



Allergens Update

Hazel Gowland PhD, PGCE, MREHIS, FIFST, FRSPH

Expert patient, researcher and trainer in food allergy risks

REHIS Presenters – March 16th 2022

Hazel Gowland: Allergy Action



Advocacy

Early peanut
& nut allergy

1994 Anaphylaxis
Campaign

Policy shaping
Regulators
Caterers
Schools
Hospitals
Prisons

Research

Consumer
behaviour

Fatal anaphylaxis

Regulation

Clinical studies

Training

EHOs TSOs
Public analysts

Clinicians
Scientists

Undergraduates
Postgraduates

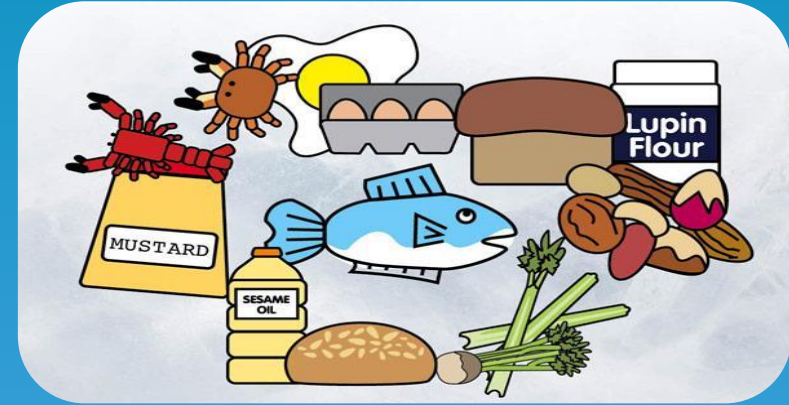
Manufacturers
Suppliers
Retailers
Caterers



What is changing?



Epidemiology



Food allergens



Innovation



Regulation and reputation

What is changing?



- New ways to buy food
- Understanding reaction severity
- Landmark fatal reactions
- Lessons learned
- Changing purchasing behaviour
- Legislation used
- Enforcement activity
- Consumer expectations

What is changing?



Like many other businesses, we are currently experiencing challenges due to staff shortages, some sporadic supply chain issues and remaining COVID-19 safety measures. Our menus clearly highlight where allergens are present within the ingredients and whilst allergy-free menu options are still available, unfortunately, we cannot, in the current climate, provide a 100% guarantee against cross-contamination, either within our supply chain or in our restaurants or takeaway service; we cannot provide details of any 'may contain' allergen statements.

Teenager asked to leave TGI Friday's in Brighton after highlighting allergies



By Christian Fuller | [chris_fuller11](#)
Digital Reporter



Teenager asked to leave restaurant after highlighting allergy in Brighton Marina

The Argus



What can we learn from recent cases?

Young people: tragic circumstances



Milk in yogurt used to bind meat in a doner kebab



Peanut present in Indian food requested nut free



2cm x 2cm piece of cheese down back of shirt in school break

July 17th, 2016

7am Heathrow Terminal 5



Natasha, her friend and father Nadim

Bought food from open plan Pret counter
Long queue

Checked wrapped baguette

Sticker: grilled artichoke hearts, basil and tapenade

Natasha could eat and liked all those ingredients

Agreed with her father that it was suitable for her

She ate most of the baguette

Boarded the plane

Allergen notices



It is disputed whether the display cabinet had any stickers inviting people to get allergen information from staff at the counter.

Those seen in other branches at the time were white and transparent.

After this date, the stickers were changed



Coroner's Report to prevent future deaths – Regulation 28

INVESTIGATION and INQUEST

On 03/08/2016 I commenced an investigation into the death of Natasha Charlotte Rose Ednan-Laperouse, 15 years old. The investigation concluded at the end of the inquest on 28/09/2018. The conclusion of the inquest was (2) Anaphylaxis (4) Natasha Ednan-Laperouse died of anaphylaxis in Nice on the 17th July 2016 after eating a baguette, purchased from Pret-a-Manger at LHR T5. The baguette was manufactured to Pret specifications and contained sesame to which she was allergic. There was no specific allergen information on the baguette packaging or on the langar barker and Natasha was reassured by that.

CIRCUMSTANCES OF THE DEATH

Natasha travelled with her father and friend for a short holiday in Nice on the 17th July 2016. She was allergic to sesame. She bought a baguette after checking the ingredients. She had eaten at Pret previously and was reassured by what she took to be their high standards. She ate the baguette. The baguette contained unlabelled sesame at a ratio of 2.41% expressly commissioned by Pret. She developed an anaphylactic reaction on the plane to Nice and despite best efforts succumbed to that, dying in hospital in Nice shortly after landing.



<https://www.judiciary.uk/wp-content/uploads/2018/10/Natasha-LAPEROUSE-2018-0279.pdf>

Prepacked for direct sale – Natasha's Law



Food allergen labelling and information requirements

Technical Guidance

Published: June 2020

Name of item, ingredients, 14 allergens



#PPDS Challenge

A fast food business at a visitor attraction serves 1300 burgers in an hour at lunchtime

All the standard burgers are prepared in advance and served in boxes to meet the busy lunch hour. They are therefore Prepacked for Direct Sale - #PPDS

Only those for a customer declaring a particular allergy or preference are made to order. This takes extra time.

Extra precautions include a written note of the special order, additional checks of ingredients, segregation in the preparation and packing process, the use of a special dietary sticker and an extra check to ensure the right customer is served the special meal.



How to make a #PPDS label for a chicken fillet burger?



