

Diagnostic advances point to a promising future for management of food allergies

Despite limited epidemiology and remaining scepticism among medical professionals, improved understanding of dietary factors is leading to more confident diagnosis and effective treatment of potentially lethal allergic reactions to food

● **Mary J Brydon**
OBE, FRCN, RGN,
OHNC, Allergy
nurse consultant,
primary care,
Norfolk Allergy
Diagnostic and
Advisory Service

The term allergy is commonly used to describe discomfort following exposure to something that does not harm most people.¹ Adverse reactions to food are among the most frequent health complaints, but there is often confusion between food allergy, aversions and intolerance, bringing problems in diagnosis and management. Furthermore, there are still some who doubt the existence of food allergy. See Box 1 for definitions of reactions to food.

Epidemiology and mechanisms of food allergy

Although understanding of food allergy has increased in the past decade, epidemiology remains limited.² Individual food allergies, such as peanut allergy, have increased in certain parts of the world³ and it is thought that new food allergies are increasing in prevalence. Kiwifruit is a significant allergen, capable of causing severe reactions, particularly in young children.^{4,5} Food allergy may affect up to 10 per cent of children and 2 per cent of adults. Food-induced symptoms are recognised by 20–30 per cent of the public but only by 2.8 per cent of the medical profession.^{6,7}

The frequency of allergies in infants and young children implies that it is a transient phenomenon of early life. Studies have shown allergies to cow's milk or egg tend to be outgrown during childhood. However, the authors of a recent study believe that 'not only do more kids have allergies, but fewer of them outgrow their allergies, and those who do, do so later than before'.⁸ Only 15–29 per cent of patients diagnosed with peanut allergy naturally outgrow their clinical reactivity to food.⁹

Symptoms of food allergy

Reactions to food can elicit many symptoms. IgE-mediated reactions are wide ranging, for example swelling occurring in the larynx can cause respiratory obstruction. The reaction may lead to asthma and, several hours later, to aggravation of atopic eczema.

In infancy, the main symptoms of a possible allergic nature are atopic dermatitis, gastrointestinal (GI) symptoms or recurrent wheezing. Late or delayed reactions can also occur, particularly where infants and young children fail to gain weight adequately and present with diarrhoea and malabsorption.¹⁰

A relatively small number of foods account for the vast majority of symptoms.¹¹ Ninety per cent of allergic children¹² will react to the foods listed in Box 2, compared to 85 per cent of adults.¹³

Management of the food-allergic patient

A person with a suspected food allergy should seek professional advice, ideally an allergy specialist. However, training and education in the nursing and medical professions is sadly lacking.¹⁴ The key to allergy diagnosis is a high suspicion index, sound medical history and appropriate allergy testing.¹⁵ Optimum management depends on differentiating between IgE and non-IgE reactions.

The three methods of testing

Skin-prick testing

Testing for food allergy in primary care is a contentious issue and where there is a history of severe or anaphylactic reaction, the consensus favours referral to a hospital specialist. Children aged three years or under should be seen by a paediatrician who specialises in or has an interest in allergy, with input from a paediatric dietician.

BOX 1: DEFINITION OF FOOD REACTIONS

- **True food allergy:** an immunological response where the body produces the IgE antibody and attacks the invading allergens, leading to release of chemical mediators from mast cells, such as histamine, which causes irritation, inflammation and symptoms of allergic response. These account for the majority of allergic reactions.
- **Pseudo or false food allergy:** the same clinical manifestation as true food allergy but no involvement of specific immune mechanisms. It can be caused by foods rich in histamine and tyramine, such as cheese, chocolate or tinned fish.
- **Food intolerance:** an abnormal non-immune reaction following the ingestion of a particular food due to lactase enzyme deficiency or eating wheat, causing gluten enteropathy (coeliac disease).
- **Toxic food reaction:** toxins or bacteria present in food cause a histamine shock, such as histamine in scombroid fish poisoning and also in strawberries and egg whites. The reactions can be seen as anaphylactoid in some patients.
- **Pharmacological reactions:** a chemical product in food that induces some disorders, such as caffeine in coffee.

It is essential to be aware that a negative test to foods in early infancy does not preclude the subsequent development of IgE hypersensitivity¹⁶ and that the skin-prick test identifies atopy (IgE-mediated reactions) not the clinical relevance of the individual allergen; this is underpinned by a precise history.¹⁵

A percentage of atopic individuals have a positive test without any evidence of clinical allergy. A study has revealed skin-prick positivity to peanut in 1.3 per cent of children at four years of age, half of whom had no history of reaction to peanut.¹⁷ This underlines the importance of not making a diagnosis based on test results alone.

