

Food Allergy
Can we stop it?!

Dr Sheila Callaghan

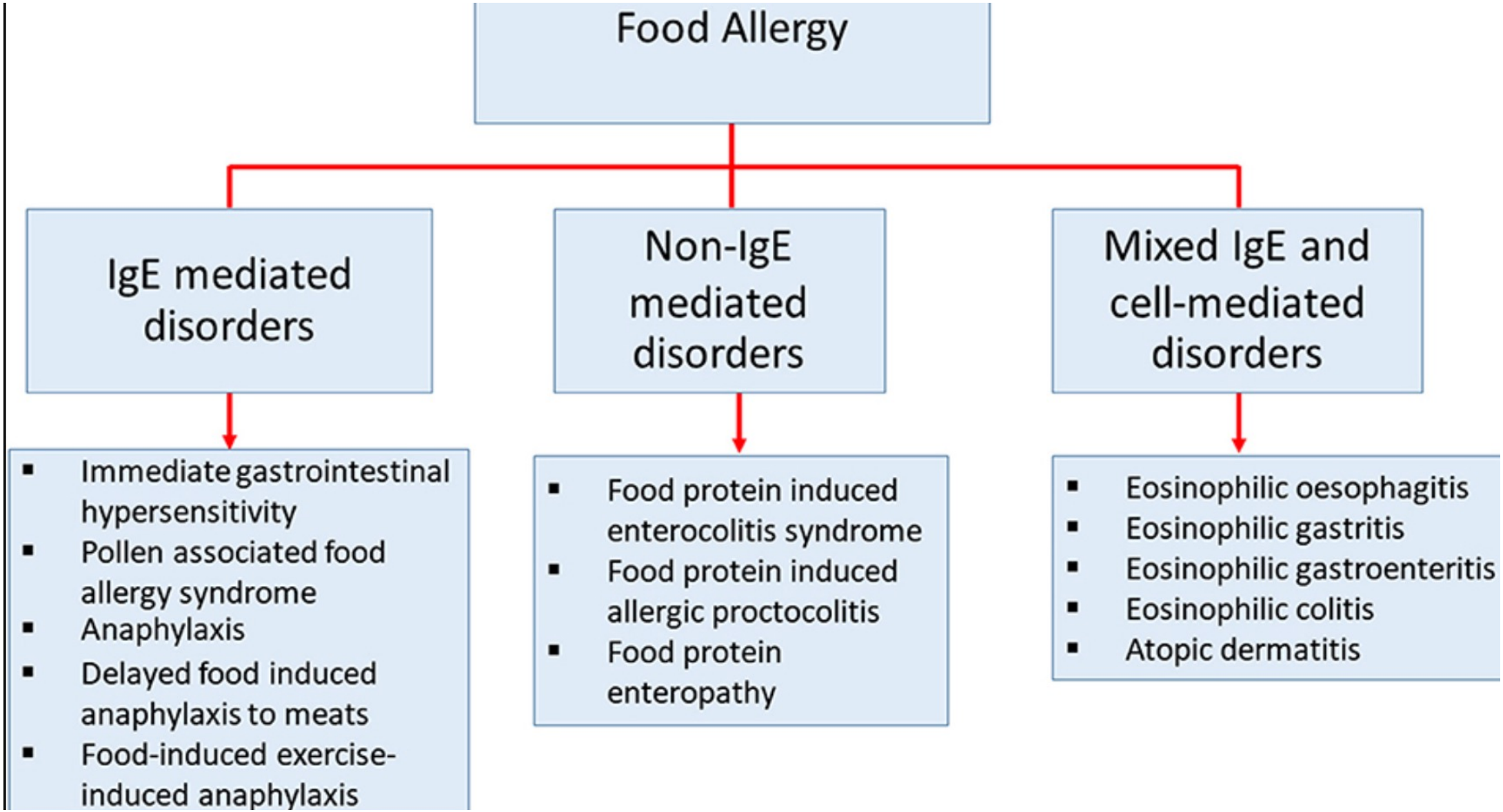
10/11/2022

Its very common

prevalence now estimated at 5–10% of the population in developed countries

not easy to define in under developed countries

Food-challenge-defined allergies for common food allergens was reported to be: 0.6% to cow's milk, 0.2% to egg, 0.1% to wheat, 0.3% to soy, 0.2% to peanut, 0.5% to tree nuts, 0.1% to fish, and 0.1% to shellfish


