



GUIDELINE/PROCEDURE

SUBJECT: FOOD CHALLENGES IN J2 DAY STAY

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PERSON RESPONSIBLE FOR MONITORING AND REVIEW:

Paediatric Immunology Team

COMMITTEE RESPONSIBLE FOR RATIFICATION AND REVIEW:

KGNS Quality Committee

Disclaimer:

It should be noted that this document reflects what is currently regarded as a safe and appropriate approach to care. However, as in any clinical situation there may be factors that cannot be covered by a single set of guidelines, this document should be used as a guide, rather than as a complete authoritative statement of procedures to be followed in respect of each individual presentation. It does not replace the need for the application of clinical judgment to each individual presentation.

S.W.P.

SAFE WORK PRACTICE



GENERAL CONSIDERATIONS:

Severe food allergy can be life threatening if anaphylaxis results from either accidental or deliberate challenge. Therefore, food challenges should only occur under the care and supervision of a paediatric allergist in the J2 Day stay Unit.

The major foods likely to be tested are peanut, cow's milk and egg-cooked or baked. However, cases of suspected sensitisation to other substances (e.g. soy, seafood, wheat, and sesame seed) may also need to be tested.

Admission for food challenges is indicated in the following circumstances:-

- In cases of proven life-threatening food allergy where it is suspected that the condition has been outgrown.
- In cases of suspected life threatening food allergy where the result of history, skin testing and measurement of allergen-specific IgE are contradictory or ambiguous.

For either of the above the child should not be having regular volumes without symptoms.

OUTCOMES:

- Food challenge is performed safely with minimal discomfort to the child.
- Appropriate action implemented in the event of an adverse reaction.

PROTOCOL:

- Admission for food challenge is initiated by the Paediatric Allergist who should liaise with the paediatric allergy clinical nurse consultant (CNC), paediatric dietitian, the child's parents and the Ward Clerk for J2.
- The Paediatric Allergist will provide the parents with the allergy challenge testing parent/carer information sheet at time of consent (See Appendix 1).

- The paediatric Allergy and Immunology service will conduct a food challenge clinic on J2 day stay every Wednesday running from 08:00-13:00
- At least 2 patients will be booked each week to a maximum of 4. Only 1 food will be challenged at a time eg cow's milk or peanut or egg etc. Occasionally a drug challenge will be performed in conjunction with a food challenge making sure that extra nursing staff is available
- A letter, summarising the reason for admission and the results of prior skin tests should be compiled and included in the notes to serve as a record of the rationale for admission.
- The paediatric dietitian must be notified and advised of planned challenge prior to admission.
- At least 3 days prior to admission for challenge the paediatric allergy CNC is to contact the family. A booking questionnaire (See Appendix 2) is completed through phone consultation with the parent to:
 - ensure the child has not had a recent allergic reaction or exacerbation of asthma or eczema,
 - discuss acceptability of foods to include in the challenge,
 - ensure the client will fast after an early light breakfast prior to admission to limit false positive reactions,
 - inform the parent that the child should not receive anti-histamines or oral steroids (apart from regular preventative asthma medication) 72 hours prior to the challenge and
 - request parent to bring their epipen and action plan if they own one.

The CNC will give the parents contact details in case the child becomes unwell up to the day of the challenge, or if the child is given antihistamines or steroids for any reason

- CNC to notify dietitian of the food to be challenged and any individual food requirements. Dietitian will fax order to kitchen for food challenge, to arrive on J2 breakfast tray the day of the challenge.
- If nothing is appropriate from the kitchen to administer the food challenge with, request parents to provide a similar alternative from home.
- Each family will undergo admission paperwork and be settled on the ward by 08:00.
- Each family will have a nursing and medical admission completed and be seen by the paediatric allergy consultant, paediatric allergy CNC.
- The child undergoing the food challenge is not to have any other food, including breast milk, whilst challenge is on.
- Prior to commencing challenge explain procedure to child and caregiver. A parent/care information sheet on food challenges is given and explained to the caregiver. (See Appendix 3).
- Consultant (or with prior arrangement, a paediatric Registrar) will be available to attend to the patient when required during the challenge.
- Ensure STAT Adrenaline is prescribed by medical officer prior to challenge- 150ug for < 20kg (0.15ml); 300ug for > 20kg (0.3ml).
- Adrenaline must be readily available i.e. Near bedside.
- Antihistamine is prescribed by medical officer prior to challenge – as per weight
- Baseline T, P, R to be attended on admission and five (5) minutes after first (1st) oral challenge.
- Patient to remain in the unit for a minimum of two (2) hours post completion of challenge.
- In case of an adverse event (see below), the patient will be attended to by the clinician and counselled.

