

Food allergy – what is all the fuss about?

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RCH



Food Hypersensitivity (All reproducible reactions)



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graph TD; A[Food Hypersensitivity (All reproducible reactions)] --> B[Food Allergy Immunologically mediated]; A --> C[Food Intolerance Non-Immunologically mediated]; B --> D[IgE mediated]; B --> E[Mixed IgE and Non-IgE mediated]; B --> F[Non-IgE mediated];
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Food Allergy

Immunologically mediated

Food Intolerance

Non-Immunologically mediated

IgE

mediated

Mixed IgE and Non-IgE

mediated

Non-IgE

mediated



FOOD ALLERGY = IMMUNE MEDIATED

**FOOD INTOLERANCE = NON-IMMUNE
MEDIATED**

Incidence of IgE-mediated Food Allergy

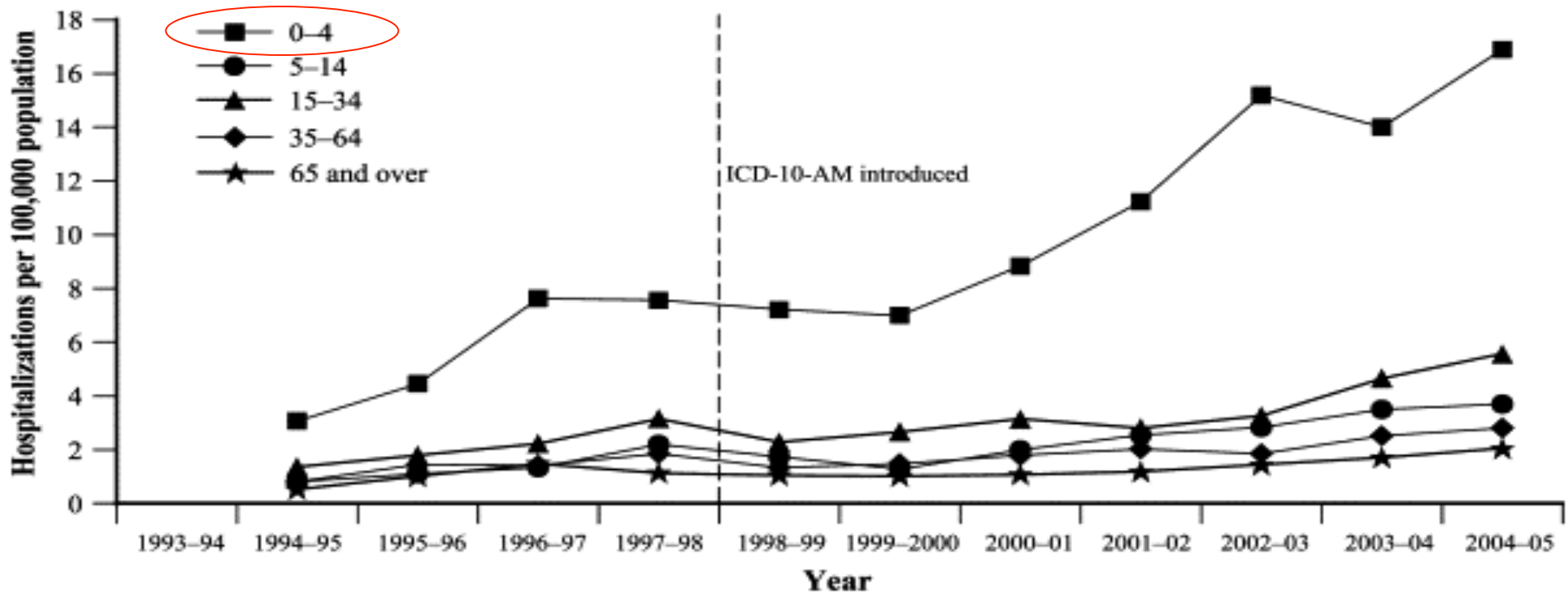


- Overall ~ 8% of population experience food allergy reactions
- More common in children
 - 6% -10% children experience food allergic reactions ¹
 - 2% adults experience food allergic reactions ²
- Most IgE food allergies resolve with increasing age

1. Bock et al. *Pediatr* 1987;79:683-88

2. Young et al. *Lancet* 1994;343:1127-30

Increase in ALL hospitalisations due to food anaphylaxis – most marked in the very young





IgE Food Allergens

- >95% food allergy caused by 8 foods

Milk

Soy

Egg

Wheat

Peanut

Tree Nuts

Fish

Shellfish



IgE Food Allergy Can Cause...

