

Paediatric Food Challenge resource pack

for use at Frimley Park and Wexham Park Hospitals only

Key Points

- Food challenges are the gold standard test for food allergy diagnosis.
- A food challenge consists of ingesting increasing amounts of the suspected food under medical supervision to determine whether symptoms develop in a controlled environment.
- It is advised in unclear cases when there is disparity between medical history and allergy tests, and also to monitor food allergy resolution over time.

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Abbreviations

AAI	Adrenaline Auto Injector
OFC	Oral Food Challenge
SPT	Skin Prick Testing

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INTRODUCTION

The diagnosis of food allergy in paediatrics is becoming increasingly common. The foods most commonly involved are cow's milk, hen's egg, peanut, tree nuts, soy, fish and wheat. Children normally outgrow common food allergies such as hen's egg and cow's milk by the time they are five years old. As allergy is more commonly diagnosed it is vital that clinicians are aware of currently available tests and how they can be used best to help with the diagnosis. Skin prick testing (SPT) and food specific IgE (serum blood) are the most commonly used diagnostic tests although other tests such as component resolved diagnostics are also sometimes used. Paired with a good medical history these are often enough to provide a reliable diagnosis.

However, if there is disparity between the clinical history and the other tests then a physician supervised oral food challenge is the gold standard for proving or disproving the food allergy. The expected benefit of the challenge on the child's diet and/or quality of life should clearly outweigh the potential risk of experiencing an allergic reaction, and the costs involved in the procedure. This balance needs to be assessed individually and discussed with the patient/family before booking a food challenge.

Challenges can be:

- Open - nurse and patient know the food being challenged to.
- Single blinded placebo controlled - the patient doesn't know what is being challenged but the nurse does
- Double blinded placebo controlled - neither the patient nor the nurse knows what is being challenged.

Competency

The OFC procedure may only be performed by qualified nursing or medical staff. These should work regularly alongside a Consultant who is actively involved in allergy management.

INVESTIGATIONS PRIOR TO A FOOD CHALLENGE

It must be emphasised that in-vivo and in-vitro tests must be interpreted in the light of the clinical history. For example, if the skin prick test is positive to egg but the child tested is known to tolerate all forms of egg, then the consumption history has more clinical relevance.

Skin prick tests

- This is a measure of skin allergen specific IgE.
- The local SOP outlining skin prick testing procedure should be followed
- A positive skin prick test has a high positive predictive value of a reaction occurring for most foods but should be read in conjunction with the positive and negative control results and with the knowledge of the test performed.
- A negative skin prick test has a high negative predictive value for the food challenge outcome and is more than 95% predictive of a negative challenge.
- If the child is under 3 years of age and their previous skin prick test was more than three months ago a repeat skin prick test can be considered before food challenge however standard as per local hospitals states 6 months; this will be decided at the discretion of the leading consultant. This could be done on the day of the challenge before commencing.
- In young children it is usual to see a decrease in wheal size over time.

Specific IgE tests

- This is a measure of serum allergen specific IgE.
- This test is particularly useful in patients with:
 - -Widespread eczema or psoriasis such that skin prick tests are difficult to perform.
 - -Foods where component testing provides an accurate predictor of tolerance. For example, peanut, egg and tree nuts
- Specific IgE is relatively specific (>80%) but has a low sensitivity (≈ 60%)

INCLUSION CRITERIA

Patients who could be challenged

- **History and test (skin prick and SplgE) positive**

Few children in this group would be expected to be challenged. However, clinical reactivity changes over time, so patients with previously positive tests may be challenged but not without a re-test. Many patients grow out of egg or milk allergy in the first few years so it may be possible to challenge them if the tests suggest this would be tolerated (Savage and Sicherer, 2016). The test may be thought to represent cross-reactivity but challenge in this group should always be with extreme caution. Challenge proven IgE associated food allergy rarely remits in adults.

- **History positive, test negative**

Other non-IgE mechanisms may be at play, especially delayed ones. Coincidental urticaria, acidic foods such as tomato or citrus or foods with high histamine (fish or shellfish) may be the cause. Alternatively, the allergy may be resolving and the IgE levels have fallen below that required for detection. Cross contamination may also occur with other foods.

- **History negative and test positive**

Patients may have been advised to avoid foods on the basis of a positive test which is not appropriate guidance.

o Consideration should be given to a hospital-based food challenge in patients with positive tests to food they have never knowingly eaten.

o Patients with positive tests to a food they have eaten previously are immunologically sensitised but not necessarily clinically allergic. A challenge may occasionally be needed for reassurance.

- **Siblings of patients with proven allergy**

Asymptomatic, test negative patients may be on exclusion diets because of an older sibling's reactivity, especially children under a year. Explanation of the negative predictive value of SPT may not be enough to provide confidence in some families.

- **Unclear diagnosis or educational purposes**

-Children in whom food allergy diagnosis is unclear, due to atypical clinical presentation and/or inconclusive allergy tests

-Exceptionally, in selected cases, challenges might be performed for educational purposes (i.e., to improve self-management skills or address misperception of risks in the context of high levels of patient's anxiety).

A recent SPT and/or specific IgE to the food tested must be available. If there is concern about potential changes since the last test, then a repeat SPT should be

performed on the day of the challenge, and the result should be discussed with medical staff prior to commencing the challenge, if it differs from other recent results.

EXCLUSION CRITERIA

Patients who should NOT be challenged

- Children with a high likelihood of reacting.
- Children who are unlikely or unable to eat the necessary quantity of food.
- Children with a clear-cut reaction to the tested food in the previous 6-12 months
- Children who are currently or have recently been unwell in the last two weeks.
- Children who having a chronic atopic disease such as asthma or eczema should only be challenged when the disease is at a stable level with no exacerbations in the last two weeks. If the child has been unwell or if there have been any acute exacerbations then the challenge should be discussed with the on call registrar or consultant. Normally the challenge is cancelled and rescheduled.
- Children with a clear-cut case of a recent history of anaphylaxis to a food.
- The child is eating the food in reasonable quantities.

SUPPLY AND STORAGE OF FOODS

- The parents will be asked to supply the appropriate food to be challenged. Information regarding which product to bring in will be given to the parents prior to the challenge.
- Usually only one food should be challenged on one day.
- The Allergy CNS will work out the necessary doses of food for each challenge as per guidance. Example food dosages are provided in this guideline.

CONSENT

- This should be obtained after the patient (if able) and parents have read the information provided on food challenges. This should have been given to them in clinic prior to their attendance for food challenge, or sent to the family with their appointment letter.
- Consent should be obtained and documented on challenge paperwork.

DRUG INTERACTIONS

For those children who are taking medications that may affect the challenge, it is important that these medications will have been stopped sufficient time in advance: The most common drugs are oral antihistamines, oral steroids and omalizumab:

- Long antihistamines (e.g., cetirizine, loratadine) should be stopped 5 days prior to the challenge (72 hours for fexofenadine).
- Short acting antihistamines (chlorphenamine - Piriton ® or desloratadine) should be stopped 48 hours prior to the challenge.
- Oral steroids should be weaned and stopped 2 weeks prior to challenge.
- Challenges on children on other systemic immunosuppressants should be discussed with a consultant prior to booking or proceeding.

- Other regular drugs such as montelukast, nasal corticosteroids, inhaled corticosteroids, or combined inhaled corticosteroids plus LABA (long acting beta agonists) should be continued as per normal.

PRE-CHALLENGE RISK ASSESSMENT

(See Appendix A)

Each child will be documented as low or high risk when they are added to the food challenge waiting list following multidisciplinary team discussion.

Low risk

- ☐ No history of an allergic reaction
- ☐ Negative SPT or SPT equivocal and /or SplgE <Grade3
- ☐ No asthma or well controlled asthma (BTS <Step3)
- ☐ No previous history of anaphylaxis

High risk

- ☐ Previous anaphylaxis
- ☐ SPT and SplgE levels approaching the 95% PPV diagnostic cut off
- ☐ Asthma (BTS > Step3)
- ☐ Other chronic medical conditions (e.g. taking Beta blockers)

ORAL FOOD CHALLENGE PROTOCOL

On the day of the Challenge (See Appendix A)

Assessment of Child and procedure prior to commencing food challenge:

1. Inform on call SHO and registrar that challenges are taking place.
2. Ensure that both oxygen and suction are in working order next to the emergency bed.
3. Ensure all steps of the anaphylaxis protocol are in place and that all emergency medications are prescribed; (refer to Anaphylaxis guideline).
4. Check the resus trolley and emergency drug box are complete and readily available.
5. Perform baseline observations, including temperature, pulse, respiratory rate, oxygen saturations, blood pressure, and chest auscultation. Peak Expiratory flow rate should also be done if the child is > 5 years, even when not asthmatic.
6. Ensure child meets the challenge inclusion and exclusion criteria.
7. Complete the challenge pre assessment documents and explain the challenge procedure and risks to the child and family.
8. Obtain consent for the challenge from the parents and child/young person and document.
9. The child will require cannulation and IV medications prescribed if stated on pre-challenge assessment.
10. The patient's skin must be thoroughly examined. Areas of redness and dryness should be documented before the challenge starts. Particular attention should be paid to the noting lip contours and around the nasal airway areas as these are very often affected first. If child has eczema, ask parent to take pictures on their own phone of eczematous patches to refer to if it is felt these areas have worsened.

