

GUIDELINES

Diagnosis and assessment of food allergy in children and young people: summary of NICE guidance

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EDITORIAL by Fitzharris and Sinclair

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This is one of a series of *BMJ* summaries of new guidelines based on the best available evidence; they highlight important recommendations for clinical practice, especially where uncertainty or controversy exists. Further information about the guidance, a list of members of the guideline development group, and the supporting evidence statements are in the full version on bmj.com.

Food allergies, defined as an immune response to food proteins, affect as many as 8% of young children and 2% of adults in westernised countries, and their prevalence seems to be rising, as does the prevalence of all allergic diseases.¹ Correct diagnosis of food allergy in children and young people is essential to reduce the incidence of adverse reactions that result from true food allergies that are missed, and to reduce cases of unnecessary treatment after an incorrect diagnosis. This article summarises the most recent recommendations from the National Institute for Health and Clinical Excellence (NICE) on the diagnosis and assessment of food allergy in children and young people in primary care and community settings.²

Recommendations

NICE recommendations are based on systematic reviews of best available evidence and explicit consideration of cost effectiveness. When minimal evidence is available, recommendations are based on the Guideline Development Group's experience and opinion of what constitutes good practice. Evidence levels for the recommendations are in the full version of this article on bmj.com.

Assessment and allergy focused clinical history

- Consider the possibility of food allergy in children and young people who have one or more of the signs and symptoms listed in the table. Pay particular attention to persistent symptoms that involve different organ systems.
- If food allergy is suspected (by a healthcare professional or the parent, carer, child, or young person), a healthcare professional with the appropriate competencies (a general practitioner or other healthcare professional) should take an allergy focused clinical history that is tailored to the presenting symptoms and age. This should include:
 - Any personal or family history (in parents or siblings) of atopic disease (such as asthma, eczema, allergic rhinitis, or food allergy)
 - Details of any foods that are avoided and the reasons why
 - An assessment of presenting symptoms and other symptoms that may be associated with

food allergy, including questions about the age when symptoms first started; speed of onset of symptoms after food contact; duration of symptoms; severity of reaction; frequency of occurrence; setting of reaction (for example, at school or home); reproducibility of symptoms on repeated exposure; what food (and how much exposure to it) causes a reaction; and cultural and religious factors that affect the foods they eat

- Who has raised the concern and suspects the food allergy
- What the suspected allergen is
- The child or young person's feeding history, including the age at which they were weaned and whether they were breast fed or formula fed. If the child is currently being breast fed, consider the mother's diet
- Details of any previous treatment, including medication, for the presenting symptoms and the response to this treatment
- Any response to the elimination and reintroduction of foods.

Diagnosing non-IgE mediated food allergy (if this is suspected)

- On the basis of the results of the allergy focused clinical history, conduct a trial elimination of the suspected allergen (usually for two to six weeks) and reintroduce the food after the trial. Seek advice about any nutritional adequacies and follow-up, from a dietitian with appropriate competencies.

Diagnosing IgE mediated food allergy (if this is suspected)

- On the basis of the results of the allergy focused clinical history, offer the child or young person a skin prick test and/or blood tests for specific IgE antibodies to the suspected foods and likely co-allergens.
- Tests should be conducted only by healthcare professionals with the appropriate competencies to select, perform, and interpret them.
- Skin prick tests should be conducted only where facilities are available to deal with an anaphylactic reaction.

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- Diagnosis, assessment, and management of harmful drinking and alcohol dependence: summary of NICE guidance (*BMJ* 2011;342:d700)
- Management of generalised anxiety disorder in adults (*BMJ* 2011;342:c7460)
- Sedation for diagnostic and therapeutic procedures in children and young people (*BMJ* 2010;341:c6819)
- Management of bedwetting in children and young people (*BMJ* 2010;341:c5399)
- Transient loss of consciousness—initial assessment, diagnosis, and specialist referral (*BMJ* 2010;341:c4457)

Signs and symptoms of possible food allergy.* Absence of these symptoms does not exclude food allergy

