could be expanded to operate side by side, with mutual support from both the allergy and clinical immunology communities."

5.29 None of the stakeholders, nor the review team, was aware of any published examples of whole-systems modelling of services for people with allergy. Similarly, there has been no analysis of the effects of active demand management of patient flows in allergy care, a situation exacerbated by the absence of agreed service models and protocols, plus the presence of differing perspectives of professional groups.

Reference

1. Ryan D, Levy M, Morris A, Sheikh A, Walker S. Management of allergic problems in primary care: time for a rethink? Primary Care Respiratory Journal 2005; 14:195–203.

6. Health reform and next steps in allergy

Introduction

6.1 The aim of the review was to identify and evaluate the available data and research (including operational research) on

- the epidemiology of allergic conditions – ie morbidity, mortality, demographic and geographic variations in the burden of the condition
- the demand for and provision of treatment – eg GP consultations, prescribing, hospital admission rates, number of outpatient clinics, profile and configuration of current services
- the effectiveness of relevant specific interventions, including prevention.

6.2 The previous chapters, drawing on the views of stakeholders, set out the evidence available to the review team. These chapters have revealed gaps in

- knowledge and skills of clinical staff dealing with allergy – especially in diagnosis
- systematic planning and commissioning of services for allergy
- baseline data on NHS services for allergy, relevant service capacity and costs, and workforce
- research.

Discussion

6.3 Individuals and groups affected by or interested in services for allergy acknowledge that it is difficult to establish objective, compelling scientific evidence which demonstrates conclusively that demand for services for allergy outstrips supply – either because the research has yet to be completed or commenced or because the appropriate data are not collected. Equally, there is no conclusive evidence which establishes beyond doubt that one model of service delivery outstrips another.

6.4 The Royal College of Physicians published a report entitled *Allergy: the unmet need* in 2003. However, it is clear that the evidence base required to determine the scale of unmet need in England with any precision is incomplete. There is some solid evidence to support specific interventions and service models for allergy. Unfortunately, clinical experts believe these studies only cover part of the spectrum of effective clinical services. Thus, as in many other areas, a judgement has to be made, based on less than perfect information as to what services are likely to meet patients' needs and represent value for money for the NHS. In the meantime, we should do all we can to accumulate more complete evidence.

6.5 The epidemiological evidence suggests that areas of particular concern include:

- the rising number of patients presenting with anaphylaxis
- food allergy, with very large numbers of concerned individuals
- children with multiple allergic conditions, who have high levels of morbidity and distress.

6.6 The epidemiological evidence provides some idea of the scale of the problem in England. There are clearly very large numbers of patients with allergic conditions or with symptoms that require investigation for possible allergy.

6.7 Evidence drawn from the experience of sufferers, although sometimes lacking the support of scientific studies or "hard" data, is nonetheless compelling. The review has heard that people with allergies often feel let down by a poor and frequently unobtainable service. For those living with allergy severe enough to require specialist care, the lack of services for allergy is a problem which can greatly affect their quality of life. Some people can wait 3 to 9 months for an appointment to see a consultant in secondary care. Equally, as allergy is a multi-organ disease, some may be passed around a number of different clinical departments for the different symptoms, such as respiratory, ENT, dermatology and general paediatrics, which can make diagnosis and optimal treatment difficult.

6.8 It is self evident that high quality information and guidance offered to those affected by allergy is likely to empower them to manage the condition and protect themselves from harm, by learning to self-administer appropriate medication or to avoid those allergens which cause an allergic reaction.

6.9 Although there are few research studies that can verify this, the importance of GPs and others in primary care having sufficient clinical knowledge and support systems to spot allergy in the early stages – and being able to differentiate between serious allergies requiring specialist interventions and those that can be managed in primary care – will be key in making best use of available specialist resources.

6.10 Clinical skills are very much at the heart of effective services for allergy. The ability to identify the need for allergy tests, the skills and competences to administer or interpret the results of these tests, and the training required to advise patients on how to manage their allergy better as a result of them, are key to the delivery of high quality services.

6.11 There are a number of recent research studies, some drawn to our attention by clinicians, which demonstrate the benefits of specialist services for allergy in

diagnosing and treating severe allergies. Equally, there are studies which recognise the contribution to services for allergy made by GPs, respiratory physicians, dermatologists, clinical immunologists and others. There is none which we have been able to identify which directly compares equivalent services delivered by allergists, immunologists or organ specific physicians. Indeed, given the range of needs for allergy care, it is unlikely that any one model is always better than another or more cost effective. Thus, commissioners should work with service providers in their local health economies to develop effective networks and collaborative partnerships that can deliver the best overall outcomes for patients. This requires co-ordination and co-operation, and an explicit approach to assessment and referral (and subsequent funding) according to agreed standards.

6.12 While we found no direct and specific evidence to support the Health Committee's recommendation for 40 more training places for medical allergy specialists, it is evident that the NHS needs substantially more capacity in services for allergy generally, including clinical specialists. The precise need will inevitably vary around the country, depending on patterns of existing supply and potential opportunities for expansion.

6.13 The responsibility for ensuring that patients' needs are met lies with local commissioners. *Annex C* uses two examples – making a specific allergy diagnosis in children with atopy and allergy, and aftercare for patients with anaphylaxis – to illustrate how local service commissioners might estimate unmet need in their community.

6.14 The report acknowledges that, while the evidence is incomplete, sufficient exists for recommendations to be made about what needs to be addressed over the next few years in order to improve services for allergy.

A way forward for allergy

6.15 Since the review of allergy services was announced, the Government has set out its health reform agenda for the NHS and has published the White Paper *Our health, our care, our say: a new direction for community services.*

6.16 *Health reform in England: Update and next steps* (December 2005) sets out a vision of "an NHS which is fair to all of us and personal to each of us by offering everyone the same access to, and the power to choose from, a wide range of services of high quality, based on clinical need, not ability to pay". The health reform programme aims to provide systems and incentives which will drive improvements in health and health services, increase responsiveness to patients and help to achieve reductions in health inequalities, through:

- more choice and a much stronger voice for patients

- more diverse providers from the private and voluntary sectors, including new NHS social enterprises, to bring more capacity
- practice based commissioning where GPs and primary care professionals, working with PCTs, influence local service development
- Foundation Trusts giving front-line healthcare professionals and local managers the incentive to improve services
- Payment by Results
- a framework of system management, regulation and decision making which guarantees safety and quality, fairness, equity and value for money.

6.17 *Our health, our care, our say: a new direction for community services* (January 2006) aims to provide the public with more choice and say over the care they receive in the community, and much closer working and co-ordination between health and social care. This will include:

- improved access to GPs, by increasing the choice of practices for everyone and extending opening hours
- more support for people with long term conditions – trebling investment in the Expert Patient Programme, and Personal Health and Social Care Plans
- local partnerships between local authorities and PCTs, to produce joint teams and common assessments
- a new generation of community hospitals and health centres that provide health and care services in the heart of the community.

6.18 Work with six specialties (including dermatology and ENT) in demonstration sites will define clinically safe pathways and appropriate models for providing care closer to home.

6.19 The key levers for change for services for allergy in the future will, essentially, be for local rather than national level action. In the light of local priorities, local health commissioners will need to consider – for allergy as for other services – how to include:

- patient choice in allergy
- high quality information about allergy for the public
- increased investment in the Expert Patient Programme as it relates to allergy
- practice based commissioning for services for allergy

- joint commissioning between PCTs and local authorities for services for allergy
- introducing a wider range of providers from the private and voluntary sectors for services for allergy
- workforce modernisation for services for allergy
- better clinical and management information for services for allergy
- a focus on allergy self care, in line with the White Paper†.

6.20 At national level, the review has been a catalyst in energising and bringing together a wide range of national and local interests in constructive debate on the future of services for allergy – not least through the National Allergy Advisory Group (NAAG) who have helped develop this report. Equally, different stakeholder groups have organised meetings which have contributed to developing a consensus view of the need for service developments. For example, in the NHS, the Primary Care Allergy Network (PCAN) has been set up to provide support for professional colleagues in the field.