11. Patients and young people who suffer from allergic rhinitis (i.e., hay fever or house dust mite allergy) may show signs of a runny nose or watery eyes for example. These should be documented before the start of a challenge. 'Mild' symptoms aren't a contraindication to a food challenge but they should be documented as a baseline observation and closely monitored. In patients with moderate and uncomfortable symptoms, the challenge should be scheduled for another day as these symptoms could potentially interfere with accurate assessment of challenge outcome. For example, in children with hay fever who regularly take antihistamines, the challenge should be scheduled for winter.
12. The Food Challenge Checklist (see Appendix A) should be completed before starting the OFC.

Steps of the challenge (Individual dosage charts as per appendix):

Place a small amount of allergen onto the child's lip.

Observe for 15-30 minutes (as per chart)

If no reaction give first dose of allergen, to be swallowed.

Observe for 15-30 minutes (as per chart)

If no reaction is noted, continue giving increased doses of the allergen at specific intervals according to the dosage charts until the top dosage for that allergen is reached or a reaction occurs.

Monitor the child closely for at least 2 hours. If no reaction is noted during this period then the challenge is said to be negative. Observations should be checked at least hourly, and every 5-15 minutes in case of a suspected reaction depending on reaction severity

- During the challenge the food may be disguised in another form to make it more palatable. However, the allergen being tested must only be mixed with other foods that the child is known to have had before and will not react to.
- Input from the play specialist is sometimes helpful when trying to persuade a child to eat something they have always avoided.

If reaction is noted follow the Paediatric Anaphylaxis Guideline & Resus Council Algorithm (Appendix C)

"Paediatric Anaphylaxis"

Intramuscular adrenaline is the first line treatment for anaphylaxis, i.e., an immediate systemic reaction with airway, breathing or circulatory involvement. Whenever possible, if a patient experiences anaphylaxis during a food challenge, the family/patient should be encouraged and supported to administer IM adrenaline themselves using their usual auto-injector as an educational/empowering experience. This auto-injector will be provided by the clinical staff and where possible should be the same device the child will/has been prescribed.

DISCHARGE CRITERIA

(see Appendix B)

Observation time:

- The child will be observed at least for 2 hours following the last dose in negative or inconclusive challenges.
- Patients who experience symptoms will be observed until the symptoms have settled, and at least for 2 hours following the last dose (4 hours if anaphylaxis).
- The child should only be discharged when fit and well and family are happy to leave.
- If required, a prescription for the hospital pharmacy will be given to collect any required medicines prior to discharge.
- Written and verbal advice on symptoms to watch for at home, and action to be taken should they occur, will be provided (See Appendices K and L)
- Clear dietary advice will be given following the challenge, i.e. whether the tested food should be avoided (in positive and inconclusive challenges) or introduced (in negative challenges). An introduction leaflet will be provided for the following foods: baked milk, baked egg, cooked egg and selected nuts. Consider offering dietician advice if required.
- The appropriate post-challenge information should be provided to the young person or parent/carer
- Families should be asked to contact the allergy team if there are symptoms of a possible allergic reaction within 72 hours of discharge, so that appropriate advice can be given. Contact details for the unit should be given to families at discharge, for this purpose.
- For children with on-going food allergies, parents and children will receive anaphylaxis management training and their food allergy action plan will be revised. Inhaler technique should be checked where appropriate. An updated plan will be provided if any changes are required, or the existing plan was issued over 1 years prior.
- Parents are aware of 'late phase' reactions and how to manage them.

ORAL FOOD CHALLENGE SYMPTOM CHART

	Major criteria requiring IM adrenaline	Minor reactions
Respiratory signs (at least one of the following)	• Respiratory arrest • Throat itching or tightness • Hoarseness • Barking cough • Difficulty swallowing • Inability to speak • Stridor • Dyspnoea /Wheeze • Apnoea	• Nasal congestion • Sneezing • Rhinorrhoea lasting more than 3 minutes • Rubbing of nose or eyes more than 3 minutes
Cardiovascular signs	• Cardiac arrest • Severe bradycardia or hypotension not associated with a vasovagal episode or • Mild dysrhythmia and/or hypotension not associated with vasovagal episode	• Tachycardia (increase of >15 beats/min)
Neurological signs	• Loss of consciousness • Feeling of impending doom	• Change in activity level • Anxiety • Light headedness
Skin signs	• Angioedema compromising airway	• Urticarial pruritic rash • Angioedema • Persistent scratching >3 min
GI signs		• Oral itching or tingling • Mild lip swelling • Nausea • Vomiting • Diarrhoea

COMMON ISSUES	TROUBLESHOOTING
Non-specific mark or rash, independent of any other signs of an allergic reaction	Examining the child thoroughly before the challenge commences and documenting any rashes or marks seen may help with interpreting whether a child is having a reaction or not during a challenge.
Subjective, isolated symptoms of an allergic reaction e.g., itchy mouth/sore throat	Try to provide distraction to the child, encourage the child to have a drink, provide encouragement and reassurance. If not distractible, check covertly for signs of pallor or other symptoms for a full 30 minutes and, if well, consider repeating the last dose.
Resistance or refusal to eat	Disguise the new food in a food known to be tolerated, e.g., nuts in yoghurt / cow's milk in soya.
Anxiety, common in children who remember the allergic reaction (anxiety can cause a number of symptoms associated normally with the allergic reaction, e.g., rapid breathing, mouth tingling, feeling of throat closing).	The psychological effects of allergy are not to be underestimated and require reassurance. Explanation of what will happen that day and make sure that they are motivated to want this food in their diet. Patience, time, encouragement and reassurance.
Clinician uncertainty. Early signs of an allergic reaction can be very subtle. The child may stop playing or sit on the bed, become quiet or look pale. These are not reasons for stopping the challenge but should be taken seriously as may herald a more severe reaction.	Consult the parents and explain that their child may be having an allergic reaction but that it is difficult to interpret. Explain that we would like a definitive diagnosis therefore either repeat the same dose or continue with the next dose. Explain to the parents the implications of this action (possible reaction) and include them in the decision.

FOOD CHALLENGE ALGORITHM**Food Challenge Booklet**

Patient Sticker:

Algorithm for challenge

Tick

Assess child is well (not pyrexial, no wheeze, no recent reaction) ☐Steroid use?/Salbutamol use? ☐Not taken cetirizine for at least 5 days /Chlorpheniramine 2 days ☐Consent signed ☐

If unwell, taking antihistamines or current exacerbation of asthma- rebook for another day

Proceed with food challenge/ +/- Skin prick test (repeat SPT if nut challenge and last one more than 6 months ago)

Allergic reaction

- Stop procedure
- Treat as required
- Observe
- Avoid allergen- same as pre challenge
- Give treatment plan
- Complete discharge Summary

No allergic reaction

- Observe for 2 hours after final dose
- Advice on incorporation of allergen into diet
- Give advice leaflet
- Review requirements for follow up
- Complete Discharge Summary

Drugs to be prescribed per BNFC**Adrenaline**

< 30 kg Adrenaline Autoinjector 150 mcg
>30 kg Adrenaline Autoinjector 300mcg

Anti-histamine

prescribe as a single dose on the one off "stat" section of the drug chart

Cetirizine**If Cetirizine fails, Chlorpheniramine**

Aged 1 year and over

1mg

0.25mg/kg

2-5 yrs 2.5mg

1mg

6-11yrs 5mg

2mg

12yrs and above 10mg

4mg

Salbutamol

<5 yr 2.5mg nebulized or 10puffs
>5 yr 5mg nebulised or 10 puffs

DRUG / FOOD PROFORMA

Recorded on Epic			
Food / drug being challenged			
SPT / IgE results to relevant food (positive and negative control results)	Food	+ Positive	- Negative
Previous reaction			
Other allergies			
Asthma	Yes	No	
If yes, any symptoms in last week?			
Last salbutamol use?			
Taking preventer?			
Allergic rhinitis?	Yes	No	
Eczema?	Yes	No	
If yes, where affected?			
Medications			
Adrenaline autoinjectors? (in date)			
Drug allergies			
Last antihistamines? (Cetrazine 5 days / Chlorpheniramine 2 days)			
Fit and well			
Examination			
Cardiovascular			
Chest			
Skin			

