

General Overview of Allergy in the UK

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KEY POINTS

ALLERGY IS A VERY COMMON AND IMPORTANT PROBLEM IN THE UK

ALLERGY IS ON THE INCREASE IN THE UK

UK IS A WORLD LEADER IN ALLERGY RESEARCH, BUT THERE ARE UNMET GAPS IN THE SERVICE PROVISION.

How common are allergies?

Allergies are very common

21 million adults in the UK have at least 1 allergy, i.e. $\frac{1}{4}$ to $\frac{1}{3}$

Half of children and under-18s have one or more allergies

In the UK, £900m per year is spent on allergies in primary care and £68m on allergy-related hospital admissions.

Allergy on the increase

The numbers are increasing every year

The reason for the rise is unclear

Theories

- Cleaner homes or immune system unexposed to bugs ?
- Lack of vitamin D
- Poorer diet
- Delayed weaning (Introduction of solid foods)
- Increased use of paracetamol

Mystery rise in children suffering food allergies

“Independent, UK” – News Report

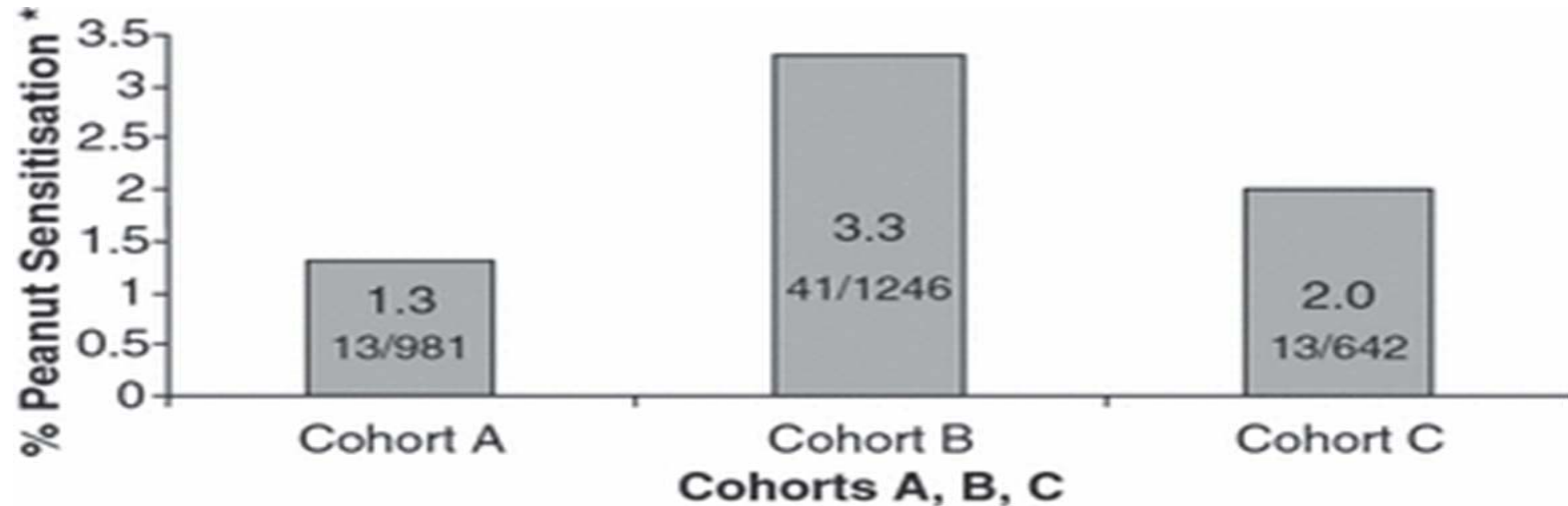
Hospital admissions for food allergies among children have risen by 500 per cent in the last 20 years

Overall, 6-8 per cent of children under three are affected by food allergies, a dramatic increase since 1990.

- **Actual rise?**
 - A study of 1,000 children living on the Isle of Wight showed that 33 per cent of parents believed their child had some reaction to food.
 - Testing revealed that the actual number with an immediate allergy was much lower, at 5 per cent.
 - Perhaps over-diagnosed from the public side and underdiagnosed by medical staff.



Time trends in the prevalence of peanut allergy: three cohorts of children from the same geographical location in the UK



Cohort A: Born in 1989; Cohort B: Born between 1994-96; Cohort C: Born between 2001-02

Change in the pattern of allergy

Allergy are increasing throughout the world, affecting up to 30-35% of people at some stage in their lives

This increase was initially seen in countries such as the UK, Europe and USA; but can now be found in all countries undergoing industrial development

Initially, the increase was in asthma and allergic rhinitis (hay fever)

However, recent studies have confirmed a significant increase in the incidence of food allergies, in particular amongst children.

What are the most common allergies?

The most common allergies are to:

- Pollen – Hay Fever, Asthma
- Dust mites – Rhinitis, Asthma
- Mould - Asthma
- Wasps and bees – Venom Allergy
- Pets such as cats and dogs – Asthma, Hay Fever
- Industrial and household chemicals – Asthma, Rhinitis
- Foods such as milk, nuts and eggs – Food Allergy

Also fruits, medicines such as penicillin, metals such as nickel in jewellery, and rubber.

What are the main allergy symptoms?

- Sneezing
- Runny nose
- Itchy eyes
- Wheezing
- Coughing
- Itchy skin rashes (hives)
- Anaphylaxis

The type of symptoms you experience depends on what you are allergic to and how you come into contact with it.

Key UK Organisations





Allergies are **the most common chronic disorder in children** and prevalence has dramatically increased in the last 25 years

The UK has one of the **highest prevalence's of asthma, rhinitis and eczema** in the world.

Several reports have highlighted **the need for improved allergy services, awareness and education** in the UK.

There is **no national allergy strategy**, but NICE has published guidance on how allergy should be diagnosed and managed.

Despite the UK position as **a world leader in allergy research**, the provision of care is widely criticised.

Further research into the mechanisms underlying allergy development would improve diagnosis and treatment and inform policy development.