IgE mediated	Non-IgE mediated
Skin	
Pruritus	Pruritus
Erythema	Erythema
Acute urticaria (localised or generalised)	Atopic eczema
Acute angio-oedema—most commonly lips, face, and around eyes	
Gastrointestinal system	
Angio-oedema of the lips, tongue, and palate	Gastro-oesophageal reflux disease
Oral pruritus	Loose or frequent stools
Nausea	Blood and/or mucus in the stools
Colicky abdominal pain	Abdominal pain
Vomiting	Infantile colic
Diarrhoea	Food refusal or aversion
	Constipation
	Perianal redness
	Pallor and tiredness
	Faltering growth and one or more of the gastrointestinal symptoms above (with or without serious atopic eczema)
Respiratory system (in combination with one or more of the above symptoms)	
Upper respiratory tract symptoms (nasal itching, sneezing, rhinorrhoea, or congestion (with or without conjunctivitis))	
Lower respiratory tract symptoms (cough, chest tightness, wheezing, or shortness of breath)	
Other	
Signs or symptoms of anaphylaxis or other systemic reactions	

*This list is not exhaustive.

- Choose between a skin prick test and a specific IgE antibody blood test on the basis of:
 - The results of the allergy focused clinical history and
 - Whether the test is suitable for, safe for, and acceptable to the child or young person (or their parent or carer) and
 - The available competencies of the healthcare professional to conduct the test and interpret the results.
- Do not carry out allergy testing without first taking an allergy focused clinical history. Interpret the results of tests in the context of information from the allergy focused clinical history.
- Do not use atopy patch testing or oral food challenges to diagnose IgE mediated allergy in primary care or community settings. This is because the accuracy of these tests varies widely and they are less well standardised.

Providing information and support to child or young person and parent or carer

- On the basis of the allergy focused clinical history, offer the child or young person and their parent or carer information that is age appropriate about:
 - The type of allergy suspected
 - The risk of severe allergic reaction
 - The potential impact of the suspected allergy on other healthcare issues, including vaccination
 - The diagnostic process, which may include an elimination diet or food reintroduction procedure; skin prick tests and specific IgE antibody testing, including the safety and limitations of these tests; referral to secondary or specialist care.

- For babies and young children with suspected allergy to cows' milk protein:
 - Offer food avoidance advice to breastfeeding mothers
 - Offer information on the most appropriate hypoallergenic formula or milk substitute to mothers of formula fed babies.
 - Seek advice from a dietitian with appropriate competencies.

Referral to secondary or specialist care

On the basis of the allergy focused clinical history, consider referral to secondary or specialist care in any of the following circumstances.

- The child or young person has:
 - Faltering growth in combination with one or more of the gastrointestinal symptoms described in the table
 - Not responded to eliminating a single allergen from the diet
 - Had an acute systemic reaction
 - Had a severe delayed reaction
 - Confirmed IgE mediated food allergy and concurrent asthma
 - Serious atopic eczema where multiple or cross reactive food allergies are suspected by the parent or carer.
- Where there is:
 - Persisting parental suspicion of food allergy (especially in children or young people with difficult or perplexing symptoms) despite a lack of supporting history
 - Strong clinical suspicion of IgE mediated food allergy but allergy test results are negative
 - Clinical suspicion of multiple food allergies

Alternative diagnostic tools

- Do not use the following alternative tests in the diagnosis of food allergy as no study analysing their utility was identified:
 - Vega test (which involves measuring electromagnetic conductivity in the body)
 - Applied kinesiology
 - Hair analysis.
- Do not use serum specific IgG testing in the diagnosis of food allergy as evidence has not been identified to support its use.

Overcoming barriers

No treatment pathways, referral criteria, or service models have been agreed for diagnosing food allergy in children and young people in primary care, and current practice in the United Kingdom is thought to vary considerably. However, correct diagnosis of food allergy using reliable criteria followed by appropriate advice is important to help reduce the incidence of adverse food reactions resulting from true food allergies, and to help prevent the unnecessary exclusion of foods that are safe and should be eaten as part of a normal, healthy diet.

These NICE recommendations should prompt primary care practitioners to think about the possibility of food allergy in children with specific presentations. They also highlight the importance of an allergy focused clinical history at initial assessment, and although this may sound time consuming, it should give healthcare professionals more confidence when interpreting test results.