The CAP-RAST blood test

This involves the measurement of allergen-specific antibodies in the serum and can be used when skin-prick testing is not available or not appropriate. Its disadvantages include expense, lack of immediate availability and being less sensitive than skin-prick testing. It can also throw up false-positive results, as food-specific IgE in the serum does not necessarily mean an allergic reaction. CAP-RAST should be mainly used as a supplement to skin testing when there is doubt regarding the clinical significance of the result.¹⁸

Double-blind placebo controlled food challenge

This is regarded as the gold standard but is only suitable for use in the hospital environment because of the potential to induce anaphylaxis. It is used in clinical trials and to refute or confirm a history of food allergy. It is not necessary to undertake food challenge if clear-cut clinical histories are supplemented by positive skin-prick tests or CAP-RAST. Challenge tests should be performed by an experienced physician with expertise in allergy.

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Allergy avoidance

The mainstay of management of food allergy is avoidance of the offending foods and provision of a personal care plan. During follow-up, only one of 40 reactions required epinephrine treatment after institution of a care plan – not all rescue plans revolve around epinephrine (adrenaline) administration.¹⁹

It has been recommended that dietary products for treatment of cow's milk protein allergy in infants should be tolerated by at least 90 per cent of those with documented allergy. Some extensively hydrolysed products and amino acid-based products have met these criteria. Overall, a documented hypoallergenic formula combined with avoidance of solid foods during the first four to six months reduces the cumulative incidence of cow's milk allergy and atopic dermatitis in high-risk infants, as compared with standard cow's milk-based formula.¹⁷

In 1998, the Committee on Toxicity, an independent advisory body, recommended withholding peanut products in early life.²⁰ However, based on recent data on the diet and development of atopy, recommendations in Europe and the US have been modified to delay the introduction of peanut and tree nuts until age three. Three recent studies support an alternative hypothesis, in which early oral intake of peanuts actually decreases the likelihood of allergy, whereas environmental exposure without oral consumption increases the risk.²¹⁻²³ These data do not provide sufficient evidence that early consumption of peanuts has a protective effect or that environmental exposure to them puts children at risk.

Even with careful allergen avoidance, 14 per cent of children will have an inadvertent exposure to their food allergen within a year.²⁴ This risk is greater in young adults and adolescents because only 64 per cent always read food labels and more than half knowingly eat at least a tiny amount of food containing an allergen.²⁵

Treatment

In Hourihane's study,²⁶ the cause of two-thirds of reactions could not be adequately classified. This, together with the finding that 28 of the 40 reactions were isolated asthmatic reactions, raises the question of whether all reactions were actually allergen induced. It emphasises the need for control of concomitant conditions, particularly asthma. Other concomitant symptoms to consider are perennial and seasonal rhinitis, eczema/urticaria and GI symptoms.

There is no long-term cure for IgE-mediated food allergy, only treatment of acute symptoms that can range from mild to severe and, in some instances, rapidly progress to anaphylaxis. For severe reactions, provision of IM epinephrine (adrenaline) is essential to cover accidental exposure. Additional supportive treatment after an acute exposure includes antihistamines and steroids.²⁷ It is essential that anyone who has received adrenaline is assessed in hospital. In some cases, once the adrenaline has run its course the patient can experience further severe allergic symptoms. Ideally the patient should be observed in A&E for a minimum of two to four hours.

How dangerous food allergy is in childhood is often asked. Professor Warner¹⁹ refers to a UK study on fatal and severe allergic food reactions in children, which found the risk of a food-allergic child dying from an acute reaction is about one in 800,000 per year; food-allergic children with asthma may be at higher risk. He believes this could be a severe underestimation of the number of deaths, and that life-threatening reactions may be under-recorded by at least 66 per cent. He believes it is not possible to predict future severity in relation to past experience so it is sensible to issue an auto-injector.

