

### A Workshop on Paediatric Allergy for Health Professionals

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8

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#### **WELCOME**

Interactive cases in slide presentation with a panel consensus

Confer with the people on either side of you

Short time to digest and reflect

Feel free to give your thoughts from the floor (briefly)

Covering a range of *paediatric* allergy-related topics

Pen & paper might be handy



- I/we confirm that I do not have any conflict of interest to declare
- I/we have freely borrowed from internet sources and publications for graphics, tables, etc

### **PICTURE**

What clinical description best describes this appearance?



**Urticaria** 

Statistically what is the most likely underlying cause in an otherwise well, non-atopic child?

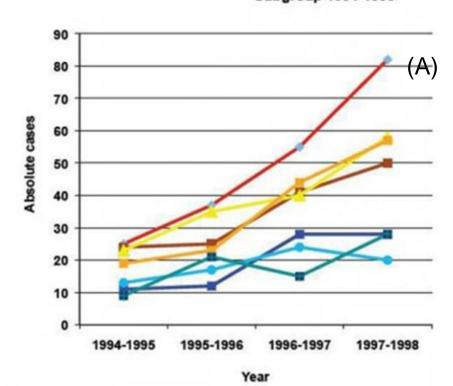
(especially if this rash persists for >8hrs)

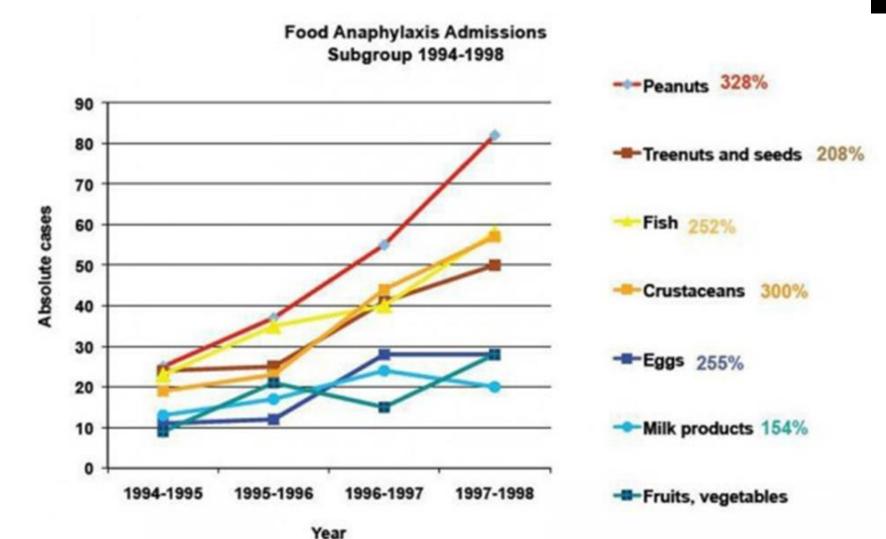
#### **GRAPH**

This is a graph showing increasing cases for food-related anaphylaxis in Australian children

What should label (A) actually read?

Food Anaphylaxis Admissions Subgroup 1994-1998





#### MCQ

Whilst on holiday, 3yr old boy has sudden onset of increased work of breathing after eating a chocolate biscuit. About 10 mins later he also developed an widespread urticarial rash over his trunk and limbs. They present to you the following week. From the records you know he has asthma, with x3 admissions in the last year

#### Management?

- a) Advise the acquisition of an adrenaline auto-injector
- b) Refer to your local allergy service
- c) Teach the use of an adrenaline auto-injector
- d) All of the above

All of the above

**PLUS** 

**AMP** 

**Training devices** 

**Kindy liaison** 

Improve asthma control as much as possible

# ASCIA RECOMMENDATIONS FOR PRIMARY CARE

#### All individuals at risk of anaphylaxis should:

- Be educated about how to reduce the risk of accidental exposure to their allergic trigger
- Be educated about the early signs and symptoms of an allergic reaction
- Know what to do in an emergency
- Have an ASCIA management plan completed by their practitioner
- Carry an adrenaline auto-injector and know how to use it



#### ACTION PLAN FOR **Anaphylaxis**

as
and dispersion in the last of
www.all

as
www.alle

#### ACTION PLAN FOR Anaphylaxis



For use with EpiPen® adrenaline autoinjectors

#### How to give EpiPen®

rgy.org.au



form fist around EniPen® and PULL OFF BUIL SAFETY RELEASE



PLACE ORANGE END MEMINST OUTER mid-thigh (with or without clothing).