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- 1 Cianferoni A, Spergel JM. Food allergy: Review, classification and diagnosis. *Allergy International* 2009;58:457-66.
- 2 National Institute for Health and Clinical Excellence. Diagnosis and assessment of food allergy in children and young people in primary care and community settings. (Clinical guideline 116.) 2011. <http://guidance.nice.org.uk/CG116>.

SAFETY ALERTS

Safer insertion of suprapubic catheters: summary of a safety report from the National Patient Safety Agency

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Following a Department of Health review in July 2010, the National Patient Safety Agency will be abolished and some of its functions transferred to a patient safety subcommittee of the new NHS Commissioning Board. Reports of incidents are, however, still encouraged at www.npsa.nhs.uk.

Suprapubic catheters are used when urethral catheterisation is not possible or desirable because of, for example, urethral stricture, prostatic enlargement, or urethral trauma.¹ In some cases the procedure may be carried out as an emergency on the ward. Elective indications include postoperative drainage after lower urinary tract or bowel surgery and the management of the neurogenic bladder. Many patients with conditions such as multiple sclerosis and spinal cord injury use long term suprapubic catheter drainage, to simplify catheter management and minimise risks of urethral damage.

Anecdotal evidence suggests that a typical hospital will carry out more than 100 suprapubic catheterisations each year. The doctors who undertake suprapubic catheterisation may lack experience: unless they are urologists, they may rarely perform the procedure. Suprapubic catheterisation is often delegated to junior medical staff.

The procedure involves passing a urinary catheter directly into the bladder through the lower abdominal wall, sometimes guided by ultrasound. Most are done safely, but important risks associated with catheter insertion include haemorrhage and infection of the urine or catheter track, and serious complication from intestinal injury. Bowel damage can lead to fatal peritonitis and is a particular risk in patients with contracted bladders that fail to distend sufficiently for safe catheter passage and in those with adhesions from previous lower abdominal surgery tethering bowel loops to the lower abdominal wall.

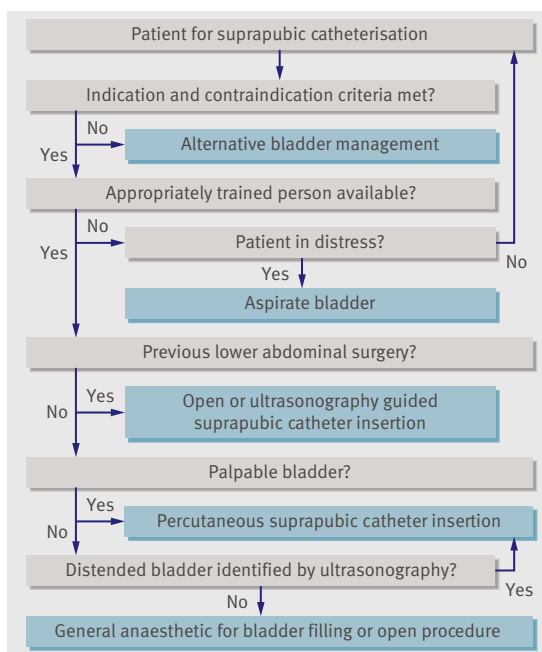
From September 2005 to June 2009, staff in England and Wales reported three deaths and seven cases of severe harm relating to insertion of suprapubic catheters. A further 249 incidents related to problems in suprapubic catheter use. Complications are likely to be under-reported, given 30 day mortality rates, in relatively small studies, ranging from 0.8² to 1.8.³

A typical incident report reads: "Patient underwent insertion of suprapubic catheter on [date] and was discharged back to nursing home the following day. Advised by coroner officer that patient had subsequently died. Coroner postmortem has shown cause of death to be peritonitis and instrumental perforation of the small bowel."

Problems identified by the National Patient Safety Agency

- Procedures were being performed out of hours without adequate supervision.
- Some reports described a lack of confidence in doing the procedure or unfamiliarity with the equipment.
- Staff had problems in accessing ultrasound machines on the wards or finding other staff who were able to use the equipment.