- On discharge, appropriate paperwork i.e. successful or unsuccessful challenge letters as well as a follow up appointment will be provided (Appendix 4 and 5).
- Challenge should not proceed if the child has a viral illness or is unwell or has an acute attack of asthma or eczema.

ADVERSE REACTIONS:

- Adverse reactions can occur at any time, from commencement of challenge till several days.
- Early reactions are often: swelling of the lips, face or eyes, itching, hives, welts, tingling mouth, abdominal pain or vomiting. Review of severity of reaction by the Paediatric Allergist (or Registrar) is required to determine whether food challenge will continue or be stopped and whether antihistamine should be given.
- Patient should not be left unattended if they have had an allergic reaction.
- The most severe of the immediate reactions is anaphylaxis, which can be one of the following: difficulty or noisy breathing, swelling of the tongue, swelling or tightness in the throat, difficulty talking and/or hoarse voice, wheeze or persistent cough, loss of consciousness or collapse, pale and floppy (young children). This is an indication to use Adrenalin immediately.
- The Paediatric Allergist (or Registrar) will be present until recovery is evident, or whether further medical intervention is required, as per John Hunter Hospital Allergy and Anaphylaxis Flowchart (See Appendix 6). MET call may be indicated (ph:7700).
- In the event of delayed reactions occurring after discharge, patients should be advised to present to the JHH Emergency Department or their nearest health facility where appropriate management can be offered.

PROCEDURES:

Monitoring of food challenges to be documented on the Department of Paediatric allergy and Immunology, John Hunter Children's Hospital challenge forms as per challenge protocols approved by the paediatric sub committee of the Australasian Society of Clinical Immunology and Allergy (ASCIA). (See Appendix 7-11)

Milk Challenge (See Appendix 13)

Challenge Substance – Less than 12 months old – cow's milk based formula

- More than 12 months old – full cream milk

1. Using an eye dropper; place one (1) drop of cow's milk on the inside of lip (do not touch outside lip). If no significant reaction occurs, twenty (20) minutes later, proceed to oral challenge.
2. Oral Challenge: At twenty (20) minute intervals administer increasing amounts of cow's milk orally i.e. 1ml, 5mls, 15mls, 40mls, 100mls (total 160mls)

If challenge is successful after 2 hrs of final challenge patient may be discharged at discretion of paediatric immunologist.

Soy Challenge

As per milk challenge except use soy milk/ formula.

Egg Challenge – Cooked or Baked Egg Challenge

Challenge substance - Cooked Egg (See Appendix 14)

1. Beat one (1) egg (yolk and white) with fork for 1 minute
2. Place in microwave
3. Cook at 10 second intervals, mashing the egg with fork each time
4. Cook egg until it is rendered semi-solid (approximately a total of 30 seconds of cooking is sufficient)

5. Place small amount on the inside of child's lip, If no reaction twenty minutes later, proceed to oral challenge.
6. Oral Challenge: at twenty (20) minute intervals, administer increasing amounts of cooked egg commencing with 1/8 teaspoon (tsp), ¼ tsp, ½ tsp, 1 tsp, 2 tsp, remaining egg (approximately 2 and 2/3 tsp).

If challenge is successful after 2 hrs of final challenge patient may be discharged at discretion of paediatric immunologist.

Baked Egg (See Appendix 15)

Challenge Substance – Muffin (parents required to make)

100 g of butter or Nuttalex, 160 g of sugar, 220 g of plain flour, 2 level tsp of baking powder, 125 ml of milk, 2 large eggs, muffin tray (12 muffins) Muffin cups

Pre heat conventional oven to 180C, Mix baking powder and flour together in a bowl, add butter and sugar to make a lumpy batter, add egg and milk and mix until a smooth batter is formed, place muffin cups into tray and distribute batter evenly, Bake for 20 minutes till golden brown

1. Oral Challenge: Commencing with 1/16 of the muffin, administer 1/8th, ¼, ½, then 1 muffin orally.

If challenge is successful after 2 hrs of final challenge patient may be discharged at discretion of paediatric immunologist.