7 components plus box

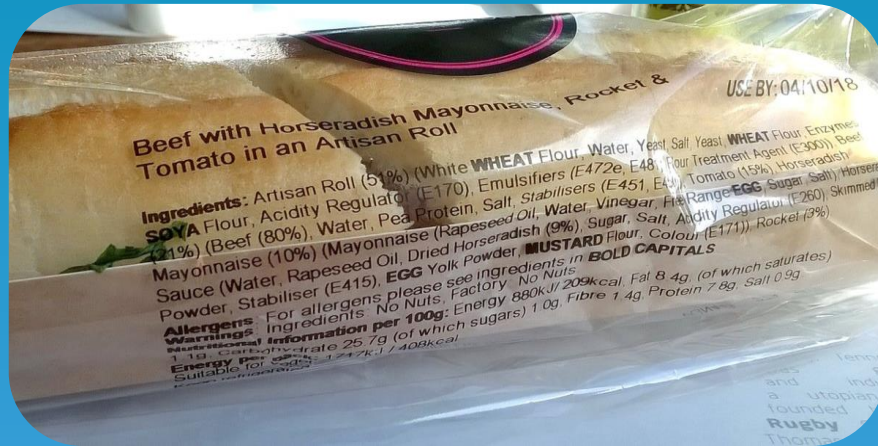
Full ingredients label

Component	Weight	Ingredients
Chicken fillet	111g	Chicken Breast (64%), Wheat Flour, Water, Palm Oil, Modified Tapioca Starch, Salt, Sugar, Black pepper, Wheat Gluten, Onion Powder, Colours (Paprika Extract, Turmeric Extract). Raising Agents (Disodium Diphosphate, Sodium Bicarbonate). Dextrose, Garlic powder. For allergens, including cereals containing gluten, see ingredients in Bold.
(Frying oil)	?	Partially hydrogenated rapeseed oil, Antifoaming agent (E900) Contains: None of the 14 Food Allergens
Bun	67g	Fortified WHEAT flour (WHEAT flour, Calcium carbonate, Iron, Niacin, Thiamin). Water, Rapeseed oil, Yeast, Dextrose, Linseed (2.9%), Sugar, Salt, Emulsifiers (E481, E427e, E471), Flour treatment agent (E300), Preservative (E282).
Mayonnaise	14g	Rapeseed oil (70%), water, spirit vinegar, pasteurised egg yolk* (5%), sugar, salt, mustard seeds, thickeners: xanthan gum and guar gum, antioxidant (calcium disodium edta), spices *from free range eggs.
Processed cheese slice	13g	Cheese (70%) (MILK) (contains Acidity Regulator: Citric Acid), Palm Oil, Emulsifying Salt (Trisodium citrate), Natural Cheese Flavouring (MILK), Preservative (Sorbic acid), Colours (Beta-carotene, Paprika Extract), Anti-caking agent (Sunflower Lecithin).
Slice of bacon	12g	Pork belly 98%, Salt, Antioxidant (Sodium Ascorbate), Preservative (Sodium-nitrite), Beechwood smoke.
Firecracker sauce	10g	Spirit vinegar, water, concentrated tomato puree (17%), sugar, date puree, chipotle paste (5% tomato puree, smoked jalapeno peppers, water, onion, spirit vinegar, sugar, peppers, salt, garlic, spices, parsley, spice extract), modified starch, salt, concentrated apple juice, chilli powder, smoke flavouring, spice, garlic powder, onion powder, preservative (potassium sorbate), spice extract.
Iceberg lettuce	5g	

PPDS labels need to have all the ingredients listed but not the percentages.

Food and the law

Accessible food information



Ingredients
Including #14allergens

Full labelling on factory products

Catering – need to make
#14allergens available

Menus, folders, websites, signs
need to encourage people to ask



Food Allergy Investigations

**UK fatal anaphylaxis suspected or confirmed
from food allergy since 1988**

**Supporting
families
following fatal
reactions**

**Supporting
coroners,
police and
local
authority
investigations**

**Investigating and recording 'near misses' and
other reactions and complaints since 1994**

**Supporting
consumers**

**Working
with
regulators**

**Learning
from and
advising
businesses**

Pumphrey, R. S. H. and Gowland, M. H. (2007). Further fatal allergic reactions to food in the United Kingdom, 1999-2006. *Journal of Allergy and Clinical Immunology*, 119 (4), pp. 1018–1019

Turner, P.J., Gowland, M.H., Sharma, V., Ierodiakonou, D., Harper, N., Garcez, T., Pumphrey, R., Boyle, R.J. (2014). Increase in anaphylaxis-related hospitalization but no increase in fatalities: An analysis of United Kingdom national anaphylaxis data, 1992-2012. *Journal of Allergy and Clinical Immunology*, 135 (4), pp. 956–963

Gowland, M.H., Walker, M.J., (2015). Food allergy, a summary of eight cases in the UK criminal and civil courts: Effective last resort for vulnerable consumers? *Journal of the Science of Food and Agriculture*, 95 (10), pp. 1979–1990

Baseggio-Conrado, A., Ierodiakonou, D., Gowland, M. H., Boyle, R. J., Turner, P. J., (2021) Food anaphylaxis in the United Kingdom: analysis of national data, 1998-2018BMJ.
DOI: 10.1136/bmj.n251

Food Allergy and the Law

Fatal cases

**‘Near misses’, other
reactions and complaints**

Root cause?

**No
avoidance**

**Avoiding
wrong
allergen**

**Mistake by
person,
family, friend**

**Mistake by
food
business**

**Non
compliance
or negligence
by food
business**

Food hypersensitivity: Offences



1. The food sold was not of the nature, substance or quality demanded

(S14 FSA 1990)

2. The information provided with the food (label, face to face, website, menu etc) was misleading

(S15 FSA 1990)

3. The food was unsafe because the information provided was incorrect

(178/2002)

4. The business had failed to highlight on the packaging, or signpost, keep and make available information about #14allergens

(FIR 1169/2011)

5. The food business had not assessed risks (including the possibility of FH people eating their food) and put in effective controls

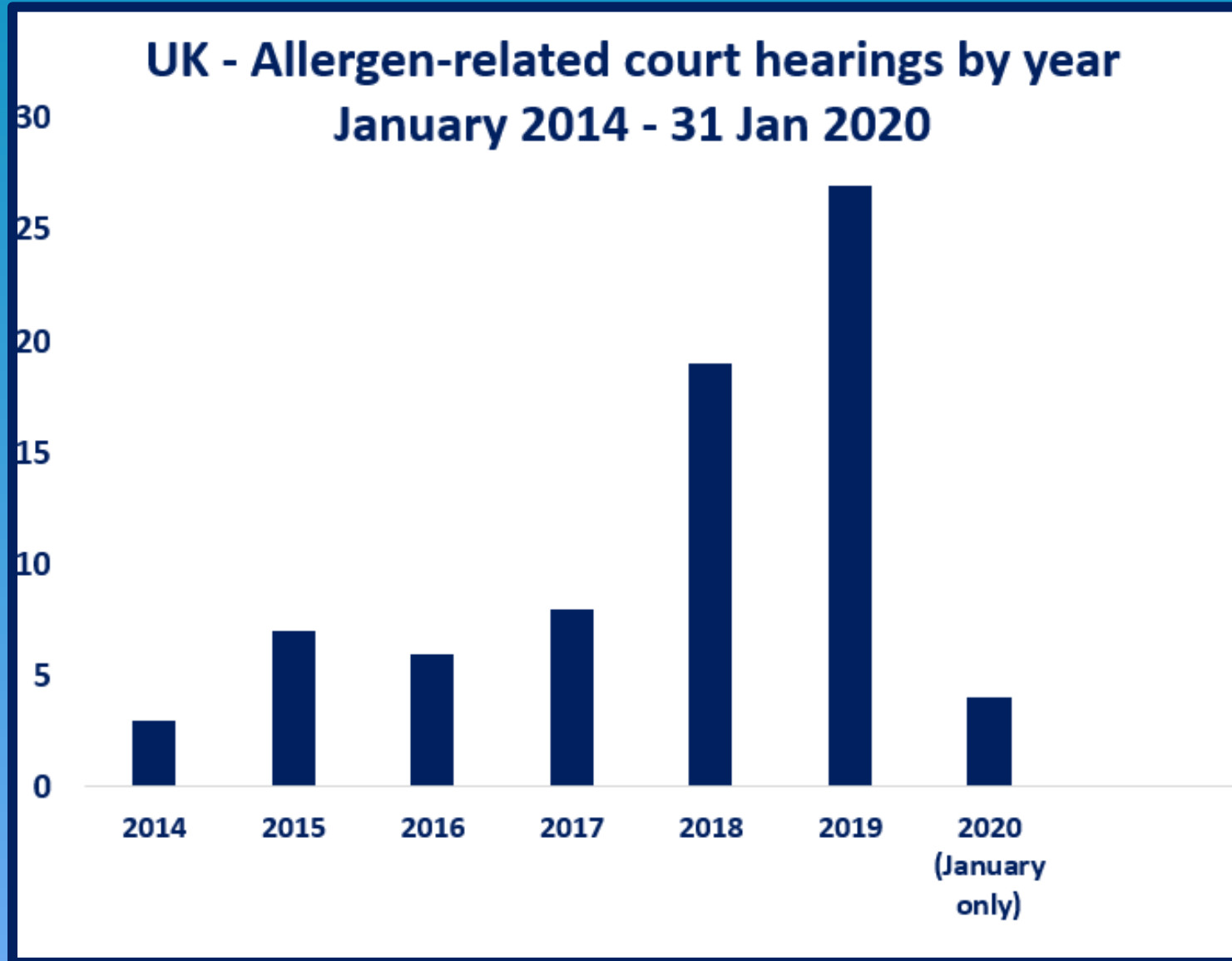
(Article 5 852/2004)