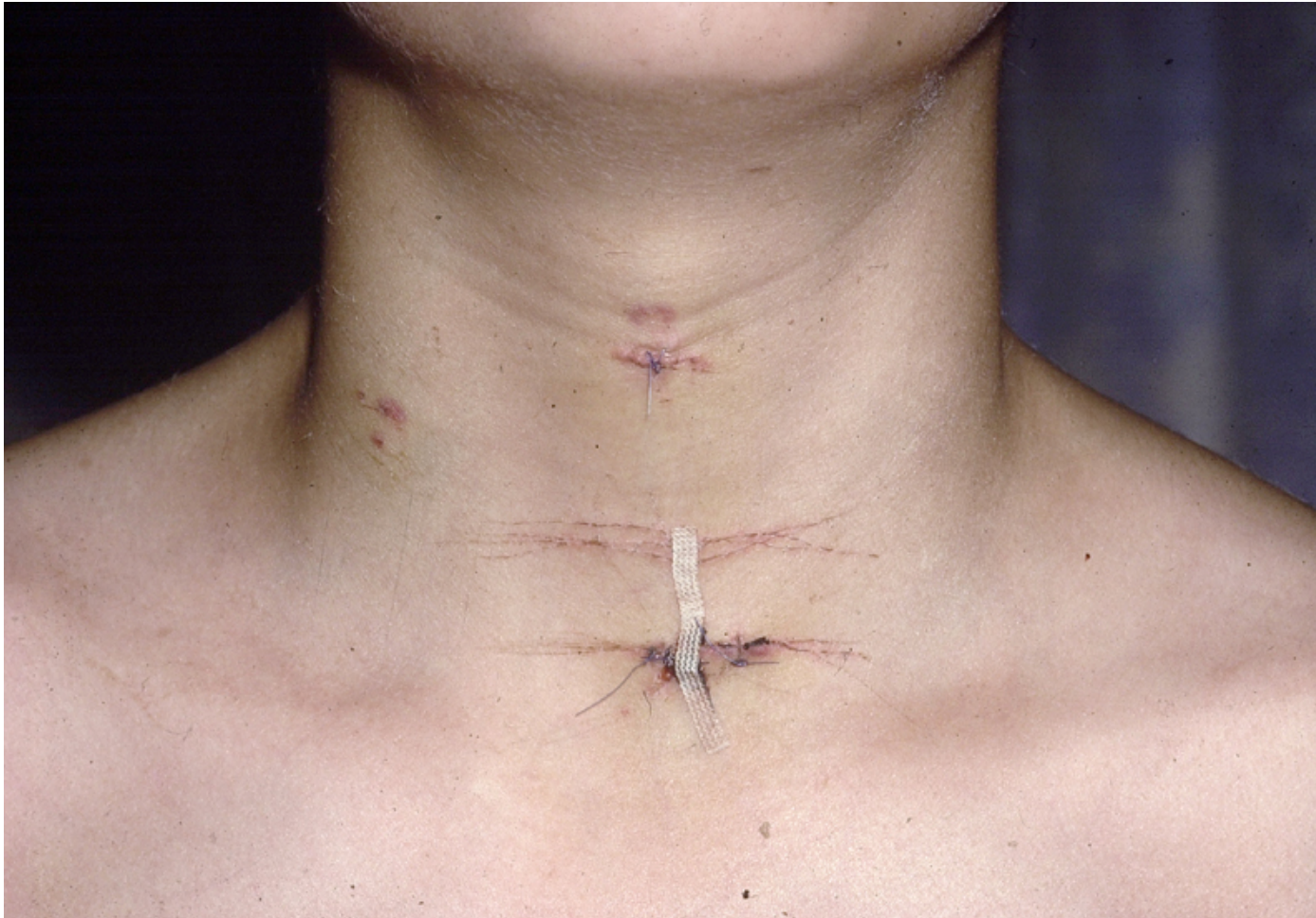
THANK YOU

Preventing Food Allergy

Prof Gideon Lack









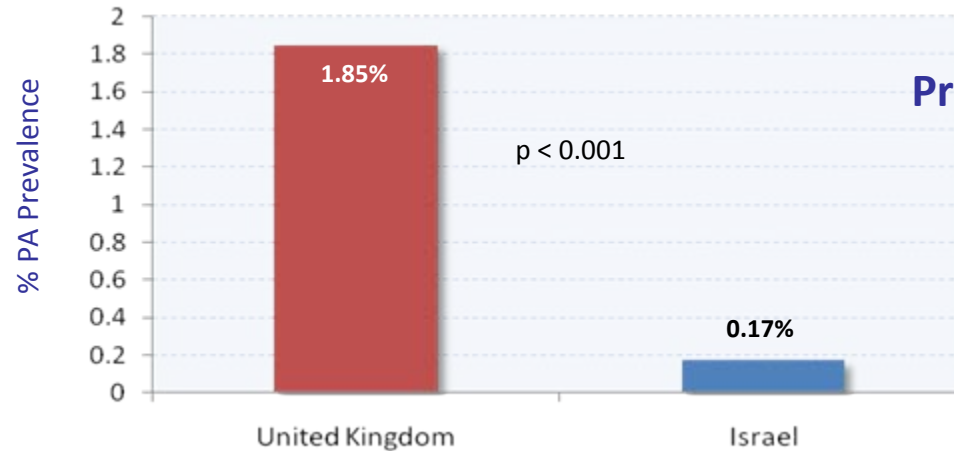


Overview

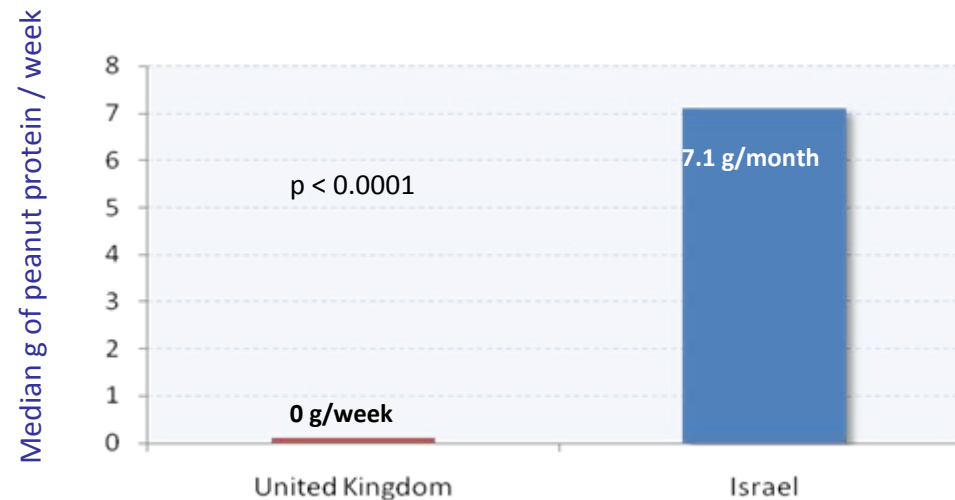
- **Background & Study Design**
- **Clinical Outcomes**
- **Immunological Outcomes**
- **Public Health Implications**
- **Conclusions**



Background



Prevalence of Peanut Allergy in Children 4 - 18yrs

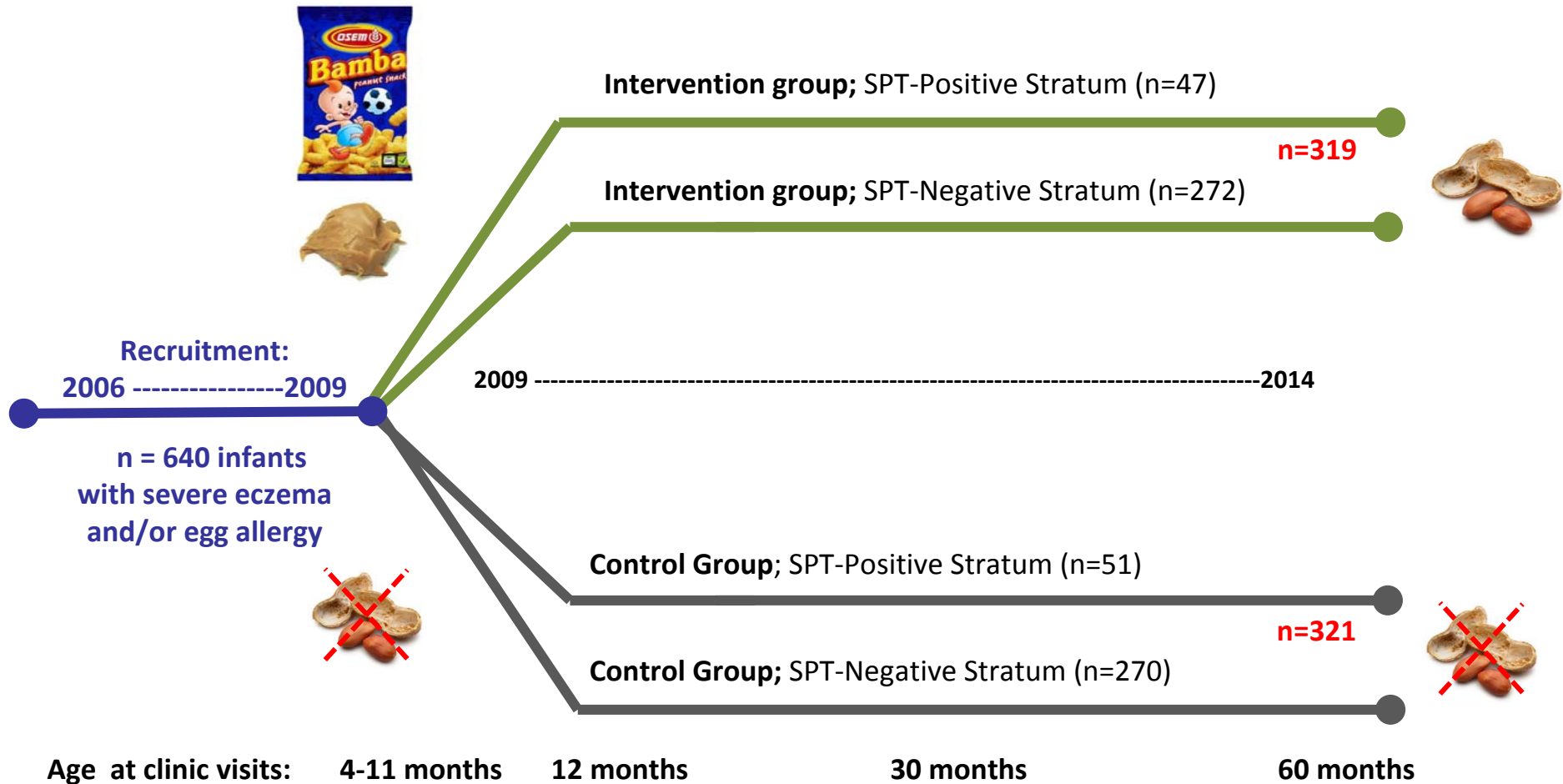


Peanut Protein Consumption 8 - 14 months

	United Kingdom	5171
	Israel	5615

Du Toit G, Katz Y, Sasieni P, *et al.* JACI 2008;122:984-91.