6.21 The review team has drawn the review's findings to the attention of policy leads in the Department of Health working on workforce planning and delivery, Payment by Results and the rest of the health reform and White Paper agenda.

6.22 There are more specific initiatives that the Department of Health could undertake to support the NHS and others to generate and lever change in services for allergy, to sustain and build on the momentum of the review. In the context of current constraints in the NHS and the Department, such initiatives will need to be incremental, phased in steps over a number of years. It will be essential to involve stakeholders – including patients, the NHS, Royal Colleges, the independent sector and voluntary organisations.

Early steps

6.23 On the basis of the evidence and the views expressed by the NAAG, early attention will be focused in two areas – the knowledge and skills of clinical staff, and the systematic planning and commissioning of services for allergy.

† The document *Supporting people with long term conditions to self care: A guide to developing local strategies and good practice* (February 2006) builds on the White Paper in highlighting four areas where health and social care services can support people with long term conditions to self care – information, skills and knowledge (both for patients and clinicians), self monitoring tools and equipment, and support networks.

Knowledge and skills of clinical staff

6.24 The Department of Health will investigate options for referring to the National Institute for Health and Clinical Excellence (NICE) a request to develop definitive, comprehensive *clinical guidelines for the diagnosis and management of allergic conditions*. It would also be able to build on guidelines for particular conditions already produced by the BSACI or in development. Initial attention could be focused on:

- anaphylaxis
- food allergy
- children with multiple allergic conditions.

6.25 To complement, but not duplicate, the development of NICE guidelines, one or more of the Royal Colleges will be asked to lead work to develop *consensus referral guidance in primary care* for allergic conditions.

6.26 Also to complement the NICE guidance, the Royal College of Paediatrics and Child Health (RCPCH) will be asked to lead work to develop *Care pathways for children with allergic symptoms*.

6.27 Skills for Health will be commissioned to develop, with stakeholders, a *national competence framework* for allergy. In doing so, it will be able to build on initial thinking for the review to define patient pathways and to start to identify relevant skills and competences (including diagnosis).

6.28 Royal Colleges and regulatory bodies with responsibility for the content or quality of *training* courses in allergy will be asked to review both the content of the courses currently on offer and the locations at which they are offered.

Systematic planning and commissioning of services for allergy

6.29 The Department of Health will encourage local commissioners to establish the need for services for allergy in their health community.

6.30 As there will continue to be a need for a critical mass of *allergy specialists*, to whom people with more severe allergy can be referred, the Department of Health will draw the attention of the Workforce Review Team to the review's findings and, in particular, the need for them to continue to consider the need for nationally and locally funded training numbers for allergy as part of the annual review process. The Department will also explore ways to encourage an increase in local training posts commissioned by Deaneries and Trusts.

Later steps

6.31 The Department of Health will consider asking Connecting for Health to develop a *Do Once and Share* project on services for allergy. This would develop a National Library for Allergy (as a specialist library within the National Library for Health) and a national community of practice, with national care pathway templates expressed using the "Map of Medicine" (an online clinical management tool). These could then be adapted to local circumstances.

6.32 The Department of Health will also consider what actions need to be taken to support the NHS and others in addressing the remaining two areas highlighted by the review, by:

- developing *baseline data on NHS services, capacity and costs, and workforce* – including cost modelling, using evidence from a range of services in different settings
- inviting key research funders to note the gaps in the *research* evidence highlighted in the review – relating to epidemiology, diagnostics and interventions, service models and also basic science; different models of service delivery could be evaluated.

Conclusion

6.33 This report sets out the evidence that the review team have considered over the last year. The report acknowledges that, although incomplete, the evidence is sufficient for recommendations to be made for action over the next few years in order to improve services for allergy. It identifies three areas in which initial action will be of key importance:

- local commissioners to establish levels of need for services for allergy in their health community
- SHA workforce planners to work with Deans and providers to explore the scope for creating additional training places for allergists
- the Department of Health to consider the options for commissioning the development of NICE guidelines for allergy, and work with the Royal Colleges on guidance for referral and care pathways.

Annex A: National Allergy Advisory Group (NAAG)

Chairman

Dr David Walker	Acting Regional Director of Public Health, Government Office North East, Newcastle-upon-Tyne

Members

Dr Graham Archard	GP, Christchurch; Vice Chairman of RCGP; Chair, Clinical Networks, RCGP
Simon Banks	Specialised Services Commissioning Manager, Cheshire and Merseyside Specialised Services Commissioning Team
Ms Ursula Collignon	Senior Pharmacist, Emergency Medicine, Guy's and St Thomas' Hospitals NHS Foundation Trust
Professor Tim David	General Medical Paediatrician, Booth Hall Children's Hospital, Manchester
Ms Mandy East	National Co-ordinator, The Anaphylaxis Campaign
Dr Pamela Ewan	Consultant Allergist, Addenbrooke's Hospital, Cambridge; Co-Chair, National Allergy Strategy Group
Dr Mark Goodfield	Consultant Dermatologist, Leeds General Infirmary; Chair, Dermatology Group, Long Term Conditions Care Group Workforce Team
Ms Teresa Green	Senior Immunology and Allergy Nurse Specialist, Royal Victoria Infirmary, Newcastle-upon-Tyne
Ms Ramyani Gupta	Epidemiologist, Lung & Asthma Information Agency, St George's Hospital Medical School
Dr Mark Levy	GP and PCT allergy lead, Harrow Primary Care Trust
Dr Paul Nicholson	Procter and Gamble; Fellow, Faculty of Occupational Medicine
Ms Claire O'Beirne	Service user nominated by Allergy UK
Ms Isabel Skypala	Director of Rehabilitation and Therapies/Head of Dietetics, Royal Brompton Hospital
Ashok Soni	Community Pharmacist, Copes Pharmacy, Streatham
Professor John Warner	Professor of Child Health, University of Southampton
Eric Wiles	Service user nominated by Asthma UK
Dr Paul Williams	Consultant Immunologist, University Hospital of Wales, Cardiff
Ms Neroli Wilson	Service user nominated by the National Eczema Society

Annex B: Allergy services review – meetings and visits

- Addenbrooke's Hospital, Cambridge – allergy clinic
- Allergy UK
- Anaphylaxis Campaign
- Anaphylaxis Campaign support group, Winchester
- Education for Health
- Dr William Egner, Dr Paul Williams – clinical immunologists
- Dr Pamela Ewan – allergist
- Food Standards Agency
- Harrow PCT allergy clinic
- Professor Stephen Holgate – allergist
- Dr Mayur Lakhani, Dr Graham Archard – RCGP
- Primary Care Allergy Network
- Royal Victoria Infirmary, Newcastle – autonomous nurse led allergy clinic
- Southampton General Hospital – paediatric allergy clinic
- Professor Andrew Wardlaw – respiratory physician, President of BSACI
- Workforce Review Team

Annex C: Estimating local need – two examples

Making a specific allergy diagnosis in children

1. Patients with asthma, rhinitis or eczema whose symptoms are not responding well to simple treatment may well benefit from specific investigation of their allergic status. A good example is given in the box below. Patients with more than one allergic condition may also benefit from further investigation of their allergy. These investigations might include skin prick testing for immediate hypersensitivity, blood tests for specific antibodies (RASTs) or other forms of challenge such as patch testing or food challenge. The patient will also need to be assessed by a clinician with sufficient training and experience to order the right tests and evaluate and interpret the results.