6. The business had failed to ensure people affected by its activities (eg customers) were not exposed to health and safety risks or not alerted to such risks

(HSAW Etc 1974)

7. Manslaughter – possibly through gross negligence

Allergen cases in UK courts



68 convictions:

Scotland 1
Northern Ireland 2
Wales 14
England 51

England:

North West 14
South East 12
Midlands 12
North East 11
South West 2

Penalties

Fines, costs
and
compensation



Community
orders



Jail



Additional business risks

Civil claim

Reputational
damage

Loss of
business



The allergy journey

Diagnosis and management



- Read referral
- Take history

Note:

- Reactions and symptoms
- Asthma
- Eczema
- Allergic rhinitis
- Medication and AAls
- Family
- Food allergen avoidance skills
- Age-related issues
- Any anxiety?



Managing symptoms



Symptoms can be unpredictable and may change throughout life

Adrenaline auto-injectors

- Epipen
- Jext
- Emerade

Given in the thigh
Call 999

- Anaphylaxis
- Difficulty breathing
- Faint or floppy



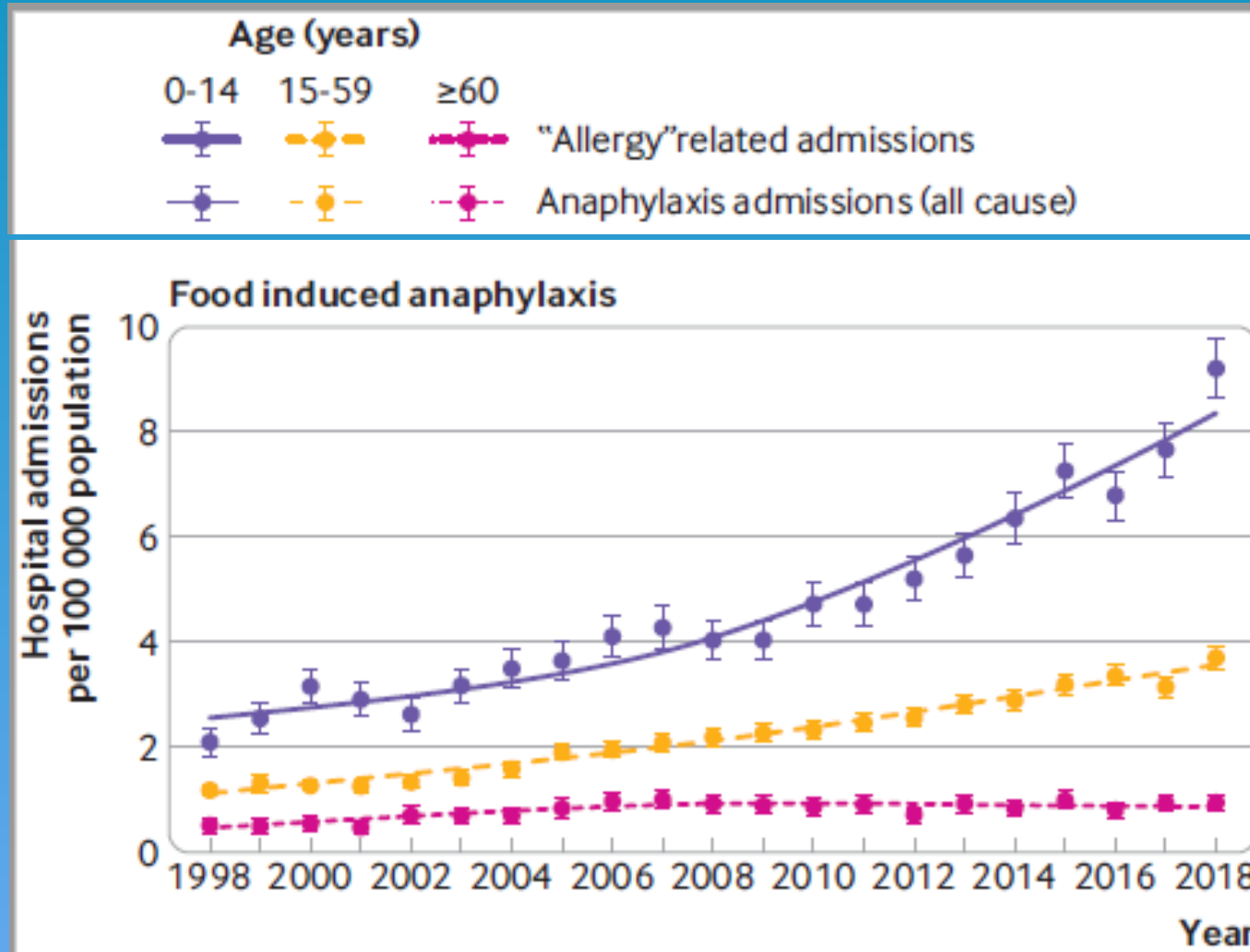
Management challenges



- Asthma management – prescription costs
- Not carrying AAI even if prescribed
- Unfamiliar with AAI
- Self awareness of vulnerabilities eg PMT, infection
- Posture
- 2nd pen in other leg
- Alcohol, drugs?



