Worcestershire Acute Hospitals NHS Trust

In Hospital Oral Food Challenge Guideline

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Key Amendments

Date	Amendment	Approved by
February 2019	Page 2: Patients with positive tests to food they have never knowingly eaten should be challenged in hospital Changed to "Consideration should be given to a hospital based food challenge in patients with positive tests to food they have never knowingly eaten" Page 3: *Usually* only one food should be challenged on one day (add usually)	Paediatric QIM
19th Nov 2020	Document extended for 1 year	Dr West/ Paediatric QIM
January 2021	Document reviewed and approved	Paediatric QIM
26th March 2021	Documents approved for further 3 years	Paediatric QIM/ MSC
September 2022	Document updated and approved	Paediatric QIM/ MSC
9th Feb 24	Document reviewed and approved	Paediatric guideline review day

Contents

This guideline is for children and young people undergoing an Oral Food Challenge (OFC) at Worcester Royal Hospital.

Introduction

Food allergy is a growing problem within the United Kingdom and worldwide (Nwaru and Hickstein *et al* 2014). The National Institute for Health and Care Excellence (NICE) identify the importance of correct allergy management (NICE 2011). The gold standard test for diagnosing food allergy is a double-blind placebo controlled oral food challenge (Sampson and Gerth van Wijk *et al* 2012). However, these are time consuming and they require a significant amount of planning and resources. Therefore, an open food challenge is the most appropriate procedure for a non-research setting.

Why is a food challenge required?

The aim of performing a food challenge is to make an accurate diagnosis of an immediate adverse reaction to a food (Nowak-Wegrzyn and Assa'ad *et al* 2009). A decision can then be made to either remove a food embargo or to impose a dietary restriction.

Only a third of pre-school children with reactions to foods reported by parents are confirmed by food challenge. School age children with a history of allergy to foods during infancy may be subjected to a restrictive diet that is no longer appropriate. Some food allergies have a high rate of resolution in childhood, such as milk (>50% by age 5-10 years), egg (approximately 50% by ages 2-9 years), wheat (50% by age 7 years), and soy (45% by age 6 years), with continued resolution into adolescence (Savage and Sicherer 2016). An Oral Food Challenge (OFC) is the only method to prove or disprove allergy by deliberate exposure in a controlled environment to adequate doses of the suggested allergen.

A convincing history acquired by an appropriately trained health professional with supporting evidence of IgE sensitisation (see investigations below) may be adequate to attribute allergy. A child should not be challenged if the risk of anaphylaxis is considered by their physician to be greater than 50%. The aim of the food challenge **is not** to prove how severe a reaction can be as this would be misleading and dangerous.

Patients covered

Patients attending Worcestershire Acute Hospitals NHS Trust for investigations of allergic disease linked to paediatric specialities.

Competencies required

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 guideline outlining the Skin Prick Testing procedure should be followed (WAHT-TP-053)
- 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 should be considered **before food challenge.** This could be done on the day of the challenge before commencing.
- If the child is more than 3 years old and their previous skin prick test was more than six months ago a repeat skin prick test should be considered **before food challenge.** 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%)

Patients who could be challenged

- **History and test (skin prick and SpIgE) 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. This would be inappropriate.

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

Patients who should NOT be challenged

- Patients with a genuine life-threatening reaction in the last two years to the food being proposed to challenge involving:
    - severe bronchospasm or
    - hypotension
- A challenge is not indicated for children with a good history of an unequivocal reaction within the last year at least.
- Children with poorly controlled asthma. This might be apparent in clinic appointments, or if children with asthma are on the food challenge waiting list, the CNS booking the appointment will ensure that there have been no recent exacerbations of wheeze. At the time of booking the appointment the Allergy CNS will conduct an interviewer led Asthma Control Test (ACT) for those with preventer inhalers. An ACT <19 will be discussed with the paediatric allergy and or respiratory team.
- Children with a high clinical suspicion of reacting.
- Children who are unlikely or unable to eat the necessary quantity of food.
- Foods which are rarely known to cause allergy and very easy to avoid and rarely mixed with other ingredients. For example, some fruits or vegetables.
- Children who are already eating the food.