FOOD CHALLENGE DOSAGES*

(see Food challenge sheets, below)

Food	Protein g/100g	1 st dose	2 nd dose	3 rd dose	4 th dose	5 th dose	6 th dose
Milk	3.3	Lip dose	1ml	5ml	10ml	30ml	100ml
Baked Milk Malted milk biscuit	3g milk for fairy cake assumed 57g	1crumb	1/16th	1/8th	1/4th	remainder	
Baked egg	3g egg for fairy cake assumed 57g	1 crumb (0.2g)	0.8g	2.4g	8g	Remainder (24g)	
Whole egg	14.1g	lip	0.8g	2.4g	8g	24g	
Peanuts	25.8g	lip	0.1g	0.4g	1.2g	4g	12g
Peanut butter	29.6g	lip	0.1g	0.4g	1.3g	4.2g	12.5g
Nut butters	20-30g	lip	0.1g	0.4g	1.2g	3.9g	12g
Wheat	10.5g	lip	crumb	1g	3g	6g	20g
Sesame Tahini	18.2g	lip	0.5g	2g	4g	10g	
Sesame Snap	12g	lip	0.5g	2g	8g	20g	
Fish (Tuna)	24.9g	lip	0.1g	0.5g	1.4g	4.8g	14g
Prawn	16.5g	lip	0.5g	1.8g	6.1g	18g	
Soya	3.1g	lip	1ml	5ml	10ml	30ml	150ml
Lentils	8.8	lip	1g	3g	9g	30g	

* Adapted from Ashford and St Peter's Hospitals NHS Foundation Trust, with thanks

Food Challenge record

Cow's milk challenge

Plan can also be adopted for
Infant Formula

Name:

Hospital number

Date of birth

Date of challenge.....

Food to be challenged: Cow's milk protein / Formula (circle food to be challenged)

Challenge Procedure (.....) *enter actual food to be eaten*

Dose	Description of dose		Time	Reaction (Yes / No)		Observation (e.g., itchy, rash)
1.	One drop of milk to be placed on the oral mucosa	15 min observation				
2.	1ml of milk to be drunk	15 min observation				
3.	5ml of cow's milk to be drunk	15 min observation				
4.	10ml cow's milk to be drunk	15 min observation				
5.	30 ml cow's milk to be drunk	15 min observation				
6.	100 ml of cow's milk to be drunk	15 min observation				

Management plan: Yes / Not needed

Allergy plan given: Yes / has one already (from www.bsaci.org/professional-resources/resources/paediatric-allergy-action-plans/)

Allergy AAI training given: Yes / Not needed

Discharge time: Signature:

Food Challenge record

Baked milk challenge

(Use Malted Milk biscuit)

Name:

Hospital number

Date of birth

Date of challenge.....

Food to be challenged: Milk biscuit

 Challenge Procedure (.....) *enter actual food to be eaten*

Dose & Date	Description of dose		Time	Reaction (Yes / No)		Observation (e.g., itchy, rash)
1.	Crumb of biscuit to be eaten	15 min observation				
2.	1/16 th of biscuit to be eaten	15 min observation				
3.	1/8 th of biscuit to be eaten	15 min observation				
4.	1/4 of biscuit to be eaten	15 min observation				
5.	Remainder of biscuit to be eaten	Minimum 60 min observation				

Management plan: Yes / Not needed

 Allergy plan given: Yes / has one already (from www.bsaci.org/professional-resources/resources/paediatric-allergy-action-plans/)

Allergy AAI training given: Yes / Not needed

Discharge time: Signature:

Food Challenge record

Baked egg challenge

(Small fairy cake – recipe overleaf)

Name:

Hospital number

Date of birth

Date of challenge.....

Food to be challenged: Hen's egg

Challenge Procedure (.....) *enter actual food to be eaten*

Dose & Date	Description of dose		Time	Reaction (Yes / No)		Observation (e.g., itchy, rash)
1.	Crumb of fairy cake (0.2g) to be eaten	15 min observation				
2.	Large crumb of fairy cake (0.8g) to be eaten	15 min observation				
3.	1/4 of fairy cake (2.4g) to be eaten	15 min observation				
4.	1/2 of fairy cake (8g) to be eaten	15 min observation				
5.	Remaining portion of fairy cake (24g) to be eaten. 1 cake for infant, 2 for child	60 min observation				

Management plan: Yes / Not needed

Allergy plan given: Yes / has one already (from www.bsaci.org/professional-resources/resources/paediatric-allergy-action-plans/)

Allergy AAI training given: Yes / Not needed

Discharge time: Signature:

Procedure for Home Baked Egg Challenge

(for full instructions, see Egg allergy parent information sheet)

Recipe for fairy cakes (makes 8, or for younger children make 12)

4oz self-raising flour
4oz margarine
4oz caster sugar
1 medium egg

Method

Mix margarine and sugar to a pale paste.

Mix in egg and then fold in flour.

Spoon into fairy cake cases and bake for 10-13 minute 180 degrees/gas 4

Home challenge steps

1. Cut fairy cake in half 4 times.
2. **Week 1:** Give your child 1 piece (1/16) of fairy cake to eat daily
3. **Week 2:** Give your child 2 pieces (1/8) of fairy cake to eat daily
4. **Week 3:** Give your child 4 pieces (1/4) of fairy cake to eat daily
5. **Week 4:** Give your child ½ of a fairy cake to eat daily
6. **Week 5:** Give your child a whole fairy cake to eat daily

For a savoury alternative, use a small frozen Yorkshire pudding



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Food Challenge record

Whole egg challenge

Name:

Hospital number

Date of birth

Date of challenge.....

Food to be challenged: Hen's egg

Challenge Procedure (.....) *enter actual food to be eaten*

Dose & Date	Description of dose		Time	Reaction (Yes / No)		Observation (e.g., itchy, rash)
1.	Lip challenge with hard-boiled egg	15 min observation				
2.	Hard-boiled white/yolk egg (0.8g)	15 min observation				
3.	Hard-boiled egg (2.4g)	15 min observation				
4.	Hard-boiled egg (8g)	15 min observation				
5.	Hard-boiled egg (24g)	60 min observation				

Management plan: Yes / Not needed

Allergy plan given: Yes / has one already (from www.bsaci.org/professional-resources/resources/paediatric-allergy-action-plans/)

Allergy AAI training given: Yes / Not needed

Discharge time: Signature:



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Food Challenge record

Peanut challenge

Name:

Hospital number

Date of birth

Date of challenge.....

SLOW challenge in HIGH RISK patient

For FAST challenge in LOW RISK patient follow steps 2-6 only

Food to be challenged: **Peanuts / Peanut butter / Bamba** (highlight food to be challenged)

Challenge Procedure (.....) *enter actual food to be eaten*

Dose & Date	Description of dose			Time	Reaction (Yes / No)		Observation (e.g., itchy, rash)
1.	Cut Peanut to touch lower oral mucosa			15 min observation			
2.	Peanuts 0.1g	Peanut butter 0.1g	Bamba 0.4g	To be eaten, observe for 15 -30 minutes			
3.	Peanuts 0.4g	Peanut butter 0.4g	Bamba 0.9g	To be eaten, observe for 15 -30 minutes			
4.	Peanuts 1.2g	Peanut butter 1.3g	Bamba 2.1g	To be eaten, observe for 15 -30 minutes			
5.	Peanuts 4g	Peanut butter 4.2g	Bamba 4.3g	To be eaten, wait for 15-30 minutes			
6	Peanuts 12g	Peanut butter 12.5g	Bamba 8.5g	To be eaten, observe for 15 -30 minutes			

Management plan: Yes / Not needed

Allergy plan given: Yes / has one already (from www.bsaci.org/professional-resources/resources/paediatric-allergy-action-plans/)

Allergy AAI training given: Yes / Not needed

Discharge time: Signature:

Food Challenge record

Mixed nut challenge

(Mixed nut cookie – recipe overleaf)

Name:

Hospital number

Date of birth

Date of challenge.....