The patient safety incident reports seemed to show that the procedure is done in a range of settings and by different staff. Overall, staff seemed to perceive suprapubic catheterisation as a low risk procedure and were not always aware of potential complications.



Guide for decision making on suprapubic catheterisation.
Adapted from Harrison et al¹

The National Patient Safety Agency issued a safety report (known as a rapid response report or RRR) on minimising risks of suprapubic catheter insertion (for adults) in July 2009 (NPSA/2009/RRR005).⁴ The report recommended some immediate actions to ensure safer systems, and a good practice briefing sheet for clinicians. The agency also discussed risks with the British Association of Urological Surgeons, which published more detailed clinical guidelines for practitioners in November 2010.¹ This summary is based on key points from both publications.

What can we do?

The rapid response report recommended system changes to reduce errors. These include identifying a named lead for training in each trust, reviewing guidelines or policies in line with best practice, and ensuring access to ultrasound equipment and to staff trained in its use.

For individual clinicians

- Different techniques are used, but be aware that all closed (abdominal puncture) techniques run the risk of injury to internal organs.
- Ask yourself: "Does this need to be done? Does this need to be done now? Would it be safer to use temporising measures (such as urethral catheterisation or bladder aspiration using a fine needle of up to 21 gauge)?"
- Be aware of potential contraindications such as previous lower abdominal surgery (given the risk of bowel adherence); carcinoma of the bladder; anticoagulation and antiplatelet treatment; abdominal wall sepsis; or the presence of a subcutaneous vascular graft in the suprapubic region.
- Ask yourself: "Am I competent to do this?" You should be trained in the procedure, know who the training lead is in your organisation, and be familiar with

local equipment and guidelines. Until competent, junior staff should insert catheters only under the direct supervision of senior staff. If you do not feel comfortable undertaking this procedure, ask for help.

- Talk to patients about the risks of the procedure at the time of taking consent, and give written information, including telephone contact details in case post-procedure problems arise.
- If you cannot palpate the bladder, use ultrasonography to visualise the bladder and check that it is distended. Make sure that you are trained in the use of the ultrasound equipment. You may also want to use ultrasound to guide insertion of the catheter and check for interposing bowel loops along the planned catheter track. But this is an approach that is not supported by a strong evidence base and should be used only by trained individuals after discussion with a senior radiologist.
- Use open surgery (or a closed procedure with expert ultrasound guidance) for patients whose bladder cannot be adequately distended or who have a history of previous lower abdominal surgery.
- Monitor patients carefully after the catheterisation and keep in mind the possibility of bowel perforation, looking for lower abdominal pain (persistent or worsening, or pain spreading away from the site of the catheter insertion), signs of localised peritonitis, or general signs of sepsis.

Further details, including evidence for these actions, are given in the British Association of Urological Surgeons' guideline,¹ which also includes an algorithm (figure) to guide decisions.

What else do we need to know?

Some stakeholders commenting on the draft guidance from the National Patient Safety Agency asked for suprapubic catheterisation to be restricted to urologists or others skilled in this task (such as urogynaecologists or general surgeons). However, this would pose problems for smaller hospitals without on-call urology services, especially as these procedures may sometimes need to be done as an emergency. More guidance may be needed from professional bodies on how competence in suprapubic catheterisation can be determined (such as a minimum number of procedures under supervision).

Different suprapubic catheterisation techniques are in use; commercial kits typically use a trocar system (with or without a Seldinger guidewire) and can be used either blind or with ultrasound guidance; open surgical placement is the standard approach for complex cases.¹ Some methods may offer advantages of greater service efficiencies⁵ and improved outcome,⁶ but we do not know enough yet about the relative safety or effectiveness of different approaches.

We also need formal evaluation of the role of ultrasonography in reducing complications. For example, in patients with previous abdominal scars, can it reliably identify a safe route, avoiding bowel loops for the catheter track, and thus be used instead of open procedures?²¹ We also need clarity on the level of training and competence required for general physicians to use ultrasonography in this way.