Part of good management involves training the patient in the practical use of auto-injectors. It is worrying to note that in a small survey published this year, most physicians who had prescribed an epinephrine auto-pen had not told their patients how to use it, and nearly all were unable to operate one successfully themselves.²⁸

Summary

A recent study reported that 15 per cent of a selected group of children in a general paediatric setting resolved their peanut allergy after undergoing a food challenge.²⁹ The researchers suggest that it

BOX 2: COMMON ALLERGENIC FOODS

Children

- Cow's milk.
- Egg.
- Fish.
- Kiwifruit.
- Peanuts.
- Soy.
- Tree nuts.*

Adults

- Egg.
- Fish and shellfish.
- Peanuts.
- Tree nuts.*

*Almonds, brazil nuts, cashews, hazelnuts, walnuts

is probably good practice to repeat skin tests every two to three years in children who have had no reactions in order to check their allergenicity status. Another study showed that it is possible to reduce sensitivity in children with peanut allergies.³⁰ Researchers gave children 1mg to 100mg of peanut protein on separate days over a period of six weeks. By the end of this period, the children were able to take 800mg of peanut protein daily as a maintenance dose.

Although these results are encouraging, the researchers say that the treatment should not be tried outside of clinical trials. Nevertheless the future management of food allergy looks promising.

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A proactive approach is important for the effective management of hayfever

Samantha Walker discusses the latest guidelines and available treatment for the control of hayfever symptoms, and explains that access to better training for primary care professionals will result in improved quality of life for patients

● **Samantha Walker**
RGN, PhD,
Director of
education and
research, Education
for Health,
Warwick

Hayfever, or seasonal allergic rhinitis, is characterised by symptoms such as sneezing, runny nose and itchy eyes caused by pollens in the environment. It is most prevalent between May and July in the UK, and affects approximately 23 per cent of Western European adults¹ and 40 per cent of children,² often resulting in significant morbidity.

Symptoms, especially when severe, can affect concentration and reduce productivity, and impair learning ability in children and adolescents.² The high prevalence in adolescents, combined with exam schedules during peak grass pollen season, means it is vital to manage symptoms proactively in this age group, and encourage patients to take advantage of the range of treatments.

Management

A recent report called for better access to postgraduate training to improve allergy management in primary care.³ Information is available from Education for Health (www.educationforhealth.org). Accredited allergy training for primary care professionals has a positive impact on patients' quality of life⁴ and staff should be familiar with current guidelines,⁶ which recommend a combination of non-sedating antihistamines, long-acting topical nasal corticosteroids and anti-inflammatory eye drops.

Antihistamines are the first-line treatment for mild or intermittent symptoms, including eye symptoms.⁵ First-generation antihistamines cause drowsiness, diminished alertness and slow reaction time.⁶ Second-generation antihistamines do not cause these problems⁷ and are usually well tolerated.

Non-sedating antihistamines often control mild, intermittent symptoms but moderate or severe symptoms warrant the addition of a topical nasal steroid.⁸ These should be started at least two weeks before the symptoms are expected to begin. Educate patients about the need for regular steroid treatment and advise that the benefits may not be immediate. Advice when prescribing aqueous sprays should include:

- Stand up and fix your eyes on the floor about three feet away.
- Using the right hand for the left nostril and vice versa, inserting the tip of the nasal spray as far as is comfortable.
- Use the required number of sprays, according to instructions.
- Do not sniff because this may result in the drug going to the stomach instead of the nose, which may cause treatment failure.

Antileukotrienes may be a useful add-on therapy in patients with mild to moderate persistent asthma that is inadequately controlled. In patients where antileukotrienes are indicated for asthma, montelukast can provide symptomatic hayfever relief.⁹

If the primary symptom is conjunctivitis, anti-inflammatory or antihistamine eye drops may be sufficient.¹⁰ Sodium cromoglycate drops are particularly effective in children, although compliance may be an issue because they need to be used four times daily.

Follow-up

Patients should be followed up after two weeks to one month to monitor compliance and efficacy. If nasal spray is ineffective or there are side-effects such as crusting in the nostrils or nose bleeds, then device technique should be checked and alternative treatments suggested. If the antihistamine is causing drowsiness, another formulation should be considered.



Hayfever treatment should start before the pollen season begins

Severe symptoms

Reasons for treatment failure include poor compliance or technique and inadequate dosing. If symptoms persist despite optimal pharmacotherapy, or if the patient has exams or an important event coming up, a number of options are available.

A short course of oral corticosteroids – for example, 20mg prednisolone daily for five days – is effective but systemic side-effects can result from prolonged use. Intramuscular corticosteroid injections are effective for severe symptoms,¹¹ but concern remains over their safety. There have been medicolegal issues in the US and Canada, so they should be prescribed with caution where other safe and effective treatments exist.