PLISH DOWN HARD UNIT & DICK IS heard or felt and hold in place for

Remove EpiPen®, Massage Injection







10 seconds

5/5# for 10 seconds.

#### MILD TO MODERATE ALLERGIC REACTION

- . Swelling of lips, face, eyes
- Hives or welts
- . Tingling mouth
- Abdominal pain, vomiting (these are signs of anaphylaxis for insect allergy)

#### ACTION FOR MILD TO MODERATE ALLERGIC REACTION

- . For insect allergy, flick out sting if visible. Do not remove ticks.
- . Stay with person and call for help.
- Locate EpiPen\* or EpiPen\* Jr adrenaline autoinjector.
- · Phone family/emergency contact.

Mild to moderate allergic reactions may not always occur before anaphylaxis

Watch for ANY ONE of the following signs of anaphylaxis

#### ANAPHYLAXIS (SEVERE ALLERGIC REACTION)

- Difficult/noisy breathing
- · Swelling of tongue
- · Swelling/tightness in throat
- Difficulty talking and/or hoarse voice.
- . Wheeze or persistent cough
- Persistent dizziness or collapse
- · Pale and floppy (young children)

#### **ACTION FOR ANAPHYLAXIS**

- 1 Lay person flat. Do not allow them to stand or walk. If breathing is difficult allow them to sit.
- 2 Give EpiPen® or EpiPen® Jr adrenaline autoinjector.
- 3 Phone ambulance ': 000 (AU) or 111 (NZ).
- 4 Phone family/emergency contact.
- 5 Further adrenaline doses may be given if no response after 5 minutes, if another adrenaline autoinjector is available.

#### If in doubt, give adrenaline autoinjector

Commence CPR at any time if person is unresponsive and not breathing normally. EpiPen# is generally prescribed for adults and children over \$ years. Epifen\* it is generally prescribed for children aged \$4 years.

"Medical observation in hospital for at least 4 hours is recommended after anaphysics.

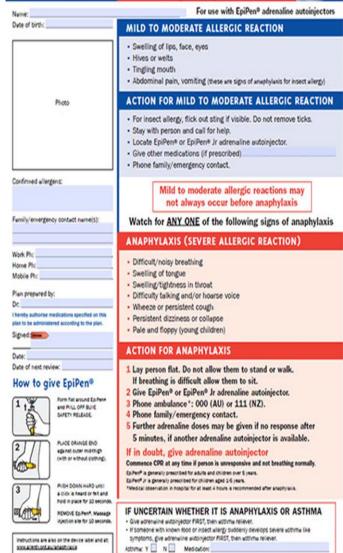
#### IF UNCERTAIN WHETHER IT IS ANAPHYLAXIS OR ASTHMA

natructions are also on the device label and at: **милиририомиран** 

. Give adminusione autoinjector FIRST, then activitie releved.

. If someone with known food or insect wilergy suddenly develops severe asthma like symptoms, give adrenatine autoinjector FIRST, then asthma relever.

O ADDIX 2005. This pron was developed for use as a poster and to be stored with general use advenagles autoripictors.



4 ASCA 2005. This plan was developed as a medical document that can only be completed and signed for the patient's treating medical doctor and cannot be aftered without their permission.





#### How to give EpiPen®



 Form fist around EpiPen and PULL OFF BLUE SAFETY RELEASE.



PLACE ORANGE END against outer mid-thigh (with or without clothing).