Hospital admissions increase



UK Time trends in hospital admissions per 100 000 population 1998 to 2018 by age



Baseggio-Conrado, A., Ierodiakonou, D., Gowland, M. H., Boyle, R. J., Turner, P. J., (2021) Food anaphylaxis in the United Kingdom: analysis of national data, 1998-2018. British Medical Journal, 2021. DOI: 10.1136/bmj.n251



Food anaphylaxis in the United Kingdom

Hospital admissions and fatalities, 1998-2018

Summary



Hospital admissions for food induced anaphylaxis have increased between 1998 and 2018, however the case fatality rate has fallen. Cow's milk was responsible for 26% of deaths in school aged children

Study design



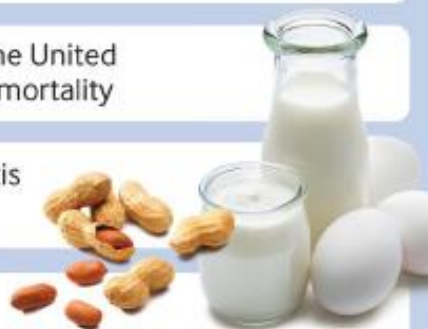
Data analysis

National hospital data from the United Kingdom for admissions and mortality

Population



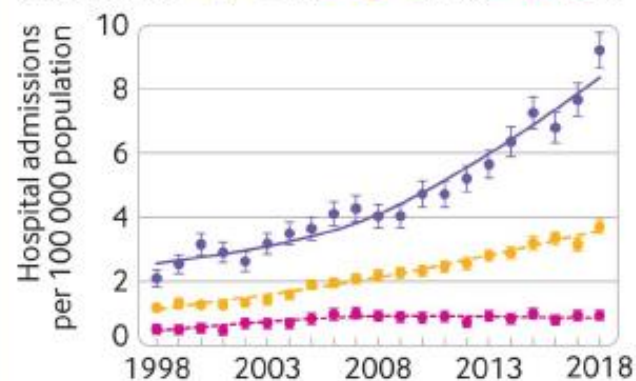
101 891 hospital admissions for anaphylaxis
30.1% coded as due to a food trigger



Outcomes

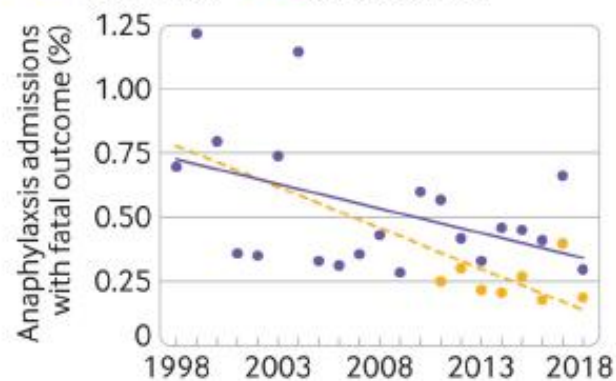
Food induced anaphylaxis

Age (years) — 0-14 — 15-59 — ≥60



Case fatality rate due to food anaphylaxis

Confirmed — Unconfirmed



Anaphylaxis fatalities by allergen

Key allergens

Milk Unknown Peanuts
Tree and unidentified nuts

Children <16 years

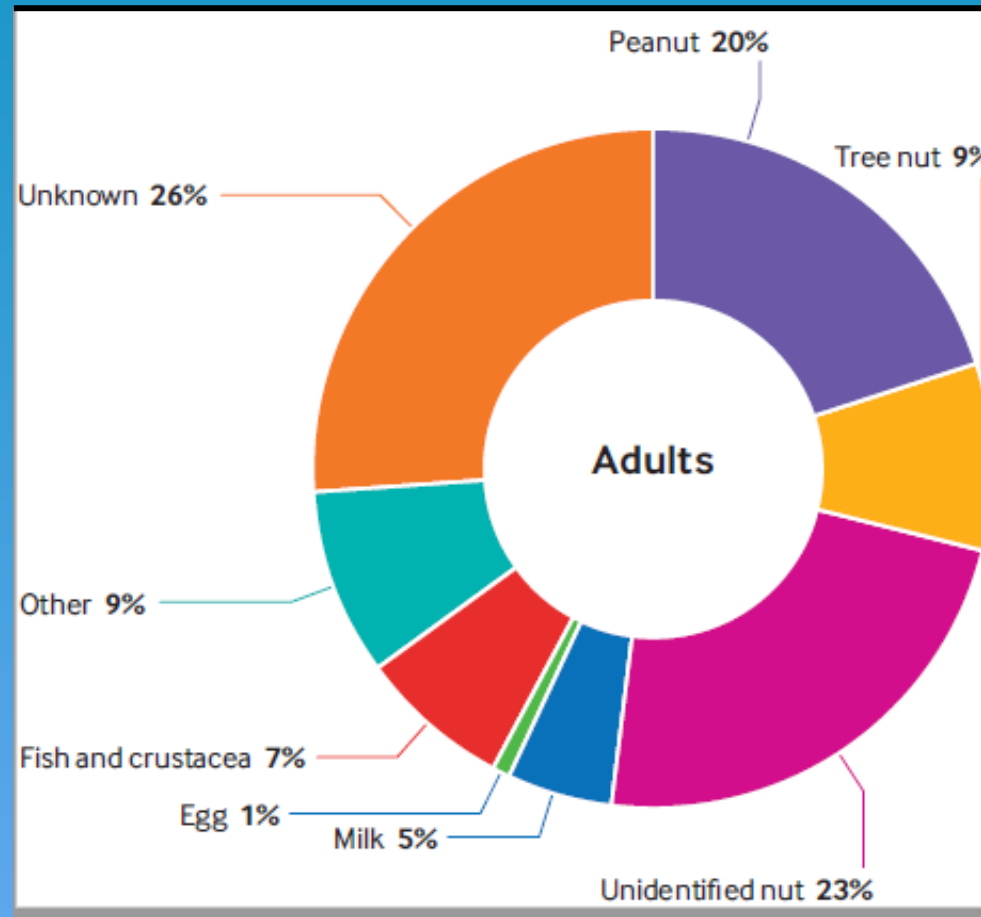
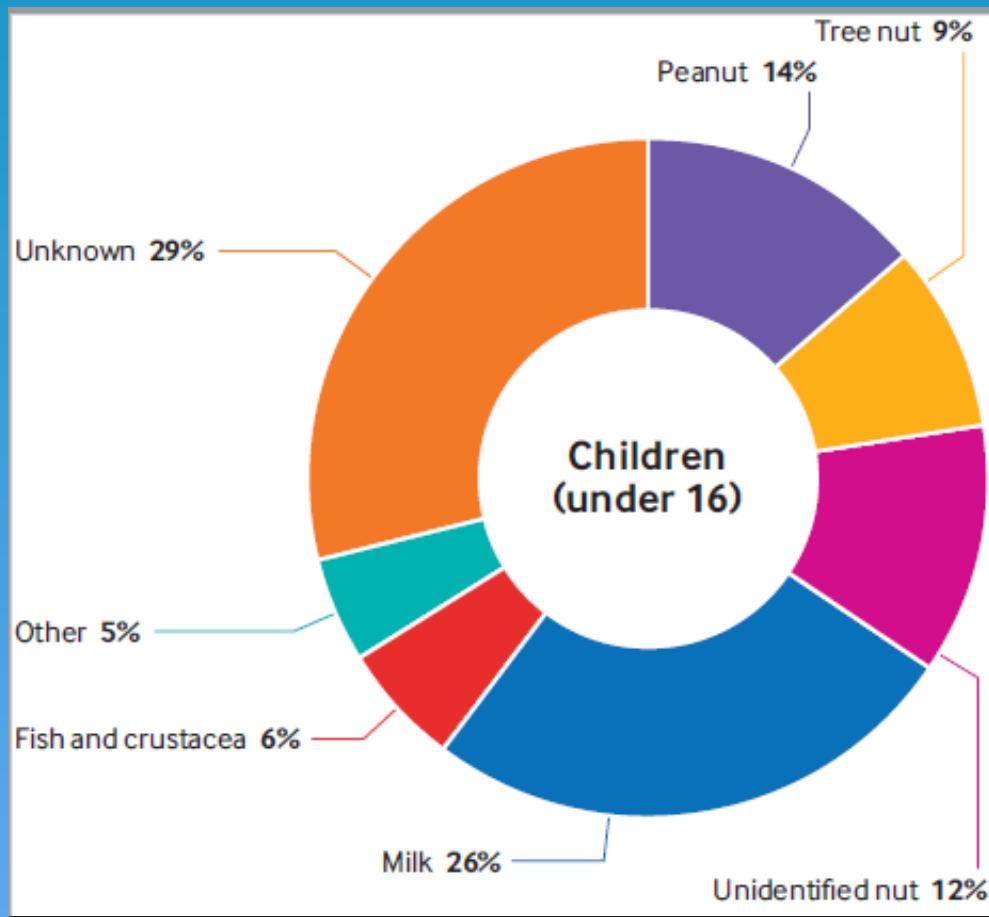