Allergen immunotherapy, involving repeated administration of a specific allergen extract, is recommended in patients who cannot tolerate or do not respond to treatment. It is the only treatment that has the potential to modify progression of the disease and that has long-term benefits after stopping treatment.^{12,13}

Hayfever is treatable in most cases, but success depends on recognition, appropriate treatment, patient education and regular follow-up. Patients with severe symptoms who do not respond to first-line treatment should be proactively identified and considered for immunotherapy. Adolescents should be assessed and treated carefully to prevent poor school and exam performance.

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Service users and non-medical prescribers can boost concordance in mental health

Prescribing for mental health can be a tricky area, involving compliance problems and fears of public risk. However, a review of existing systems to encourage joint decision-making could reap benefits, argues **Graham Alexander**

Prescribing for psychiatric conditions is often regarded as a challenging area, and many prescribers can find following specialist psychiatric advice a daunting proposition. However, a reorganisation of traditional systems to bring greater involvement of non-medical prescribers (NMPs) and the clients themselves could go a long way towards addressing this situation.

The perception of the public and of many professionals is that people experiencing psychiatric disorders are more likely to be non-compliant with their medicines, creating anxiety about relapse and even about danger to the public. These perceptions promote fear and can increase the pressure on vulnerable patients from friends, relatives and care services.

Medicines used in psychiatry, regardless of whether they are old or new, remain powerful and frequently produce side-effects that are clinically undesirable and unpleasant for the patient. For many of those with psychiatric conditions, the medication can become the focus of unhappiness. In a study in 2005 carried out by MIND, 21 per cent of people who responded said the side-effects of their medication had been mainly harmful to their lives, while 19 per cent said the side-effects were as bad as or more problematic than the symptoms of the illness being treated.¹ This is worrying and likely to be a significant reason for poor adherence.

Balance between symptoms and side-effects

While our goal as professionals is to relieve the symptoms of an illness and promote recovery using the best evidence and practice available, our patients are living with their condition for many months or years, or even for life. As such, many may prefer a trade-off between symptom relief and side-effects so they can maintain a quality of life that is acceptable to them and their families.

The choice of medication is not straightforward but needs to be made by weighing up the many diverse issues and preferences as treatment continues. We need to recognise that such decisions must be based on consensus from a number of people involved in the care. Mental Health charity Rethink's guidance, *Only the best*, advocates that treatment decisions should be made between the patient, GP and the psychiatrist.² This is reasonable for less complex care, but for some, mental health service users have complex needs that require the collaborative involvement of multidisciplinary team members. It is well known that some

treatments can interfere with others, for example higher-dose benzodiazepines will prolong the cognitive learning processes required for successful CBT. Therefore, team members must work together to offer the best treatment package.

Tensions can exist between existing prescribing legislation, patient safety, public health promotion and personnel training in many mental health trusts; this is a further argument for multidisciplinary involvement.

Non-medical prescribers can boost patient involvement

Like many other areas of healthcare, secondary care psychiatry is in a state of continual change. Most organisations have coped well with rising demand (as can be seen by the results in the Healthcare Commission's National NHS patient survey program 2008³). However, a review of the existing systems of referral and follow-up could ensure we provide the best-possible care to service users.

The commission's findings on medicines management show that 93 per cent of patients receive medicines for their psychiatric challenges but 44 per cent report that they could be more actively involved in the choice of those medicines. While 40 per cent of respondents confidently said they were informed of side-effects, this figure could and should be much higher.³ It is evident that the involvement of our clients in their own care is of great importance, and that we need to look for ways to promote this.

NMPs present an ideal solution to these issues. A reorganisation of some of our traditional ways of working could make NMPs a significant resource for many aspects of medicines management.

Inpatient settings receive mental health patients on a regular basis, and NICE and the National Patient Safety Agency have developed guidelines for medicines reconciliation in this situation.⁴ It must take place within 24 hours of admission and include all the patient's medicines to ensure that those prescribed on admission correspond to what was being taken beforehand. Table 1 below shows a typical reconciliation. It is not a review – it is a systematic documentation of medications, with reference to:

- Name of medicine.
- Dosage.
- Frequency.
- Route of administration.
- Consideration of how patients choose to take the medication.