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 Clinical Nurse Specialist (CNS) and Allergy Dietitians will work out the necessary doses of food for each challenge taking into account protein contents, volume of food to be eaten and palatability. In most cases a 5 step dosing schedule will be used. However, this will be modified according to age and portion size where necessary.
- See Appendix A for an example of a blank dosing and observation record chart.

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 using the Trust website e-consent procedure.
- Written informed consent must be gained by an appropriately trained healthcare professional before the challenges start.

Pre-Challenge Risk

Each child will be stratified into low or high risk when they are added to the food challenge waiting list.

Low risk:

- No history of an allergic reaction
- Negative SPT or SPT equivocal and /or SpIgE <Grade3
- No asthma or well controlled asthma managed with
  - Children under age 5 </= 200micrograms/day beclomethasone or equivalent
  - Children over age 5 who are on </=400micrograms/day of beclomethasone or equivalent
- No previous history of anaphylaxis

High risk:

- Previous anaphylaxis
- SPT and SpIgE levels approaching the 95% PPV diagnostic cut off
- Asthma:
  -Children under age 5 who are on >200micrograms/day of Beclomethasone or equivalent

  -Children over age 5 who are on >400micrograms/day of Beclomethasone or equivalent or on combined Inhaled Corticosteroid/ Long Acting Beta Agonist (ICS/LABA) inhaler
- Other chronic medical conditions that may exacerbate anaphylaxis (e.g. taking Beta blockers)

Table of 95% Positive Predictive Values (PPV)

The 95% PPV is the cut off level above which 95 out of 100 children would be expected to have a reaction.

Food	95% PPV Specific IgE level	95% PPV SPT
Milk	15 kUA/L (<2years - 5 kUA/L)	8mm
Baked Milk	24.5 kUA/L (< 2 years -2 kUA/L)	10mm
Egg	Egg white 7 kUA/L (<2 years -2 kUA/L) Ovomucoid 7.4 kUA/L	4mm
Baked Egg	Ovomucoid 10.8 kUA/L	N/A>11mm 100% PPV
Tree Nuts	15 kUA/L	8mm
Peanut	15 kUA/L (<2 years – 5kUA/L) Ara h2 0.39 kUA/L	8mm (<1 year - >4mm)
Cod	20 kUA/L	Unknown
Sesame	No evidence	8mm
Wheat	100 kUA/L	3mm

(Stiefal et al (2017); Du Toit (2009); Tan et al (2013); Sampson et al. (2012))

Environment

- Food challenges should be admitted as a day case.
- Two challenges may be conducted simultaneously by the same member of staff. However, high risk challenges should prompt discussion with the allergy consultants and allergy CNS regarding staff ratios.
- The challenge must take place where there is immediate access to emergency equipment and medical assistance.
- A medically qualified person with resuscitation skills must be aware the test is occurring and be onsite.
- Challenges should ideally be performed during the morning.

Emergency medication

Adrenaline and cetirizine must be prescribed on the patient's medication chart prior to the start of the food challenge. Salbutamol should also be prescribed for those with existing prescribed inhalers.

DRUG	AGE	DOSE & ROUTE
Cetirizine[1]	<2 year old	250microgramgs/kg orally
	2-6 years old	2.5 - 5mg orally
	6 -11 years old	5mg- 10mg orally
	12 + years	10mg -20mg orally
Adrenaline[1] 1mg/ml [1:1000] IM	<6 months	100 – 150micrograms (0.1-0.15ml) IM
	6 months – 6 years	150micrograms(0.15ml) IM
	6-12 years	300micrograms (0.3ml) IM
	Adult and child > 12 years	500micrograms (0.5ml) IM
Salbutamol[2]	<5 years	2.5mg Nebulised
	5 -11 years	2.5mg - 5mg Nebulised
	12-17years	5mg Nebulised
Salbutamol[2]	All ages	2-10puffs of 100micrograms inhaled through a spacer device
Adrenaline[3]	All ages	0.4ml/kg of 1:1000 – maximum 5ml of 1:1000 Nebulised

1 Resuscitation Council UK (2021)
2 British National Formulary for Children (2021)
3 Worcester Acute Hospitals NHS Trust (2021) Management of Croup, reference WHAT-TP-046