Adults



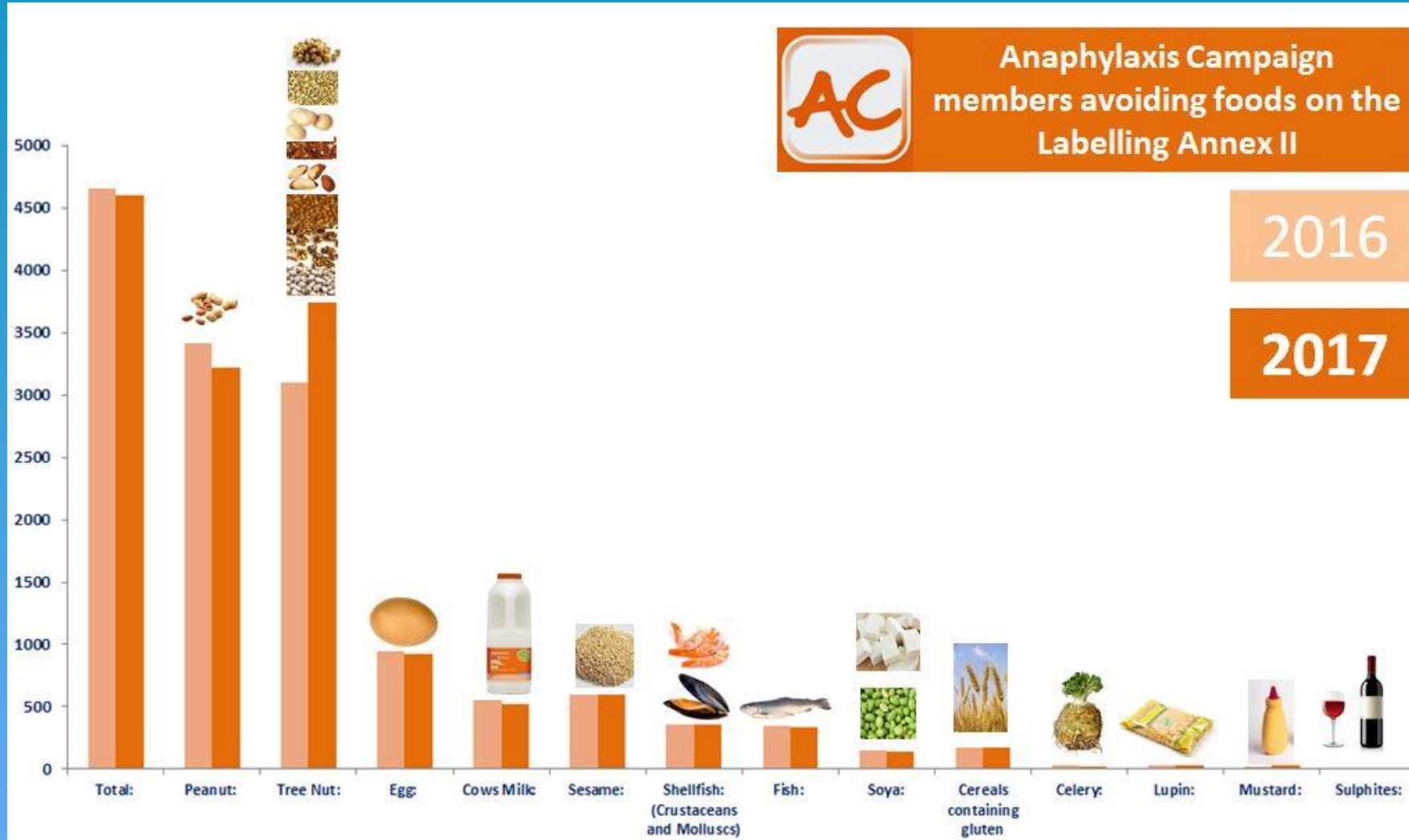
Which foods?