● **Author**
Graham Alexander
RMN, MA, PhD,
non-medical
prescribing lead,
mental health
pharmacy team,
Worcester Mental
Health Partnership
NHS Trust;
and associate
lecturer, Worcester
University
medication
management in
secondary mental
health services

● **Reviewer**
Debbie Robson,
programme leader
and research nurse
in medication
management,
Institute of
Psychiatry, King's
College, London

TABLE 1: EXAMPLE OF MEDICINES RECONCILIATION

MEDICINE	DOSE	FREQUENCY	ROUTE	ISSUE	EXPLORE
Amisulpride	50mg	Twice daily	Oral		
Aspirin EC Also on statin?	75mg	Once daily, in morning	Oral	Is this best practice?	Also on statin?
Bendroflumethiazide	2.5mg	At 1pm	Oral	Why at 1pm?	Ask patient and GP
Felodipine MR	10mg	Once daily, in morning	Oral		
Irbestartan	300mg	Once daily, in morning	Oral		
Latanoprost	50µg/ml	Once daily, in evening	Eye drops	How many drops/both eyes?	Ask patient
Timolol	0.25%	Twice daily	Eye drops	How many drops/both eyes?	Ask patient
Mirtazapine	30mg	Once daily, in evening	Oral		
Simvastatin	40mg	Once daily, in evening	Oral		
Nitrofurantoin	50mg	Four times daily	Oral	When was it started?	Check GP

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A medicines review looking at adherence, efficacy and side-effects is not part of the reconciliation process, but it is good practice to carry it out nonetheless.

Many organisations assume the reconciliation is the responsibility of pharmacy services, but for it to be comprehensive and effective, it must be a shared responsibility between medical colleagues, pharmacist, patient and the nurses on the unit.

While the pharmacists are undoubtedly the experts, in many mental health trusts there simply are not enough of them in post – particularly where pharmacy services are purchased under a service level agreement. Since the admitting doctor is often quite junior and not always fully conversant with psychiatric medicines, non-medical prescribers are well placed to help screen clients' medicines as part of the reconciliation process. This should ensure that the medicine cards reflect the treatment and that there are no glaring interactions, but it is more likely to highlight any medicines used by the client and how they have been taking them before admission.

CPAs need a full reconciliation process

However, this guidance fails to take into consideration the issues of crisis and home treatment, where the service provides, in the patient's home, a similar high level of support and care that occurs with an admission. An essential part of this service is to ensure there is a clear and accurate assessment of all medicines being taken, including any new medicines that have been introduced to avoid hospital admission. This is essentially medicines reconciliation in the community – an area where many pharmacy services would like to invest more of their expertise but lack the resources to cover on a full-time basis.

This outlines just how complex the process can be but also suggests that, in such situations, non-medical prescribers would be able to supply many of the skills and competencies needed to gather and build information. When coupled with the expertise of our pharmacy colleagues to review, this could create an effective route to reconciliation.

In focusing on interventions around admissions, is it acceptable to assume adequate consideration for clients who are stable but remain in secondary care and move through the system quite slowly because of their clinical condition? These clients may not trigger a medical reconciliation for a number of years but their treatment regimens do change and this puts a strong case for a reconciliation becoming part of any transfer between services, or an essential component of a Care Programme Approach (CPA) review. Many CPA processes do include a medicines review but often they only consider the treatments for the psychiatric condition, not what the GP or acute specialists may have introduced recently or what the client may have been purchasing over the counter or internet. A fuller process would give an opportunity for the client and carers to describe what is actually being taken, how and when.

Facilitating client involvement

One of the components of medicines management being monitored by the NHS patient safety programme³ is ensuring clients receive the information they need to participate actively in treatment options. Not only must clients be given the right information, they and their carers must be able to understand it.

As secondary care specialists, we discuss options with clients but, due to the pressure of work, want them to make choices there and then. This does not give the client time to assimilate the information and raise any issues or concerns. As professionals, we record our actions contemporaneously but this does not foster the true spirit of understanding or learning.

The value of non-medical prescribing is to offer the opportunity to follow up clients in such a way that we are able to discuss appropriate information in a client-friendly way, and supply that information in a medium that is convenient for individuals and their carers. Then at an appropriate time, NMPs can revisit the

BOX 1: MEDICATION FAQs⁵

- If the medication is not working, how long will it be before a change is considered?
- How often will my medication be reviewed?
- Where can I get further information?
- What are the effects of medication on my lifestyle?
- What happens if I forget or decide not to take my medication?
- What sort of side-effects might occur with the medication I am taking?
- Why is this medication being considered over alternatives?
- How many medications should I be taking for my condition?
- What are the different ways in which I can take medication?
- Are there any additional or complementary medications or therapies available?

new learning, expand on the information provided, and respond to additional queries and concerns that may arise during the ongoing process.