Preparation on the day of the challenge

- The Trust policy for identification of the patient must be followed prior to the test (WHAT-CG-019)
- Height and weight to be taken on every patient.
- The child should have a brief medical, food and drug history taken:
    - If the child is asthmatic they should continue to take their preventative medication. Steroids and leukotriene receptor antagonists do not affect the outcome.
    - If they have needed to take their blue inhaler (reliever) more frequently than normal in the two weeks prior to the challenge they must be thoroughly assessed to ensure that there is no respiratory compromise that might exacerbate a reaction.
    - Children who do not have a diagnosis of asthma and do not use a preventative inhaler should not continue to have a challenge if they are using a reliever inhaler two days prior to challenge. This would indicate that they might be recovering from a viral illness.
    - The staff member undertaking the challenge must check when the patient last had antihistamine medication. Antihistamines may mask the response thus making the results unreliable.

- Short acting antihistamines i.e. Piriton®, Vallergan®, Phenergan® should be stopped 72 hours (3 days) prior to challenge.
- Long-acting antihistamines i.e. Cetirizine, Loratadine or Fexofenadine should be stopped 5 days prior to challenge.
- Many patients who suffer with allergy related disease are on multiple medications and may not be aware which of their medication is an antihistamine. If unsure, staff must check with a doctor or a senior nurse before starting the OFC.
- Beta blockers will make any anaphylactic reaction difficult to treat. This should be discussed with the supervising Consultant.
- Maintenance topical creams, including steroids, for eczema should be continued and encouraged before the challenge. However, if the patient is suffering from an acute eczema flare and requiring additional or stronger steroid cream then postponing the challenge should be discussed.

- The child or young person must be examined confirming there is no evidence or suspicion of an intercurrent illness which may influence the outcome.
  - Baseline observations need to be taken to confirm the child is well enough for a challenge, including chest auscultation. A temperature >37.8 may indicate an intercurrent infection and the challenge should be postponed
  - A Peak Expiratory Flow Rate (PEFR) should be gained in children older than approximately 6/7 years old who have a salbutamol inhaler and should be >80% of predicted outcome.
  - 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.
  - Patients and young people who suffer from allergic rhinitis (i.e. hayfever 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 hayfever who regularly take antihistamines, the challenge should be scheduled for winter. In these cases, advice should be given to parents on how to minimise exposure to the aeroallergen likely to be causing symptoms.

- The staff member must explain the nature of the test, the anticipated immediate side effects and possible late side effects to the patient and obtain written consent from the patient and/or parent/guardian.
- The Food Challenge Checklist (see appendix B) should be completed before starting the OFC.

Parents

- Care must be taken not to override parental wishes in order to complete the challenge. Parental anxiety can be transmitted to the child.
    - It is best for parents to be “in charge” of giving the food to the child as they would at home unless they themselves are allergic to the food being challenged.
- Parents should be excluded from participation if;
    - They refuse to assist even after discussion
    - There is a suspicion of fabricated or induced illness

Nurses

- In most cases the nurse will be:
    - Completing the Food Challenge Checklist
    - Following the written guidance
    - Performing observations including baseline observations.
    - Preparing the appropriate food quantities
    - The person conducting the challenge should wear suitable PPE to prevent cross contamination of foods and maintain hygiene.
    - Stopping the challenge if an adverse reaction occurs (see ‘stopping the challenge’)
    - Administering emergency medication

Medical staff

- The Consultant is ultimately responsible for the patient's wellbeing and will ultimately be responsible for terminating the challenge if a reaction is observed.
- A supervising doctor should be within the area available at short notice and notified that the challenge is commencing.

What is a reaction?

- **ALL REACTIONS NEED EVALUATION**
- Early signs of an allergic reaction can be very subtle.
- Reactions may occur in any system and staff looking after the patient must be both aware of the nature of previous onset and other possible manifestations.
- Abdominal pain is common in reactions but should also be interpreted in the light of other symptoms and can also be a sign of anxiety in children.
- Wheezing should be reviewed immediately, and a decision made either to
    - treat wheeze as a positive reaction to food challenge in an asthmatic or
    - treat wheeze as anaphylaxis
- Anxiety is often present and can give false positive results.
- Late reactions may occur after 4 hours.