LEAP Study Design



Recommended Dietary Interventions

- **Consumption:** 2 g of peanut protein 3 times per week for duration of study.
- Bamba or peanut butter from infancy, whole peanuts could be added after 3 years of age



- **Avoidance:** Avoid peanut consumption

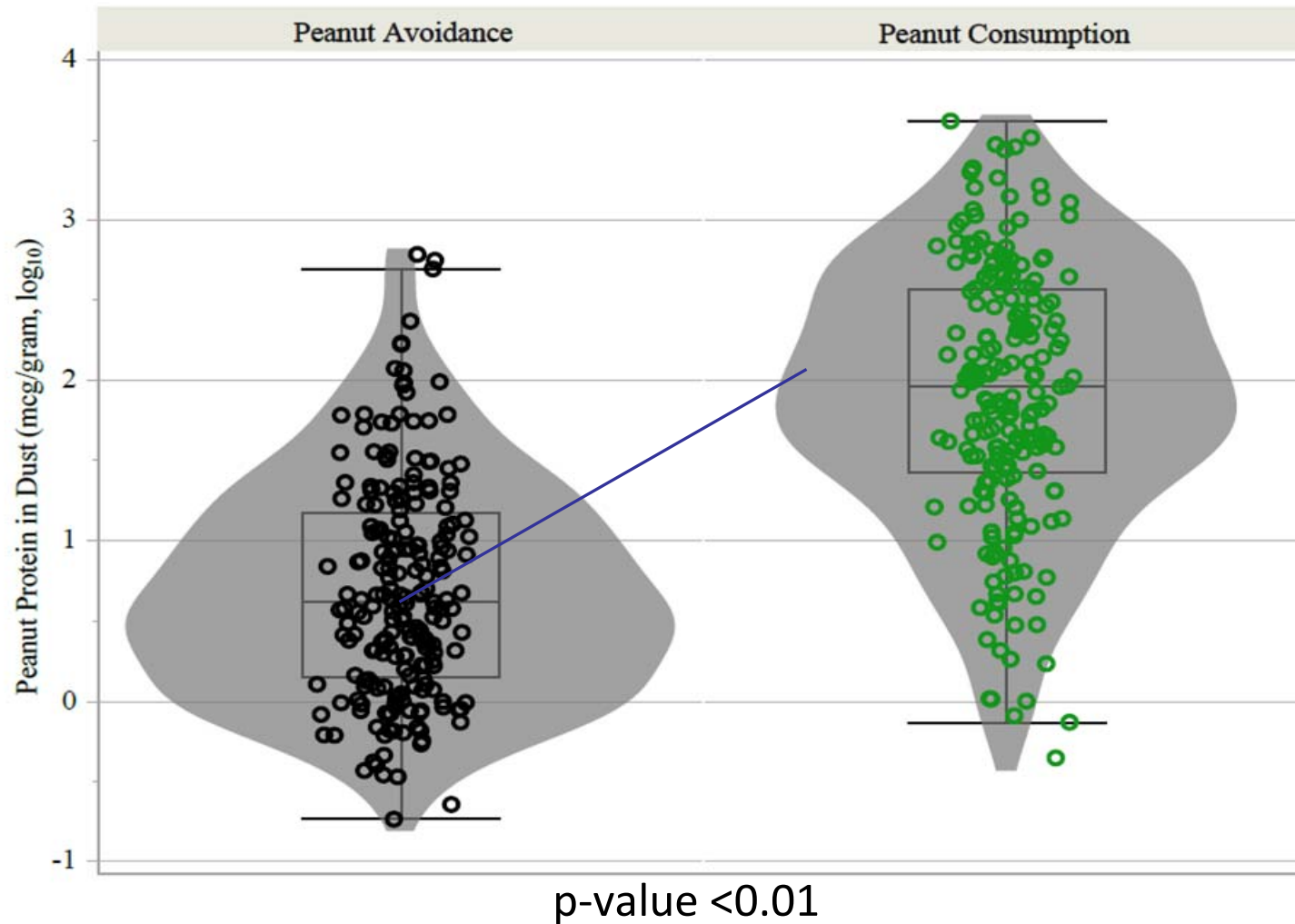
Actual Peanut Consumption

Consumption of peanut protein median per week (IQR)

- Avoidance group 0.0 g (0.0-0.0)
- Consumption group 7.7 g (6.7-8.8)
 - Equivalent to:



Peanut Protein in Bed Dust at 60 months of age

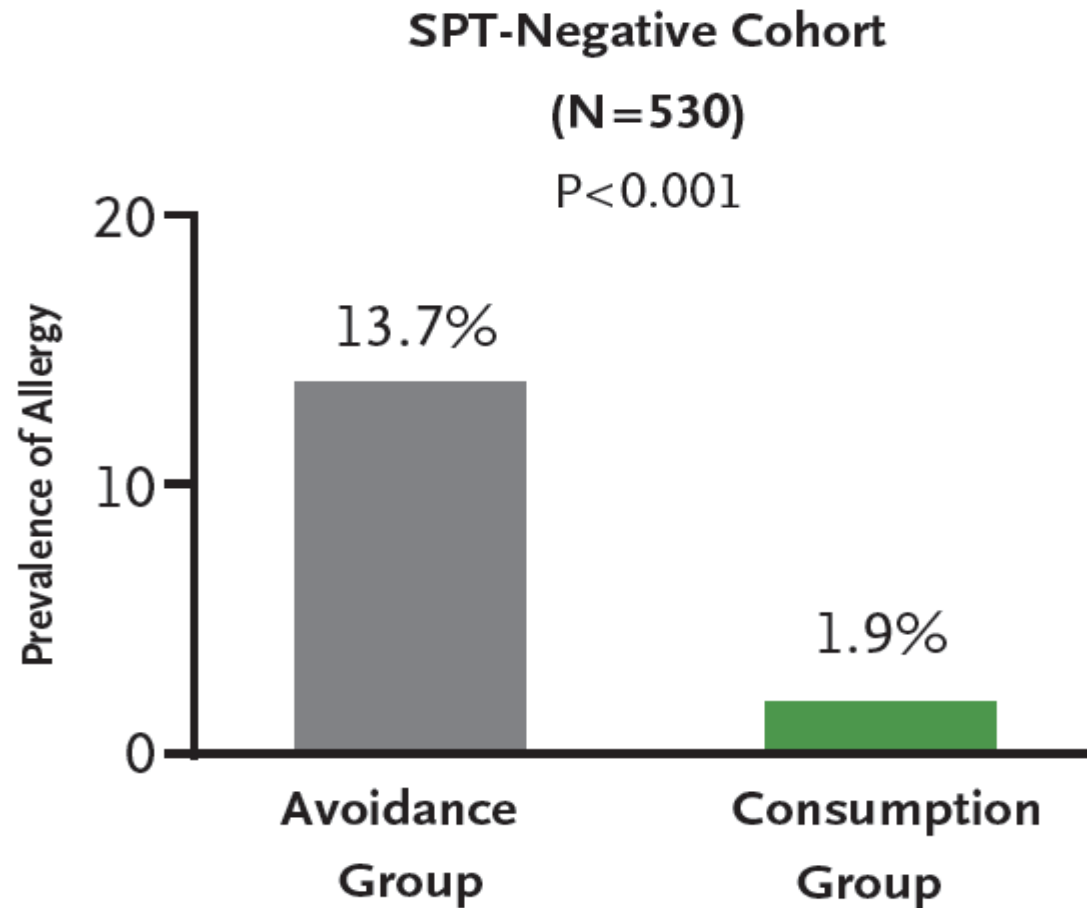


The box in these plots represents the median and IQR. The whiskers represent the furthest point within 1.5 times the IQR from the box.