Potential value of a specific allergy diagnosis

A nine year old boy was referred because of poorly controlled asthma despite receiving inhaled beclomethasone 400µg/day. His asthma diary showed dips of more than 50% in his peak expiratory flow on Friday evenings. These dips persisted all weekend and were associated with a persistent cough. One concern was that psychosocial circumstances at home might have accounted for his deterioration at weekends, but this was unfounded. His parents mentioned that he had once had a weekend free of symptoms when his sister had been away. On Friday evenings his sister went riding, and she kept her riding gear in their bedroom. Further questioning showed that on direct exposure to horses he experienced rhinitis, conjunctivitis, and wheeze. Skin prick testing with horse dander produced an 8mm weal (positive histamine control, 3mm). His asthma was controlled once his sister stopped riding. He no longer requires inhaled steroids.

Roberts and Lack, 2000[1]

2. Commissioners would need to evaluate which evidence to use to inform their assessment of need. However, there are several epidemiological studies which provide a guide to the numbers of children who might benefit from allergy investigation. For example, the Isle of Wight study showed that at ten years, 13% of children will have currently diagnosed asthma. Half of these (6%) were found to have positive skin prick tests. Other studies show that some 48% of children aged 12–14 years will have one or more allergic symptom, 16% will have more than one and around 4% will have three.[2]

3. Many clinicians believe that specific investigation is warranted in children who have a single allergic condition which does not respond to treatment (see box above) or in children with multiple allergic conditions. In that case, a conservative estimate would

seem to be that up to 10% of children would benefit from specific allergy investigation at some point before the age of 16 years. There were 9.7 million children under 16 years in England in 2004. Assuming each child with allergy needs investigation on average 1.5 times before they are 16 years old, the number of investigations per year would be 9.7 million x 0.1 x 1.5 / 15 = 97,000 (once a steady state had been reached).

4. This workload would fall as approximately 10,000 children investigated or referred in each new Strategic Health Authority each year, or about 4 per year for each full time GP with a list of 2,000 patients.

Aftercare for patients with anaphylaxis

5. Patients who present with anaphylaxis need specific advice and management in the immediate aftermath of their episode and they need continuing support and advice.[3] How many patients per year are likely to require this programme of care?

6. Commissioners could use hospital admission and general practice data, which suggest at least 12 per 100,000 patients have severe episodes per year. The Anaphylaxis Campaign data suggest that five times that many attacks are occurring in the community (say 60–100 per 100,000 per year). This is comparable to the figure derived from an A&E study (1 per 3,500 per year).

7. In England as a whole, therefore, there will be some 30,000 to 50,000 patients experiencing episodes of anaphylaxis each year. These would fall roughly as 3,000 to 5,000 in each SHA or 1 or 2 per GP per year.

References

1. Roberts G, Lack G. Horse allergy in children. BMJ 2000; 321:286–7.

2. Austin JB, Kaur B, Anderson HR, Burr M, Harkins LS, Strachan DP, et al. Hay fever, eczema, and wheeze: a nationwide UK study (ISAAC, international study of asthma and allergies in childhood). Arch Dis Child 1999; 81:225-30.

3. Sheikh A, Walker S. Anaphylaxis. BMJ 2005; 331:330.

Annex D: Clinical interventions review of reviews – executive summary

The House of Commons Health Committee inquiry into the provision of allergy services (2004) concluded that there are real problems faced in the current provision of allergy services, with a lack of training, expertise in the field, and also incentive to deliver care by those in the primary care sector. The response of the Government to this was to conduct an evidence-based review of the available research on the epidemiology of allergic conditions, and the effectiveness of services and interventions, in order to provide future direction in their management.

This report describes what is known about the clinical and cost-effectiveness of key interventions and services for allergic conditions. Special emphasis was put on what is known about elements of interventions related to service delivery and organisation. An analysis of gaps and implications for research from the included reviews led to a summary about additional research needed, and a number of issues for consideration when making policy decisions.

Methods

We included systematic reviews of key interventions, economic evaluations fulfilling the NHS Economic Evaluations Database criteria; and any guidelines and guidance based on systematic reviews of the evidence. Reviews dealing with service delivery and organisational aspects were critically appraised and analysed in detail. For reviews dealing with specific interventions, no critical appraisal took place and a limited data extraction was done in order to present the key characteristics and findings of these studies. The conclusions of these therapy studies are those of the authors of the original reviews. A total of 27920 citations were returned from searching the MEDLINE, CINAHL and Embase databases. 118 papers were included in the review following appraisal, 23 studies related to service delivery and 95 to therapies. The stated methodology for this evidence review was to focus on existing systematic reviews and evidence based guidelines, with an emphasis on service delivery, and a sub section dealing with therapeutic interventions (with a link to allergy). This particular methodology is well suited to identifying systematic reviews, meta analysis and evidence synthesis, however, the methodology did not include capacity to access primary research. This should not lead to a conclusion of an absence of evidence, or of effectiveness, but is indicative of the need for further systematic review and meta analysis in particular areas of allergy/immunology. The sources of these reviews and guidelines were:

- Cochrane Database of Systematic Reviews (CDSR)
- Database of Reviews of Effects (DARE)
- NHS Economic Evaluation Database (NHS EED)
- Health Technology Assessment (HTA) database
- Guidelines International Network (GIN) database
- Medline, Embase, and CINAHL.

Results

The 95 papers included that were considered therapy based papers ranged from 1987 to 2005, and covered dermatological, upper and lower respiratory, food intolerance, anaphylaxis, insect/venom, and mixed allergies. These are reported in the tables at the back of the report according to their specific focus on either service delivery or therapeutic interventions. Around two-thirds of papers were categorised as treatment papers, and these treatments included specific medications, immunotherapy, complementary/alternative treatment, non-pharmacological, avoidance, and others. The remainder of the papers concerned preventative measures, diagnosis, economic, and mixed interventions.

Key interventions for upper respiratory allergies (mainly rhinitis) were evaluated as follows. Positive effects were reported for immunotherapy, antihistamines, corticosteroids, leukotriene receptor antagonists compared with placebo, and breastfeeding. Mixed results were reported for alternative/complementary treatments, and little information is available about the cost-effectiveness of interventions for upper respiratory allergies.

Key interventions for lower respiratory allergies (asthma) showed that positive effects were reported for immunotherapy. Anti-IgE monoclonal antibodies seem to have positive effects, but it is still unclear how they compare to other effective treatments. Similar conclusions were drawn in the review about leukotriene receptor antagonists. Conclusions regarding the effects of anti-fungal medications were mixed. Preventative and avoidance interventions were concluded to be effective in asthma patients in three reviews, less effective in one, and four reviews stated there was insufficient evidence to provide conclusive evidence of effect. Alternative and/or complementary treatments were found to be ineffective, although a number of the included reviews and evidence base guidelines provided no data; rigorous primary studies are needed that use standardised reporting criteria. No information is available about the cost-effectiveness of interventions for upper respiratory allergies.

Key interventions for skin allergies were as evaluated as follows. Corticosteroids seem to be effective, and so are non-corticosteroids (pimecrolimus and tacrolimus), but it is unclear how the relative effectiveness of pimecrolimus and tacrolimus is against other treatment options. Essential oils received mixed reports, with the more recent review concluding that they are not effective. The effects of herbal treatments remain unclear. Antihistamines are effective in the treatment of urticaria. Breast feeding is recommended. Immunotherapy is effective in insect/venom allergy. There appears to be a role for TRUE, IgE and patch tests, but questions remain.

The methodology employed by this evidence review did not identify any systematic reviews or evidence based guidelines specific to preventative measures in food allergies, outside of positive findings for:

- exclusive breastfeeding
- elimination diets in the presence of atopic eczema/dermatitis syndrome
- extensively hydrolyzed case in and partially hydrolyzed whey alternatives to breast milk for allergy prevention in infants at risk
- breastfeeding combined with avoidance of solid food and cow's milk for at least 4–6 months in the prevention of allergic diseases in high-risk children. In the absence of breast milk, formulas with documented reduced allergenicity for at least 4–6 months should be used.