UK: Cause of fatal food induced anaphylaxis by trigger in children (younger than 16) and adults, 1992-2018

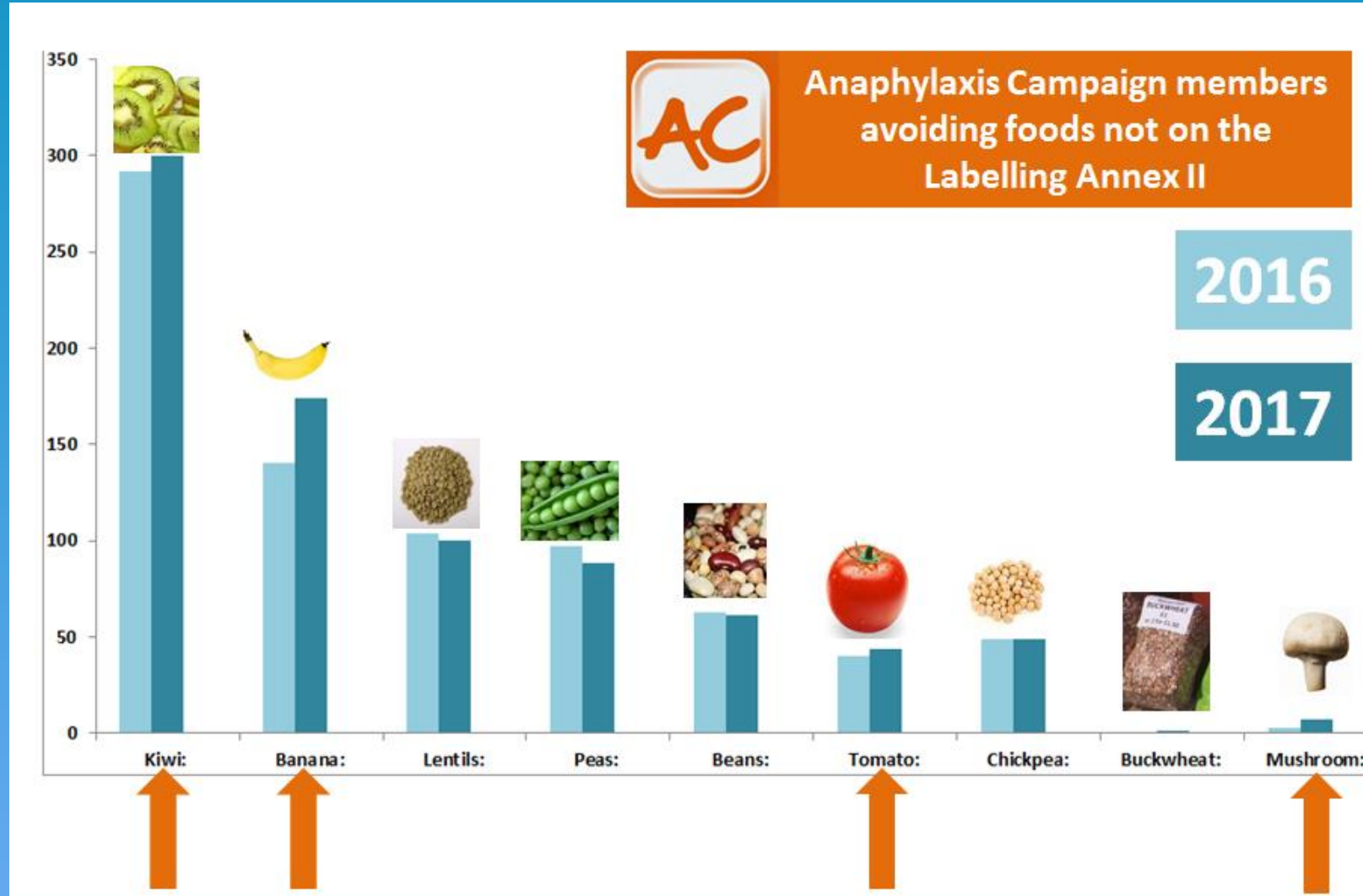


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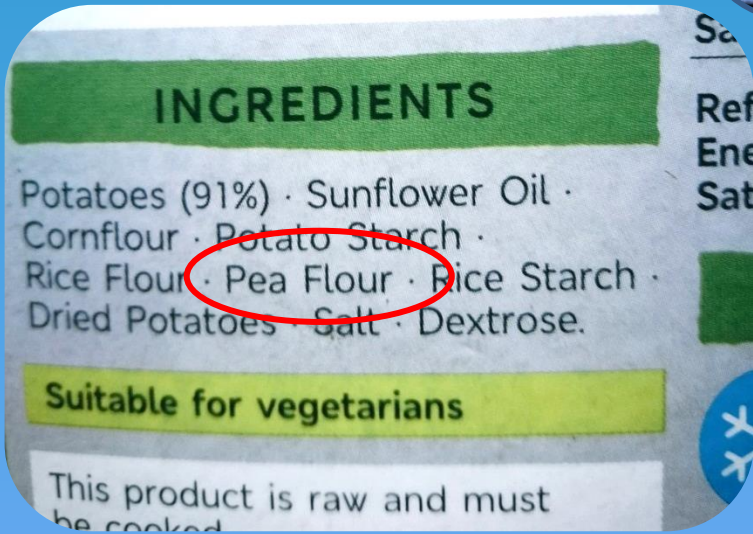
#14allergens



Beyond #14allergens

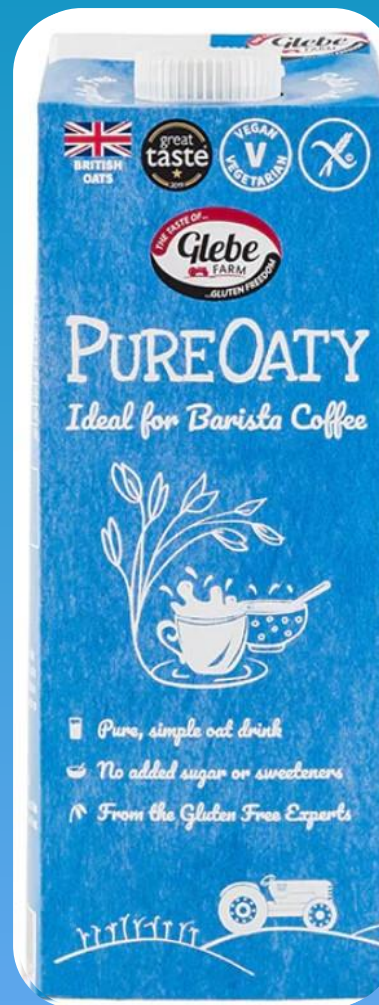
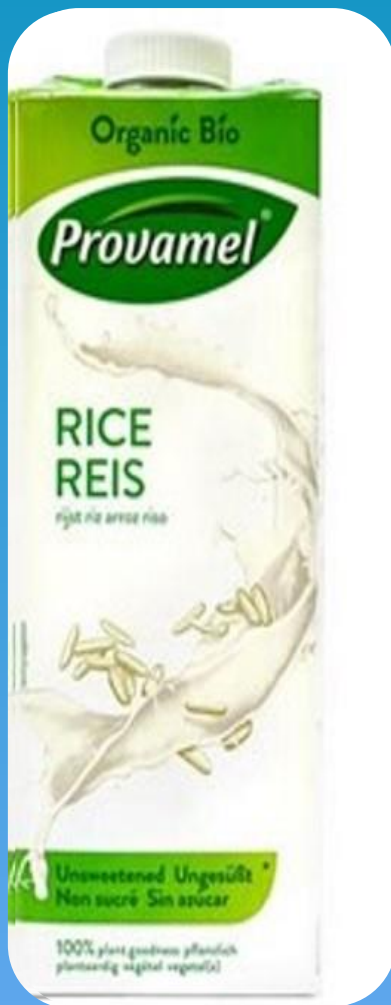