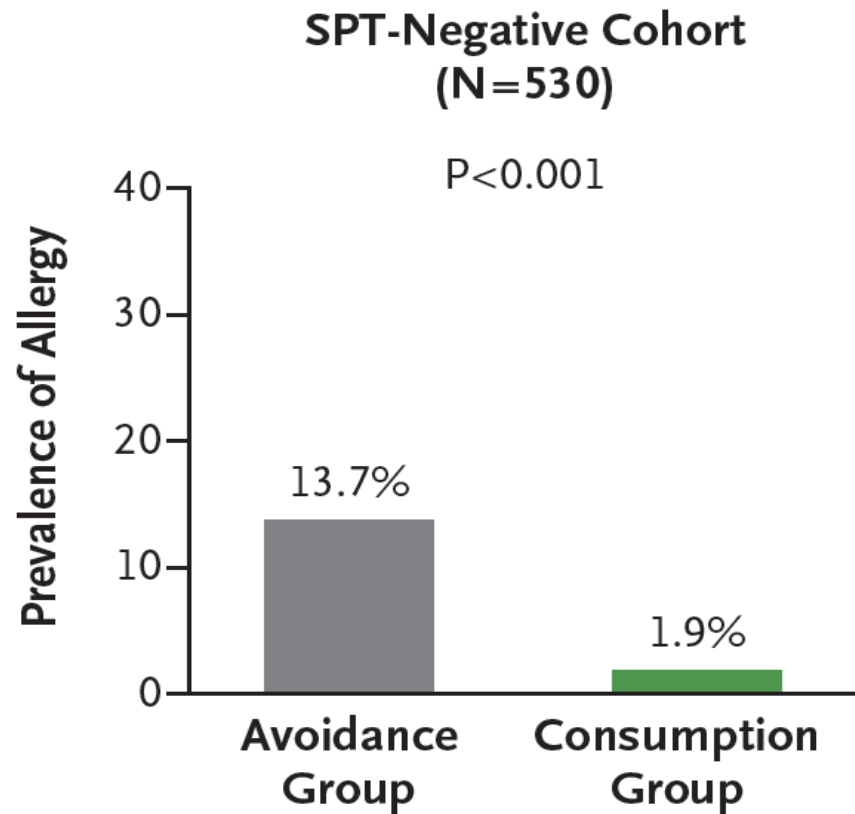
To eat or not to eat . . .