Specialised Therapeutic Settings

Of the 23 papers classified as addressing service delivery, two studies examined service delivery of allergic conditions (specialists in comparison with generalists), 5 papers were on the organisation of care, while 16 papers examined psychosocial interventions for asthma, chronic disease and health promotion. Most of these psychosocial care studies involved self-management or education programmes, delivered by health care professionals. The 5 papers on organisation of care revolve around paediatric home care, short-stay observation units, primary care based clinics and services with doctors and nurses, primary care case management programmes supervised by medical specialists, and primary and secondary sectors (with shared care, general practice asthma clinics, outpatient practice clinics, inpatient admission policies, and use of specialists).

Of the articles included in the review, two included elements of economic evaluation, and three were guidelines based on systematic reviews of the evidence. Many of the guidelines that we identified were not based on systematic reviews.

From the 23 studies that were considered relevant in the service delivery and organisation category, conclusive evidence to provide direction for policy and practice was identified in a number of areas (listed below). Further detail on these studies can be found in the tables at the end of this report.

Specialist referral

- Prospective studies are needed of symptomatic treatment comparing types of specialist with generalist settings
- Some studies have established a level of variance in patient knowledge across general practice and specialist settings, these should be further explored to establish effect on symptoms, quality of life and health care outcomes, costs and impact on social wellbeing
- The impact of shared care on resource allocation and service delivery structures should be subject to evaluative studies.

Organisation of care

- Comprehensive economic studies are not common in the field of service delivery of allergy-immunology services, full economic evaluations should be considered where well-conducted RCTs have established rigorous findings
- The role of case management as a model for service delivery is yet to be tested in extensive controlled trials although preliminary studies have shown promise
- Further research is needed to identify the structure of allergy clinics as a component of service delivery, including the effects of specialist care, and role of shared care models, and case management across a range of environments
- The outcomes associated with home based care methods for asthma and diabetes have not been well established, pilot studies to provide further baseline data would help determine the need for more comprehensive, prospective studies
- Short stay emergency department observation units (OU) are a low cost and effective treatment alternative for refractory asthma
- The treatment of selected asthma patients in an emergency diagnosis and treatment unit results in a safe discharge of patients, in addition to improved quality and cost-effectiveness
- Children with asthma treated in an OU had lower costs, shorter length of stay, and no increase in morbidity or returns to the hospital
- The use of OU for patients with asthma reduces initial discharge rates without significantly reducing eventual hospital admissions.

Psycho-social interventions

- While education has been shown to be helpful, specific sub groups such as children have not been extensively investigated
- Other sub groups such as persons with specific types of allergies, or multiple allergies should also be considered for research on the effectiveness of education
- Education is a component of many self care methods of service delivery, the role and effect of education, as a stand-alone intervention needs to be addressed
- The effectiveness of documented self-management plans as stand-alone methods, or as components in a multi-modal approach should be considered for evaluative and controlled studies
- Willingness to change especially in relation to avoidance therapy has not been investigated for types service delivery providers (eg general practice versus specialist)

- The role of individualised, multidisciplinary interventions incorporating multi modal approaches that can be delivered to the broadest range of patients should also be investigated
- The characteristics of education, including frequency, duration, type of educator, location and structure of delivery require further investigation, as does the legitimacy of psychological and behavioural outcomes
- The relative benefits of types of psycho-educational care for specific methods of service delivery to clients with differing levels of severity of disease and/or capacity to adhere with therapy is not clear and would benefit from evaluative studies.

Allergic Asthma

- Interventions for educating children who have attended the emergency room for asthma would benefit from further primary research to establish the most effective modes of delivery of education including the professional involved, format and content of education
- Asthma service delivery research should investigate patient centred clinically significant measures, plus measures of benefit suitable for inclusion in economic studies
- In home delivery of asthma services, further research to determine which facets, or aspects of family therapy produce the favourable effects is warranted.

Health promotion in young adults

- Specific consideration of youth 'at risk' of adverse health outcomes should be a focus of future studies on health promotion
- The role and applicability of the peer educator, as a singular intervention in youth showed promise and should be considered for further investigation. Further evaluative studies might examine different methods of implementing the role
- The role of a peer educator should also be considered in establishing the benefits for both individuals and organisations, or groups with distinct needs.

Limitations of this evidence review

The nature of high quality systematic reviews is that they bring together multiple studies with similar characteristics, and where appropriate combine their outcomes in a meta-analysis. This level of synthesis is widely considered to provide the highest quality level of evidence for the effectiveness of interventions. However, it is also associated with a number of limitations, including:

- Little evidence on diagnostic studies has been subject to systematic review; therefore, this area appears under represented in this evidence summary, it is an inherent

characteristic of systematic reviews that specifics of particular diagnostic tests are under reported in synthesised literature

- Systematic reviews do not provide detail of specific interventions from included studies
- Systematic reviews and guidelines use varying definitions and criteria for service delivery and types of specialist.

Other limitations that readers should be aware of are reported in full at the end of this report.

Gaps analysis

Future research opportunities, which take an inclusive approach to evidence, should be pursued aggressively by clinicians and policy makers. Research that is funded by non-proprietorial bodies is needed to ensure questions related to the role of specialists, and obtaining optimal clinical outcomes from specific therapeutic interventions are answered objectively and the raw data made publicly available.

Much current research deals with specific interventions, but fails to address questions around models and methods of service delivery. More work investigating the role of specialists, and the linkage between specialist and generalist services is required. Such studies should also pay attention to basic demographic data collection, not just reporting on homogeneity for symptoms related to the disease/allergy. Finally, there is a pragmatic need for standardised measures to be implemented with consistency in trials to reduce the current glut of studies that are heterogenous for key criteria.

Considerations for practice

The conclusions and recommendations from the service delivery studies are summarised from systematic reviews and evidence based guidelines as follows:

- Care by specialists appeared to be associated with improved clinical outcomes when compared with the care provided by generalist physicians
- Clinician delivered patient education interventions as an adjunct to medical treatment may improve symptoms when compared to medical treatment alone
- Less-than adequate knowledge regarding allergy treatment occurs among patients in general medical practice
- Few data exist objectively comparing generalist and specialist practice characteristics
- Despite suggestions that referrals are made to specialists based on severity of symptoms no empirical data have been published to support that specialist practice has more severely affected patients

- Shared care under certain circumstances can be as effective as hospital led care in the treatment of adults
- Self-management education involving a written action plan, self-monitoring, and regular medical review, may result in a reduction in using health care services, and have beneficial effects on other outcomes for people with asthma.

These findings, both positive and negative are drawn from a review of reviews. The primary research was not included, therefore these findings should be considered in the light of the extant primary literature as well as that drawn together in this summary document from secondary sources.

This evidence review has identified and narratively summarised the published secondary research on interventions and services available for the treatment and diagnosis of allergies. A large number of systematic reviews and evidence-based guidelines have been identified, subject to critical appraisal, standardised data extraction and summarisation. The resulting evidence summary is an authoritative document on the extant literature available from published reviews, bringing together synthesised evidence on therapy based interventions, specialised therapeutic settings, and service delivery and organisation.

Annex E: Clinical staff who may be involved in allergy care

There is a range of clinical staff who may be involved in allergy care. The roles of each can be described as follows.

Accident and Emergency staff

Accident and Emergency departments will have doctors, nurses and other healthcare staff. Consultants in accident and emergency are drawn from a variety of medical backgrounds – medical, surgical and anaesthetic. They have responsibility for all patients who present to their departments, but over time most develop clinical, research and other interests within the speciality.

Allergist

An allergist deals with a wide range of disorders that cross the organ-based disciplines within medicine. They include hay fever, perennial rhinitis, allergic eye disease, asthma, certain skin disorders including angioedema, urticaria and atopic eczema, food allergy, latex allergy, adverse reactions to drugs, allergic reactions to stinging insects and anaphylaxis. These disorders often co-exist so that allergy presents with multi-system disease. Allergists also have an important role in *excluding* allergy as a cause of non-specific symptoms.