Peanut Challenge (See Appendix 16)

Challenge Substance – use smooth peanut butter

1. Smear a small amount on inside of child's lip (not to touch outside lip). If no reaction twenty (20) minutes later, proceed to oral challenge.
2. Oral challenge: Commencing with 1/8 teaspoon (tsp), administer increasing amounts of peanut butter each twenty (20) minutes - ¼ tsp, ½

- tsp, 1tsp (minimum last dose to call challenge successful), then 2 tsp (if tolerated).
3. Oral challenge can be administered on toast/ bread/crackers or in yoghurt/custard (check if may react to food before mixing in – do not administer with foods the child may react to).
 4. If child will not comply, consult with dietitian.

If challenge is successful after 2 hrs of final challenge patient may be discharged at discretion of paediatric immunologist.

Wheat Challenge

Challenge substance- Plain wheat flour (Place 80ml milk / juice child tolerant to into shaker. Place 8 teaspoons of white wheat flour into shaker-shake for 30secs) =3g wheat flour per 5 ml of milk

1. Smear a small amount on inside of child's lip (not to touch outside). If no reaction twenty (20) minutes later, proceed to oral challenge.
2. Oral challenge: Commencing with 1ml (0.3g), administer increasing amounts of wheat each twenty (20) minutes – 2ml (0.6g), 5ml (1.5g), 10ml (3.0g), 20ml (6.0g) and 42ml (12.6g). Total 24g (80ml).
3. If child does not comply, consult with dietitian.

If challenge is successful after 2 hrs of final challenge patient may be discharged at discretion of paediatric immunologist.

'Novel' Food Challenges

Other foods such as seafood and fish may be challenged as required with an individualised challenge protocol development by the Paediatric Allergist in conjunction with the dietitian.

Appendices:

1. Allergy Challenge Testing Parent/Carer Information Sheet
2. Booking Questionnaire
3. Parent/ Carer Information Sheet (to be given day of challenge)
4. Successful Food Challenge – discharge information
5. Unsuccessful Food Challenge – discharge information
6. John Hunter Hospital Allergy and Anaphylaxis Flowchart
7. ASCIA – Food Challenge Protocol - Milk
8. ASCIA – Food Challenge Protocol – Cooked Egg
9. ASCIA – Food Challenge Protocol – Baked Egg
10. ASCIA – Food Challenge Protocol – Peanut
11. ASCIA – Food Challenge Protocol – Wheat
12. John Hunter Children’s Hospital - Milk Challenge Record sheet
13. John Hunter Children’s Hospital – Cooked Egg Challenge Record sheet
14. John Hunter Children’s Hospital – Baked Egg Challenge Record sheet
15. John Hunter Children’s Hospital – Peanut/Tree Nut Challenge Record sheet
16. John Hunter Children’s Hospital - Wheat Challenge Record sheet

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APPROVED: KGNS Quality Committee – February 15th, 2010

Appendix 1:

**Department of Paediatric Allergy and Immunology
John Hunter Children's Hospital
Newcastle**

Allergy Challenge Testing Parent/Carer Information Sheet

(To be given to carers at time of booking)

Your Child has been booked for an allergy challenge in the John Hunter Children's Hospital Day Stay (Located in ward J2).

You should plan to arrive in J2 at 8.00 am on the day of testing. The test will not usually commence until approximately 9.00 following admission and planning of the challenge. The test itself will take about 4- 5 hours to complete. Plan to be in the hospital until at least 2.30pm.

You will be required to stay with your child throughout the challenge and to observe your child for any sign of reaction. The nurses will give you instruction on what to look for and what to do if it occurs.

How to prepare your child

Tell your child what will happen on the day and, using play (acting out the roles), go through the steps of the challenge. Children use play to make sense of their world and by telling them what will happen, who will do it and that it will all be over at the end of the day they will cope better with the admission.

What to bring

Your child's Epipen® (If you have one)

A copy of your anaphylaxis plan (If you have one)

Child's "Blue Book"

Child's favourite toy (labelled with child's name)

Favourite activities for your child eg; books, craft, DVD/video

Money for parking

Do not bring other children on the day as you will need to concentrate on the child having the test. (Please let staff know if you cannot find alternative arrangements for other children)

What to do before the challenge

1. Please avoid any antihistamines or steroids (apart from normal daily asthma medication) 72hrs prior to challenge.
2. Early breakfast approx 1 hour prior to admission
3. Present to admissions office on day of challenge – 8.00am

MRN:

SURNAME:

FIRST NAME:

DOB:

Appendix 2:

**Department of Paediatric Allergy and Immunology
John Hunter Children's Hospital
Newcastle**

Date of challenge: _____

Questions for when confirming booking of standard food challenges on Ward J2 Day Stay

Please tick foods to be challenged:

Soy milk

Peanut

Cow's milk

Egg

Other nuts

Other food challenges will require the Dietitian to be contacted in order to arrange the food to be challenged.