Food to be challenged: **Single nut / Mixed nuts** (highlight food(s) to be challenged)

Challenge Procedure (.....) *enter actual food to be eaten*

Dose & Date	Description of dose		Time	Reaction (Yes / No)		Observation (e.g., itchy, rash)
1.	Small Crumb of biscuit to be eaten	15 min observation				
2.	1/16 th of biscuit to be eaten	15 min observation				
3.	1/4 of biscuit to be eaten	15 min observation				
4.	1/2 of biscuit to be eaten	15 min observation				
5.	Finish biscuit	Minimum 60 minutes observation				

Management plan: Yes / Not needed

Allergy plan given: Yes / has one already (from www.bsaci.org/professional-resources/resources/paediatric-allergy-action-plans/)

Allergy AAI training given: Yes / Not needed

Discharge time: Signature:

Mixed Nut Challenge Cookie Recipe

Ingredients

- 25g self raising flour
- 10g dairy free margarine
- 14g caster sugar
- ½ teaspoon of golden syrup
- 12g of each nut to be challenged-finely ground (e.g., almond, brazil, cashew, hazelnut, macadamia, pistachio, walnut or peanut)

Method

1. Pre-heat oven to 180C and grease the baking tray
2. Grind all selected nuts/peanuts together in a food processor
3. Add sifted flour and mix together
4. Cream together the margarine, sugar and golden syrup in a separate bowl and then add this to the food processor
5. Mix together at a low speed
6. Add a little water at a time and mix on a low speed until you have a stiff dough
7. Divide the mixture into 2 balls of equal weight (60g each)
8. Place the dough balls onto a greased baking tray and press flat into 1 ½ cm thick discs
9. Bake in the middle of the oven for 10-15 minutes until golden brown, keeping an eye on them to check they do not burn
10. Cool before storing in an airtight container or freezing

Food Challenge record

Whole nut / Nut Butters

Name:

Hospital number

Date of birth

Date of challenge.....

Food to be challenged: Nuts / Nut butters (circle food to be challenged)

 Challenge Procedure (.....) *enter actual food to be eaten*

Dose & Date	Description of dose		Time	Reaction (Yes / No)		Observation (e.g., itchy, rash)
1.	Nut/nut butter lip challenge 15 to 30 minutes observation					
2.	Nut/nut butter to eat 15 to 30 minutes observation	0.1g				
3.	Nut/nut butter to be eaten 15 to 30 minutes observation	0.4g				
4.	Nut/nut butter to be eaten 15 to 30 minutes observation	1.2g				
5.	Nut/nut butter to be eaten 15 to 30 minutes observation	3.9g				
6.	Nut/nut butter to be eaten Minimum 60 minutes of observation	12 g (or portion size appropriate to child)				

Management plan: Yes / Not needed

Allergy plan given: Yes / has one already (from www.bsaci.org/professional-resources/resources/paediatric-allergy-action-plans/)

Allergy AAI training given: Yes / Not needed

Discharge time: Signature:

Food Challenge record

Wheat challenge

Name:

Hospital number

Date of birth

Date of challenge.....

Food to be challenged: Wheat (e.g., as Weetabix)

 Challenge Procedure (.....) *enter actual food to be eaten*

Dose & Date	Description of dose		Time	Reaction (Yes / No)		Observation (e.g., itchy, rash)
1.	Piece of Weetabix to touch the lower oral mucosa	15 to 30 minutes observation				
2.	Small Crumb of Weetabix to be eaten	15 to 30 minutes observation				
3.	1g of Weetabix to be eaten	15 to 30 minutes observation				
4.	3g of Weetabix to be eaten	15 to 30 minutes observation				
5.	6g of Weetabix to be eaten	15 to 30 minutes observation				
6.	20g of Weetabix to be eaten (or portion size appropriate to child)	Minimum 60 minutes of observation				

Management plan: Yes / Not needed

 Allergy plan given: Yes / has one already (from www.bsaci.org/professional-resources/resources/paediatric-allergy-action-plans/)

Allergy AAI training given: Yes / Not needed

Discharge time: Signature:

Food Challenge record

Sesame challenge (Tahini)

Name:

Hospital number

Date of birth

Date of challenge.....

Food to be challenged: Sesame (given as Tahini paste)

Challenge Procedure (.....) *enter actual food to be eaten*

- -Tahini paste can be given on chocolate buttons, bread or crackers
- -If Tahini is disliked, 1 sesame snap biscuit or homemade biscuit containing 1 teaspoon of sesame seeds can be used for the final dose

Dose & Date	Description of dose		Time	Reaction (Yes / No)		Observation (e.g., itchy, rash)
1.	Smear of tahini paste to touch the lower oral mucosa	10 - 15 minutes of observation				
2.	0.5g of Tahini paste to be eaten	15 minutes of observation				
3.	2g of Tahini paste to be eaten	15 minutes of observation				
4.	4g of Tahini paste to be eaten	15 minutes of observation				
5.	10g of Tahini paste to be eaten	60 minutes of observation				

Management plan: Yes / Not needed

Allergy plan given: Yes / has one already (from www.bsaci.org/professional-resources/resources/paediatric-allergy-action-plans/)

Allergy AAI training given: Yes / Not needed

Discharge time: Signature:

Food Challenge record

Sesame challenge (Sesame snap biscuit)

Name:

Hospital number

Date of birth

Date of challenge.....

Food to be challenged: Sesame (given as Sesame snap biscuit)

Challenge Procedure (.....) *enter actual food to be eaten*

- -Tahini paste can be given on chocolate buttons, bread or crackers
- -If Tahini is disliked, 1 sesame snap biscuit or homemade biscuit containing 1 teaspoon of sesame seeds can be used for the final dose

Dose & Date	Description of dose		Time	Reaction (Yes / No)		Observation (e.g., itchy, rash)
1.	Sesame snap to touch the lower oral mucosa	10 - 15 minutes of observation				
2.	0.5g of Sesame snap to be eaten	15-30 minutes of observation				
3.	2g of Sesame snap to be eaten	15-30 minutes of observation				
4.	8g of Sesame snap to be eaten	15-30 minutes of observation				
5.	20g Sesame snap to be eaten	60 minutes of observation				

Management plan: Yes / Not needed

Allergy plan given: Yes / has one already (from www.bsaci.org/professional-resources/resources/paediatric-allergy-action-plans/)

Allergy AAI training given: Yes / Not needed

Discharge time: Signature:

Food Challenge record

Fish challenge

Name:

Hospital number

Date of birth

Date of challenge.....

Food to be challenged: Fish (Cod / Tuna / Salmon)

- Total dose – Parents to bring 50g cooked

Challenge Procedure (.....) *enter actual food to be eaten*

Dose & Date	Description of dose		Time	Reaction (Yes / No)		Observation (e.g., itchy, rash)
1.	Rub small amount of fish on oral mucosa	observe for 15 minutes				
2.	Portion of fish 0.1g to be eaten	observe for 15 minutes				
3.	Portion of fish 0.5g to be eaten	observe for 15 minutes				
4.	Portion of fish 1.4g to be eaten	observe for 15 minutes				
5.	Portion of fish 4.8g to be eaten	observe for 15 minutes				
6.	Portion of fish 14g to be eaten	observe for minimum of 60 minutes				

Management plan: Yes / Not needed

Allergy plan given: Yes / has one already (from www.bsaci.org/professional-resources/resources/paediatric-allergy-action-plans/)

Allergy AAI training given: Yes / Not needed

Discharge time: Signature:

Food Challenge record

Prawn challenge

Name:

Hospital number

Date of birth

Date of challenge.....

Food to be challenged: Prawn / Shrimp

- (ensure to use correct prawn species, 60g total prawns)

 Challenge Procedure (.....) *enter actual food to be eaten*

Dose & Date	Description of dose		Time	Reaction (Yes / No)		Observation (e.g., itchy, rash)
1.	Piece of prawn/shrimp to touch the oral mucosa	observe for 15 minutes				
2.	Prawn/shrimp 0.5g to be eaten	observe for 15 minutes				
3.	Prawn/shrimp 1.8g to be eaten	observe for 15 minutes				
4.	Prawn/shrimp 6.1g to be eaten	observe for 15 minutes				
5.	Prawn/shrimp 18g to be eaten	observe for minimum of 60 minutes				

Management plan: Yes / Not needed

 Allergy plan given: Yes / has one already (from www.bsaci.org/professional-resources/resources/paediatric-allergy-action-plans/)

Allergy AAI training given: Yes / Not needed

Discharge time: Signature:

Food Challenge record

Soya challenge

Name:

Hospital number

Date of birth

Date of challenge.....