Intention-to-Treat Analysis

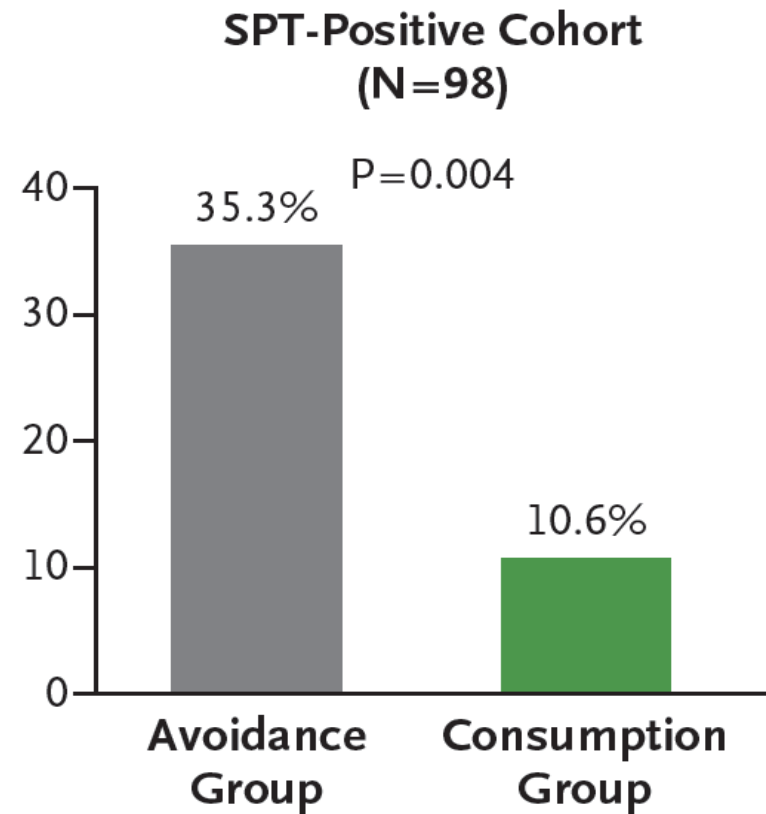


86% Relative Reduction

Intention-to-Treat Analysis

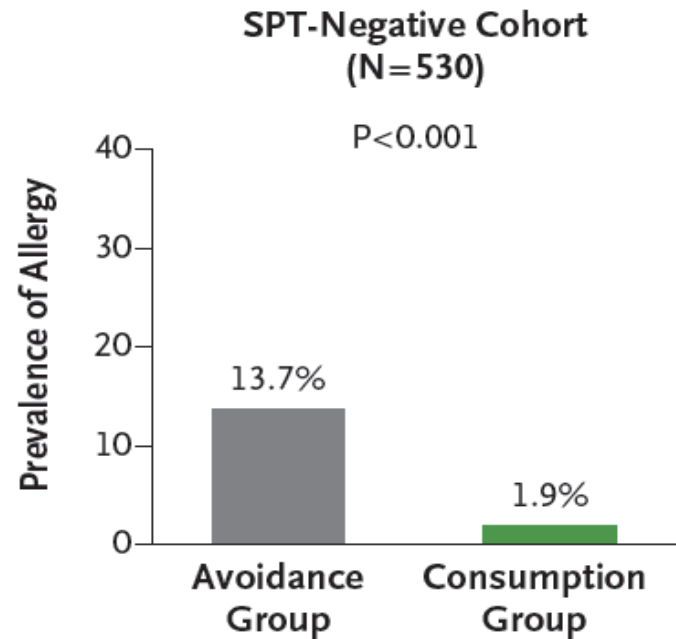


86% Relative Reduction

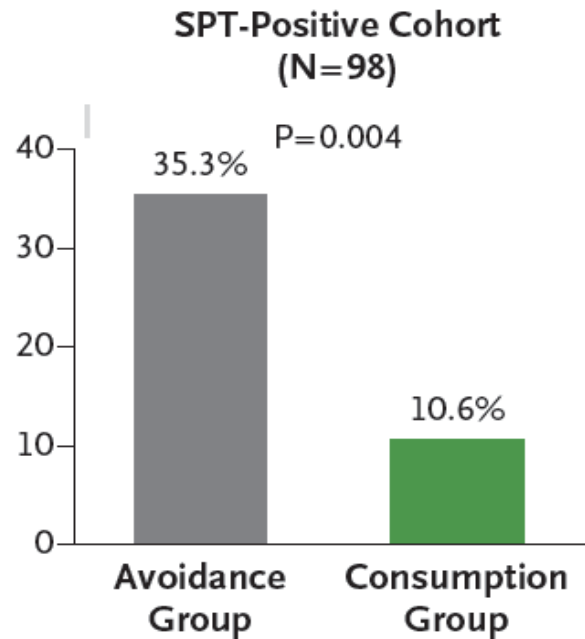


70% Relative Reduction

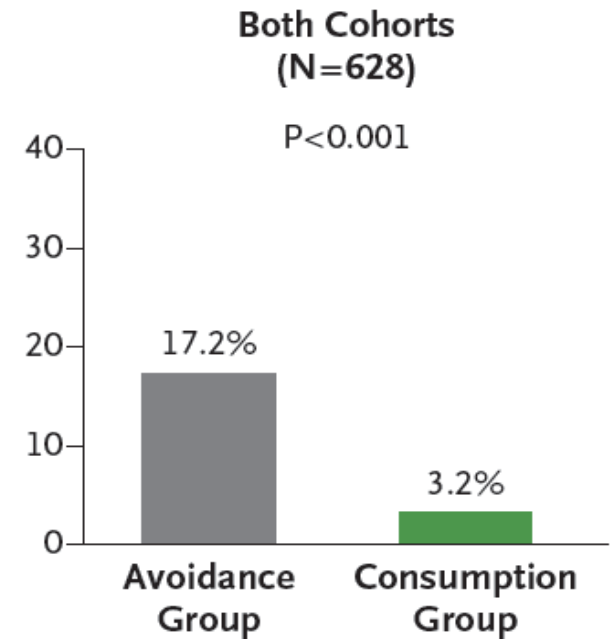
Intention-to-Treat Analysis



86% Relative Reduction



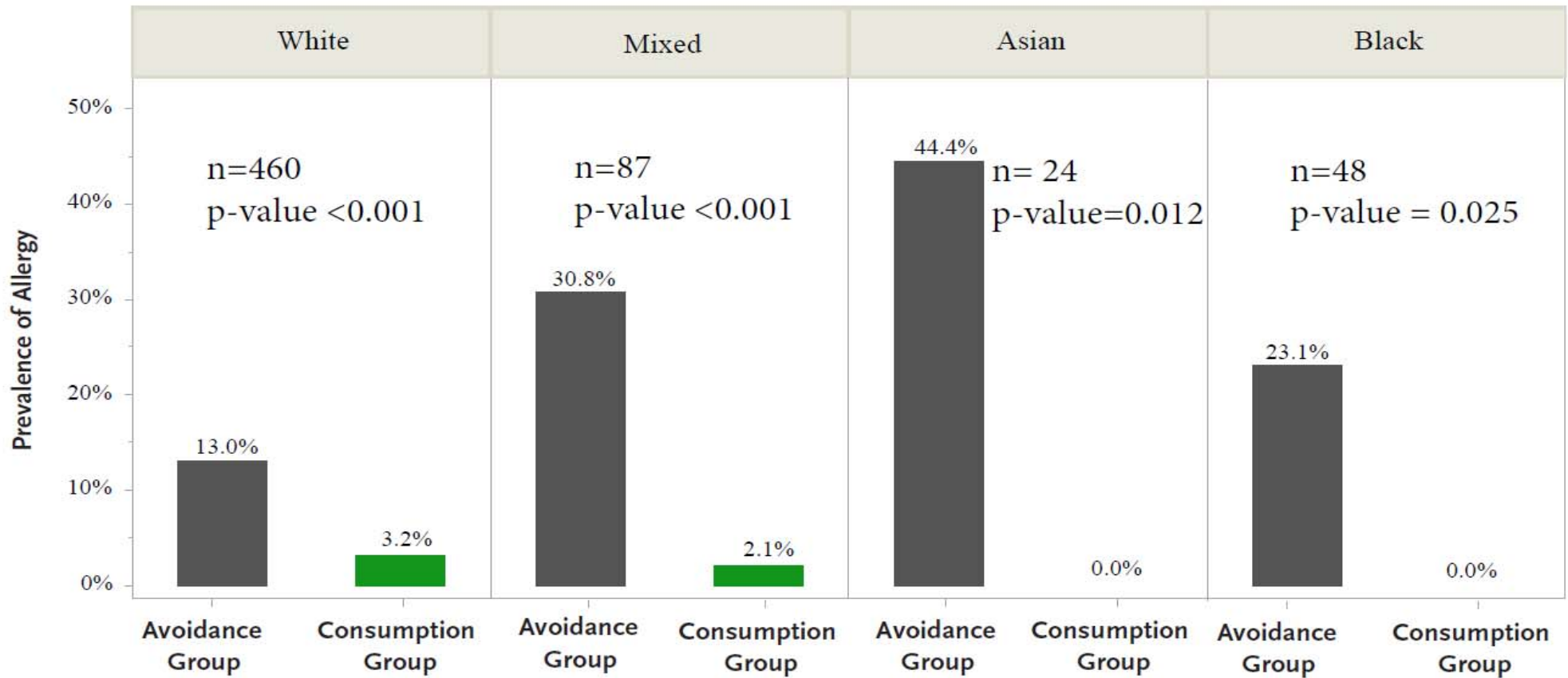
70% Relative Reduction



81% Relative Reduction



Primary Outcome by Race



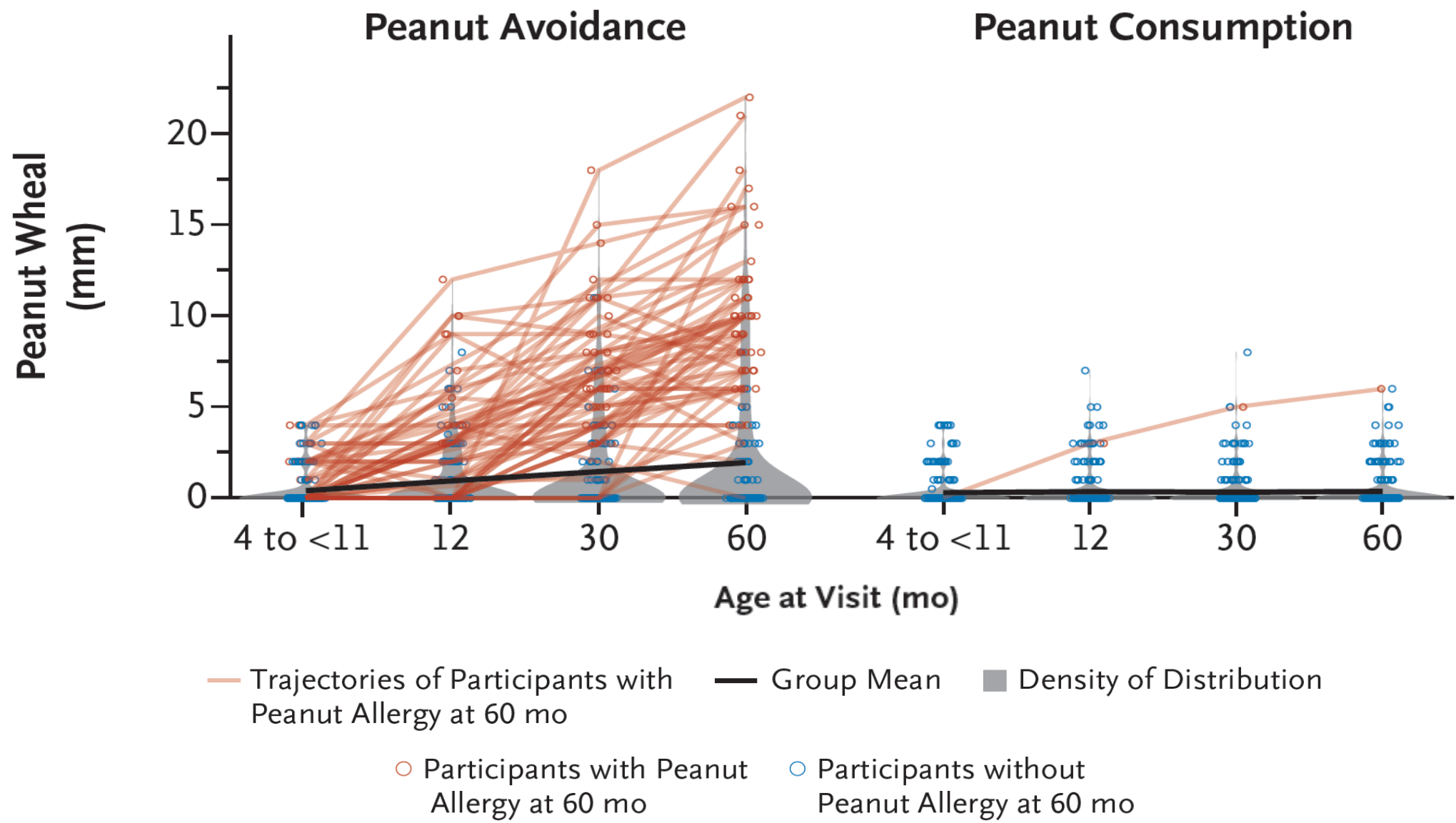
Safety

- **Serious Adverse Events (SAEs)**
- **Adverse Events (AEs)**
- **Hospitalisation Rates**
- **Participants Who Discontinued Peanut**
- **Challenge Safety**