Other allergens



#StupidPeas

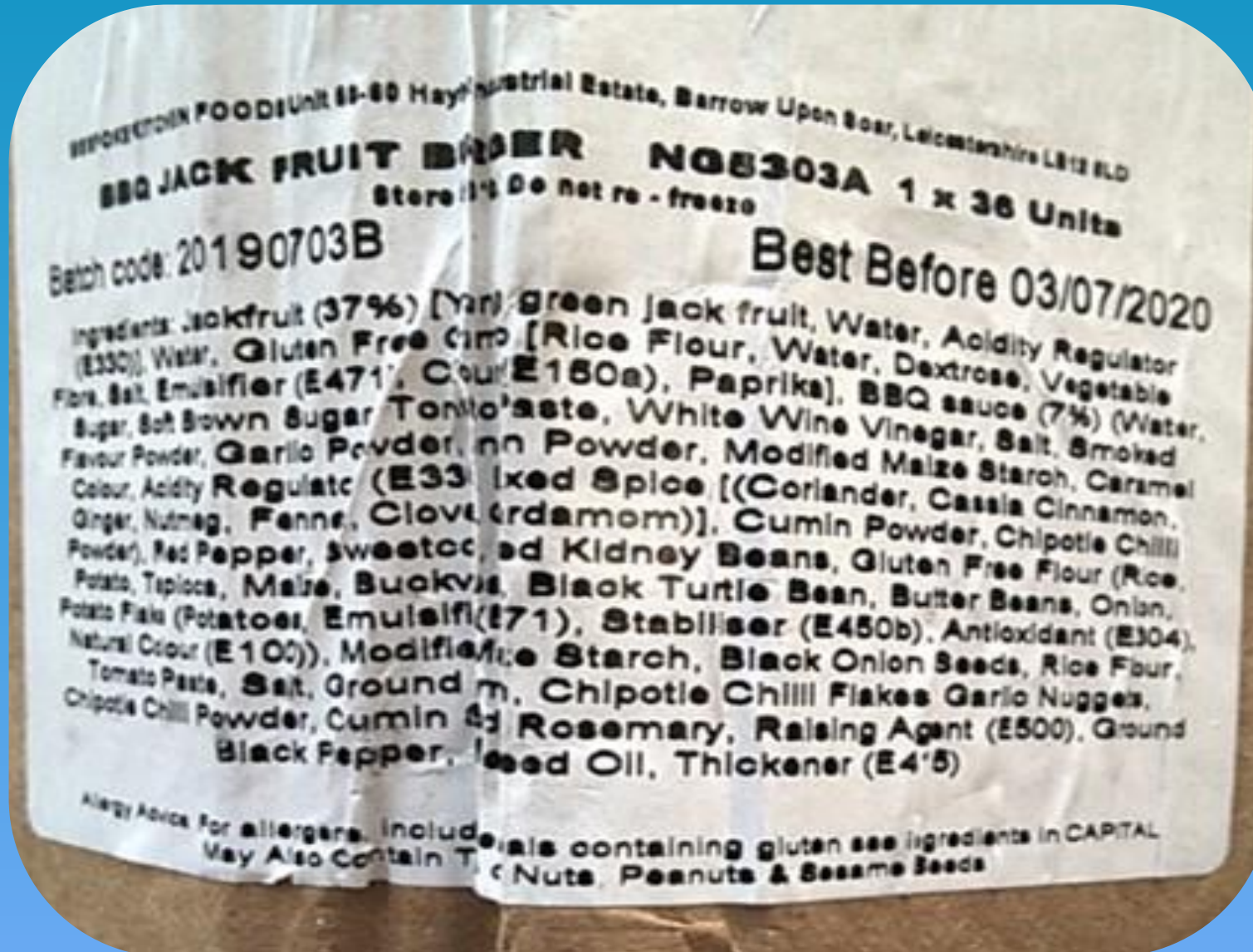
Plant-based alternatives to milk



Lookalike 'meat'



Plant-based foods – ‘Vegan’



BBQ Jack Fruit Burger

136 word Ingredient list

- Jackfruit
- Kidney beans
- Buckwheat
- Black Turtle Bean
- Butter Beans

May contain: Tree Nuts,
Peanuts and Sesame
seeds

Mystery reactions

Food-Induced Anaphylaxis: Role of Hidden Allergens and Cofactors

*Isabel J. Skypala**

Department of Allergy and Clinical Immunology, Imperial College, Royal Brompton and Harefield NHS Foundation Trust, London, United Kingdom



- Food anaphylaxis associated with popular concepts of health and fitness
- Food and exercise culture: promotion and marketing, health-giving properties
- Eg meat substitutes, wheat substitutes, supplements
- Some ingredients confirmed as cause of allergic reactions
- Co-factors eg exercise?

New protein sources

Clinical Communications

Shellfish allergy is a risk factor for cricket anaphylaxis

Lucy Duan, MD^a, Jennifer A. Hoang, HBSc^b,
Akash Kothari^b, Thomas Eiwegger, MD^a, and
Peter Vadas, MD, PhD^c



Clinical Implications

- The risk of life-threatening anaphylaxis after ingestion of crickets in individuals with preexisting crustacean shellfish allergy is not widely recognized. As insects are increasingly promoted as a source of protein worldwide, physicians need to educate patients about this risk.



Bioavailability of nutrients



Prof Chris Elliott OBE @QUBFoodProf · 2h

There is a massive difference in the bioavailability of micronutrients from natural sources and those added as products often sourced from the Indian and Chinese chemical industries.



Diet restrictions and nutrition

Veganism and paediatric food allergy: two increasingly prevalent dietary issues that are challenging when co-occurring

Jennifer L P Protudjer ^{1 2 3 4 5}, Andrea Mikkelsen ^{6 7 8}



- Risk of **nutritional deficiencies**, particularly during childhood
- Comorbid diseases eg **asthma** may actually increase energy and nutrient requirements
- Diet restrictions – both food allergy and vegan limit sources of important nutrients
- Need for dietary variety and/or increased consumption due to **reduced bioavailability**
- Blood serum iodine, iron, zinc, calcium, Vitamins B12, D, B2, and A, selected n-3 fatty acids and protein
- Nutrients all **more abundant in animal** vs plant foods



Life skills

Life skills for young adults



- Recognise your own symptoms
- They may change over time
- Never go off on your own
- Always tell / take a friend
- Carry AAls all the time
- Download AAI instructions on your phone
- Obtain trainer AAls - practice with friends and family
- Try to give 2nd AAI in other leg
- Don't stand up. Roll on floor



To snog or not to snog?