Stopping a food challenge

See Appendix C for criteria for stopping a challenge. These criteria were developed by the American Academy of Allergy, Asthma and Immunology (AAAAI) and the European Academy of Allergy and Clinical Immunology (EAACI) (Sampson and Gerth van Wijk *et al* 2012) to provide some objective, standardised measurement of positive challenges. 2-3 mild objective symptoms usually indicate stopping a challenge or one severe reaction. However, clinical judgement and experience can prevail if the professional leading the challenge feels the patient is having an allergic reaction.

Stopping the challenge for subjective symptoms (i.e. 'feels sick' 'tingling lips') increases the risk of a false-positive outcome compared with only allowing objective symptoms. However, subjective symptoms particularly in a younger child (i.e. food refusal, suddenly becoming quiet) can herald the start of an allergic reaction and do need to be considered and discussed with the

family. It may be necessary to wait until symptoms have resolved before giving the next dose or repeating the same dose.

If possible allergic symptoms develop, a copy of the stopping criteria by Sampson and Gerth van Wijk et al (2012) should be placed in the notes with allergic symptoms highlighted and also documented in the history sheet.

What to do if there is a reaction?

- Antihistamine should be given in the event of a reaction considered as mild/moderate.
- IM adrenaline should be given immediately for severe reaction. The 2021 Resuscitation Council's Emergency treatment of anaphylaxis must be followed. It can be found here: https://www.resus.org.uk/sites/default/files/2021-05/Emergency%20Treatment%20of%20Anaphylaxis%20May%202021_0.pdf or QRcode

- A summary of the treatment algorithm can be found in Appendix F
- Wheeze should be interpreted clinically and treated appropriately whatever is decided the appropriate clinical course should then be followed (acute asthma or anaphylaxis) involving oxygen, bronchodilators and/or adrenaline.
- Continuous full monitoring is required for patients treated for anaphylaxis
- If adrenaline is administered, a medical review is required urgently.
- Prepare for IV access after first dose of IM adrenaline has been given.
- The challenge recorded as positive**.**
- Two hours of observations are required after administering antihistamines.
- Four hours of observations are required after administering adrenaline, Riverbank ward should be notified and, if possible observed there, once the patient has stabilised.

Summary of symptoms and treatment

SYMPTOM	TREATMENT
Urticaria – a few hives to whole body	Cetirizine orally
Angioedema	Cetirizine orally
Vomiting	Cetirizine orally
Diarrhoea	Cetirizine orally
Wheeze	In most cases IM adrenaline Nebulised Salbutamol
Stridor	Nebulised Adrenaline
Change in conscious level	IM Adrenaline

Interpretation of results

- The results of the food challenge must be interpreted by a doctor or nurse trained in allergy or food challenges, in the light of the patient's history.

'Negative' challenges

- The food challenge is considered a negative challenge (i.e. no reaction) if the child remains well and symptom free two hours after ingestion of the last dose.
- The parents should be warned there is a small risk of late onset reactions after this time but this is rare. They should be informed of the correct procedure to follow should this exceptional event occur.

'Positive' challenges

- The food challenge is considered a positive challenge (i.e. reacted) if the child reacts during the challenge confirming that they are allergic to the food.
- Staff must continue to monitor the patient and observe for progression or resolution of allergic symptoms.
- If the child has had a positive challenge then staff must remind parents about allergen avoidance and behaviour modifications.
- The possibility of late phase reactions (4-8 hours) and how to manage these must be explained to parents.
- Children should be encouraged to have a restful day following a positive food challenge.

- Those requiring IM Adrenaline must be discharged with two Adrenaline Auto Injectors and training in when and how to administer them. The Adrenaline Auto Injector SOP should be used (WAHT-TP-053)

'**Inconclusive' outcome**

- This outcome is used when the challenge is terminated before the end and the child has not consumed the recommended amount of food. This might be due to anxiety or dislike of the food.
- Occasionally it may be considered, even though the child has consumed less than the recommended amount of food in the challenge but has tolerated an adequate age appropriate portion and with no evidence of an allergic reaction, that they would be safe to continue eating this in future.