 PUSH DOWN HARD until a click is heard or felt and hold for 10 seconds.

REMOVE EpiPen. Massage injection site for 10 seconds.



"blue to the sky, orange to the thigh"

Swing n' Stab v. Place n' Push

#### **PICTURE**

What has been done here?

What name is given to the appearance highlighted?

Some thoughts about the diagnostic information here?



Skin prick test
Pseudopodia & satellite lesion
"more positive response"

### **PICTURE**

What are these?

Give 2 alternative names for them



Peanuts: ground nuts: monkey nuts



#### PARENTAL QUESTION

Both parents come to see you for review of their 4 month old son who has eczema

They want to know what are the chances of him having an underlying food allergy which contributes to his skin condition

Your thoughts?

Nothing should interfere with good basic eczema care

IgE-mediated FA affects up to 10% of children <5yrs

Atopy is a risk factor for FA

Severity and age of onset of eczema give increased likelihood for FA (especially <3mo)

Clear demonstration of a definite clinical improvement based on withdrawal of food wrt improved eczema [re-challenge?]

Nutritional, financial, psychological downsides to food exclusions



#### **PICTURE**

What are these 2 insects?

For a bonus for any Australians what is the third?

Most cases of anaphylaxis are due to which creature?







Honey bee



**European wasp** 

**Jack Jumper Ant** 

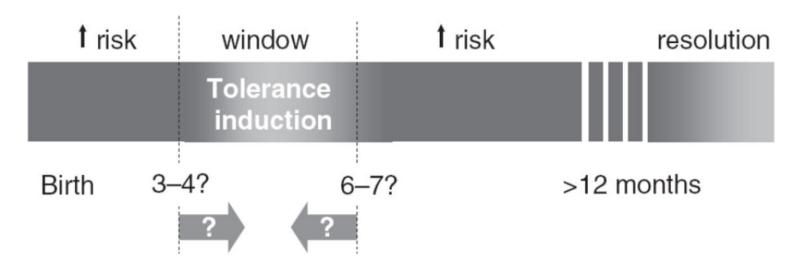


#### **REQUEST FROM PARENT**

One of your mothers has a 4 month old baby with some mild intermittent eczema. She has seen and read lots of conflicting advice about when and with what to introduce foods other than breast milk.

What will you advise her?

Would you organise some tests prior to doing anything?



#### Factors that influence the capacity for tolerance:

- · optimal colonisation
- · genetic pre-disposition
- allergen properties (dose, interval, timing, preparation)
- gut permeability/maturity/pH
- continued breast feeding?
- other immunomodulatory factors (fatty acids? stress? antioxidants?)

Prescott, Ped All Imm, 2008

## A LEAP INTO THE LIGHT?

Leap study: 640 UK high risk infants 4-11 months, randomised to receive/not receive peanut products for first 5yrs

**SPT** screening

17.2% v. 3.2% for developing food challenge-proven peanut allergy

RR reduction of 80%

Safe & feasible but still needs to be done under careful supervision



### LIST

Tick off/shout out the 6 of the 10 most common allergic foods in children

Sesame	Coriander	Maize	<b>Broad beans</b>
Avocardo	Lamb	Finned fish	Celery
Tomato	Egg	Chicken	Mango
Peanut	Soy	Shellfish	Capsicum
Tree nuts	Sorghum	Apricot	Broccoli
Beef	Cow's milk	Wheat	Kiwi

Tick off the 6 of the 10 most common allergic foods in children

Sesame 🔽	Coriander	Maize	Broad beans
Avocardo	Lamb	Finned fish	Celery
Tomato	Egg 🔽	Chicken	Mango
Peanut	Soy 🔽	Shellfish <b>V</b>	Capsicum
Tree nuts 🔽	Sorghum	Apricot	Broccoli
Beef	Cow's milk	Wheat 🗹	Kiwifruit 🗹

### **PICTURE**

What is being done here? What is its relevence?