Peanut proteins can be found in saliva an hour after consumption

Even after:

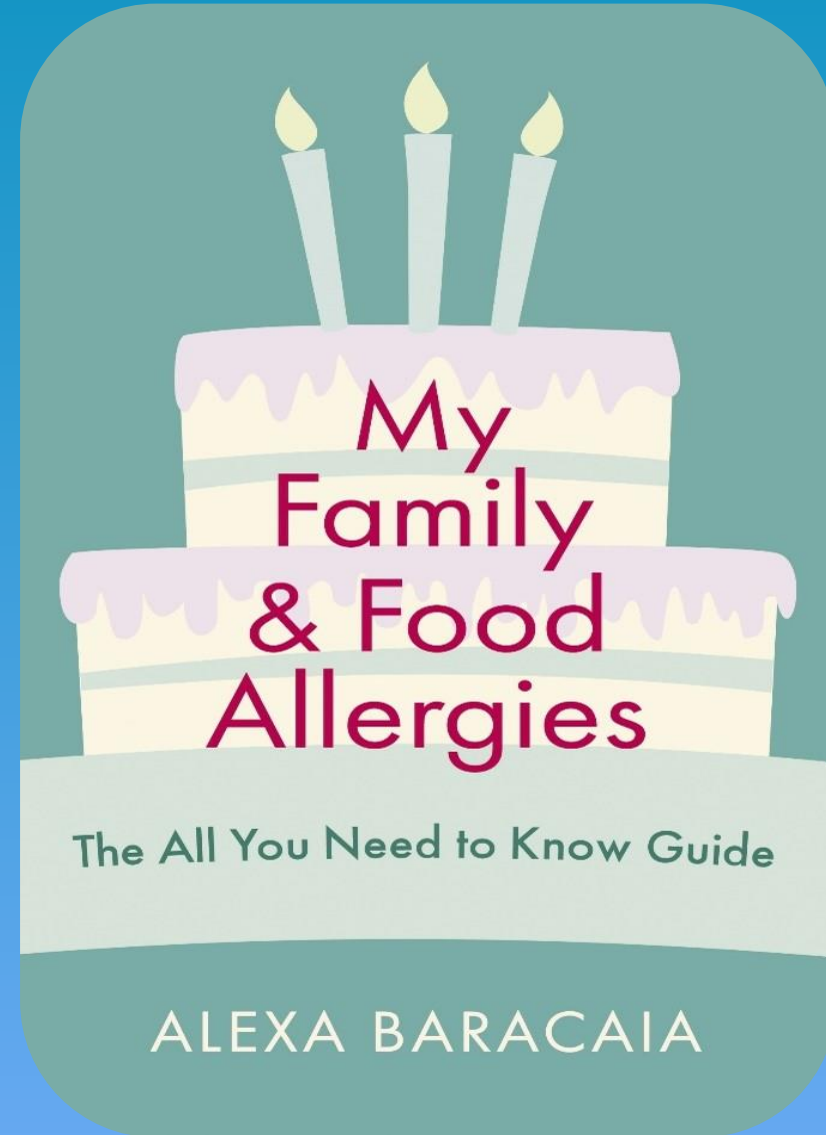
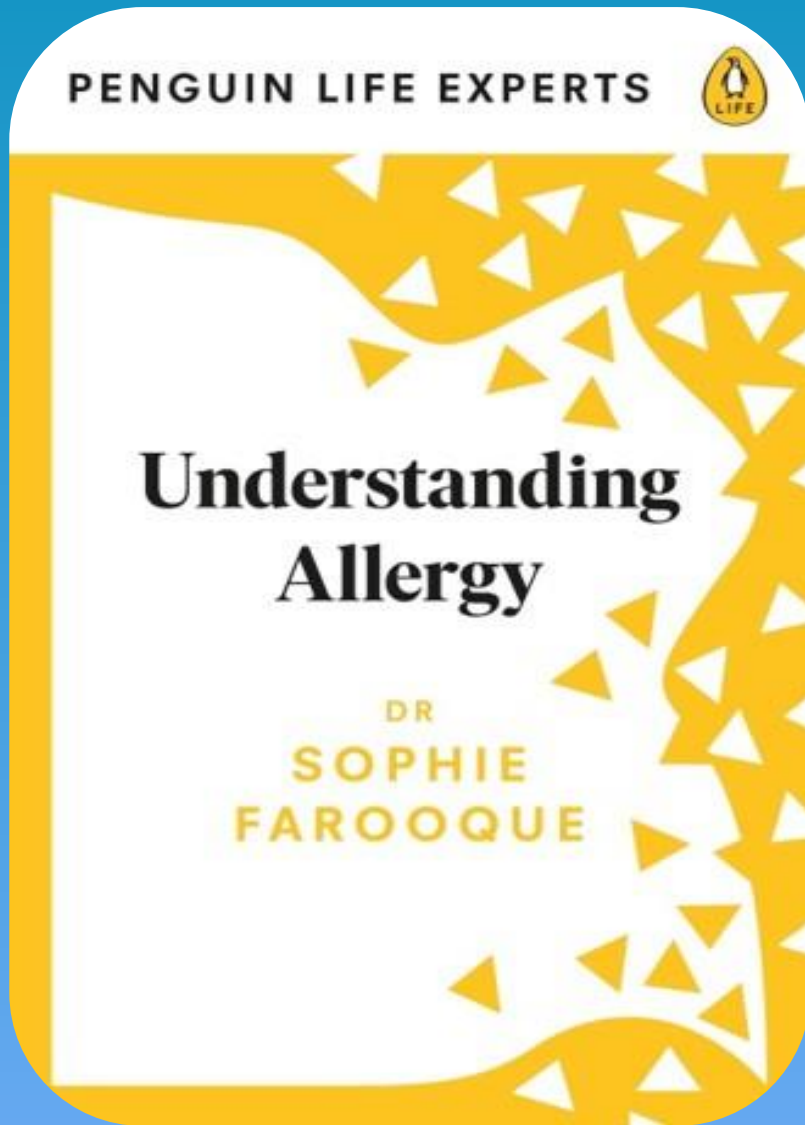
- Teeth cleaning
- Gum chewing

Intimate contact:

- Food eaten?
- Products used?
- Pets?



Useful books



REHIS Joint Award in Allergy Awareness

004/2011



To **protect** increasing numbers of people with **allergies and intolerances**, focusing particularly on food allergies, by providing those responsible for their care and their food with **information and skills**.





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@AllergyAction



<https://training.rheglobal.com/courses/80/food-allergens-risk-assessment-toolkit>