Questions:

1. Do you have any other food allergies?

Yes (please list) _____

No

2. Has your child been unwell?

3. Has your child had a recent flare of eczema?

4. Has your child had a recent exacerbation of asthma?

5. Is your child on any medications (eg. steroids, antihistamines)?

Other information to provide families:

- Your child is not to have antihistamines or steroids (other than asthma preventative medication) 72 hours prior to challenge (ie. Sunday night)
- Please notify Paediatric Allergy CNC (49213000 page 5284) if child becomes unwell or is given antihistamines or steroids prior to challenge.
- Remind parents to bring EpiPen and/or Action Plan for challenge
- Ask parents to bring a spare change of clothes
- Remind parents to read the Fact Sheet on Food Challenges (resend if necessary)
- Any other concerns / comments:

Appendix 3:

**Department of Paediatric Allergy and Immunology
John Hunter Children's Hospital
Newcastle**

Parent/Carer Information Sheet

Food Challenges

(To be given to and explained to parent/carers prior to commencement of challenge)

Before the challenge begins the nursing staff will give you instruction on what to look out for and what to do if any reaction occurs.

What you have to do.

- Stay with your child
- Watch for any signs of reaction
- Notify nursing staff of any reaction
- Be prepared to assist in treating any reaction

Signs of a mild reaction.

- Swelling of lips, face or eyes
- Hives or welts (red swelling of the skin)
- Tummy pain
- Vomiting

Signs of a severe reaction

- Difficult or noisy breathing
- Swelling of the tongue
- Swelling/tightness of the throat
- Difficulty talking or a hoarse voice
- Wheeze or persistent cough
- Loss of consciousness and/or collapse

The nurses will note your child's temperature, pulse, oxygen saturation and respiratory rate prior to commencement of the challenge and make notes of any reactions that occur during the challenge. If a reaction occurs they will monitor these parameters every 5 minutes and administer emergency medications if required until they are confident that the reaction has begun to subside.

Appendix 4:

**Department of Paediatric Allergy and Immunology
John Hunter Children's Hospital
Newcastle**

Food Challenge Successful challenge WHAT TO DO NOW.

Date of Challenge

Type of Challenge

Your child did not demonstrate any reaction to the food challenge.

This tells us that your child is not likely to have a severe allergic reaction to this food.

You should now observe your child. If your child has had no signs of delayed reaction (after 24 hours), then you can increase the amount of the challenge food in their diet as follows.

Peanuts: Day 2-7 – 1-2 teaspoon of peanut butter or 8-16 kernels of peanuts every day.

Cow's milk: Day 2 – 160 mls, Day 3-14 increase amount as tolerated – 200-300 mls /day

Egg: Cooked egg as tolerated

Wheat: as tolerated

You should observe your child for reactions for 2 hours after giving them the food at home at least for the first week. If a reaction occurs follow the ***anaphylaxis action plan***.

If you do have reactions at home attend the closest medical centre.

In case your child has a reaction please leave a message on 49213672 after you have received treatment for the allergic reaction and we will call you.

For ongoing management of additional allergies make an appointment to see your specialist.

Appendix 5:

**Department of Paediatric Allergy and Immunology
John Hunter Children's Hospital
Newcastle**

Food Challenge

Unsuccessful challenge

WHAT TO DO NOW.

Date of Challenge

Type of Challenge

Your child reacted to the food challenge.

This tells us that your child is likely to have continuing allergic responses to this food and that you should continue to avoid exposure to this food.

Continue to ***monitor your child when you get home*** and give a second dose of Phenergan if the reaction begins to come back.

A severe allergic reaction is possible if your child has exposure to this food and you should ensure that your Epipen® or Epipen Jr® is/are up to date and that you, and those caring for your child, know how to use them.

If a reaction occurs follow the ***anaphylaxis action plan*** and attend to the emergency department of your closest hospital.