#### Classification of urticarias

Spontaneous Acute Spontaneous Urticaria
Urticaria Chronic Spontaneous Urticaria

Symptomatic Dermographism

Cold Contact Urticaria

Physical Urticaria Solar Urticaria

Delayed Pressure Urticaria

Heat Contact Urticaria

Vibratory Urticaria

Contact Urticaria

Other Forms of Urticaria

Aquagenic Urticaria

Cholinergic Urticaria

Exercise-induced Urticaria / Anaphylaxis

Not Inducible

Inducible

#### **RESULT**

#### Your thoughts?

**Anna FILAXIS NHI DEF5678** 

Dob 12/1/2015

New World Allergy Service, Hernia Bay

	Wheal	Flare
Positive control	10mm	15mm
Negative control	8mm	10mm
Egg white	8mm	10mm
Peanut	8mm	10mm
Cow's milk	12mm	14mm
Wheat	8mm	9mm
Melon	7mm	9mm

Note strong positive controls

**Dermatographism?** 

Able to sensibly interpret these results?

#### **RESULT**

Another SPT, organised by a colleague: no clinical indications available to you, SPT test done on the spur of the moment (dad had day off)

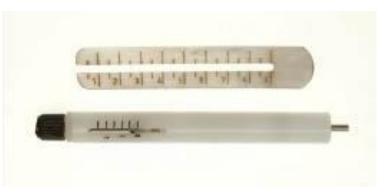
Rhina REA NHI GHI Dob 12/1/2015 LabXtra, Very Doub			
	Wheal	Flare	
Positive control	1mm	0mm	
Negative control	0mm	0mm	
HDM	1mm	1mm	
Cat	0mm	0mm	
Dog	1mm	1mm	
Horse	0mm	0mm	

Again, note controls

General advice re. antihistamines and SPT?

### **PICTURE**

This device has been used to elicit this response: what are you looking at?





Dermographism: dermographometer



#### CASE

A 5 month old breast fed infant presents to you with the following SPT result. The test was done because on her first taste of ~ ½ spoonful of runny boiled egg she developed a widespread urticarial rash all over her face and trunk.

Penny DREADFULL NHI ABC1234 Dob 12/1/2015

LabMinus, Glenfeld

Wheal Flare

Positive control 5mm 7mm
Negative control 0mm 0mm

Egg white 8mm 10mm

What are the chances of her having a reaction with a subsequent exposure to egg?

>95%

#### 95% diagnostic SPT wheal diameters

Infants <u>&lt;</u> 2 years	Children > 2 years	
<ul><li>&gt; 6 mm</li><li>&gt; 5 mm</li><li>&gt; 4 mm</li></ul>	<ul><li>&gt; 8 mm</li><li>&gt; 7 mm</li><li>&gt; 8 mm</li></ul>	
	<u>&lt;</u> 2 years > 6 mm > 5 mm	

#### TRUE/FALSE?

The single most important factor in the assessment and diagnosis of allergic disease in children is:

- a. SPT results
- b. The detailed history
- c. Serum specific IgE
- d. Eosinophil count
- e. Total IgE

**HISTORY** 

**HISTORY** 

**HISTORY** 

#### **CASE DISCUSSION**

A 4 month old boy with severe eczema comes to your clinic. His parents are desperate, as nothing seems to make the eczema go away. They feel that 'something is making his eczema worse'. He is having daily emollients, varying steroids, and is taking a long-acting, non-sedating antihistamine almost daily. He is formula fed now with an occasional breast feed at night – he hasn't started weaning.

What kind of thoughts are running through your head?

# ANSWER: DISCUSSION POINTS

#### **HISTORY**

Best possible eczema care: interactive eczema management plan

Antihistamines, eczema, and SPTs

Alter maternal diet?

**Delay weaning?** 

sslgE testing?

Change his milk?