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- ▶ Essential care after an inpatient fall (*BMJ* 2011;342:d329)
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- ▶ Early detection of complications after laparoscopic surgery (*BMJ* 2011;342:c7221)
- ▶ Prescribing and monitoring lithium therapy (*BMJ* 2010;341:c6258)
- ▶ Safer treatment doses for low molecular weight heparins (*BMJ* 2010;341:c5884)

How will we know when practice has become safer?

All NHS organisations were given until April 2010 to complete these actions. By the end of November 2010, 34/269 (13%) eligible organisations had still not completed actions. The British Association of Urological Surgeons is currently conducting a national audit of suprapubic catheter insertion, and data on the complications of the procedure should be available by the end of 2011. To measure improvement, local organisations could check access to ultrasound equipment on wards and survey junior staff to check they know the name of their training lead and contact number (for any time of day or night) in case patients show signs of complications after catheterisation. More detailed follow-up could be achieved by local retrospective audits of around 20 consecutive procedures against best practice set out in the British Association of Urological Surgeons' guidance.

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- 1 Harrison SCW, Lawrence WT, Morley R, Pearce I, Taylor J. British Association of Urological Surgeons' suprapubic catheter practice guidelines. *BJU Int* 2010;107:77-85.
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How many consultants should you invite to a meeting to ensure it will never happen?

Meetings can be difficult to arrange for executives in any walk of life, but for consultants in Britain's National Health Service, the mathematics is uniquely easy.

UK NHS contracts are typically 75% direct clinical care—contact with patients during sessions in the outpatient department, on ward rounds, in the operating theatre, or in laboratories when patients are undergoing diagnostic tests. The remaining 25% of the time is for supporting professional activities, including reading and writing correspondence, speaking with general practitioners and other specialists, teaching and training junior doctors and medical students, reading and writing scientific literature, etc. For a one-off meeting between consultants, it is undesirable to cancel or delay a direct clinical care session. The supporting professional activities are less traumatic to displace into the night or weekend.

So for n consultants of different specialties, the chance of all n being available to meet in any given session is 0.25^n . For two consultants, the chance of them both being available on (say) a Monday morning is $0.25^2 = 6.3\%$. For three consultants, it is 1.6% , and so on (as shown in the table).

But the standard working week is not one half-day: there are 10 such half-days available in the week. The chance of finding a suitable slot is therefore much better, by almost 10-fold. So, in any given week, the chance of being able to find a session to meet without disrupting direct clinical care is about $1 - (1 - 0.25^n)10$.

Chance of NHS consultants being available for a meeting

No of consultants	Chance of all being available	
	On Monday morning	Any time during week
1	25.0%	
2	6.3%	47.6%
3	1.6%	14.6%
4	0.4%	3.8%
5	0.1%	1.0%
6	0.0%	0.2%

Even with just two consultants, the chances are already just under 50% (table). For three, it is one in seven. For four, it is one in 25. Having a window longer than a week to schedule a meeting does not help much because successive weeks have broadly similar timetables: a set of consultants unable to fix a meeting one week may never be able to do so.

It is worse for consultants within the same specialty, of course, because the assumption that the availabilities are statistically independent is violated. When one is (for example) out of the operating theatre, it becomes more likely that another is in it. Hence, availability of one for a meeting means that the probability of the other being available is reduced. Finally, if consultants ever have to take leave for holiday or sickness, then the situation is even worse. God forbid if any have family commitments that make them part time.

As the number of consultants increases, the time consumed in simply scheduling the meeting increases. In contrast, the expectation of consultant time consumed by the meeting itself decreases because of its two determinant factors; the probability of successfully agreeing a time falls faster than the number of consultants rises.

A colleague of mine uses this stratagem advantageously, having an innate grasp of this law. By publically elucidating the mathematics formally, I hope to help his counterparties, and others, who may have less Machiavellian motives.

We should hesitate to request a meeting of all relevant consultants (or to insist on personally attending any meeting)—unless, of course, our aim is to ensure it never happens. If a subject is really important to a group, we should meet at night, or at weekends.

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From the archive: Campbell EJM, Gent M. On the probability of a committee meeting. *BMJ* 1976;2:1551-2.