Food to be challenged: Soya

Challenge Procedure (.....) *enter actual food to be eaten*

Dose & Date	Description of dose		Time	Reaction (Yes / No)		Observation (e.g., itchy, rash)
1.	Drop of soya milk to touch the oral mucosa	observe for 15 minutes				
2.	Soya milk 1ml to be drunk	observe for 15 minutes				
3.	Soya milk 5ml to be drunk	observe for 15 minutes				
4.	Soya milk 10ml to be drunk	observe for 15 minutes				
5.	Soya milk 30ml to be drunk	observe for 15 minutes				
6.	Soya milk 150ml to be drunk	observe for minimum of 60 minutes				

Management plan: Yes / Not needed

Allergy plan given: Yes / has one already (from www.bsaci.org/professional-resources/resources/paediatric-allergy-action-plans/)

Allergy AAI training given: Yes / Not needed

Discharge time: Signature:

Food Challenge record

Boiled lentils challenge

Name:

Hospital number

Date of birth

Date of challenge.....

Food to be challenged: Lentils

Challenge Procedure (.....) *enter actual food to be eaten*

Dose & Date	Description of dose		Time	Reaction (Yes / No)		Observation (e.g., itchy, rash)
1.	Drop of lentils to touch the oral mucosa	observe for 15 minutes				
2.	Lentils 1g to be eaten	observe for 15 minutes				
3.	Lentils 3g to be eaten	observe for 15 minutes				
4.	Lentils 9g to be eaten	observe for 15-30 minutes				
5.	Lentils 30g to be eaten (or appropriate portion for child)	observe for minimum of 60 minutes				

Management plan: Yes / Not needed

Allergy plan given: Yes / has one already (from www.bsaci.org/professional-resources/resources/paediatric-allergy-action-plans/)

Allergy AAI training given: Yes / Not needed

Discharge time: Signature:

Food Challenge record

Generic fruit/vegetable challenge

Name:

Hospital number

Date of birth

Date of challenge.....

Food to be challenged:

Challenge Procedure (.....) *enter actual food to be eaten*

Dose	Description of dose		Time	Reaction (Yes / No)		Observation (e.g., itchy, rash)
1.	Drop of food to touch the oral mucosa	observe for 15 minutes				
2.	Food 0.5g to be eaten	observe for 15 minutes				
3.	Food 2g to be eaten	observe for 15 minutes				
4.	Food 1/8 portion to be eaten	observe for 15 minutes				
5.	Food 1/4 portion to be eaten	observe for 15 minutes				
6.	Complete the portion	observe for minimum of 60 minutes				

Management plan: Yes / Not needed

Allergy plan given: Yes / has one already (from www.bsaci.org/professional-resources/resources/paediatric-allergy-action-plans/)

Allergy AAI training given: Yes / Not needed

Discharge time: Signature:

Challenge record

Latex challenge

Name:

Hospital number

Date of birth

Date of challenge.....

The child should be observed half-hourly for 2 hours, or longer if necessary

Date	Description of challenge		Time	Reaction (Yes / No)		Observation (e.g., itchy, rash)
	Cutaneous Challenge with Latex Place powdered latex finger cott (using a latex glove), to one finger and secure with mepore tape	Leave for 20 minutes and observe				
	Lip Challenge Rub a powdered latex glove on the child's lip	Observe for 20 minutes				
	Inhalation Challenge Give the powdered glove to the child and encourage them to blow it up and deflate it for at least 5 minutes, ensuring that their mouth gets moist	Observe for 20 minutes				

Management plan: Yes / Not needed

Allergy plan given: Yes / has one already (from www.bsaci.org/professional-resources/resources/paediatric-allergy-action-plans/)

Allergy AAI training given: Yes / Not needed

Discharge time: Signature:

Challenge record

Drug challenge

Name:

Hospital number

Date of birth

Date of challenge.....

Drug to be challenged:

Calculated single dose as per BNFC

(Tick)

• Prescribe drug on drug chart	
• If successful write TTO for 5 day course	

The drug challenge dosage regimen comprises 4 incremental doses at 30 minute intervals.

*The initial dose of the antibiotic is 1/100th of the correct therapeutic dose (**please refer to BNFC**), followed by 1/10, 2/10 and 8/10 therapeutic dose.*

Example

Drug	0 min	30 min	60 min	90 min
Dose	1/100	1/10	2/10	8/10
Amoxicillin 125mg/5ml	1.25mg	12.5mg	25mg	100mg
Amoxicillin 250mg/5ml	2.5mg	25mg	50mg	200mg
Amoxicillin 500/5ml	5mg	50mg	100mg	400mg

Drug challenged:

Calculated single dose as per BNFC

(Tick)

Date	Description of dose		Time	Reaction (Yes / No)		Observation (e.g., itchy, rash)
	Drug (1/100 th) mg	Observe for 30 minutes				
	Drug (1/10 th) mg	Observe for 30 minutes				
	Drug (2/10 th) mg	Observe for 30 minutes				
	Drug (8/10 th) mg	Observe for 60 minutes				

Advice to parents:

- NOT to give any further doses of the drug that day and night
- The following day to start a 5 day course of the drug
- STOP medication if any adverse symptoms develop
- Seek medical advice-(999 if emergency breathing difficulties, 111 for queries or the Paediatric Registrar on call)

Management plan: Yes / Not needed**Allergy plan given:** Yes / has one already (from www.bsaci.org/professional-resources/resources/paediatric-allergy-action-plans/)**Allergy AAI training given:** Yes / Not needed

Discharge time:Signature:

Drug challenge Doses (check dose in BNFC)

Drug	1/100	1/10	2/10	8/10
Amoxicillin 125mg	1.25mg	12.5mg	25mg	100mg
Amoxicillin 250mg	2.5mg	25mg	50mg	200mg
Amoxicillin 500mg	5mg	50mg	100mg	400mg
Flucloxacillin 125mg/5ml	1.25mg	12.5mg	25mg	100mg
Flucloxacillin 250mg/5ml	2.5mg	25mg	50mg	200mg
Flucloxacillin 500mg/5ml	5mg	50mg	100mg	400mg
Erythromycin 125mg	1.25mg	12.5mg	25mg	100mg
Erythromycin 250mg	2.5mg	25mg	50mg	200mg
Clarithromycin (8-11kg) 62.5mg BD	0.625mg	6.25mg	12.5mg	50mg
Clarithromycin (12- 19kg) 125mg BD	1.25mg	12.5mg	25mg	100mg
Clarithromycin (20- 29kg) 187.5mg	1.875mg	18.75mg	37.5mg	150mg
Clarithromycin >30kg Or >12years 250 mg	2.5mg	25mg	50mg	200mg
Cefalexin 125mg	1.25mg	12.5mg	25mg	100mg
Cefalexin 250mg	2.5mg	25mg	50mg	200mg
Ibuprofen e.g., 100mg	1mg	10mg	20mg	80mg
Paracetamol e.g., 120mg	1.2mg	12mg	24mg	96mg
Codeine e.g., 8mg	0.08mg	0.8mg	1.6mg	6.4mg

Challenge record

FPIES Challenge

Name:

Hospital number

Date of birth

Date of challenge.....

Food to be challenged:

Challenge Procedure (.....) *enter actual food to be eaten*Calculation: (*adapted from Jarvinen et al*)

- Food to be administered 0.15g protein/kg body weight in 3 equal divided doses every 15 minutes
- If a history of a severe reaction, start at 0.06g protein/kg weight of patient

The total amount of food protein should not exceed 3-6g or 10-20g of total food or 100ml of liquid

Dose	Description of dose		Time	Reaction (Yes / No)		Observation (e.g., itchy, rash)
1.	Dose of food (g)	observe for 15 minutes				
2.	Dose of food (g)	observe for 15 minutes				
3.	Dose of food (g)					

Long procedure up to 8 hours observation. Positive OFC by Powell criteria if 3 or more met:1) emesis/diarrhoea; 2) faecal blood, 3) faecal leucocytes, 4) faecaleosinophils, and 5) increased polymorphonuclear leucocytes > 3500 cells/mm³

Management plan: Yes / Not needed

Allergy plan given: Yes / has one already (from www.bsaci.org/professional-resources/resources/paediatric-allergy-action-plans/)

Allergy AAI training given: Yes / Not needed

Discharge time: Signature:

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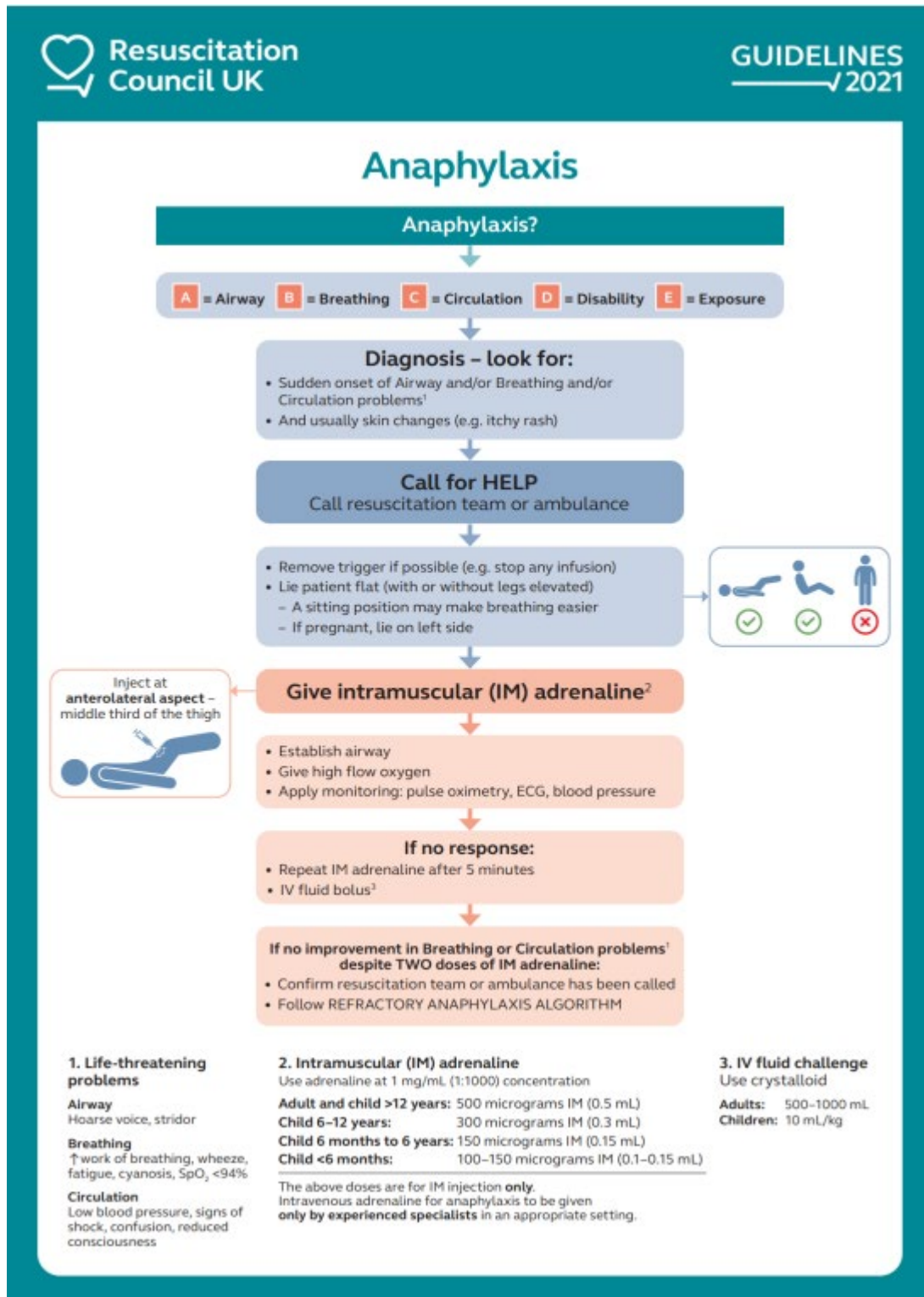
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Appendix A: Anaphylaxis management

Refer to trust guidelines (Paediatric Anaphylaxis)



APPENDIX B: DOSES USED AT EVELINA CHILDREN'S HOSPITAL - TO BE USED AS REFERENCE IF NO ST PETER'S PROTOCOL

Food	Dose1 (g)	Dose 2 (g)	Dose 3 (g)	Top dose / Supervised feed dose 0-6 years (g)
Peanut butter (SunPat)	0.4	1.2	4.1	12
Peanut butter (Meridian)	0.3	1	3.4	10.5
Peanuts	0.4	1.2	3.9	12
Almonds	0.5	1.4	4.7	12
Hazelnut	0.7	2.1	7.1	14
Pistachio	0.6	1.7	5.6	11
Brazil nut	0.7	2.1	7	14
Cashew	0.6	1.7	5.6	11
Walnut	0.7	2	6.8	14
Pecan	1.1	3.3	11	22
Macadamia	1.3	3.8	13	26
Pine nut	0.7	2.1	7.1	15
Pumpkin seed	0.4	1.2	4.1	12
Sesame seed	0.5	1.6	5.5	16
Sesame snaps (Brand Anglo-Dal)	0.8	2.5	8.3	25
Tahini	0.5	1.6	5.4	16
Sunflower seed	0.5	1.5	5.1	15
Poppy seed	0.5	1.5	4.9	15
Mustard (smooth)	0.1	0.4	1.4	4.9
Mustard (wholegrain)	0.1	0.4	1.2	4.9
Cashew butter	0.6	1.7	5.6	11
Almond butter	0.4	1.2	4	8
Hazelnut butter	0.7	2.1	7.1	14
Brazil nut butter	0.7	2.1	7	14
Pecan butter	1.1	3.3	11	22
Pistachio nut butter	0.6	1.7	5.6	11

Food	Dose1 (g)	Dose 2 (g)	Dose 3 (g)	Top dose / Supervised feed dose 0-6 years (g)
Walnut butter (Brand - Carley's PALs for nuts sesame soya mustard)*	0.7	2	6.8	14
Macadamia butter (Brand - Carley's PALs for nuts sesame soya mustard)*	1.3	3.8	12.7	25
COYO coconut yoghurt alternative (Natural)	5.3	15.8	52.6	105
Lucy Bee Fair Trade Organic Raw Cream coconut	1.9	5.7	18.9	38
Green lentil	1.1	3.4	11.4	34
Black eyed beans	1.1	3.4	11.4	34
Red Lentils	1.3	3.9	13.2	39
Chickpeas	1.4	4.2	13.9	42
Kidney beans	1.4	4.3	14.5	43
Green Pea	1.8	5.5	18.2	36
Green bean – boiled	1.6	5.3	15.8	22
Baked Beans	1.9	5.8	19.2	58
Sweetcorn (cooked)	1.2	4	12	33
Baked Egg Fairy cake 3g of egg protein per fairy cake (assumed weight of 58g)	1.93	5.8	19.3	Remainder of fairy cake approximately 30.97
Baked milk 3g of milk protein per fairy cake (assumed weight of 57g)	1.9	5.7	19	Remainder of fairy cake approximately 30.4
Fresh cow's milk	3	9.1	30	136
Soya milk	3.2	9.7	32	136
Fish finger	0.7	2.1	7	43
Cow's milk Yogurt	1.8	5.3	17.5	53 to 120
Soya yoghurt	3.03	9.1	30.3	91 to 120

APPENDIX C - AGES 0-6 YEARS

Committed to excellence Working together Facing the future				
Food	Dose1 (g)	Dose 2 (g)	Dose 3 (g)	Top dose / Supervised feed dose 0-6 years (g)
Fresh or canned cod	0.42	1.3	4.2	32
Fresh or canned tuna	0.4	1.2	4	32
Fresh or canned salmon	0.4	1.2	4.1	32
Fresh or canned mackerel	0.5	1.5	5	32
Wheat – Weetabix	1	2.9	9.5	23
Wheat – durum wheat pasta cooked	2	6	20	60
Boiled rice	3.6	10.7	36	64
Shrimp / prawns	0.6	1.8	6.1	18
Lamb	0.4	1.1	3.7	24 to 41
Chicken	0.4	1.1	3.7	24 to 41
Beef	0.3	0.93	3.1	24 to 41
Boiled egg white	0.8	2.3	7.7	23
Whole boiled egg	0.7	2.13	7.1	21
Whole scrambled egg without milk	0.7	2.1	6.8	21
Raw egg white	0.9	2.8	9.3	28
*Pre-prepared Porridge 22g oats (120ml fluid)	5.9	17.6	58.7	117
Banana	2.5	8.3	25	68 to 86
Kiwi	2.7	9.1	27	52 to 58
Apple	1.7	5	16.7	50 to 53
Carrot	2	6	20	29 (boiled) or 24 (raw)
Strawberry	1.7	5	16.7	50 to 72

*Carley's nut butter - precautionary labelling due to being processed in the same factory as all other nuts, sesame, soya and mustard. Therefore, due to the risk of cross contamination, there is a risk of a false positive; but it might be useful if a child is only allergic to the nut they are being challenged to or if a child is eating a lot of the other nuts, is not allergic to sesame, soya and mustard and is happy to take the risk.

