

## Management of Egg Allergy in Children

### Key Points

- Egg allergy is common in children and is usually mild
- Re-introduction can be achieved at home if reactions have been mild and there is no asthma
- Reintroduction at home should not be attempted if there has been severe reaction involving airway, breathing or cardiovascular compromise previously or there is on-going asthma requiring regular preventer

This is to be used at the Frimley Park site only as in different referral Networks

<b>Version:</b>	1
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<b>Ratified at:</b>	Departmental Clinical Governance meeting
<b>Date Issued:</b>	May 2020
<b>Review Date:</b>	May 2023
<b>Pharmaceutical dosing advice and formulary compliance checked by:</b>	Ruth Botting Senior Paediatric Pharmacist 9 <sup>th</sup> May 2020 Member of the Clinical Governance Committee

### Key words:

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 Control Sheet

Version	Date	Guideline Lead(s)	Status	Comment
1	5/5/2020	Dr Kate O'Farrell		

## Related Documents

Document Type	Document Name
	Home baked egg introduction – see below

## Abbreviations

SPT	Skin prick test

### 1. Background

- Egg allergy is common in children with a prevalence of around 2%
- Egg allergy presents most commonly in infancy, often after the first apparent ingestion with rapid onset of urticaria and angio-oedema
- Severe reactions are uncommon
- Egg allergy resolves in the majority of children by 6 – 8 years
- Re-introduction can be achieved at home if reactions have been mild and there is no asthma
- All children with egg allergy (even severe allergy / anaphylaxis) should receive MMR vaccination in primary care

### 2. Presentation

- Most commonly in infancy
- Clinical reactions include urticaria and/or angio-oedema in 80–90% (within minutes) and gastrointestinal symptoms in 10–44% (within 2 hours)
- More severe reactions with significant respiratory symptoms are less common (5–10%)
- Ingestion of raw or undercooked egg may trigger more severe clinical reactions than well-cooked egg

### 3. Diagnosis

- A diagnosis is usually possible based on clinical history
- Skin prick tests or serum IgE can be used to support clinical diagnosis
- Egg white SPT > 7mm or specific IgE > 7kU/L (SPT>6mm or sIgE> 2kU/L in < 2 years) have high diagnostic accuracy for true allergy rather than sensitisation
- Do not test in patients with no clinical history of egg allergy because false positives are often seen, especially with serum IgE
- There is no evidence that specific IgE value can predict the severity of egg allergy reactions

### 4. Avoidance advice

- Verbal and written advice on the avoidance of egg products should be provided
- Where the allergy has begun to resolve, well-cooked egg as an ingredient may be tolerated.

### 5. Management

- Prescribe an oral antihistamine to treat mild to moderate reactions: chlorphenamine < 2 years or cetirizine > 2 years
- Adrenaline only in those with a severe reaction (involving airway narrowing, respiratory compromise or hypotension) or asthma requiring a regular preventer

### 6. Resolution of Egg Allergy

- Majority undergo spontaneous resolution over time usually by 6 years of age
- Those with severe reactions less likely to outgrow egg allergy
- As a rule, reactions do not become more severe over time and often become less severe
- Patients with mild egg allergy will often be able to tolerate extensively heated egg products
- The speed at which resolution occurs varies greatly between individuals
- Re-introduction should not be tried within 6 months of a significant reaction

### 7. Re-introduction (see patient information leaflet below)

- Children who have had only mild symptoms with no asthma may have well-cooked egg (e.g sponge cake) introduced from the age of about 2 years at home or 6 months after the last reaction
- If this is tolerated then reintroduction of lightly cooked egg (e.g. scrambled) may be attempted from about 3 years.

- If there is a reaction at any stage, the previously tolerated diet should be continued and further escalation considered after 6 months.
- Reintroduction at home should not be attempted if there has been severe reaction involving airway, breathing or cardiovascular compromise previously or there is on-going asthma requiring regular preventer

## **8. Who should be referred to allergy clinic**

- Children with previous severe egg allergy symptoms that affected breathing (cough, wheeze or swelling of the throat, e.g. choking), the gut (severe vomiting or diarrhoea) or the circulation (faintness, floppiness or shock)
- Children who also receive regular asthma preventative treatment and/or have poorly controlled asthma
- Where diagnosis is not clear and needs to be confirmed or excluded
- Severe eczema in children on an egg-containing diet
- Persistent egg allergy past 6 years of age
- Egg allergy with another major food allergy

## Home baked egg introduction – Parent information leaflet

### General information

Egg allergy is common in young children, but nearly all will outgrow their allergy by school age. The allergic proteins in eggs are changed and become less allergenic when mixed with a flour matrix and heated (such as a cake or biscuit containing egg). Having small amounts of this 'baked' egg is also helpful in getting children to gain tolerance to egg, which is why you are being given information on egg reintroduction. However, not all children will outgrow their egg allergy and a small number remain allergic. These children will need to continue with a totally egg free diet

### Can I reintroduce egg into my child's diet?

You will be advised by the Dietitian or Doctor when you can try your child on a small amount of baked egg in foods e.g. sponge cake. You should read the home reintroduction plan below and will have regular reviews to check on your progress.