Very difficult

#### **CASE DISCUSSION**

Same child: stopped A/H for one week to enable SPTs to be done on one area of his arm that seems eczema free

**Results:** 

Positive control

**Negative control** 

Egg

**Peanut** 

Cow's milk

Soy

Wheal

6mm

0<sub>m</sub>m

6mm

8mm

8mm

2mm

**Flare** 

8mm

0<sub>m</sub>m

8mm

**10mm** 

**10mm** 

3mm

Now what?

Phased exclusion of offending foods in sequence?

Ban them all now?

Put him onto a soy formula?

What about egg?

What about peanut?

Food item	Infants <u>&lt;</u> 2 years
Cow milk Egg Peanut	<ul><li>6 mm</li><li>5 mm</li><li>4 mm</li></ul>

#### **QUESTION**

Which is the recommended position for insertion & use of a nasal spray?

- a) Straight up
- b) Angled towards the septum
- c) Into the nasal passage, in line with the roof of the mouth



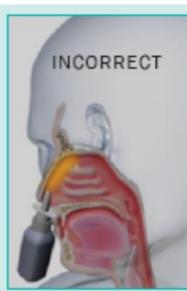






- Prime the spray device according to manufacturer's instructions (for the first time or after a period of non-use).
- 2. Shake the bottle before each use.
- 3. Blow nose before spraying if blocked by mucus.
- Tilt head slightly forward and gently insert nozzle into nostril.
   Use right hand for left nostril (and left hand for right nostril).
- Aim the nozzle away from the middle of the nose and direct nozzle into the nasal passage (not upwards towards tip of nose, but in line with the roof of the mouth).
- Avoid sniffing hard during or after spraying.







## TREATMENT PLAN FOR Allergic Rhinitis (Hay Fever)



Patient name:	Date:			
Plan prepared by:	Signed:			
ALLERGEN MINIMISATION				
Minimising exposure to confirmed allergen/s may assist some individuals in reducing allergic rhinitis symptoms. Information on allergen minimisation is available on the ASCIA website <a href="www.allergy.org.au/patients/allergy-treatment">www.allergy.org.au/patients/allergy-treatment</a>				
MEDICATIONS				
☐ Intranasal corticosteroid spray:     ☐ 1 or ☐ 2 times/day/nostril forweeks ormonths     ☐ Additional instructions:	or continuous			
1. Prime the spray device according to manufacturer's instructions (for the first time or after a period of non-use). 2. Shake the bottle before each use. 3. Blow nose before spraying if blocked by mucus. 4. Tilt head slightly forward and gently insert nozzle into nostril. Use right hand for left nostril (and left hand for right nostril). 5. Aim the nozzle sway from the middle of the nose and direct nozzle into the nasal passage (not upwards towards tip of nose, but in line with the roof of the mouth). 6. Avoid sniffing hard during or after spraying.	CORRECT			
Note: Onset of benefit may take days, so this treatment must be used regularly. It does not have to be stopped every few weeks. If significant pain or bleeding occurs contact your doctor.				
Oral non-sedating antihistamine:Dose  as needed Additional instructions:				
☐ Intranasal antihistamine sprays: ☐ 1 or ☐ Additional instructions: ☐ 1	2 times/day or as needed			
Combined intranasal antihistamine and corticosteroid spray: 1 or 2 times/day, or as needed Additional instructions:				
Saline nasal spray or irrigation times/day or as needed Use 10 minutes prior if used in conjunction with intranasal corticosteroid spray				
Decongestant: nasal spray or tablet. DosemL/mgtimes/day for up to 5 days (not more than 1 course/month)				
Other medications:				

#### ALLERGEN IMMUNOTHERAPY

If allergen immunotherapy has been initiated by a clinical immunology/allergy specialist, it is important to follow the treatment as prescribed. Contact your doctor if you have any questions or concerns.