Allergy nurse

An allergy nurse undertakes patient-education and diagnostic testing such as allergen skin prick testing requested by the allergist or immunologist. In a number of clinical immunologist departments, allergy nurse specialists undertake autonomous nurse led allergy clinics. In this context, the advanced nurse practitioner would see a referred patient, undertake clinical history, physical examination through to diagnosis, investigations and recommend appropriate management of allergic, including independent prescribing of medications.

Ambulance crew

Ambulance crews are highly trained in all aspects of pre-hospital emergency care, ranging from crush injuries to cardiac arrest, whilst ambulances are equipped with a wide range of emergency care equipment such as heart defibrillators, oxygen, intravenous drips, spinal and traction splints and a variety of drugs for medical and traumatic emergencies. Typically, emergency ambulance crews comprise an ambulance technician, paramedic and/or emergency care practitioner.

Clinical immunologist

The clinical practice of immunology, as defined by the World Health Organization (WHO), encompasses clinical and laboratory activity dealing with the study, diagnosis and management of patients with diseases resulting from disordered immunological

mechanisms, and conditions in which immunological manipulations form an important part of therapy. In the UK, immunologists provide combined clinical and laboratory services for patients with immunodeficiency, autoimmune disease, systemic vasculitis and allergy.

Dermatologist

Dermatology is the science that is concerned with the diagnosis and treatment of diseases of the skin, hair and nails. A dermatologist is a doctor who specialises in the diagnosis and treatment of skin disease. A dermatologist has the advantage of being able to visually examine the skin and correlate it with the pathology presented below the surface. Few dermatologists have any specific training or interest in allergy.

Dietitian

A combination of clinical and nutritional expertise enables the dietitian to assess each patient's dietary needs. Dietitians may be based in clinical or community settings and some may choose to specialise in the treatment of, say, children or people with renal disease. Very few have training in or experience of food allergy.

ENT surgeon

Otorhinolaryngology – head and neck surgery (usually referred to as ear, nose and throat or ENT surgery): the consultant ENT surgeon is a surgeon who specialises in operations and disorders of the ear, nose and throat. The skills needed to treat patients are diverse, ranging from microsurgery to treat middle and inner ear conditions to major surgery of the head and neck. Very few have any allergy expertise.

Gastroenterologist

Gastroenterology is the study of the normal function and disease of the oesophagus, stomach, small intestine, colon and rectum, pancreas, gallbladder, bile ducts and liver. It involves a detailed understanding of the normal action of the gastrointestinal organs, including the movement of material through the stomach and intestine, the digestion and absorption of nutrients into the body, removal of waste from the system, and function of the liver as a digestive system. A gastroenterologist is a doctor who specializes in issues related to the gastrointestinal system. Most have expertise in the gastrointestinal manifestations of food allergy, but virtually none extends their knowledge beyond the gut.

General practitioner

A general practitioner (GP) is a doctor generally overseeing and supporting health and medical care in the community – a physician whose practice is based on a broad

understanding of all illnesses and who does not restrict his/her practice to any particular field of medicine. Most GPs have had no training in allergy.

Health visitor

A health visitor is a qualified and registered nurse or midwife who has undertaken further (post registration) training in order to be able to work as a member of the primary healthcare team. The role of the health visitor is about the promotion of health and the prevention of illness in all age groups

Paediatrician

A paediatrician is a specialised doctor who deals with the growth, development and the health of children from birth to adolescence. Some paediatricians become very specialised in particular diseases, others more focused on general health and development.

Pharmacist

A pharmacist is an expert in medicines and their use. The majority of pharmacists practise in hospital pharmacy, community pharmacy or in primary care pharmacy, working to ensure that patients get the maximum benefit from their medicines. They advise patients and medical and nursing staff on the selection, appropriate use and safe handling of medicines. They provide information to patients on how to manage their medicines to ensure optimal treatment. Pharmacists are able to undertake additional training in order to allow them to prescribe medicines for specific conditions.

Practice nurse

Practice nurses work alongside doctors looking after the patients registered with GP practices. They are usually employed by doctors, rather than by the NHS itself. There are three types of practice nurse:

Healthcare assistants are support workers who have taken on some of the more straightforward functions of the practice nurse, such as taking blood samples, testing urine, stocking up the doctors' rooms and generally supporting the doctors and nurses in their work. They are often qualified at NVQ level and may go on to become registered nurses.

Practice nurses provide many aspects of primary health care. They are also responsible for some chronic disease management and are often the expert within the practice for conditions such as asthma or diabetes.

A practice nurse may also be the first point of contact in a practice providing a minor illness or minor injury clinic. They may also triage patients – dealing with patients who just need advice or referring those who need further care on to another member of the team.

Nurse practitioners are advanced practitioners who have been trained to examine, diagnose and manage patients on their own, prescribing for them and referring on if support from a specialist is needed.

Respiratory physician

A respiratory physician is concerned with diagnosis, treatment and continuing care of patients with breathing disorders. People with breathing problems include patients with chronic lung problems, such as asthma, bronchitis and emphysema, and occupational lung diseases including occupational asthma. But they also include heart attack and accident victims, premature infants, and people with cystic fibrosis, lung cancer or AIDS. Only some include allergy as part of their practice.

School nurse

School nurses are highly skilled professionals, and are in fact the only trained nurses working between health and education. They provide an essential link between school, home and the community that helps safeguard the wellbeing of children and young people. School nurses are now becoming team leaders by helping young people to make choices for a healthy lifestyle, working to reduce risk-taking behaviour like substance abuse and focusing on issues like teenage pregnancy.

Annex F: Clinical staff who may be involved in allergy care – numbers

[Note: total numbers by staff group – most will have no/minimal contact with allergy]

	Numbers			
Staff group	**Headcount**	**FTE**	**Source**	**Comments**
Community pharmacists				There are 12,360 community pharmacies
GPs	32,738	29,248	05 census	Excludes GP registrars and GP retainers
Practice nurses		13,793	05 census	
Nurses – all qualified nursing, midwifery and health visiting staff	381,257	307,744	05 census	52 members of RCN Immunology & Allergy Nurses Group work within an immunology department who undertake allergy work (as a % of their time)
• Health visitors	12,818	9,809	05 census	
• School nurses	943	665	05 census	
Dietetics	3,407	2,792	05 census	Dietitians who are members of the British Dietetic Association specialist group (fewer than 4 wte in all) see allergy patients in 21 hospital Trusts
Pharmacy	13,595	11,900	05 census	
Paediatrics (of whom, consultants)	6,680 (1,985)	6,239 (1,828)	05 census	
Respiratory medicine (ditto)	1,358 (608)	1,258 (556)	05 census	
Otolaryngology [ENT] (ditto)	1,617 (541)	1,519 (514)	05 census	
Dermatology (ditto)	1,173 (450)	774 (386)	05 census	
Gastroenterology (ditto)	1,477 (669)	1,334 (617)	05 census	
Allergy (ditto)	16 (10*)	10 (5*)	05 census	**RCPath* 05 census shows 34 consultants (23.5 FTE); Trusts appear to have coded some allergists under other specialties in NHS 05 census
Immunology (ditto)	105 (66*)	81 (49*)	05 census	**RCPath* 05 census shows 53 consultants (47 FTE)
Occupational health (ditto)	209 (96)	148 (78)	05 census	
Accident & emergency (ditto)	4,391 (689)	4,181 (665)	05 census	
Ambulance service staff (qualified)	18,117	17,417	05 census	

Annex G: Clinical staff who may be involved in allergy care – training

Pharmacists (community and hospital)

RPSGB website

The Royal Pharmaceutical Society accredits all UK pharmacy degree courses, supervises pharmacy graduates' pre-registration training and is responsible for the registration examination at the end of the pre-registration year.

Ursula Collignon

Immunology and allergy are covered within the undergraduate curriculum.

Centre for Pharmacy Postgraduate Education website

The CPPE in Manchester provides continuing education and continuing professional development opportunities for all community, hospital and primary care pharmacists in England. The Centre was established in 1991 and is funded directly by the Department of Health. It offers free workshops and open learning.