All other nut butters are Meridian unless stated

*Parents to prepare two sachets of oats to fulfil challenge doses as cumulative dose is more than 1 sachet.

APPENDIX D: AGES 7-18 YEARS

Food	Dose 1 (g)	Dose 2 (g)	Dose 3 (g)	Top dose 7+ years as a min and max range (g)
Peanut butter (SunPat)	0.4	1.2	4.1	12 to 26
Peanut butter (Meridian)	0.3	1	3.4	12 to 26
Peanuts	0.4	1.2	3.9	12 to 50
Almonds	0.5	1.4	4.7	14 to 50
Hazelnut	0.7	2.1	7.1	21 to 50
Pistachio	0.6	1.7	5.6	17 to 50
Brazil nut	0.7	2.1	7	21 to 50
Cashew	0.6	1.7	5.6	16 to 50
Walnut	0.7	2	6.8	20 to 50
Pecan	1.1	3.3	11	33 to 50
Macadamia	1.3	3.8	13	38 to 50
Pine nut	0.7	2.1	7.1	21 to 50
Pumpkin seed	0.4	1.2	4.1	12
Sesame seed	0.5	1.6	5.5	16
Sesame snaps (Brand Anglo-Dal)	0.8	2.5	8.3	25
Tahini	0.5	1.6	5.4	16
Sunflower seed	0.5	1.5	5.1	15
Poppy seed	0.5	1.5	4.9	15
Mustard (smooth)	0.1	0.4	1.4	11 to 15
Mustard (wholegrain)	0.1	0.4	1.2	11 to 15
Cashew butter	0.6	1.7	5.6	15 to 26
Almond butter	0.4	1.2	4	12 to 26
Hazelnut butter	0.7	2.1	7.1	21 to 26
Brazil nut butter	0.7	2.1	7	21 to 26
Pecan butter	1.1	3.3	11	33
Pistachio nut butter	0.6	1.7	5.6	17
Walnut butter (Brand - Carley's PALs for nuts sesame soya mustard)*	0.7	2	6.8	20
Macadamia butter (Brand - Carley's PALs for nuts sesame soya mustard)*	1.3	3.8	12.7	38

Food	Dose 1 (g)	Dose 2 (g)	Dose 3 (g)	Top dose 7+ years as a min and max range (g)
COYO coconut yoghurt alternative (Natural)	5.3	15.8	52.6	105 to 158
Lucy Bee Fair Trade Organic Raw Cream coconut	1.9	5.7	18.9	57
Green lentil	1.1	3.4	11.4	34 to 141
Black eyed beans	1.1	3.4	11.4	34 to 141
Red Lentils	1.3	3.9	13.2	39 to 141
Chickpeas	1.4	4.2	13.9	42 to 141
Kidney beans	1.4	4.3	14.5	43 to 141
Green Pea	1.8	5.5	18.2	55 to 97
Green bean – boiled	1.6	5.3	15.8	38 to 58
Baked Beans	1.9	5.8	19.2	58 to 141
Sweetcorn (cooked)	1.2	4	12	51 to 76
Baked Egg Fairy cake 3g of egg protein per fairy cake (assumed weight of 58g)	1.93	5.8	19.3	Remainder of fairy cake (approximately 30.97)
Baked milk 3g of milk protein per fairy cake (assumed weight of 57g)	1.9	5.7	19	Remainder of fairy cake (approximately 30.4)
Fresh cow's milk	3	9.1	30	136 to 242
Soya milk	3.2	9.7	32	136 to 242
Fish finger	0.7	2.1	7	43 to 98
Cow's yogurt	1.8	5.3	17.5	122 to 136
Soya yoghurt	3	9.1	30.3	122 to 136
Fresh or canned cod	0.42	1.3	4.2	32 to 58
Fresh or canned tuna	0.4	1.2	4	32 to 58
Fresh or canned salmon	0.4	1.2	4.1	32 to 58
Fresh or canned mackerel	0.5	1.5	5	32 to 58
Wheat – Weetabix	1	2.9	9.5	29 to 47
Wheat – durum wheat pasta cooked	2	6	20	60 to 202
Boiled rice	3.6	10.7	36	108 to 183
Shrimp / prawns	0.6	1.8	6.1	38 to 55
Lamb	0.4	1.1	3.7	24 to 94

Chicken	0.4	1.1	3.7	24 to 94
Food	Dose 1 (g)	Dose 2 (g)	Dose 3 (g)	Top dose 7+ years as a min and max range (g)
Beef	0.3	0.9	3.1	24 to 94
Boiled egg white	0.8	2.3	7.7	23
Whole boiled egg	0.7	2.1	7.1	21
Whole scrambled egg without milk	0.7	2.1	6.8	21
Raw egg white	0.9	2.8	9.3	28
*Pre-prepared Porridge 27g oats (180ml fluid)	7	20.9	69.6	209
Banana	2.5	8.3	25	86 to 105 (age)
Kiwi	2.7	9.1	27	58 to 73 (age)
Apple	5	16.7	50	77 to 103 (age)
Carrot	2	6	20	39 to 52 (raw) or 45 to 67 if boiled
Strawberry	5	16.7	50	87 to 121 (age)

*Carley's nut butter - precautionary labelling due to being processed in the same factory as all other nuts, sesame, soya and mustard. Therefore, due to the risk of cross contamination, there is a risk of a false positive; but it might be useful if a child is only allergic to the nut they are being challenged to or if a child is eating a lot of the other nuts, is not allergic to sesame, soya and mustard and is happy to take the risk.

All other nut butters are Meridian unless stated

*Parents to prepare two sachets of oats to fulfil challenge doses as cumulative dose is more than 1 sachet.

APPENDIX E: FOOD DOSES WITH EXPLANATION OF TOP DOSE (for reference only)

Food Doses with explanation of top dose (2g protein, 3g protein or age appropriate)

Food	Protein g/100g	Dose1 - 0.1g protein	Dose 2 - 0.3g protein	Dose 3 - 1g protein	Top dose 0-6 years - 2g protein or 3g protein or age appropriate portion (age) (g)
Peanut butter (SunPat)	24.4	0.4	1.2	4.1	12
Peanut butter (Meridian)	29.6	0.3	1	3.4	10.5
Peanuts	25.8	0.4	1.2	3.9	12 (3g)
Almonds	21.2	0.5	1.4	4.7	12
Hazelnut	14.1	0.7	2.1	7.1	14
Pistachio	17.9	0.6	1.7	5.6	11
Brazil nut	14.3	0.7	2.1	7	14
Cashew	17.7	0.6	1.7	5.6	11
Walnut	14.7	0.7	2	6.8	14
Pecan	9.2	1.1	3.3	11	22
Macadamia	7.9	1.3	3.8	13	26
Pine nut	14	0.7	2.1	7.1	15
Pumpkin seed	24.4	0.4	1.2	4.1	12 (3g)
Sesame seed	18.2	0.5	1.6	5.5	16 (3g)
Sesame snaps (Brand AngloDal)	12	0.8	2.5	8.3	25 (3g)
Tahini	18.5	0.5	1.6	5.4	16 (3g)
Sunflower seed	19.8	0.5	1.5	5.1	15 (3g)
Poppy seed	20.6	0.5	1.5	4.9	15 (3g)
Mustard (smooth)	7.1	0.1 (0.01g/P)	0.4 (0.03g/P)	1.4 (0.1g/P)	4.9 (age)
Mustard (wholegrain)	8.2	0.1 (0.01g/P)	0.4 (0.03g/P)	1.2 (0.1g/P)	4.9 (age)
Cashew butter	17.7	0.6	1.7	5.6	11
Almond butter	25.3	0.4	1.2	4	8
Hazelnut butter	14.1	0.7	2.1	7.1	14
Brazil nut butter	14.3	0.7	2.1	7	14
Pecan butter	9.2	1.1	3.3	11	22
Pistachio nut butter	17.9	0.6	1.7	5.6	11
Walnut butter (Brand - Carley's PALs for nuts, sesame, soya, mustard)*	14.7	0.7	2	6.8	14
Macadamia butter (Brand - Carley's PALs for nuts, sesame, soya, mustard)*	7.9	1.3	3.8	12.7	25