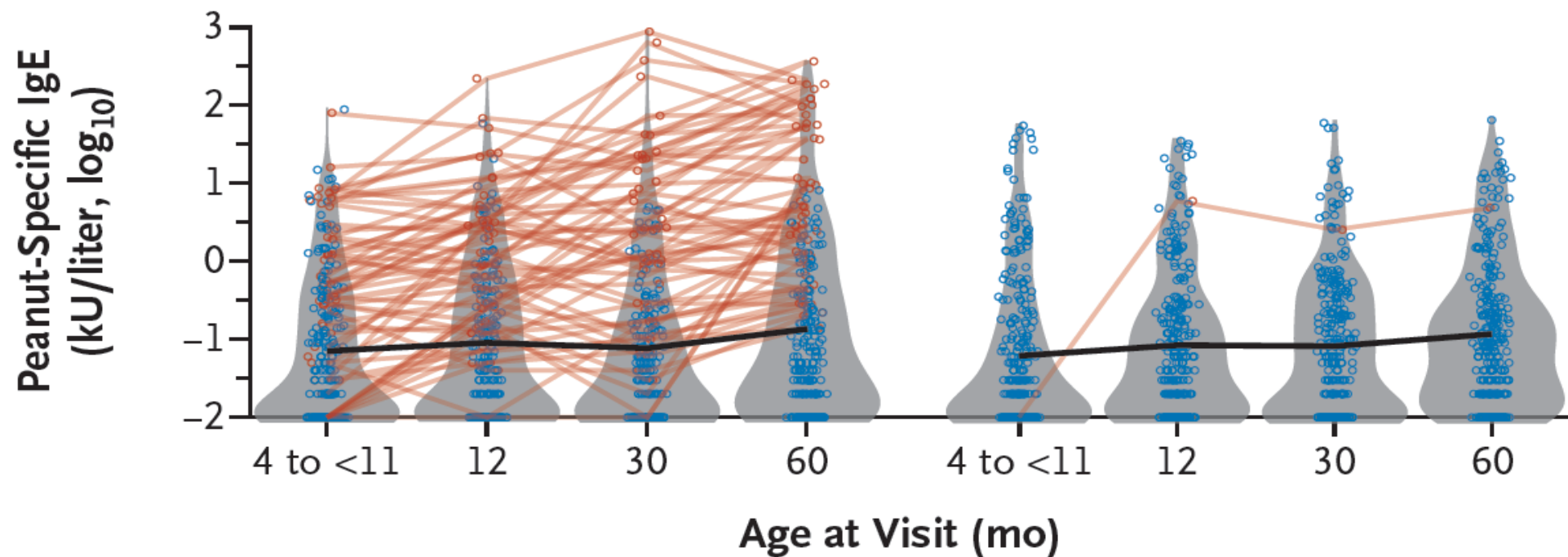
Serious Adverse Events			
	Avoidance	Consumption	P-value
No. of events	101	89	0.41
No. with at least one SAE	70 (21.8%)	61 (19.1%)	0.4
Ever hospitalised	52 (16.2%)	50 (15.7%)	0.86
Adverse Events			
	Avoidance	Consumption	P-value
No. of events	4,287	4,527	0.02
No. with at least one AE	99.4%	99.7%	0.45