Food Allergy
IgE mediated disorders
Non-IgE mediated disorders
Mixed IgE and cell-mediated disorders
Immediate gastrointestinal hypersensitivity
Pollen associated food allergy syndrome
Anaphylaxis
Delayed food induced anaphylaxis to meats
Food-induced exercise-induced anaphylaxis
Food protein induced enterocolitis syndrome
Food protein induced allergic proctocolitis
Food protein enteropathy
Eosinophilic oesophagitis
Eosinophilic gastritis
Eosinophilic gastroenteritis
Eosinophilic colitis
Atopic dermatitis



How do we become allergic – making allergen specific IgE

Starts antigen e.g. Grass pollen presenting cells Dendritic cells in skin/ mucosa

Inflammation cause maturation of the dendritic cells

They phagocytose the protein e.g. pollen

and bring to lymph node

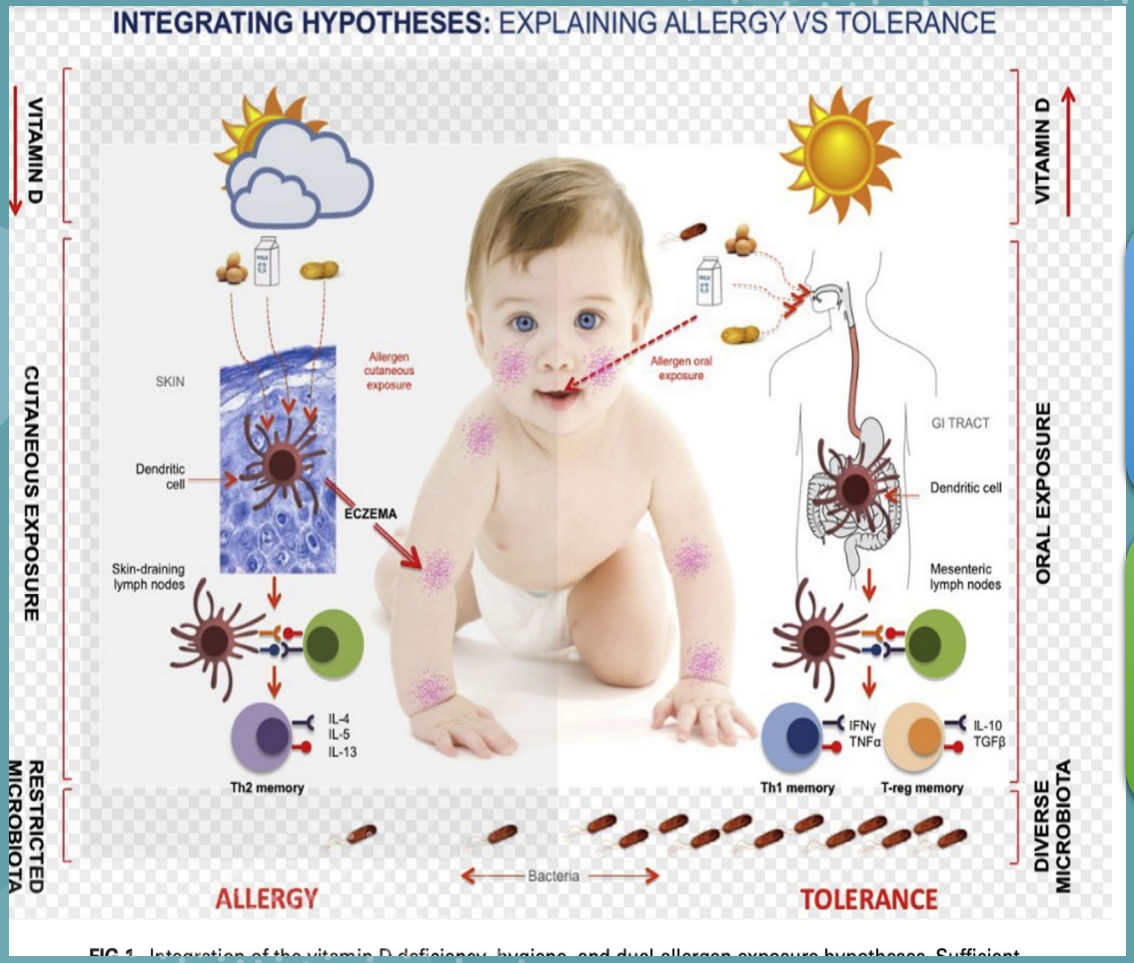
MHC class II take protein then binds to T-cells with correct microenvironment IL 4, 5 & 13 and activates B cells – Plasma cells pump out IG E (designed to fight parasitic infection)