© ABCIA 2015. For further information go to www.afergy.org.au/patients/information. This plan was developed by ABCIA as a medical document to be completed and signed by a medical or nume practitioner. To order additional copies small projects/@cilengy.org.au. Printing and distribution of this plan is supported by an unrestricted educational grant from BAYER



#### **TABLE**

Skin prick tests and serum specific IgE [RAST] tests have pros and cons compared to each other. In a 2 columned table headed SPT and RAST, pick out which comments refer to either SPTs or RAST tests

SPT	RASTS

Can only be done as a blood test

Can be done even if taking antihistamines

Preferred test for identifying sensitisation/allergy in children

Hard to interpret if there is dermatographism

Can be done using fresh food as source of allergen

Needs an area of skin unaffected by eczema

Cheap(ish)

**Expensive** 

**Diagnostic** 

Gives immediate result

No risk of inducing a reaction

RASTS

Can only be done as a blood test

Can be done even if taking antihistamines

**Preferred test** 

Hard to interpret with dermatographism

Can be done using fresh food

Both	Strength of positivity of test ∞ likelihood true allergy
Neither	Predict severity of allergic reaction

#### **Diagnostic**

Gives immediate resulte importance of the pre-test probability

No risks

#### **CASE**

4 month old fully breast fed eczematous boy, on first taste of yoghurt develops widespread wheals all over face and trunk, v itchy, lip and eye swelling, no involvement of CVS/resp/gastro systems. 1 week later does exactly the same with a nibble on a piece of cheese. All symptoms came on within 10 minutes and settled spontaneously without any specific treatment apart from discontinuing the food. You know that if you send a referral it may take many weeks for it to be actioned.

- a) Your thoughts?
- b) Your feeding recommendations?
- c) Investigations?

**CMPA** 

Continue breast feeding: avoid all milk and milk products

None? Consider SPTs(to what?)

#### SAME CASE AGAIN

4 month old fully breast fed eczematous boy, on first taste of yoghurt develops widespread wheals all over face and trunk, v itchy, lip and eye swelling, no involvement of CVS/resp/gastro systems. 1 week later does exactly the same with a nibble on a piece of cheese. All symptoms came on within 10 minutes and settled spontaneously without any specific treatment apart from discontinuing the food.

Now mother has to return to work, and is going to have to use a formula feed.

Your recommendations?

		Maternal	Choice of formula		
Syndrome	Onset of reaction	elimination of CMP if breastfeeding?	First <sup>†</sup>	•	Third (if second not tolerated)
Immediate reaction					
Immediate food allergy	<1h	Yes	eHF (< 6 months)	AAF	_
			Soy (> 6 months)	eHF	AAF
Anaphylaxis	<1h	Yes	AAF (followed by urgent consultation with paediatric allergist)	_	_
Food protein-induced enterocolitis syndrome	1–3 h	No	eHF	AAF	_

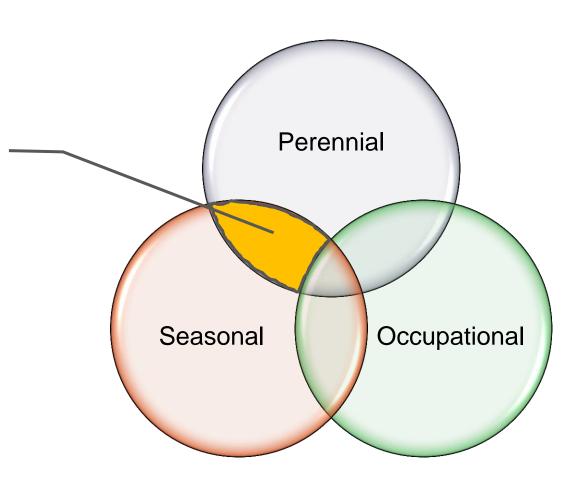
#### MCQ

Perennial rhinitis is most likely to be attributable to:

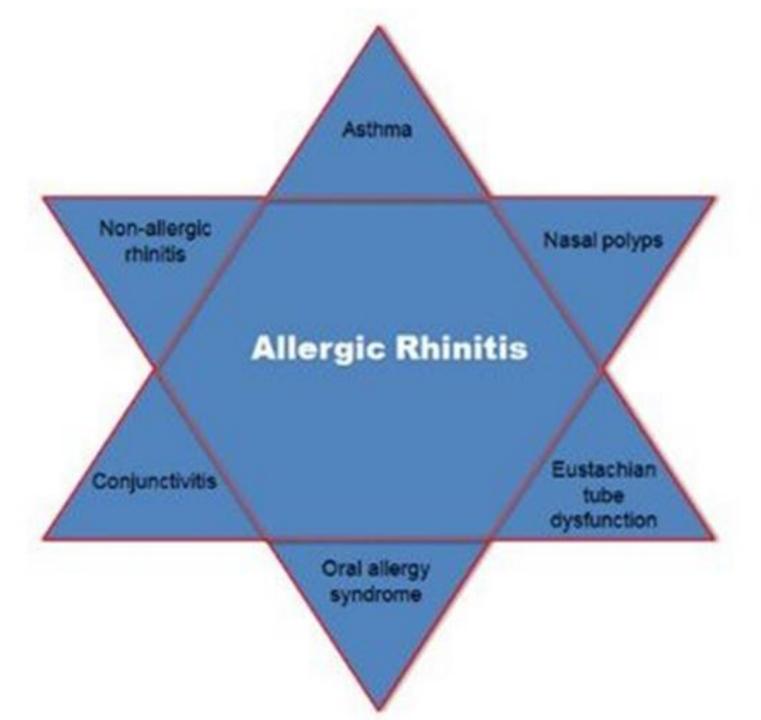
- a) weeds
- b) Grasses
- c) House dust mite
- d) pollens

HDM, but ....

Perennial with seasonal exacerbations







#### **CASE**

2yr old with recurrent urticaria. No definite allergen identified so far, but a colleague of yours had suggested doing a screen for food allergies. Results as shown. She regularly eats all of these foods.

Your management?

Anna CONDA NHI EFI2345 dob 12/1/2015

DiagMudLab, Glen Morangie

Grade	Result
+4	6kU/L
+6	10
+6	11
+1	3
+5	12
+5	13
	+4 +6 +6 +1 +5

Review history

Think of the causes of [recurrent] urticaria

Leave the diet alone

#### **CASE**

18/12 boy, unwell with febrile illness. Mild eczema as an infant which has all but gone now. Has bright red ear drums and reddened fauces: a colleague has prescribed a 5 day course of amoxycillin.

36hrs after starting the amoxil, he develops a widespread, non itchy macular rash all over the body but fever has gone and seems to be feeling better.

What advice will you give the family about the future use of b-lactam antibiotics? Discuss

Is this a drug allergy? If so, chances of anaphylaxis?

Temporal relationship

Reaction in keeping with known adverse reactions

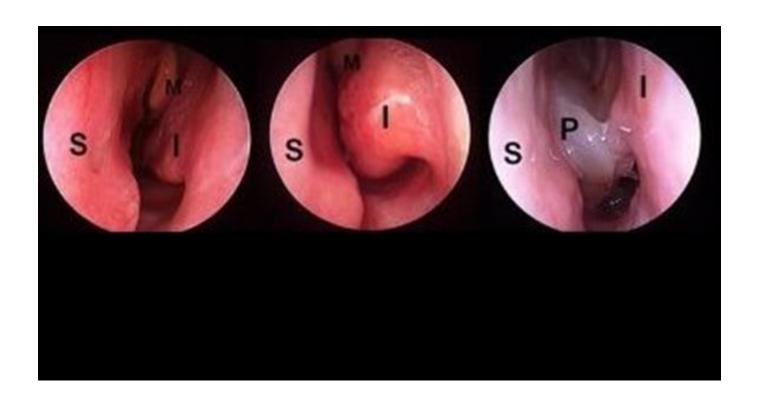
Resolved with cessation?