Your follow up appointment with your specialist is on

_____.

Appendix 6:

John Hunter Children's Hospital Allergy & Anaphylaxis Flowchart

Generalised Allergic reaction

Any one of the below

- Swelling of lips, face, eye
 - Urticarial Rash
- Abdominal pain and/or vomiting

Treatment

- PO antihistamine single dose
- Observe in department until clinically improving or for at least 4 hours

Discharge

- Refer to General Practitioner for further evaluation of aetiological factors and possible referral to General paediatrician or paediatric allergist

John Hunter Children's Hospital Allergy & Anaphylaxis Flowchart

Anaphylaxis
Allergic signs (any one)
Swelling of lips, eyes, face
Urticarial rash
Abdominal pain and / or vomiting
Plus any one of the following:

- Breathing difficulty / Stridor
- Wheeze or cough
- Hoarse voice / cry
- Loss of consciousness
- Tongue swelling
- Evidence of shock
- Throat swelling
- Hypotension

- Move to Resuscitation Area (in ED)
- Facial O₂ high flow
- Apply monitoring (continuous heart, respiratory rate, blood pressure, AVPU, saturations)
- **Give 0.01 mL/kg 1:1000 Adrenaline IM (0.5 mLs max dose)***
- Obtain IV access

Reassess 5 minutes after Adrenaline.
 Is there any improvement?

Yes

Airway/Breathing Compromise

Complete obstruction:

- Bag mask ventilation /intubation/ or surgical airway,
- Adrenaline IMI / IV.

Stridor

- High flow oxygen,
- Adrenaline IMI / IV,
- Nebulised adrenaline 0.5mL/kg 1:1000 (max 5mL), repeat as required.
- Corticosteroids(oral or iv)

Wheeze – High flow oxygen & nebulised Salbutamol 2.5-5mg, Adrenaline IMI / IV, repeat as necessary give corticosteroids oral or ivi manage as severe asthma if not improving

No

- **TRANSFER TO RESUS AREA**
- **Repeat Adrenaline Dose**
- Call Emergency Consultant/

Circulatory collapse

- Give fluid bolus of 20 mL/kg N/Saline.
- Adrenaline IMI /IV
- If shock persists give further 20mL/kg N/saline

Monitor for 4-6hours (if after midnight admit to ward)

If clinically improved:

- Oral antihistamine single dose
- Oral prednisolone single dose (1 mg/Kg)
- Call Paed Registrar
- Educate about use of autoinjector and give anaphylaxis package (both available in guideline box)
- ≤ 20 kg = EpiPen Jnr® (150 µg)
- > 20 kg = EpiPen® (300 µg).
- EpiPens® are available in the satellite pharmacy.
- Arrange Paed immunology clinic follow up
- Inform Paediatric immunology team (in hours – page 6463, after hours – email**)
- If no improvement or deterioration, reassess, and admit.

Does child improve?

Yes

No

Do not use subcutaneous adrenaline, as absorption is less reliable than the intramuscular route.

- Arrange admission to HDU/ICU
- Give PO Vallergan (1mg/kg)
- **If in Routine Hours please discuss with on call Paediatric Immunologist (pg 6463)**
- **Otherwise admit under care of Paediatrician on call**

- Give adrenaline IVI (bolus dose of 0.1 mLs/Kg)
- Adrenaline Bolus -Draw up 1mL of 1:1000 adrenaline (1mg) in a 20 mL syringe, add 9mL n/saline to give total volume of 10mL. Discard all but 2mL (leaving 200ucg in syringe). Then draw up saline again to make total volume of 20 mL in syringe... Final concentration is 10ucg/mL
- Commence adrenaline infusion (0.05 - 1 mcg/kg/min)
- Consider intubation for PPV once total fluid given >40mL/kg
- Admit to ICU

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Appendix 7:

FOOD CHALLENGE PROTOCOLS

Developed by the Paediatric committee of the Australasian Society of Clinical Immunology & Allergy (ASCI) September 2009

Disclaimer: Food challenges are used in carefully selected patients to confirm that an allergic reaction to a food exists or that it has resolved, and must be conducted under strict medical supervision. Clinical studies using the five protocols developed by the ASCIA Paediatric committee in September 2009 have not yet been conducted and the final food challenge protocols may be modified based on these studies.

MILK CHALLENGE

CHALLENGE SUBSTANCE

1. Less than 12 months old – cow's milk based infant formula
2. More than 12 months old - full cream cow's milk

CHALLENGE PROTOCOL

Day 1

TIME	ml milk
0	Drop inside lip (not to touch outside lip)
20 min	1 ml
40 min	5 ml
60 min	15 ml
80 min	40 ml
100 min	100 ml
Daily total	~160 ml

OBSERVATION POST-CHALLENGE

Generally for 2 hours

HOME CONTINUATION

Day 2

160 ml

Days 3-14

Increase amount as tolerated until all bottles in an infant (<12 months of age) are cow's milk based formula or daily amount is 200-300 ml (>12 months of age).