Ig E binds tightly onto Mast cells and basophils

Next time you encounter allergen grass- **mast cell degranulation** --- allergic reaction- rhinitis , itch , wheeze Sneeze

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Allergy v Tolerance



Many risk factors are identified in developing allergy and anaphylaxis. Environment, Genetic susceptibility and epigenetics all play a role.

Most common food triggers in the UK are peanut, tree-nuts, fish, shellfish, egg, milk, soy and seeds.

Making an allergy diagnosis

Allergy Focused History its all in the story

EATERS

Testing bloods vs SPT

Only tells if sensitized

Skin Prick Testing – quick easy to interpret but risk systemic reaction

Plasma specific- IgE – more expensive , false elevated results eczema .CRD

EATERS a 4 year child presents after eating ?peanut chocolate after trick or treating

- Exposure— ate a peanut sweet
- Allergen- peanut
- Timing- immediate (with 2 hours)
- Environment- at a Halloween party
- Reproducible – never eaten before
- Symptoms- rash / urticaria / angioedema / cough

Once diagnosis made

? who needs autoinjector

- Anyone Hx Anaphylaxis to food
- IgE Food allergy & Asthma
- Peanut tree nut allergy
- Teenager
- Rural location

AVOID the trigger food
Easier said than done

Negative impact quality life

New emerging OIT PALFORZIA for peanut

So what can we do to stop allergy ?

- Eczema
- DON’t remove food from an infants diet UNLESS Hx suggests an immediate reaction, good reason to do
- DO Treat their eczema –
- Steroids
- Emollient
- Eczema is a genetic condition defective skin barrier
- Food Allergies /any allergy if present can cause flares in eczema
- But allergies likely occur as result in defective barrier vs the cause of eczema
- Eczema also flares with stress, anxiety, intercurrent illness etc



No strong evidence to recommend emollient therapy to babies

Studies e.g. BEEP trial looked at standard skin care vs addition emollient for prevention of eczema

However Hypothesis that by improving skin barrier reducing inflammation reduction of exposure to allergen via skin

Early introduction of Egg and Peanut before 1 year

- Obtain Oral tolerance
- LEAP- learning early about peanut
- EAT Enquiring about tolerance
- Australia introduced early weaning since 2016 dramatic 16% reduction peanut and egg allergy
- “Nip allergies in the bub”
- AVOID baby led weaning in eczema- eat the food don’t wear it
- BSACI

  Currently recommend early introduction for “high risk” babies

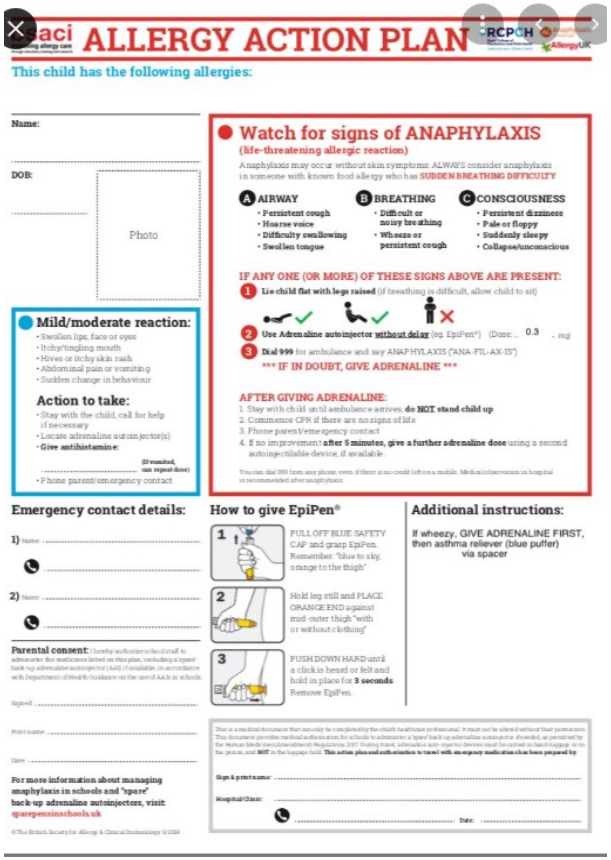


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EAACI guideline : Preventing the development of food allergy in Infants and young children (update 2020)