Completion

- Ensure the patient is comfortable. The patient must only be discharged if they are symptom free or all adverse reactions have resolved.
- Ensure that results are reported to the patient's consultant.
- Ensure a management plan has been agreed and updated.
- A GP letter is completed.
- Parents are aware of 'late phase' reactions and how to manage them.
- Parents are aware how to introduce the food into the child's diet if the result of the challenge is negative.
- Open access to Riverbank Ward is given to parents and communicated to ward staff.
- If the child or young person carries an Adrenaline Auto-Injector for other allergies then training must be given.
- The Oral Food Challenge Discharge Checklist (see Appendix D) is completed and filed in the medical notes for scanning.

Food Protein-Induced Enterocolitis Syndrome (FPIES)

FPIES is a non-IgE mediated food allergy that affects the gastrointestinal tract. It results in inflammation of the small bowel causing repetitive vomiting (>1 and up to > 10 times) usually 1-4 hours after ingestion (Leonard and Pecora 2018). This is often accompanied by diarrhoea, pallor, lethargy and in some cases, shock. Day to day management of FPIES is strict avoidance of suspected food. There is no diagnostic laboratory test for FPIES, instead, diagnosis is based

on clinical history. OFCs may be needed if the history alone cannot identify a trigger food or FPIES is suspected. They may also be performed if it is suspected the child may have outgrown FPIES. There are no standard protocols for performing an FPIES OFC however the *2017 International Consensus Guidelines for the Diagnosis and Management of Food Protein-Induced Entercolitis Syndrome* (Nowak-Wegrzyn and Chehade 2017) provide some comprehensive guidance. The workgroup who developed this guidance have agreed on diagnostic criteria for the interpretation of OFCs for patient with a history of possible or confirmed FPIES (Nowak-Wegrzyn and Chehade 2017).

Diagnostic Criteria for FPIES OFC

Major Criterion	Minor Criteria
Vomiting in the 1-4 hour period after ingestion of the suspect food and absence of classic IgE-mediated allergic skin or respiratory symptoms	1. Lethargy 2. Pallor 3. Diarrhoea 5-10 hours after food ingestion 4. Hypotension 5. Hypothermia 6. Increased neutrophil count of >1500 above the baseline*

The FPIES OFC will be considered positive if the major criterion is met with at least 2 minor criteria.

Because it may not always be possible to perform a neutrophil count in a timely manner, the consultant in charge of the procedure might decide that a challenge is diagnostic in some instances even if only the major criterion is met.

Management of FPIES reactions should be managed individually according to severity (Leonard and Pecora 2018). Treatment of reactions is **not** with antihistamines or adrenaline but with oral or intravenous fluids and anti-emetics. Oral fluids should be encouraged initially. Antiemetics and IV fluids should be prescribed on the patient's drug/fluid chart beforehand. The insertion of an IV cannula before the challenge starts should be discussed with the consultant ordering the FPIES challenge.

The formula for working out the required amount of food to give during the challenge is usually 0.3g protein per kg of body weight (maximum 4 grams of protein, 10 grams of food or 100ml of liquid) divided into three portions given over 1-3 hours. However, if this seems unusually large, or it is not possible to determine the protein content of the challenge food then a 'normal portion' size determined by parent and professionals will be used, and then divided into three equal portions. The observation period following the final dose is usually 4 hours. A longer observation period is needed if symptoms occur. See appendix E for a sample observation and dosing chart Patients can only be discharged if any symptoms have resolved. Parents will still need to be aware of later reactions even after this extended observation period and counselled in how to manage a later phase reaction.

Glossary

ACT – Asthma Control Test

Allergen- a substance, usually a protein, that causes an allergic reaction

IgE - Immunolglobulin group E – a type of antibody

OFC – Oral Food Challenge

Skin Prick Test (SPT) – a test performed on the forearm to aid the diagnosis of IgE mediated allergy

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Worcestershire Acute Hospitals NHS Trust

Appendix A -Challenge Dosing and Observation Chart

ID LABEL	Date:	Weight:	Skin Prick Test results on day of Challenge:	
	Adrenaline Dose Prescribed		+ve control - _____ solution – Prick to prick test -	Others:
	Cetirizine Dose Prescribed			

protein/100g _____ Total to be given_____ g	Time given	Time obs	**Use PRACTALL scoring system. Record observations on PEWS chart Details of Reactions/Comments/Action taken**	Signature
Dose 1 - 0.03g protein =				
Dose 2 – 0.1g protein =				
Dose 3 – 0.3g protein =				
Dose 4 – 1g protein =				
Dose 5 – 3g protein =				

Result of challenge: Negative/Positive		Stop time		Treatment	
Discharge Advice					
Riverbank informed?		Follow up details:			
Sign, Print and Date					

Appendix B ORAL FOOD CHALLENGE CHECKLIST

ID label:

Or

Child's Name:.....DOB:.....Hospital No.:.....