GPs

RCGP (Mayur Lakhani, Graham Archard)

GPs receive training in the basic science of immunology, but not its clinical translation.

GPs receive much training in different allergic conditions – but not in allergy overall, and not in areas such as food allergy.

There is no specific reference to allergy in the new GP curriculum.

Nursing

RCN website

It is possible to take either a diploma or degree course to qualify as a nurse. Education is provided by universities, with placements in local hospital and community settings. The course is 50% theory and 50% practical. The first year is a Common Foundation Programme, which includes the basic principles of nursing. You will then specialise in either adult, children's, mental health or learning disability nursing. Full time diploma courses last 3 years. Degree courses last 3 or 4 years.

Teresa Green

There is no recognised formal allergy training for nurses. Practical training such as history taking and physical examination tends to be in-house, closely supervised by clinician. However allergy nurses do have access to generic educational allergy courses to obtain prepositional knowledge.

School nurses

Sue Clarke

The Anaphylaxis Campaign has piloted a training pack (accredited by the RCN).

Dietetics

British Dietetic Association website

There are two ways to qualify as a Registered Dietitian:

- completion of a relevant degree
- completion of a post-graduate qualification.

All courses include a period of practical training in hospital and community settings, approved by the Health Professions Council. Undergraduate degree courses are mostly 4 years full-time.

Isabel Skypala

The British Dietetic Association has a specialist dietitians' allergy group, which meets twice a year. Group members run an annual allergy training course for dietitians, but this is also open to other health care professionals. Although there is no formal postgraduate training for dietitians in allergy, many have completed the food allergy module of the MSc in Allergy at Southampton, which is open to all dietitians as a stand-alone module provided they meet the University entry criteria.

Paediatrics

RCPCH HST curriculum (March 2006)

Higher specialist training for paediatricians is usually for a period of 5 years. It consists of 2 years' core paediatrics which all trainees must undertake. The following 3 years' training will depend upon the career intentions of the trainee.

After the core years several options may be available. For training for a general paediatrician it is appropriate to continue to gain further experience in general paediatrics with 6 or

12 months in a specialty post. To gain experience as a general paediatrician with expertise in a specialist area it is appropriate to have at least 1 year's training in that specialty.

For those wishing to become tertiary specialists the tertiary specialist training programme has been defined by the relevant College Specialty Advisory Committees and usually covers 3 years; this can include research or an overseas fellowship.

Respiratory medicine

JCHMT HMT curriculum (January 2003)

The duration of HMT in respiratory medicine is 4 years of which a minimum of 3 years must be spent in clinical posts.

[The syllabus includes

- specialist assessment and treatment of allergic lung disorders and anaphylaxis
- performing skin tests for common allergies].

Training in respiratory medicine and allergy: combined training may be undertaken to obtain dual certification. It is emphasised that the full curriculum requirements in both allergy and respiratory medicine must be met in order to achieve the award of both CCSTs. The combined training programme will be a minimum of six years duration.

Dermatology

JCHMT HMT curriculum (August 2005)

The duration of HMT in dermatology is 4 years.

HMT in dermatology must provide the ability to diagnose and manage the full range of diseases that can affect the skin and its appendages. These include primary diseases of the skin and diseases of mucous membranes (mouth and genitalia), hair and nails, and systemic diseases with skin involvement.

Prick testing for the presence of type I (immediate) hypersensitivity is a very specialised investigation often performed in specialist contact clinic units. It would not normally be expected to be used as a day-to-day test in a DGH dermatology setting. Nevertheless the diagnostic benefits of prick testing must be appreciated by the trainee, as must the indications for specialist referral for the procedure. These matters are particularly pertinent to the subject of latex allergy.

Allergy

JCHMT HMT curriculum (January 2003)

The duration of HMT in allergy will be a minimum of 5 years. The curriculum involves a thorough training in all aspects of clinical allergy spread over the 5 years combined with an understanding of the principles of basic immunology and immunology tests and their interpretation, as well as clinical aspects of immunology.

The educational supervisor will be a named consultant allergist and training must be based in specialist allergy centres.

A period of supervised research of high quality is considered a desirable part of HMT in allergy. A relevant research period may contribute up to 12 months towards the total duration of HMT.

The goal of the training programme is to enable trainees to acquire the requisite highly specialised scientific knowledge, clinical skills and laboratory skills required to diagnose and manage the complete spectrum of IgE-mediated of diseases, and to differentiate these from non-IgE-mediated diseases which may require other specialist management.

Allergic diseases may manifest in a multitude of organs, including the respiratory tract, skin and gut. In addition, they may present in both adult and paediatric patients. For this reason, collaborative training in other medical specialities, particularly paediatrics, dermatology, respiratory medicine and ENT, is an essential aspect of the programme.

There are three main areas of subject matter included within the curriculum for allergy:

- provision of a core body of knowledge in fundamental immunology and its applications, with particular reference to IgE-mediated diseases
- familiarity with the full range of laboratory tests relevant to the diagnosis and management of immunological and allergic diseases...
- diagnosis, investigation and management of patients with a full range of disorders that might be referred to an allergy specialist...

Immunology

JCHMT HMT curriculum (draft, April 2006)

The duration of HMT in immunology will be a minimum of 5 years.

The goal of the training programme is to enable trainees to acquire the requisite highly specialised scientific knowledge, clinical skills and laboratory skills required to:

- diagnose, treat and where relevant, prevent diseases characterised by immunodeficiency or autoimmunity and allergy
- direct a diagnostic immunology laboratory service.

The principal areas of subject matter within the curriculum for immunology are:

- acquisition of a core body of knowledge in fundamental immunology and its applications
- investigation and management of patients with congenital and acquired immunodeficiency disorders
- investigation and management of patients with autoimmune (including rheumatic) disease and systemic vasculitides
- investigation and management of patients with allergic diseases of all degrees of severity, to achieve the same educational standards for clinical allergy as set out in the allergy curriculum
- how to deliver a diagnostic immunology laboratory service.

In addition trainees should:

- be able to recognise, investigate and manage patients with allergic diseases, including allergy to food, aeroallergens, insect venom, drugs, latex, anaphylaxis, urticaria, angioedema, mastocytosis, and perform desensitisation immunotherapy
- be able to explain the principles underlying organ and bone marrow transplantation.

Immunological diseases may have both adult and paediatric presentations. Collaborative training with paediatricians from appropriate sub-specialties will be undertaken.

Ambulance staff

NHS Careers website

A trainee ambulance technician will attend an intensive training course of up to 12 weeks, learning anatomy and physiology, immediate care and emergency driving skills. They spend a further period of up to 1 year gaining operational experience under supervision and taking examinations before qualifying.

Ambulance paramedics are specially selected and highly experienced ambulance technicians who undertake additional clinical training in life saving procedures. They will follow intensive training that lasts around 10 to 12 weeks and comprises of both theory and practical clinical experience which includes several weeks in various hospital departments. Much of their training is carried out under supervision of senior doctors.

There are also a number of programmes in higher education now which lead to qualifications in paramedical science and registration with the Health Professionals Council.

After passing a final assessment they are deemed competent and become qualified.

Ambulance technicians and paramedics are required to attend regular training and re-assessment. Paramedics need to re-qualify every 3 years.

Generic training provision

- Education for Health (NRTC) degree and diploma-level modules; short courses
- University of Southampton MSc in allergy
- Allergy UK on-line diploma; "masterclasses" in allergy/paediatric allergy
- BSACI one-day courses; annual conference (includes primary care day)
- Allergy centres hold regular one-day courses for local doctors/nurses
- Other ad hoc courses, eg RCP, RSM
- General Practice Airways Group website resources
- British Dietetic Association one-day courses for dietitians and nurses
- Pharmaceutical industry one-day courses.