Note: Completely or partly hydrolysed (HA) formula should NOT be used for milk challenges.

Appendix 8:

COOKED EGG CHALLENGE Developed by the Paediatric committee of the Australasian Society of Clinical Immunology & Allergy (ASCIA) September 2009

CHALLENGE SUBSTANCE

1 large (~50 g) egg (= 45 g of egg white and yolk)

Preparation instructions

1. Beat one large egg (yolk and white) with a fork for 1 minute
2. Place in microwave
3. Cook at 10 second intervals, mashing the egg mixture with a fork each time.
4. Cook egg until it is rendered semi-solid (approximately a total of 30 seconds of cooking is sufficient)

CHALLENGE PROTOCOL

TIME	Teaspoon amount	g of cooked egg
0	Touch lip	Touch lip
20 min	1/8	0.6
40 min	1/4	1.25
60 min	1/2	2.5
80 min	1	5.0
100 min	2	10.0
120 min	Remaining egg (~2 and 2/3rd of a teaspoon)	13.1
Total volume/g	6 1/2	32 g of cooked egg*

* equivalent to 45 g of uncooked egg white and yolk

Note: cooking process reduces volume of egg white and yolk from 45 g to 32 g.

OBSERVATION POST-CHALLENGE

1-2 hours

HOME CONTINUATION

1. No further egg for 24 hours after challenge (to detect any delayed reactions)
2. If no reaction 24 hours following a challenge, cooked egg should be introduced into diet.

ALTERNATIVES IF CHILD REFUSES TO TAKE THE ABOVE CHALLENGE

Try mixing each subsequent dose of egg that the child has not yet taken with one of the following substances (which child is known to be tolerant to) such as:

1. Tomato sauce

2. Apple puree
3. Canadian maple syrup (contains water, sucrose, glucose, minute traces minerals, some B vitamins). Other maple syrups should not be used as they can potentially have other allergens, such as soy.

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FOOD CHALLENGE PROTOCOLS

Developed by the Paediatric committee of the Australasian Society of Clinical Immunology & Allergy (ASCIA) September 2009

Time	Amount of muffin	g of egg
0	1/16 of a muffin	0.47g
20 min	1/8 of a muffin	0.94 g
40 min	1/4 of a muffin	0.1.88 g
60 min	1/2 of a muffin	3.76 g
80 min	1/2-1 muffin	3.76-7.5g

BAKED EGG CHALLENGE

CHALLENGE SUBSTANCE

Muffin (parents required to make)

Muffin ingredients

1. 100 g of butter or Nuttelex margarine (or other milk free margarine if cow's milk allergic)
2. 160 g of sugar
3. 220 g of plain flour (if allergic to wheat, use appropriate flour – eg soy, rice)
4. 2 level teaspoons of baking powder
5. 125 ml of milk child is tolerant to (e.g. cow's, soy, rice, etc)
6. 2 large (50 g) sized eggs
7. Muffin tray (12 muffins) and muffin cups

Preparation instructions

1. Pre-heat conventional oven to 180°C
2. Mix baking powder and flour together in a bowl
3. Add butter and sugar and mix until a lumpy batter is formed
4. Add the two eggs and milk into the mix
5. Combine ingredients until a smooth batter is formed
6. Place muffin cups into the tray
7. Distribute batter evenly into each muffin cup
8. Bake for 20 minutes or until slightly golden brown and firm to touch

CHALLENGE PROTOCOL

Cut the muffin on the day of the challenge and administer as shown in the table.

OBSERVATION POST-CHALLENGE

1-2 hours

HOME CONTINUATION

1. No further muffin for 24 hours after challenge (to detect any delayed reactions).
2. If no reaction 24 hours after challenge, child can have foods containing baked egg (where a maximum 2 eggs has been used in a batch of 12 muffins or in a cake mixture).