APPENDIX F: FOOD DOSES WITH EXPLANATION OF TOP DOSE AGE 0-6 YEARS

Food	Protein g/100g	Dose1 - 0.1g protein	Dose 2 - 0.3g protein	Dose 3 - 1g protein	Top dose 0-6 years - 2g protein or 3g protein or age appropriate portion (age) (g)
COYO coconut yoghurt alternative (Natural)	1.9	5.3	15.8	52.6	105
Lucy Bee Fair Trade Organic Raw Cream coconut	5.3g	1.9	5.7	18.9	38
Green lentil	8.8	1.1	3.4	11.4	34 (3g)
Black eyed beans	8.8	1.1	3.4	11.4	34 (3g)
Red Lentils	7.6	1.3	3.9	13.2	39(3g)
Chickpeas	7.2	1.4	4.2	13.9	42(3g)
Kidney beans	6.9	1.4	4.3	14.5	43(3g)
Green Pea	5.5	1.8	5.5	18.2	36 (2g)
Green bean - boiled	1.9	1.6	5.3	15.8	22 (age)
Baked Beans	5.2	1.9	5.8	19.2	58 (3g)
Sweetcorn (cooked)	2.5	1.2 (0.03g/ protein)	4 (0.1g/ protein)	12 (0.3g/ protein)	33 (age)
Baked Egg Fairy cake (assumed weight of 58g)	3g of egg protein per fairy cake	1.93	5.8	19.3	Remainder of fairy cake (approximately 30.97)
Baked milk fairy cake (assumed weight of 57g)	3g of milk protein per fairy cake	1.9	5.7	19	Remainder of fairy cake (approximately 30.4)
Fresh cow's milk	3.3	3	9.1	30	136 (age)
Soya milk	3.1	3.2	9.7	32	136 (age)
Fish finger	14.3	0.7	2.1	7	43 (age)
Cow's milk yogurt	5.7	1.8	5.3	17.5	53 to 120 (3g to age)
Soya yoghurt	3.3	3.03	9.1	30.3	91 to 120 (3g to age)
Fresh or canned cod	23.9	0.42	1.3	4.2	32 (age)

Food Doses with explanation of top dose (2g protein, 3g protein or age appropriate)

Food	Protein g/100g	Dose1 - 0.1g protein	Dose 2 - 0.3g protein	Dose 3 - 1g protein	Top dose 0-6 years - 2g protein or 3g protein or age appropriate portion (age) (g)
Fresh or canned tuna	24.9	0.4	1.2	4	32 (age)
Fresh or canned salmon	24.6	0.4	1.2	4.1	32 (age)
Fresh or canned mackerel	19.9	0.5	1.5	5	32 (age)
Wheat – Weetabix	10.5	1	2.9	9.5	23 (age)
Wheat – durum wheat pasta cooked	5	2	6	20	60
Boiled rice	2.8	3.6	10.7	36	64
Shrimp / prawns	16.5	0.6	1.8	6.1	18
Lamb	26.7	0.4	1.1	3.7	24 to 41
Chicken	27.3	0.4	1.1	3.7	24 to 41
Beef	32.4	0.3	0.93	3.1	24 to 41
Boiled egg white	13	0.8	2.3	7.7	23
Whole boiled egg	14.1	0.7	2.13	7.1	21
Whole scrambled egg without milk	14.6	0.7	2.1	6.8	21
Raw egg white	10.8	0.9	2.8	9.3	28
*Pre-prepared Porridge 22g oats (120ml fluid)	11	5.9	17.6	58.7	117
Banana	1.2	2.5 (0.03g/protein)	8.3 (0.1g/protein)	25 (0.3g/protein)	68 to 86 (age)
Kiwi	1.1	2.7 (0.03g/protein)	9.1 (0.1g/protein)	27 (0.3g/protein)	52 to 58 (age)
Apple	0.6	1.7 (0.01g/protein)	5 (0.03g/protein)	16.7 (0.1g/protein)	50 to 53 (age)
Carrot	0.5	2 (0.01g/protein)	6 (0.03g/protein)	20 (0.1g/protein)	29 (boiled) or 24 (raw)
Strawberry	0.6	1.7 (0.01g/protein)	5 (0.03g/protein)	16.7 (0.1g/protein)	50 to 72 (age)

APPENDIX G: FOOD DOSES WITH EXPLANATION OF TOP DOSE AGE 7-18 YEARS

Food	Protein g/100g	Dose1 (0.1g protein)	Dose 2 (0.3g protein)	Dose 3 (1g protein)	Top dose 7+ years Minimum 3g up to Age Appropriate Portion
Peanut butter (SunPat)	24.4	0.4	1.2	4.1	to 26
Peanut butter (Meridian)	29.6	0.3	1	3.4	to 26
Peanuts	25.8	0.4	1.2	3.9	to 50
Almonds	21.2	0.5	1.4	4.7	to 50
Hazelnut	14.1	0.7	2.1	7.1	to 50
Pistachio	17.9	0.6	1.7	5.6	to 50
Brazil nut	14.3	0.7	2.1	7	to 50
Cashew	17.7	0.6	1.7	5.6	to 50
Walnut	14.7	0.7	2	6.8	to 50
Pecan	9.2	1.1	3.3	11	to 50
Macadamia	7.9	1.3	3.8	13	to 50
Pine nut	14	0.7	2.1	7.1	to 50
Pumpkin seed	24.4	0.4	1.2	4.1	12 (3g)
Sesame seed	18.2	0.5	1.6	5.5	16 (3g)
Sesame snaps (Brand AngloDal)	12	0.8	2.5	8.3	25 (3g)
Tahini	18.5	0.5	1.6	5.4	16
Sunflower seed	19.8	0.5	1.5	5.1	15 (3g)
Poppy seed	20.6	0.5	1.5	4.9	(3g)
Mustard (smooth)	7.1	0.1 (0.01g/P)	0.4 (0.03g/P)	1.4 (0.1g/P)	to 15 (age)
Mustard (wholegrain)	8.2	0.1 (0.01g/P)	0.4 (0.03g/P)	1.2 (0.1g/P)	to 15 (age)
Cashew butter	17.7	0.6	1.7	5.6	to 26
Almond butter	25.3	0.4	1.2	4	to 26
Hazelnut butter	14.1	0.7	2.1	7.1	to 26
Brazil nut butter	14.3	0.7	2.1	7	to 26
Pecan butter	9.2	1.1	3.3	11	33
Pistachio nut butter	17.9	0.6	1.7	5.6	17
Walnut butter (Brand - Carley's PALs for nuts, sesame, soya, mustard)*	14.7	0.7	2	6.8	20

APPENDIX H: POSITIVE PREDICTIVE VALUE TABLE

Food	Skin prick test (mm) 95% PPV (for children under 2 years old)	Specific IgE (KUa/L) 95% PPV
Milk	8 (6)	32.0
Egg	7 (5)	6.0
Peanut	8 (4)	15.0
Tree Nuts	8	15.0
White fish/cod	3	20.0
Wheat	3	>100 (75% PPV)
Soy	3	>65 (50% PPV)

Table 1: 95% positive predictive value of diagnostics for common food allergens

*Taken from the Southampton Standards for food challenges, with thanks

Primary Data sources

Peanut – Roberts & Lack (2005).

Milk, Egg & Peanut: Hill et al (2004) and Sporik et al (2000).

Other data is not based on primary data but is taken from Thong and Hourihane (2004)

Data compared with that of Food Challenge guidelines from allergy services in Leicester, Worcester, Southampton and ACTA guidelines.

Full version control record

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This guideline has been registered with the trust. However, clinical guidelines are guidelines only. The interpretation and application of clinical guidelines will remain the responsibility of the individual clinician. If in doubt contact a senior colleague or expert. Caution is advised when using guidelines after the review date.

This guideline is for use in Frimley Health Trust hospitals only. Any use outside this location will not be supported by the Trust and will be at the risk of the individual using it.

Version History

Version	Date	Guideline Lead(s)	Status	Comment
0.1	Nov 2021	Dr M Soliman, Consultant Paediatrician	Draft	Adapted from Food Challenge Resources (FPH) v1 for use cross-site
1.0	June 2022	Consultant Paediatrician	Final	
2.0	October 2025	Dr M Soliman, Consultant Paediatrician Dr Lindsay Exell Nina Somerville	Final	Scheduled review Anaphylaxis algorithm updated as per Resus Council Updates Ratified at Paediatric Clinical Governance 15/10/2025

Related Documents

Paediatric Anaphylaxis