Guidance for clients and carers about how to frame questions to professionals is available in many publications and is highly praised in the Rethink *Only the best* publication.² An alternative resource for clients and carers is the recently launched website, Choice and Medication.⁵ This is also a useful learning tool for mental health professionals

Putting patients in control

Done properly, this process of sharing information can promote confidence and improve concordance. However, done badly, it often causes challenges to relationships between clients and the service that can last many years. Discussion of options that involve patients gives them some control over their life and the potential to make informed decisions about their treatment – factors that features highly on the DoH agendas for chronic disease management and the expert patient programme. As a prescriber, ask yourself two simple questions: what information you would want before you start any medication, and what would you want to be able to do while taking medicines in the long term.

It is crucial that the information we provide is accurate and balanced, exploring and considering the client's choices and feelings as far as is practical. Just as we have a duty to care and safeguard clients and carers, we also have a duty to ensure they are able to navigate the plethora of information available.

How to find the best online sources

The internet has opened possibilities beyond our wildest dreams – or nightmares. For example, a common search engine such as Google returns 337,000 hits when asked to search within the UK for 'antidepressants'. What may be considered worrying is that, with the exception of the Royal College of Psychiatrists, which Google lists first, all the other sites in the top 10 are voluntary sector information pages or news articles. Significant NHS national guidance such as that produced by NICE or SIGN, is notably absent and credible journal articles fall well down the list.

In the race to offer the public information, it appears that the NHS could certainly improve its attempts at reaching out with its own offerings. The alternative is the possibility that people's thirst for knowledge may be satisfied by another, less reliable source. Patients should know they can trust the information they find.

How do we collate a body of quality information that is suited to national and local need? Perhaps a start is to use materials from UK sources. This makes alignment with medicinal treatments available under the NHS more likely and also has the benefit of being able to respond to information clients and carers have obtained that perhaps is not in keeping with UK guidelines or that does not apply to the NHS.

■ **What do you think?** Discuss on the ANP forum at www.anp.org.uk



ISTOCK It is important that prescribers help patients to fit their medication around lifestyle issues, such as socialising and keeping fit

What type of information should we have available for meeting clients needs? The questions listed in Box 1 (above, left) taken from the Choice and Medication website,⁵ provide a good starting point by suggesting the type of questions that patients may ask when they see you.

Being expected to provide such a large amount of information is challenging and quite time consuming. However, this doesn't all need to be done at once. While we will discuss medicines with clients and carers at the point of prescribing or change, once the client has reached stability we should continue to make time available for ongoing discussion instead of assuming that the service objective has been achieved. In fact, we need to regularly offer the opportunity for clients to discuss issues that may not be presented to us as related to medication. These issues included aspects of lifestyle that the patient may be anxious about maintaining, such as social activities, driving, holidays, employment and keeping fit.

Clinics that offer greater convenience

For some years now, non-medical prescribing has developed and taken on new areas of activity, often adapting and improving the monitoring process in many clinical areas, such as physical health monitoring, depot clinics, lithium clinics and clozapine clinics, including the provision of outpatient activity.

However, we are now moving forwards from this focused activity to provide a number of skill sets within each clinic area, so that clients can benefit from many services at a single clinic. Examples of this are listed in Table 2 (below).

Medicines management is an ongoing process. It should involve many disciplines sharing knowledge and information to promote patients' quality of life, based on carers and patients making informed choices, whether they are experiencing their first episode or have been living with their condition for many years.

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TABLE 2: MULTIPLE ACTIVITY CLINICS

SERVICE	ACTIVITIES ENCOMPASSED
Psychosis clinic	Depot administration/clozapine monitoring; physical health monitoring; early warning signs; advanced directives; illness education; sharing experiences; relatives' education; CBT; medication management
Mood clinics	Lithium monitoring; depression; CBT; group work; anxiety management; medication management
Outpatients	Expansion of outpatients to encompass: counselling; individual anxiety management; CBT; medication management; and optimising long-term treatment plans
Recovery clinics	Focus upon social functioning relating to medicines challenges; education and training

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