Annex H: Skills and competences for allergy care

1. Recognition/awareness

- ability to take a simple history from the patient
- ability to differentiate symptoms that a patient describes
- ability to treat "minor" symptoms correctly and appropriately
- knowing when to refer onwards
- ability to recognise and treat emergencies in allergy
- access to information about the patient and ability to evaluate it critically

2. Diagnosis

- knowledge of how allergies present
- knowledge of what allergy symptoms may be confused with (ie differential diagnosis)
- basic clinical skills – history taking/limited physical examination/what tests can be done
- ability to perform certain tests – eg skin prick/peak expiratory flow
- access to some tests – eg allergen-specific IgE (RAST) tests
- ability to interpret the results of tests

3. Management

- communication skills – to patient and to all concerned in patient's care
- knowledge of the natural history of the condition and all aspects of its management – allergen avoidance/drug therapy/special aspects
- ability to prescribe appropriate drugs
- ability to organise appropriate support where required
- ability to procure the appropriate drugs if prescribed
- provision of written information to patient
- ability to check on compliance/advise on treatment failures
- co-ordination/supervision of all the above

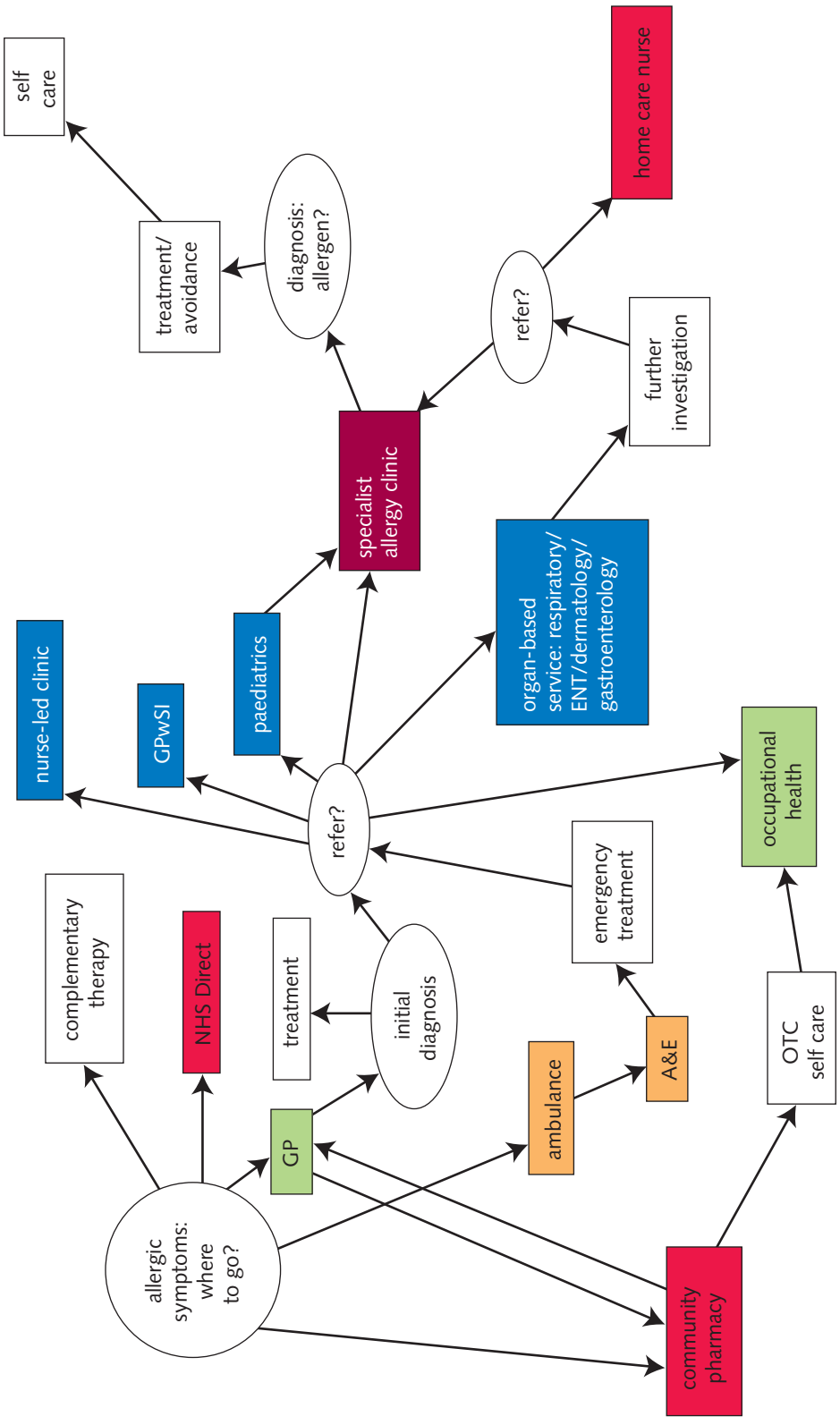
4. Intervention

- ability to provide a service which fulfils all the criteria in Specialised Services Definition Set 17 – including immunotherapy
- theoretical and practical knowledge to advise planners/commissioners
- ability to advise/lead on secondary prevention measures – eg for complex multi-system allergy/complex drug regimens where drug allergy present
- ability to advise on primary prevention – eg avoidance of precipitants of symptoms in school/work environments
- ability to advise about areas where strategic research is required

Note: skills and competences are cumulative – for example, a health professional with the blue skills and competences (management) would also be expected to possess those in red, orange and green (recognition/awareness and diagnosis).

Skills and competences are mapped onto a generic patient pathway on the next page.

Skills and competences required along the patient pathway



Glossary

ABPA	Allergic Broncho-Pulmonary Aspergillosis.
A&E	Accident and Emergency.
Allergy	A hypersensitivity, a heightened or exaggerated immune response to some external stimulus or stimuli.
Allergic conditions	Allergic processes contribute to a range of conditions, which often co-exist in the same individual with an allergic tendency. Some of these conditions may also occur in the absence of allergy.
Allergic conjunctivitis	A clear, thin membrane called the conjunctiva covers your eyeball and the inside of your eyelids. If something irritates this covering, your eyes may become red and swollen. Your eyes also may itch, hurt or water. This is called conjunctivitis. It is also known as "pink eye". When an allergen causes the irritation, the condition is called allergic conjunctivitis. This type of conjunctivitis is not contagious. Some common allergens include: pollen from trees, grass and ragweed; animal skin and secretions such as saliva; perfumes and cosmetics; skin medicines; air pollution; and smoke. Viral and bacterial infections can also cause conjunctivitis.
Allergic rhinitis	Rhinitis is defined as inflammation of the nasal membranes and is characterized by a symptom complex that consists of any combinations of the following: sneezing, nasal congestion, nasal itching and rhinorrhea. The eyes, ears, sinuses, and throat can also be involved. Allergic rhinitis is the most common cause of rhinitis.
Anaphylaxis	Extreme allergic reaction to an antigen to which the body has become hypersensitive following an earlier exposure.
Angioedema	Is the rapid swelling (edema) of the skin, mucosa and submucosal tissues.
Antihistamines	Usually as tablets, are the basic treatment of hayfever and some other allergic illnesses. They are the main treatment for a kind of skin rash called "urticaria" or "hives", also called "nettlerash".
Asthma	Respiratory condition marked by attacks of spasm in the bronchi of the lungs, causing difficulty in breathing and usually associated with allergic reaction.
Autoimmune disease	Our bodies have an immune system that protects us from disease and infection. But if you have an autoimmune disease, your immune system attacks itself by mistake, and you can get sick.