This document to be used in conjunction with the food challenge guideline

Please ensure that all the check boxes are ticked BEFORE proceeding with the challenge.

Only tick (✓) the box if the answer is Yes.

1. The challenge food is available and ready with appropriate dosing schedule ❑
2. No oral antihistamine has been taken by the patient in the past 5 days and no use of salbutamol inhaler above normal plan in last 2 days ❑
3. There is written documentation of the requirement for challenge in the notes ❑
4. The emergency medication box is available and in date. ❑
5. Correct emergency medication doses for patient prescribed on prescription chart ❑
6. The patient has been assessed by the Nurse / Doctor and is fit for the challenge. ❑
7. Written parental consent +/- young person consent has been obtained. ❑
8. Baseline observations recorded and documented. ❑
9. Bedside emergency equipment checked ❑

Comments:

Signed: _____

Print Name: _____

Designation: _____ **Date:** _____

Appendix C - Indications for stopping an OFC

(Sampson et al 2012)

TABLE LEGEND:

GREEN:
- Not usually an indication to alter dosing.
- Not generally sufficient to consider a challenge positive.

ORANGE: (scores increasing to orange):
- Caution, dosing could proceed, be delayed, have a dose repeated rather than escalated.
- If clinically indicated, dosing is stopped.

RED:
- Objective symptoms likely to indicate a true reaction
- Usually an indication to stop dosing.

- Symptoms that recur on 3 doses, or persist (e.g., 40 minutes) are more likely indicative of a reaction than when such symptoms are transient and not reproducible.
- 3 or more scoring areas in orange more likely represent a true response.

I. SKIN

A. Erythematous Rash- % area involved_____

B. Pruritus

0 = Absent

1 = Mild, occasional scratching

2 = Moderate -scratching continuously for > 2 minutes at a time

3 = Severe hard continuous scratching excoriations

C. Urticaria/Angioedema

0 = Absent

1 = Mild < 3 hives, or mild lip edema

2 = Moderate - < 10 hives but >3, or significant lip or face edema

3 = Severe generalized involvement

D. Rash

0 = Absent

1 = Mild few areas of faint erythema

2 = Moderate areas of erythema

3 = Severe generalized marked erythema (>50%)

II. UPPER RESPIRATORY

A. Sneezing/Itching

0 = Absent

1 = Mild rare bursts, occasional sniffing

2 = Moderate bursts < 10, intermittent rubbing of nose, and/or eyes or frequent sniffing

3 = Severe continuous rubbing of nose and/or eyes, periocular swelling and/or long bursts of sneezing, persistent rhinorrhea

III. LOWER RESPIRATORY

A. Wheezing

0= Absent

1 = Mild expiratory wheezing to auscultation

2 = Moderate inspiratory and expiratory wheezing

3 = Severe use of accessory muscles, audible wheezing

B. Laryngeal

0= Absent

1 = Mild >3 discrete episodes of throat clearing or cough, or persistent throat tightness/pain

2 = Moderate hoarseness, frequent dry cough

3 = Severe stridor

IV. GASTROINTESTINAL

A. Subjective Complaints

0 = Absent

1 = Mild complaints of nausea or abdominal pain, itchy mouth/throat

2 = Moderate frequent c/o nausea or pain with normal activity

3 = Severe - notably distressed due to GI symptoms with decreased activity

B. Objective Complaints

0 = Absent

1 = Mild 1 episode of emesis or diarrhea

2 = Moderate 2-3 episodes of emesis or diarrhea or 1 of each

3 = Severe >3 episodes of emesis or diarrhea or 2 of each

V. CARDIOVASCULAR/NEUROLOGIC

0 = normal heart rate or BP for age/baseline

1 = mild-subjective response (weak, dizzy), or tachycardia

2 = moderate-drop in blood pressure and/or >20% from baseline, or significant change in mental status.