- Recommends:
- Avoid using Cows milk formula as supplementary feed for breast fed babies in first few weeks of life- if needed or used KEEP in infants diet in tiny quantities
- Introduction of well cooked egg (not raw or unpasteurized)as part of complimentary feeding
- In populations with high rates peanut allergy give peanut early and regularly with complimentary feeding

Action plans BSACI



ALLERGY ACTION PLAN

This child has the following allergies:

Name:

DOB:

Photo

Mild/moderate reaction:
- Swollen lips, face or eyes
- Itchy/tingling mouth
- Hives or itchy skin rash
- Abdominal pain or vomiting
- Sudden change in behaviour

Action to take:
- Stay with the child, call for help if necessary
- Locate adrenaline autoinjector(s)
- Give antihistamine: ..... (If vomited, can repeat dose)
- Phone parent/emergency contact

Watch for signs of ANAPHYLAXIS
(life-threatening allergic reaction)

Anaphylaxis may occur without skin symptoms: ALWAYS consider anaphylaxis in someone with known food allergy who has SUDDEN BREATHING DIFFICULTY

A AIRWAY	B BREATHING	C CONSCIOUSNESS
• Persistent cough • Hoarse voice • Difficulty swallowing • Swollen tongue	• Difficult or noisy breathing • Wheeze or persistent cough	• Persistent dizziness • Pale or floppy • Suddenly sleepy • Collapse/unconscious

IF ANY ONE (OR MORE) OF THESE SIGNS ABOVE ARE PRESENT:
1. Lie child flat with legs raised (if breathing is difficult, allow child to sit)
2. Use Adrenaline autoinjector without delay (eg. EpiPen®) (Dose: .. 0.3 .. mg)
3. Dial 999 for ambulance and say ANAPHYLAXIS ("ANA-FIL-AX-IS")

*** IF IN DOUBT, GIVE ADRENALINE ***

AFTER GIVING ADRENALINE:
1. Stay with child until ambulance arrives, do NOT stand child up
2. Commence CPR if there are no signs of life
3. Phone parent/emergency contact
4. If no improvement after 5 minutes, give a further adrenaline dose using a second autoinjectable device, if available.

You can dial 999 from any phone, even if there is no credit left on a mobile. Medical observation in hospital is recommended after anaphylaxis

Emergency contact details:

1) Name: .....

2) Name: .....

Parental consent: I hereby authorise school staff to administer the medicines listed on this plan, including a 'spare' back-up adrenaline autoinjector (AAI) if available, in accordance with Department of Health Guidance on the use of AAIs in schools.

Signed: .....

Print name: .....

Date: .....

For more information about managing anaphylaxis in schools and "spare" back-up adrenaline autoinjectors, visit: sparepensinschools.uk

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How to give EpiPen®

1. PULL OFF BLUE SAFETY CAP and grasp EpiPen. Remember: "blue to sky, orange to the thigh"
2. Hold leg still and PLACE ORANGE END against mid-outer thigh "with or without clothing"
3. PUSH DOWN HARD until a click is heard or felt and hold in place for 3 seconds. Remove EpiPen.