Peanut Skin Prick Test Wheal Sizes

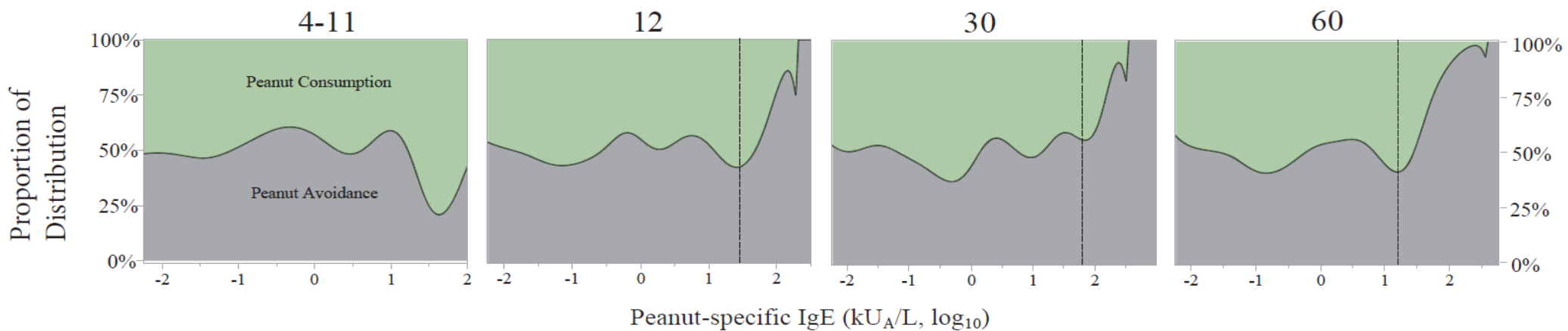


IgE Levels

Peanut Avoidance



Peanut IgE Proportion Density Plot



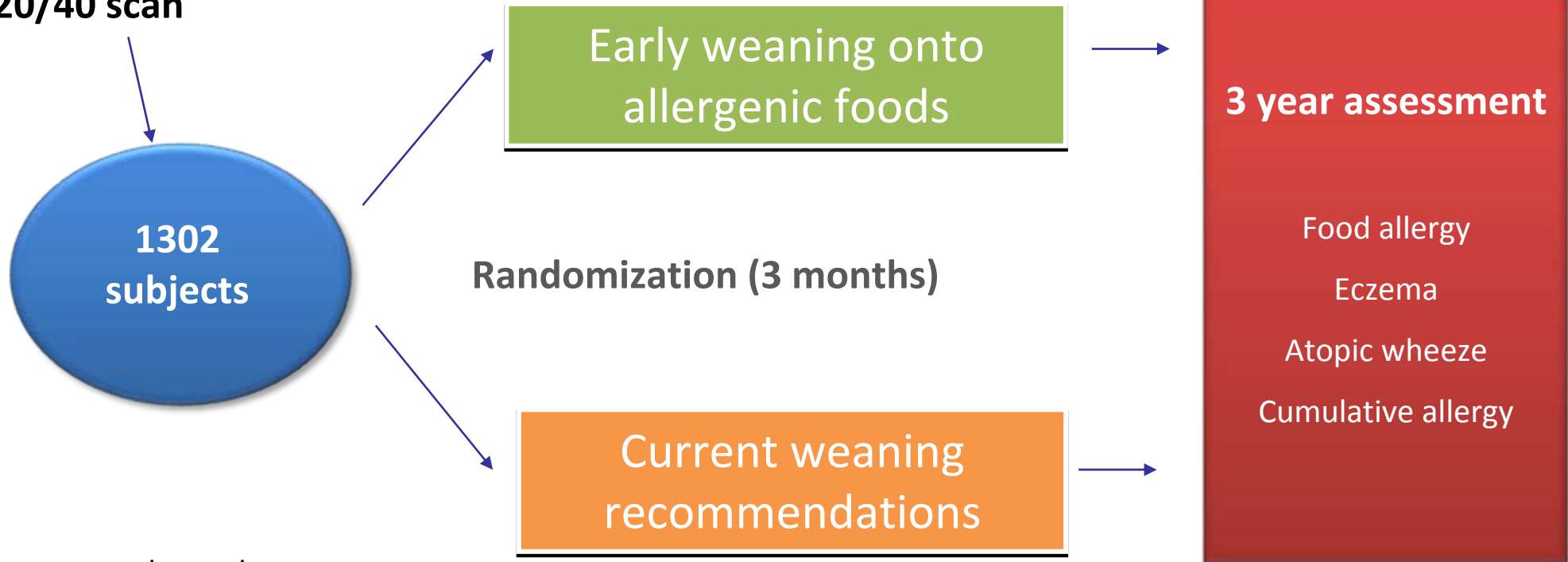
LEAP Study Conclusions

- **Peanut consumption** beginning in the first year of life **prevents peanut allergy** in a high-risk population.
 - **86% reduction** in the **SPT-negative stratum**
 - **70% reduction** in the **SPT-positive stratum**
 - **Both primary and secondary prevention** effective
 - Prevention is **effective in all races**
 - Peanut consumption in high-risk children **is safe**
 - **Prevention of allergy** is associated with an **early and sustained rise in IgG and IgG4** and a later and progressive suppression of **high levels of peanut-specific IgE production.**

EAT Study - Early Weaning Trial



Pregnant
women
20/40 scan



www.eatstudy.co.uk

ORIGINAL ARTICLE

Randomized Trial of Peanut Consumption in Infants at Risk for Peanut Allergy

Senior Co-investigator: George Du Toit

Co-authors:

- Graham Roberts
- Peter H. Sayre
- Henry T. Bahnson
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- Helen A. Brough
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- Monica Basting
- Mary Feeney
- Victor Turcanu
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- Marshall Plaut

The LEAP Study Team

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Play Specialists: Jenna Heath, Kathryn Hersee.

Phlebotomist: Devi Patkunam.

ITN Staff: Michael Adamkiewicz, Adam Asare, Eduard Chani, Judith Evind, Kristina Harris, Noha Lim, Nariman Nasser, Audrey Plough, Jennifer Romaine, Michael Stahly.

NIAID Staff: Joy Laurienzo Panza.

Rho Federal Systems Staff: Kaitie Fernandez, Susan McCachren, Travis Mason, Valerie Nelson.

Research Support

- Immune Tolerance Network



- National Institute of Allergy and Infectious Disease



- Food Allergy Research & Education



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MRC & Asthma UK Centre in Allergic Mechanisms of Asthma

- Food Standards Agency UK



- Rho Federal Systems Division



Acknowledgements – Participants & Families



- **Families helped us achieve:**
- **98.4% retention** over 5 years,
- **92% compliance with intervention,**
- **OFC** in 96%,
- Near complete **blood draws** at **all time points**

ADAPTrial: A new treatment for Severe Childhood Eczema?

Dr Susan Chan
Clinical Research Consultant
Honorary Senior Lecturer
Children's Allergy Service

Eczema



Treatments

Moisturisers



Wraps



Steroid creams



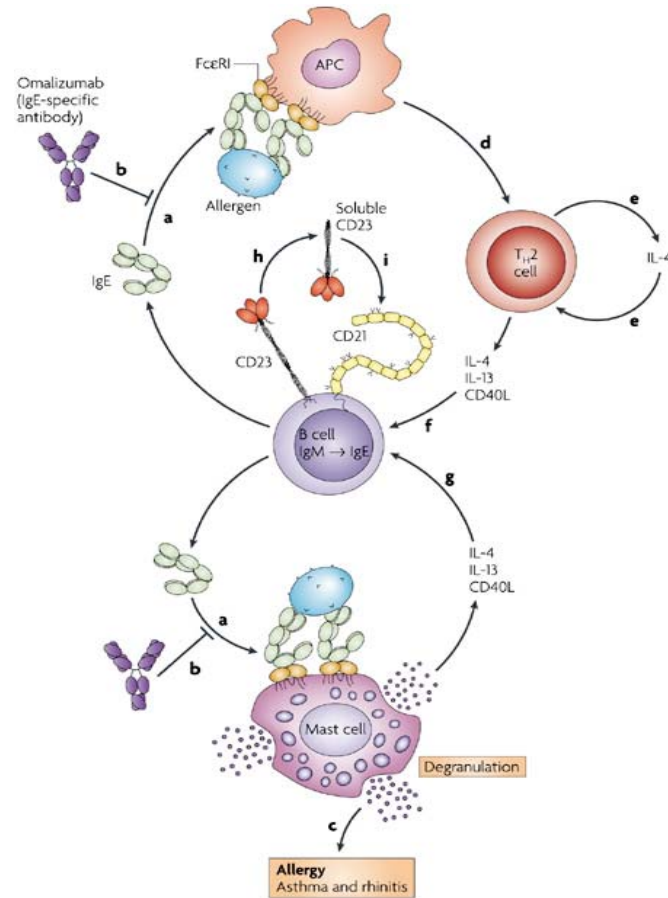
Calcineurin inhibitors



What next?

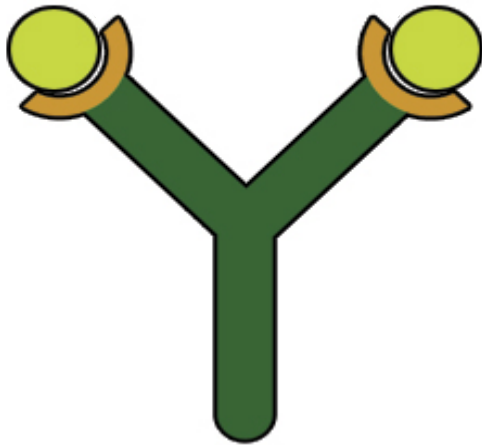
- Systemic treatments:
 - Azathioprine
 - Ciclosporin
 - Methotrexate
 - Mycophenolate mofetil
 - Prednisolone (oral steroids)
 - UV therapy
- Potential side effects
 - Suppressed immune system
 - Liver toxicity
 - Kidney toxicity
 - Gut symptoms
 - Cancer

Anti-IgE (Xolair/omalizumab)