- Acute urticaria/angioedema
- Vomiting or diarrhoeal illnesses
- Eczema in children

- Anaphylaxis

- *Reactions occur immediately - 2 hrs post-ingestion*





Definitions: Generalised allergic reaction

one or more symptoms or signs of **skin** and/or **gastrointestinal tract** involvement
.....without respiratory and/or cardiovascular involvement.

Skin:

- Generalised pruritus
- Generalised urticaria / Angioedema
- Widespread erythema

Gastrointestinal:

- Abdominal pain
- Vomiting, loose stools



ASCIA Definition: Anaphylaxis

rapidly evolving **generalised multi-system** allergic reaction characterized by one or more symptoms or signs of **respiratory** and/or **cardiovascular** involvement

and involvement of other systems such as the **skin** and/or the **gastrointestinal tract**.

Respiratory:

- Difficulty/noisy breathing
- Swelling of tongue
- Swelling/tightness in throat
- Difficulty talking and/or hoarse voice
- Wheeze or persistent cough

Cardiovascular:

- Loss of consciousness
- Collapse
- Pale and floppy (in young children)
- Hypotension



Anaphylaxis: Simpler Definition

Anaphylaxis = allergic reaction involving respiratory &/or cardiovascular systems

- Noisy breathing, difficulty breathing, persistent cough
- difficulty talking, hoarse voice
- difficulty swallowing, tightness in throat

- Hypotension, drowsiness, collapse
- Pale floppy infant



How careful do patients have to be?

- Reports of anaphylaxis to very low doses of allergen
 - Trace amounts peanut, cod fish
 - Kiss after ingestion of food
- NOT all patients will react to such low doses



Threshold dose and severity of reaction are related

- Those with a history of more severe reaction to peanut have a lower threshold for reacting
- ie lower dose of peanut is needed to trigger an allergic reaction



How severe will a future allergic reaction be?

“Best predictor of future anaphylaxis is a history of a previous episode”

- Relationship not wholly reliable
- Other factors important
 - Dose
 - Route of exposure
 - Concomitant illness esp. asthma

SKIN PRICK TESTING





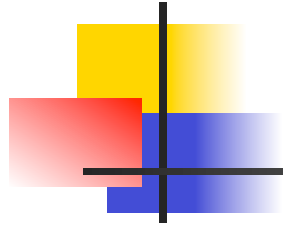
Diagnostic Tests for IgE Mediated Food Allergy

- Skin Prick Test
 - Best test - sensitive, inexpensive, simple, rapid
 - Negative predictive value - >95%
 - Positive predictive value - 50%
 - RAST (cap-FEIA most sensitive method)
 - Similar significance to SPT
 - Expensive, delayed result
 - Food challenge – double blind placebo controlled
 - *Others eg vega testing/IgG tests to food – no scientific basis*
- DETECT
PRESENCE
OF IgE
ANTIBODIES

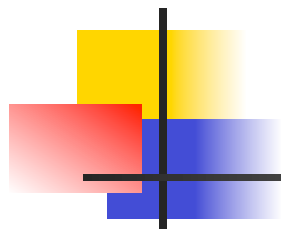


Diagnostic Approach to IgE Mediated Food Allergy

- -ve SPT → IgE mediated allergy very unlikely
- +ve SPT → IgE mediated allergy *possible*
 - Clear history/ large +ve SPT → diagnosis
 - History unclear/ weaker +ve SPT → need formal challenge



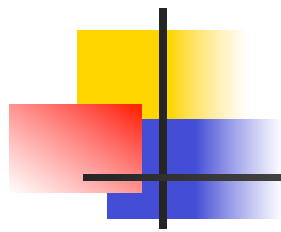
**SPT/RAST IS USEFUL ONLY
IF IT IS LINKED TO THE
HISTORY**



A POSITIVE SKIN PRICK TEST

DOES NOT

AUTOMATICALLY = ALLERGY



NEGATIVE SPT

= HIGH NPV



Management of Food Allergy

- Allergen avoidance
- Epipen/Epipen Jr for some patients

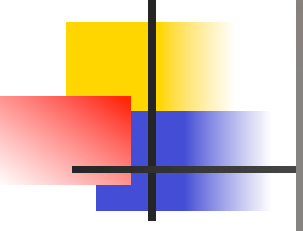
PBS Indications for Epipen/Epipen Jr

Definite indication

- Previous **anaphylaxis**

Consider if... Systemic allergic reaction without anaphylaxis PLUS one or more risk factors

- Asthma (requiring preventer)
- Peanut or tree nut allergy
- Age >5yo
- Geographically isolated