3 = severe-cardiovascular collapse, signs of impaired circulation (unconscious)

Appendix D - ORAL FOOD CHALLENGE DISCHARGE CHECKLIST

ID label:

Or

Child's Name:.....DOB:.....Hospital No.:.....

This document to be used in conjunction with the food challenge guideline

Only tick (✓) the box if the answer is Yes

1. The patient must only be discharged if they are symptom free or all adverse reactions have resolved. ❑
2. Ensure that results are reported to the patient's consultant. ❑
3. Ensure a management plan has been agreed and updated. ❑
4. A GP letter is completed and sent electronically or sent by post ❑
5. Parents are aware of 'late phase' reactions and how to manage them. ❑
6. Parents are aware how to introduce the food into the child's diet if the result of the challenge is negative ❑
7. Parents are aware how to avoid the food and other lifestyle implications such as eating out if challenge is positive ❑
8. Open access to Riverbank ward is given to parents and communicated to ward staff ❑
9. If the child or young person carries an Adrenaline Auto-Injector then training must be given. N/A ❑ ❑
10. Adrenaline Auto Injector dose and expiry has been checked. N/A ❑ ❑

Comments:

Signed: _____

Print Name: _____

Designation: _____ **Date:** _____

Worcestershire Acute Hospitals NHS Trust

Appendix E - Challenge Observation Chart -FPIES

ID LABEL	Date:	Weight:	
	Fluids prescribed 20mls/kg		Dosing Formula: Challenge food protein content=_____g/100g 0.3gx Kg= _____g protein
	Ondansetron prescribed		

protein/100g _____ Total to be given_____ g	Time given	Time obs	**Use FPIES international consensus guidelines *. Record observations on PEWS chart Details of Reactions/Comments/Action taken**	Signature
Dose 1 = _____g of food T-0min				
Dose 2 = _____g of food T-45mins				
Dose 3 = _____g of food T-90mins				

Result of challenge: Negative/Positive		Stop time		Treatment	
Discharge Advice					
Riverbank informed?	Follow up details:				
Sign, Print and Date					

Appendix F

Resuscitation Council UK

GUIDELINES 2021

Anaphylaxis

Anaphylaxis?

A = Airway **B** = Breathing **C** = Circulation **D** = Disability **E** = Exposure

Diagnosis – look for:

- Sudden onset of Airway and/or Breathing and/or Circulation problems[1]
- And usually skin changes (e.g. itchy rash)

Call for HELP

Call resuscitation team or ambulance

- Remove trigger if possible (e.g. stop any infusion)
- Lie patient flat (with or without legs elevated)
  - A sitting position may make breathing easier
  - If pregnant, lie on left side

Give intramuscular (IM) adrenaline[2]

Inject at **anterolateral aspect** – middle third of the thigh

- Establish airway
- Give high flow oxygen
- Apply monitoring: pulse oximetry, ECG, blood pressure

If no response:

- Repeat IM adrenaline after 5 minutes
- IV fluid bolus[3]

If no improvement in Breathing or Circulation problems[1] despite TWO doses of IM adrenaline:

- Confirm resuscitation team or ambulance has been called
- Follow REFRACTORY ANAPHYLAXIS ALGORITHM

1. Life-threatening problems

Airway
Hoarse voice, stridor

Breathing
↑work of breathing, wheeze, fatigue, cyanosis, SpO_2 <94%

Circulation
Low blood pressure, signs of shock, confusion, reduced consciousness

2. Intramuscular (IM) adrenaline
Use adrenaline at 1 mg/mL (1:1000) concentration

Adult and child >12 years:	500 micrograms IM (0.5 mL)
Child 6–12 years:	300 micrograms IM (0.3 mL)
Child 6 months to 6 years:	150 micrograms IM (0.15 mL)
Child <6 months:	100–150 micrograms IM (0.1–0.15 mL)

The above doses are for IM injection **only**.
Intravenous adrenaline for anaphylaxis to be given **only by experienced specialists** in an appropriate setting.

3. IV fluid challenge
Use crystalloid

Adults: 500–1000 mL
Children: 10 mL/kg