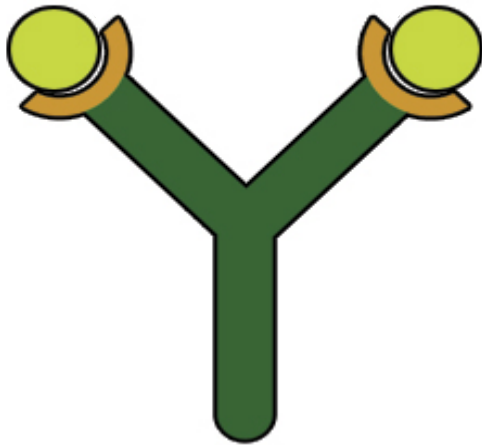


Nature Reviews | Immunology

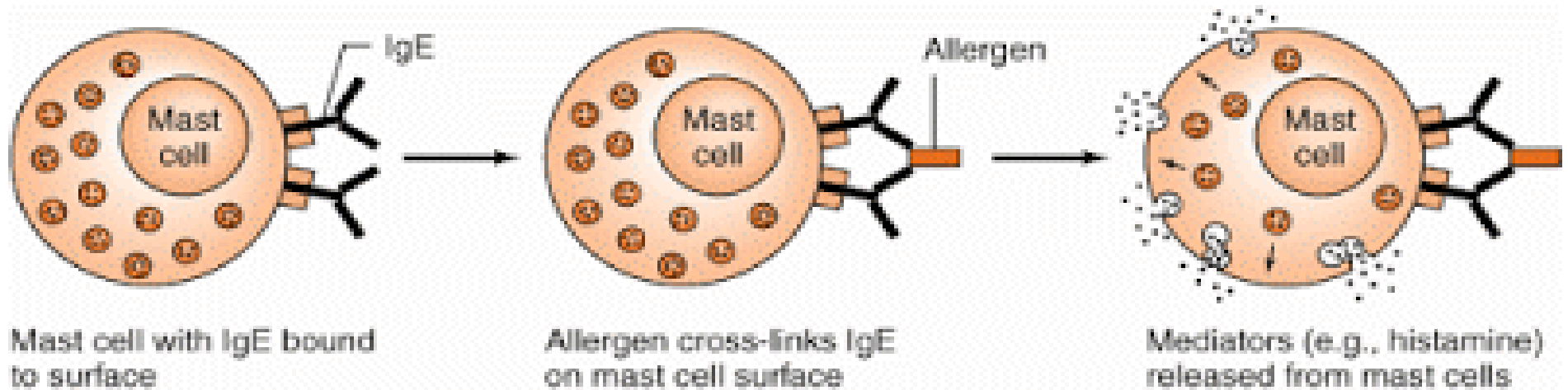
Antibodies



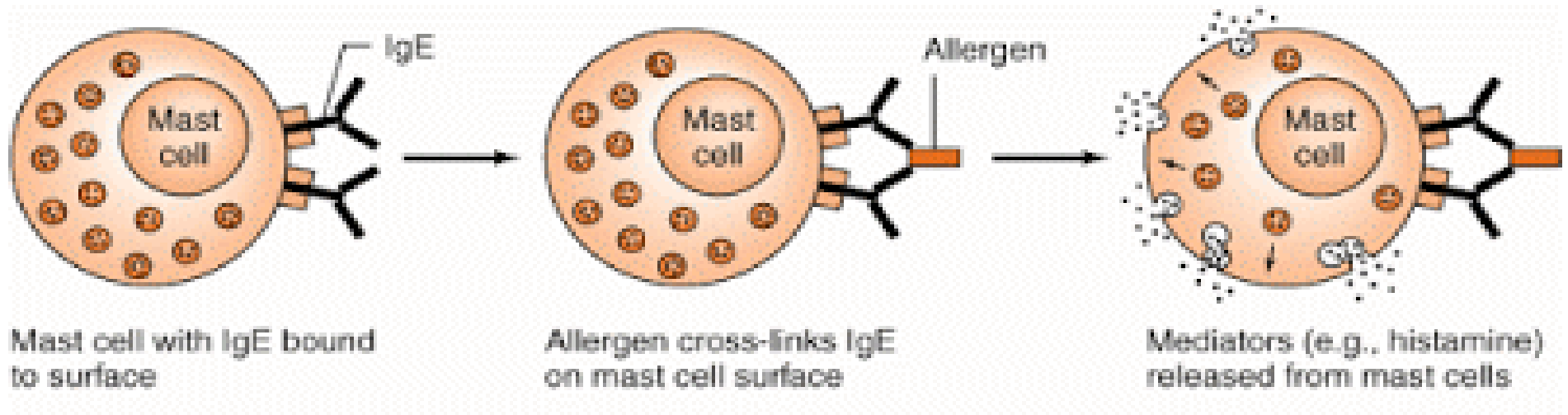
Antibodies



Allergic reaction



Allergic reaction



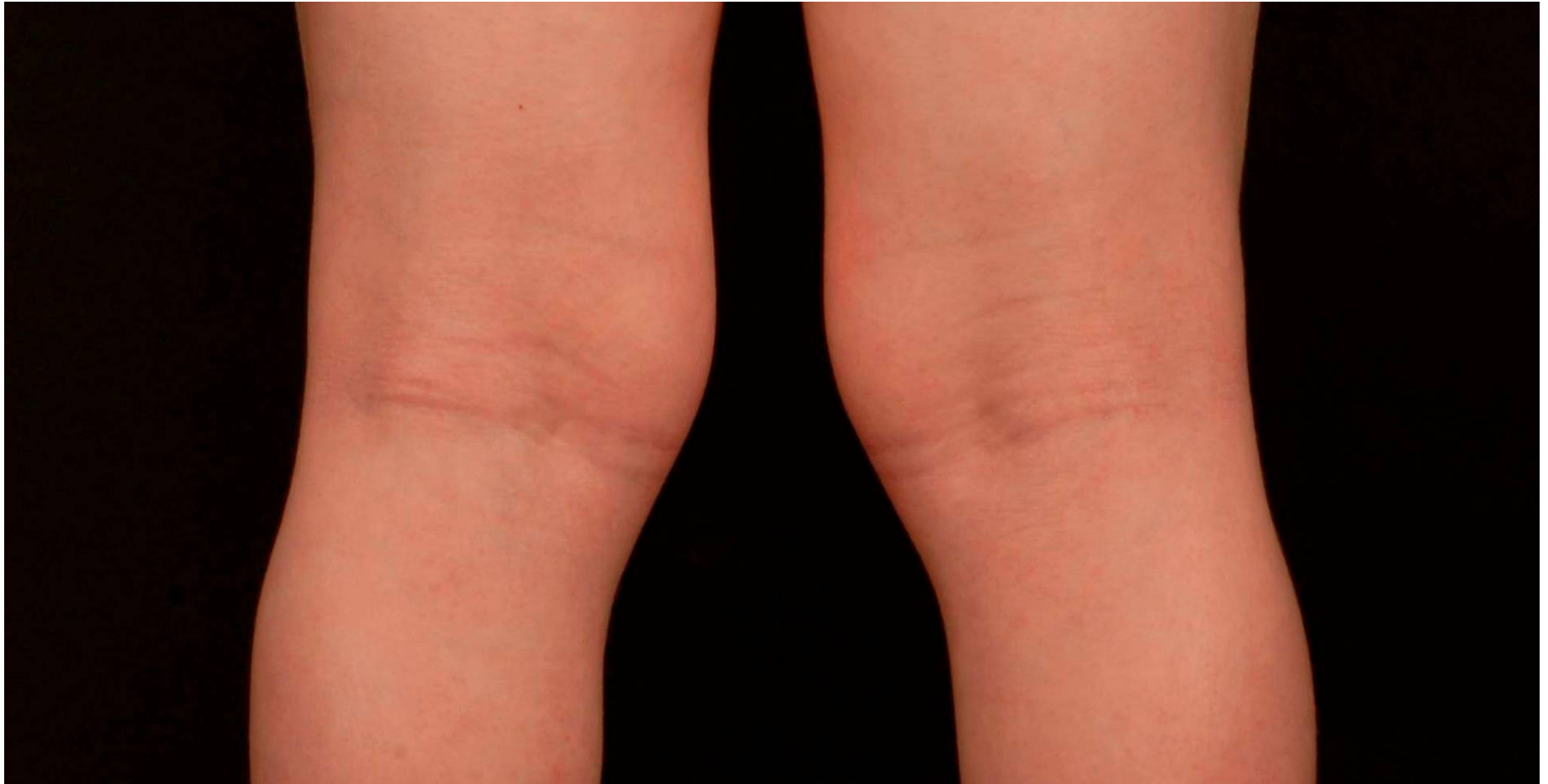
6 year old: medication for eczema

- Optimal topical management
- Prednisolone (oral steroids): Cushingoid features
- Azathioprine: Stopped (no significant improvement)
- Methotrexate orally: Stopped (no significant improvement)
- Methotrexate subcutaneously: Eczema remained severe
- Xolair subcutaneously

Pre Xolair treatment



2 months of Xolair treatment



adapt

- **A**topic **D**ermatitis **A**nti-IgE **P**aediatric **T**rial
- Severe eczema despite topical therapy
- Systemic therapy is being considered/has failed
- Target underlying allergy
- Favourable side effect profile

ADAPT@gstt.nhs.uk

www.ADAPTRial.com

020 7188 7188 Ext. 54293

adapt

Children 4-19 years old

+

Severe eczema

despite optimum topical therapy

+

Food allergy / Rhinitis / Asthma

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Joanna Gambell
Devi Patkunam

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Mandy Wan
Erika Harnik
Tom Marrs
Kate Swan
Rosy Wells
Katherine Knight
Gemma Scanlan



MRC & Asthma UK Centre in Allergic Mechanisms of Asthma



National Institute for
Health Research

Efficacy and Mechanism Evaluation Programme



Guy's and St Thomas'
NHS Foundation Trust