Additional instructions:

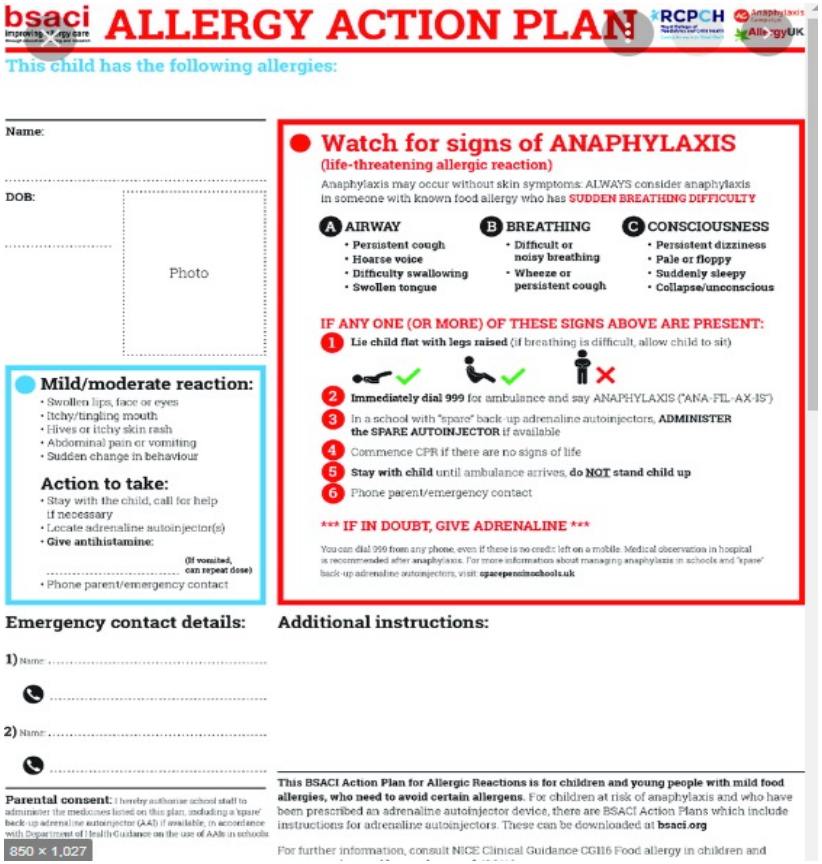
If wheezy, GIVE ADRENALINE FIRST, then asthma reliever (blue puffer) via spacer

This is a medical document that can only be completed by the child's healthcare professional. It must not be altered without their permission. This document provides medical authorisation for schools to administer a 'spare' back-up adrenaline autoinjector if needed, as permitted by the Human Medicines (Amendment) Regulations 2017. During travel, adrenaline auto-injector devices must be carried in hand-luggage, as the pressure, and NOT in the luggage hold. This action plan and authorisation to travel with an urgency medication has been prepared by:

Sign & print name: .....

Hospital/Clinic: .....

Date: .....



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1. Lie child flat with legs raised (if breathing is difficult, allow child to sit)
2. Immediately dial 999 for ambulance and say ANAPHYLAXIS ("ANA-FIL-AX-IS")
3. In a school with "spare" back-up adrenaline autoinjectors, ADMINISTER the SPARE AUTOINJECTOR if available
4. Commence CPR if there are no signs of life
5. Stay with child until ambulance arrives, do NOT stand child up
6. Phone parent/emergency contact

*** IF IN DOUBT, GIVE ADRENALINE ***

You can dial 999 from any phone, even if there is no credit left on a mobile. Medical observation in hospital is recommended after anaphylaxis. For more information about managing anaphylaxis in schools and "spare" back-up adrenaline autoinjectors, visit: sparepensinschools.uk

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Additional instructions:

This BSACI Action Plan for Allergic Reactions is for children and young people with mild food allergies, who need to avoid certain allergens. For children at risk of anaphylaxis and who have been prescribed an adrenaline autoinjector device, there are BSACI Action Plans which include instructions for adrenaline autoinjectors. These can be downloaded at bsaci.org

For further information, consult NICE Clinical Guidance CG116 Food allergy in children and

850 × 1,027

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



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



Give intramuscular (IM) adrenaline[2]

- 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

Lastly– APLS new guidance

- Adrenaline
- More Adrenaline
- If not improving

- Peripheral IV adrenaline

- Still a role for antihistamine but caution as IV chlorphenamine can lower BP and Evidence lacking for steroids

ADRENALINE saves LIVES

ANTIHISTAMINE treats HIVES



Useful reading

- BSACI Website – Allergy Action plans
- Anaphylaxis campaign
- Allergy UK
- IFAN eczema and food allergy
- Paediatric Pearls April 2021
- APLS