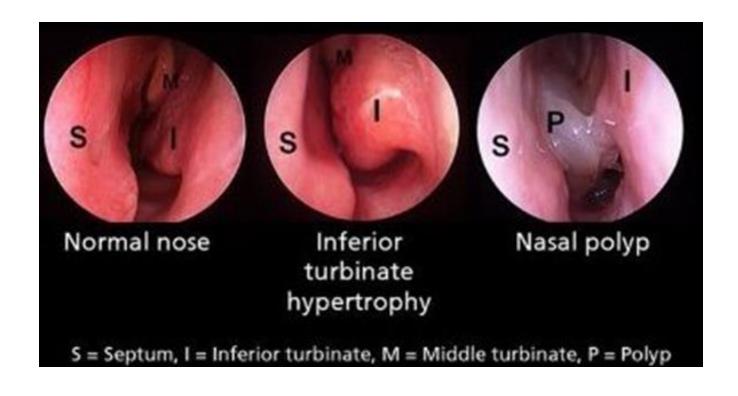
Other drugs at same time that could be blamed?

Underlying condition(s) of the pt which could explain the reaction

## **PICTURE**

**Nose-gazing: identify the labelled parts** 





#### **CASE**

Felix is a 10 month old baby who had a possible reaction to egg when he was 5 months old. He has been kept egg free since then.

There is no easy local access to SPTs in your area.

His parents are wondering about alternatives, as they want to know if they should try him again with egg.

Your thoughts?

History

Do nothing?

EiB?

**Consider sslgE?** 

ssIgE results predicting chance of reaction at challenge >95 % 29, 30		
Egg	>7kU/l	
Egg in infants under 2 years	> 2kU/1	
Milk	15kU/I	
Peanut	14kU/I	

#### **QUESTION**

Where do you look for advice on paediatric allergic diseases?



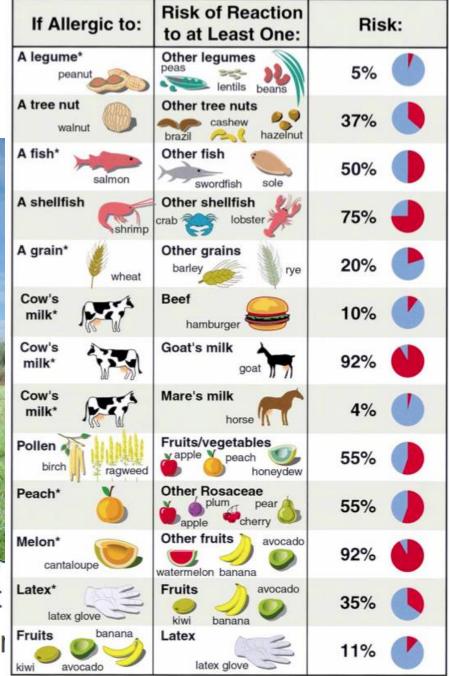
#### X-REACTIONS

Father has heard that his peanut allergic child may also have reactions to other 'similar' foods

What can you tell him about such cross reactions?



- 15% with peanut
  - 50% with pear



gy Iergy

#### **VACCINE**

3yr old boy with cystic fibrosis. His family are asking about annual influenza vaccination which has been recommended to them by the paediatric respiratory specialists.

What would you advise in terms of allergy issues?

- MMR
  - Routine
  - Usual precautions including in children with egg anaphylaxis; no increase in risk
- Influenza
  - Increasing data on safety
  - Current vaccines <0.1ug egg protein</li>
  - History anaphylaxis or no known egg tolerance -> vaccinate under hospital supervision (1/10<sup>th</sup> dose then remainder)
  - Mild egg allergy or some tolerance -> vaccinate with usual precautions
- Yellow fever -> still contraindicated

# TOPICS WE HAVE COVERED

#### **SPTs**

Anaphylaxis rates in children, and their causes

**Dermatographism** 

Various urticarias

sslgE testing

The interplay between eczema and food allergy

Feeding guidelines for children with milk allergy

Insect reactions

**Rhinitis** 

Alternative milks for allergic infants

Nasal sprays

Referral patterns

**Cross reactivity** 

## QUESTIONS AND BURNING ISSUES?

Well, this is embarrassing for both of us...



## **THANK YOU!**