The first stages of reintroduction will NOT be allowed at home, (but will need to be on the hospital day ward under medical supervision) if your child has had any of the following listed below; this is so that we can monitor him or her more closely and sometimes give a smaller dose of egg:

- Respiratory (e.g. swelling of the throat, cough, wheeze, difficulty in breathing) or cardiovascular (faintness, drowsiness) symptoms when reacting to eggs,
- Poorly controlled/unstable asthma.
- Moderate/severe eczema and other severe food allergy.

We are also happy to carry out a supervised challenge if you feel particularly anxious about giving your child egg.

### Procedure for Home Baked Egg Challenge

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***

## Notes:

- Try to give a dose every day, even if it is just 1 crumb. If you miss several days (e.g. child unwell), give a smaller dose when you restart and build up.
- If your child refuses cake, try a cookie or savoury biscuit recipe and add a similar amount of egg (e.g. 1 medium egg between 8 biscuits/cookies).
- Do not increase the dose if your child is unwell.
- If you start to see symptoms, reduce the dose to a level that is tolerated. Symptoms can be abdominal pain, loose stool, and/or worsening eczema as well as rashes.
- If you choose to buy a cake, or decorate your cake with icing, **CHECK THE INGREDIENTS OF THE ICING**. Many cake icings (including ready-made butter icing, fondant, royal, frozen gateaux) contain raw egg white and may cause a severe allergic reaction.
- If your child has other food allergies e.g. nut, milk, continue to check ingredients for those allergens

NB: Fairy cakes can be frozen so that they remain fresh whilst trying reintroduction.

## What next?

- If your child has eaten a 1-egg recipe fairy cake with no symptoms then follow the same plan with a 2-egg recipe.
- When they can tolerate a 2-egg recipe, try other foods that are baked and contain eggs such as those listed in stage 1 below. Try to have something every day, but reduce quantity if there is evidence of any symptoms. Continue to be careful with icing.
- Only move on to stage 2 foods when advised to do so by your Doctor or Dietician
- **DO NOT MOVE ON TO stage 3** until advised to do so

## Reintroduction of whole egg

This will only be recommended if your child:

- Is over 2 years
- Has been eating good amounts of a 2 egg cake recipe for 6 months without symptoms

## Procedure

1. Try a small piece of omelette or scrambled egg the size of a small button. Wait 24 hours
2. If no immediate or delayed symptoms give double the amount
3. Continue doubling the amount (minimum 24 hours apart) until 1 medium well cooked egg has been eaten.
4. When 1 egg has been tolerated allow other well cooked egg foods as listed in stage 2 below

## Treatment of allergic reactions

If it has been suggested that you progress onto trying small amounts of baked egg, the Dietitian or Doctor will have felt confident that this is safe to do so, so as long as only small doses are started initially and the advice above is followed. However, your child may still have a small risk of reacting, and the following advice is suggested.

- If it is the first dose, or an increased dose of a food that contains egg, only give the 'dose' of egg at home where your child can be supervised by a parent for at least 1 hour after ingestion (e.g. give after rather than before school).

- Keep an antihistamine medicine at home and give a dose straight away if symptoms occur.
- For abdominal pain, give paracetamol.

In the rare instance that your child experiences any respiratory reaction e.g. coughing or wheezing or any other symptoms you are concerned about, seek medical help.

**Table for home egg reintroduction**

<b>Stage 1</b>	<b>Stage 2</b>	<b>Stage 3</b>
Cakes	Scrambled egg	Fresh mayonnaise
Biscuits	Boiled egg	Fresh mousse and shop-bought mousse which contains egg
Dried egg pasta	Fried egg	Horseradish sauce
Pancakes and Yorkshire pudding (only if very well cooked)	Omelette	Fresh ice cream
Egg in sausages	Egg fried rice	Sorbet
Well-cooked fresh egg pasta	Meringues	Royal icing
Quorn	Some marshmallows	Egg glaze on pastry
Sponges and sponge fingers	Lemon curd	Home-made marzipan
Chocolate bars which contain nougat or dried egg	Quiche	Raw egg in cake mix and other
Some soft-centred chocolates	Poached egg	Tartar sauce
Chewitts	pancakes,	Frico' edam cheese or other cheeses containing egg white
Egg in some gravy granules	Egg in batter	Mayonnaise
Dried egg noodles	Egg in breadcrumbs	Salad cream
Commercial marzipan	Quiche and flans	
	Egg custard and egg custard tarts	
	Tempura batter	
	Less well cooked Yorkshire pudding	