Action plan for Anaphylaxis

SEVERE ALLERGIC REACTIONS

MILD TO MODERATE ALLERGIC REACTION

- swelling of lips, face, eyes
- hives or welts
- abdominal pain, vomiting

ACTION

- stay with person and call for help
- give medications (if prescribed)
- locate EpiPen® or EpiPen® Jr
- contact family/carer



**watch for signs
of Anaphylaxis**

ANAPHYLAXIS (SEVERE ALLERGIC REACTION)

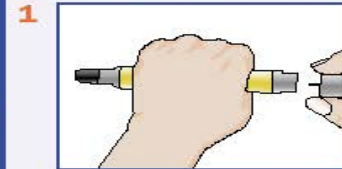
- difficulty/noisy breathing
- swelling of tongue
- swelling/tightness in throat
- difficulty talking and/or hoarse voice
- wheeze or persistent cough
- loss of consciousness and/or collapse
- pale and floppy (young children)

ACTION

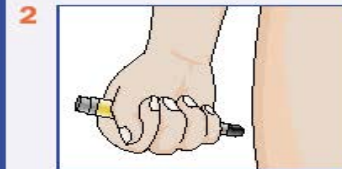
- 1 Give EpiPen® or EpiPen® Jr**
- 2 Call ambulance. Telephone 000**
- 3 Contact family/carer**

If in doubt, give EpiPen® or EpiPen® Jr

How to give EpiPen® or EpiPen® Jr



Form fist around EpiPen® and pull off grey cap.



Place black end against outer mid-thigh.



Push down **HARD** until a click is heard or felt and hold in place for 10 seconds.



Remove EpiPen® and be careful not to touch the needle. Massage the injection site for 10 seconds.

© ASCIA 2003. This plan was developed by

What about “may contain traces” labelling?

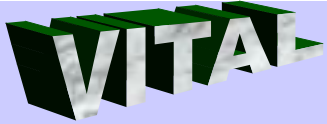


List of foods that cannot be brought to one primary school in Sydney

.....by any child (*lunch boxes checked each morning !!!*)

- Peanuts
- Tree nuts
- Sesame seeds
- Yoghurt
- Eggs
- Kiwi fruit
- Peas
- Chocolate
-*PLUS any products that “contain or may contain nuts”*





VITAL GRID

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Last Updated on: 19-May-08	Allergen Protein Level								
	Milk*	Egg*	Soy**^	Fish*	Peanuts*	Tree nuts*	Sesame Seed*	Crustacea*	Gluten#
Action level 1 (ppm)	<5	<2	<10	<20	<2	<2	<2	<2	<20
Action level 2 (ppm)	5 - 50	2 - 20	10 - 100	20 - 200	2 - 20	2 - 20	2 - 20	2 - 20	20 - 100
Action level 3 (ppm)	>50	>20	>100	>200	>20	>20	>20	>20	>100

Notes:

* mg/kg (ppm) of total protein

Gluten includes all gluten type proteins as defined in the Food Standards Code

^ The Action Level for soy is highly conservative

Robyn Sherlock, FACTA

Prevalence of Allergen Avoidance Advisory Statements in Australian manufactured goods

Type and number of products examined	Frequency of advisory labelling (%)		
	Peanut	Tree nuts	Egg
Sweet biscuits (n=130)	93	92	70
Chocolates (n=60)	80	82	4
Bakery items e.g. cakes (n=35)	71	86	71
Muesli bars/snack bars (n=27)	67	74	15
Dinner bases/stocks (n=32)	59	28	17
Savoury biscuits (n=41)	56	56	51
Lollies (n=55)	56	46	2
Breakfast cereals (n=63)	41	59	5
Instant noodles (n=18)	39	33	50
Pasta sauces (n=15)	33	27	0
Bread (n=16)	31	31	31
Soups (n=20)	15	15	21
Cake mixes (n=30)	13	67	58
Tinned meals (n=17)	12	12	7
Baby foods (n=30)	10	10	4
Pasta (n=13)	0	0	39
Packet chips (n=20)	0	0	0
Other (eg. tinned fish, breadcrumbs, sauces, custard powder) (n=139)	19	20	14

JJ Koplin and KJ Allen,
manuscript *in prep* 2010



Conclusions

- Common in childhood - 6-8%
- Most is to 1 of 8 foods
- Consumers are not well served by the current use of precautionary labelling
- Urgent solutions for the current dilemmas are required

www.allergy.org.au

KJ Allen *et al* Food allergy in childhood. MJA 2006