BNF	The British National Formulary (BNF) is an independent professional publication that is kept up-to-date and which addresses the day-to-day prescribing information needs of healthcare professionals. Use of this resource throughout the health service helps to ensure that medicines are used safely, effectively and appropriately.
Bronchodilator	Is a medication intended to improve bronchial airflow. Treatment of bronchial asthma is the most common application of these drugs. They are also intended to help expand the airways and improve the breathing capacity of patients with emphysema, pneumonia and bronchitis.
BSACI	The British Society for Allergy and Clinical Immunology (BSACI)
Chronic idiopathic urticaria	Also look at urticaria. Urticaria often ends up been diagnosed as chronic idiopathic urticaria which means the cause is unknown.
CMO	The Chief Medical Officer (CMO), Professor Sir Liam Donaldson, is the UK Government's principal medical adviser and the professional head of all medical staff in England.
Coeliac disease	Coeliac disease is a condition caused by an inability to digest gluten, which often results in bowel symptoms, weight loss or failure to gain weight, and lack of certain vitamins and minerals with consequential problems such as anaemia and osteoporosis.
Conjunctivitis	See allergic conjunctivitis.
Contact dermatitis	Contact dermatitis is inflammation of the skin that results from contact of an external substance with the skin.
Corticosteroids	Are a family of drugs that include cortisol (hydrocortisone) – an adrenal hormone found naturally in the body – as well as synthetic drugs. Though natural and synthetic corticosteroids are both potent anti-inflammatory compounds, the synthetics exert a stronger effect.
Cromoglycate	Is traditionally described as a mast cell stabilizing drug, and is commonly marketed as the sodium salt sodium cromoglicate. This drug prevents the release of chemicals such as histamine from mast cells.
CST	Certificate of Specialist Training.
Drug allergies	Drug allergies occur when your immune system recognises a drug as a foreign substance and tries to protect you from it.

Eczema	Medical condition in which patches of skin become rough and inflamed with blisters which causing itching and bleeding.
Emollient	Having the quality of softening or soothing the skin.
Enteropathies	Diseases of the intestine, especially the small intestine.
ENT	Ear, Nose and Throat.
Epidemiology	The branch of medicine concerned with the incidence and distribution of disease and other factors relating to health.
EPOS	Electronic Point of Sale (EPOS) helps you to process your most popular products from warehouse to point of sale in the shortest time.
Extrinsic allergic alveolitis	The term allergic alveolitis refers to a group of lung diseases resulting from exposure to dusts of animal and vegetable origin. The name, although complicated, describes the origin and the nature of these diseases. • "extrinsic" – cause originating outside the body • "allergic" – caused by the allergic reaction of the body to a specific substance condition • "alveolitis" – an inflammation in the inner part of the lungs (alveoli – small air sacs in the lungs)
Food allergy and food intolerance	Food allergy and food intolerance are both types of food sensitivity. When someone has a food allergy, their immune system reacts to a particular food as if it isn't safe. If someone has a severe food allergy, this can cause a life-threatening reaction. Food intolerance doesn't involve the immune system and is generally not life-threatening. But if someone eats a food they are intolerant to, this could make them feel ill or affect their long-term health.
FTE	Full Time Equivalent.
Glomerulo-nephritis	Acute inflammation of the kidney, typically caused by an immune response.
Haemolytic disease of the newborn	Severe form of anaemia caused in a fetus or newborn infant by incompatibility with the mother's blood type.
Hay fever	An allergy caused by pollen or dust in which the mucous membranes of the eyes and nose are inflamed, causing sneezing and watery eyes.

Health Technology Assessments (HTAs)	Health Technology is an internationally recognised term that covers any method used to promote health, prevent and treat disease and improve rehabilitation or long-term care. "Technologies" in this context are not confined to new drugs or pieces of sophisticated equipment, but include procedures, settings of care and screening programmes.
ICD	International Classification of Disease (ICD).
Immunodeficiency	Reduced ability of the immune system to protect the body from infection.
Immunoglobulin E (IgE)	Is an antibody subclass (known as "isotypes"), found only in mammals – it is capable of triggering the most powerful immune reactions. Most of our knowledge of IgE has come from research into the mechanism of a form of allergy known as type 1 hypersensitivity (1).
Insect allergy	An insect allergy is an adverse or abnormal reaction to an insect sting or bite.
ISAAC	The International Study of Asthma and Allergies in Childhood (ISAAC).
Laryngeal	Of or relating to the larynx.
Leukotriene Receptor Antagonists (LTRAs)	Leukotriene receptor antagonist, called LTRAs for short, are a class of oral medication that is non-steroidal. They may also be referred to as anti-inflammatory bronchoconstriction preventors. LTRAs work by blocking a chemical reaction that can lead to inflammation in the airways.
LSCGs	Local Specialised Commissioning Groups (LSCGs).
Musculoskeletal	Relating to or denoting the musculature and skeleton together.
National Institute for Health and Clinical Excellence (NICE)	NICE is an independent organisation responsible for providing national guidance on promoting good health and preventing and treating ill health.
National Allergy Advisory Group (NAAG)	The remit of the National Allergy Advisory Group (NAAG) was to assist and advise the Department of Health in mapping and quality assuring the evidence base used in the review of allergy services.
National Service Frameworks (NSFs)	NSFs are long term strategies for improving specific areas of care. They set measurable goals within set time frames.

NTN	National Training Number.
NWICAS	North West Integrated Clinical Allergy Service.
Oedema	A condition characterised by an excess of watery fluid collecting in the cavities or tissues of the body.
Oesophagitis	Inflammation of the oesophagus (part of the alimentary canal which connects the throat to the stomach.
OTC	Over The Counter (OTC) – refers to pharmaceutical sales.
Patho-physiology	Patho-physiology is the study of the disturbance of normal mechanical, physical, and biochemical functions that a disease causes, or that which causes the disease. An example would be the study of the chemical changes that take place in body tissue that is undergoing inflammation.
Pharmacotherapy	The treatment of diseases with drugs.
Phenotypes	The observable characteristic of an individual resulting from the interaction of its genotype with the environment.
Primary Care Allergy Network (PCAN)	PCAN is a multi-disciplinary grouping of health professionals interested in improving allergy care.
PCT	Primary Care Trust.
Pulmonary	Of or relating to the lungs
PwSIs	Practitioners with a Special Interest (PwSIs).
RAST tests	A test to screen for allergies to identify particular allergens.
RCGP	Royal College of General Practitioners.
RCP	Royal College of Physicians.
RCPath	Royal College of Pathologists.
Randomised Controlled Trial (RCT)	A Randomized Controlled Trial (RCT) is a study in which there are two groups – a treatment group and a control of group. RCTs are considered to provide gold standard evidence because patients are randomly assigned to both groups, to reduce the risk of bias and increase the probability that the study results can be attributed to the treatment, not to differences between the groups.
Respiratory	Relating to, or affecting respiration or the organs of respiration. Respiration is the action of breathing.

Rhinitis	See allergic rhinitis.
RSM	Royal Society of Medicine.
SCGs	Specialised Commissioning Groups (SCGs).
Skin prick testing	Skin prick testing is usually the first test recommended when an allergy is suspected. The advantages are that it is a simple, quick (providing results within 15–20 minutes) and inexpensive form of testing. It can give useful information in all forms of allergy, and is appropriate for inhaled and ingested (eaten) allergies. The test is conducted within a hospital or GP surgery by specially trained nurses or doctors.
Systematic review	A systematic review is a research article that identifies relevant studies, appraises their quality, and summarises their results using a scientific, structured, and transparent methodology. Systematic reviews often aim to include studies of the highest level of evidence, but when studies are not found, as is often the case, many systematic reviews summarise the result of the best available evidence.
Systemic vasculitis	The term vasculitis refers to a rare group of diseases that are characterised by the presence of inflammation in the blood vessels. The severity of illness can vary greatly from very mild, where no specific therapy is required, to severe life threatening multi-system diseases which need specialist hospital care. A primary vasculitic illness that involves many different organ systems in the body may also be referred to as "systemic vasculitis".
Urticaria	See also chronic idiopathic urticaria. Urticaria is an allergic skin rash also known as "nettle rash" or hives. There are two distinct types: acute urticaria is often caused by an allergy and can last between several hours and six weeks; chronic urticaria persists beyond six weeks.
Vasculitis	Inflammation of a blood vessel or blood vessels.
Venom	Poisonous fluid secreted by animals such as snakes and scorpions and typically injected into prey or aggressors by biting or stinging.

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