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Appendix 10:

FOOD CHALLENGE PROTOCOLS

Developed by the Paediatric committee of the Australasian Society of Clinical Immunology & Allergy (ASCIA) September 2009

PEANUT CHALLENGE

CHALLENGE SUBSTANCE

Peanut Butter

Equivalency of Peanut butter to	(Oil) Roasted Peanuts
1/8 teaspoon peanut butter	0.625 grams
1/4 teaspoon peanut butter	1.25 grams
1/2 teaspoon peanut butter	2.5 grams
1 teaspoon peanut butter	5 grams

CHALLENGE PROTOCOL

Day 1

Time	Peanutbutter
0	Smear inside lip (not to touch outside lip)
20 min	1/8 teaspoon
40 min	1/4 teaspoon
60 min	1/2 teaspoon
80 min	1 teaspoon (minimum last dose to call challenge negative)
100 min	2 teaspoon (if tolerated)
Daily total	1 7/8 teaspoons

OBSERVATION POST-CHALLENGE

Generally for 2 hours

HOME CONTINUATION

Days 2-7

2 teaspoons per day

After Day 7

Peanut products should be continued in diet at least weekly following a successful challenge.

NOTE: Reactions to smear inside the lip may be local (swelling at the site of application) or generalised (angioedema /urticaria at sites distant from application).

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Appendix 11:

FOOD CHALLENGE PROTOCOLS Developed by the Paediatric committee of the Australasian Society of Clinical Immunology & Allergy (ASCIA) September 2009

WHEAT CHALLENGE

CHALLENGE SUBSTANCE

Plain wheat flour

Preparation instructions

1. Place 80 ml of milk or juice (which child is tolerant to) into a shaker.
2. Place 8 level teaspoons of wheat flour into the shaker. Note: 1 teaspoon (5mL) of wheat flour = 3 g of wheat.
3. Shake for 30 seconds.
4. Between each serve, shake the contents again for 30 seconds before administering.

CHALLENGE PROTOCOL

TIME	ml wheat in milk or juice	g of wheat
0	Touch lip	Touch lip
20 min	1 ml	0.3 g
40 min	2 ml	0.6 g
60 min	5 ml	1.5 g
80 min	10 ml	3.0 g
100 min	20 ml	6.0 g
120 min	42 ml	12.6 g
Total volume/g	80 ml	24 g

OBSERVATION POST-CHALLENGE

1-2 hours (2 hours observation is recommended in patients with a history of previous wheat reaction).

HOME CONTINUATION

1. No further wheat for 24 hours after challenge (in order to detect delayed reactions).
2. If no reaction 24 hours following a challenge, child should have wheat containing products on at least a weekly basis in their diet.

ALTERNATIVES IF CHILD REFUSES TO TAKE WHEAT FLOUR CHALLENGE

1. If using a milk or formula – try either
 - Adding 1-2 teaspoons of sugar into the mixture OR
 - Add the wheat flour into a fruit juice
2. Egg free pasta (note: 24 g of wheat flour = ~52 g of egg free pasta)
3. Semolina (note: 24 g of wheat flour = ~22 g semolina).

Disclaimer: Food challenges are used in carefully selected patients to confirm that an allergic reaction to a food exists or that it has resolved, and must be conducted under strict medical supervision. Clinical studies using the five protocols developed by the ASCIA Paediatric committee in September 2009 have not yet been conducted and the final food challenge protocols may be modified based on these studies.

MRN

Surname

First Name

Appendix 12:

**Department of Paediatric Allergy and Immunology
John Hunter Children's Hospital
Newcastle**

Milk challenge

Each step to be at 20 minute intervals Date:

(Note patient reaction at 10 minute intervals during study and ½ hourly post study)

Recommence TPR, SaO2 if any reaction noted.

Food to be administered = Full cream cows milk (>2 years of age)

Time		Temp	Pulse	Resp	SaO2	Patient reaction (nil/describe)
Day 1						
	Baseline observations					
	Drop on inside of lip					
	ORALLY:					
	1 ml					
	5 ml					
	15 ml					
	40 ml					
	100 ml					

Observe 2 hours post final oral challenge before discharge

Day 2 – 160 mls

Day 3-14 increase amount as tolerated – 200-300 mls /day

MRN

Surname

First Name

Appendix 13:

**Department of Paediatric Allergy and Immunology
John Hunter Children's Hospital
Newcastle**

Cooked Egg challenge

Each step to be at 20 minute intervals Date:

(Note patient reaction at 10 minute intervals during study and ½ hourly post study)
Recommence TPR, SaO2 if any reaction noted.

Food to be administered = egg (*Beat 1 large egg for 1 minute and render semisolid in microwave – Cook at 10 second intervals, mashing the egg mixture with a fork each time- Usually 30 seconds cooking time is sufficient*)

Time		Temp	Pulse	Resp	SaO2	Patient reaction (nil/describe)
	Baseline observations					
	Drop inside lip					
	ORALLY:					
	1/8 th tsp					
	1/4 th tsp					
	1/2 tsp					
	1 tsp					
	2 tsp					
	Remaining egg					

Observe 2 hours post final oral challenge before discharge. No further egg for 24 hours post challenge. If no reaction, 24 hours after challenge, cooked egg can be introduced into diet.

MRN

Surname

First Name

Appendix 14:

Department of Paediatric Allergy and Immunology
John Hunter Children's Hospital
Newcastle
Baked Egg Challenge

Each step to be at 20 minute intervals

Date:

(Note patient reaction at 10 minute intervals during study and ½ hourly post study)

Recommence TPR, SaO₂ if any reaction noted.**Food to be administered = Muffin**

100 g of butter or Nuttalex, 160 g of sugar, 220 g of plain flour, 2 level tsp of baking powder, 125 ml of milk, 2 large eggs, muffin tray (12 muffins) Muffin cups

Pre heat conventional oven to 180C, Mix baking powder and flour together in a bowl, add butter and sugar to make a lumpy batter, add egg and milk and mix until a smooth batter is formed, place muffin cups into tray and distribute batter evenly, Bake for 20 minutes till golden brown

Time		Temp	Pulse	Resp	SaO ₂	Patient reaction (nil/describe)
	Baseline observations					
	ORALLY:					
	1/16 th of muffin					
	1/8 th of muffin					
	¼ th of muffin					
	½ of muffin					
	1 muffin					

Observe 2 hours post final oral challenge before discharge

Home Continuation:

No further muffin for 24 hours after challenge

If no reaction 24 hours after challenge, the child can have foods containing baked egg (where a maximum of 2 eggs has been used in a cake mixture or a batch of 12 muffins)

MRN

Surname

First Name

Appendix 15:

**Department of Paediatric Allergy and Immunology
John Hunter Children's Hospital
Newcastle**

Peanut/Tree Nut Challenge

Each step to be at 20 minute intervals Date:

(Note patient reaction at 10 minute intervals during study and ½ hourly post study)

Recommence TPR, SaO2 if any reaction noted.

Food to be administered = Peanut Butter or other nut paste						
Time		Temp	Pulse	Resp	SaO2	Patient reaction (nil/describe)
	Baseline observations					
	Smear on inside of lip					
	ORALLY:					
	1/8 teaspoon					
	1/4 teaspoon					
	1/2 teaspoon					
	1 teaspoon* (Minimum last dose to call challenge negative)					
	2 teaspoon					

Oral challenge may be taken with: Plain bread/toast/crackers

Observe 2 hours post final oral challenge before discharge

Home Continuation: Day 2-7 – 1-2 teaspoons per day (or 8-16 kernels)

Note: Peanut products should be continued in diet at least weekly following a successful challenge

MRN

Surname

First Name

Appendix 16:

Department of Paediatric Allergy and Immunology John Hunter Children's Hospital Newcastle

Wheat Challenge

Each step to be at 20 minute intervals

Date:

(Note patient reaction at 10 minute intervals during study and ½ hourly post study)

Recommence TPR, SaO2 if any reaction noted.

Food to be administered = Plain wheat flour (Place 80ml milk / juice child tolerant to into shaker. Place 8 teaspoons of white wheat flour into shaker-shake for 30secs) =3g wheat flour per 5 ml of milk

Time		Temp	Pulse	Resp	SaO2	Patient reaction (nil/describe)
	Baseline observations					
	Drop to touch lip					
	ORALLY:					
	1 ml (0.3g)					
	2 ml (0.6g)					
	5 ml (1.5g)					
	10 ml (3.0 g)					
	20 ml (6.0 g)					
	42 ml (12.6 g)					
	Total 24 gm (80 ml)					

Observe 2 hours post final oral challenge before discharge

Home Continuation: No further wheat for 24 hours after challenge (to detect delayed reactions)

If no reaction after 24 hours wheat containing foods should be introduced in the diet.

Alternatives-

San Remo egg free pasta challenge

San Remo cous cous challenge

REFERENCES:

- Previous JHCH policies: 3.8.11 & 3.8.12 (1991).
- Glenn Reeves – Immunologist, JHH
- Dr Bhatia – Paediatric Immunologist, Kaleidoscope
- ASCIA - Paediatric Sub Committee – Food Challenge Protocols 2009

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SIGN OFF:

Kaleidoscope CPGAG approval

KGNS Quality approval

FOOD CHALLENGE PATHWAY

