Métodos utilizados para a deteção de alergias e intolerâncias

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SÃO JOÃO HOSPITAL

ISPUP
INSTITUTO DE SAÚDE PÚBLICA DA UNIVERSIDADE DO PORTO

What is in a kiss?

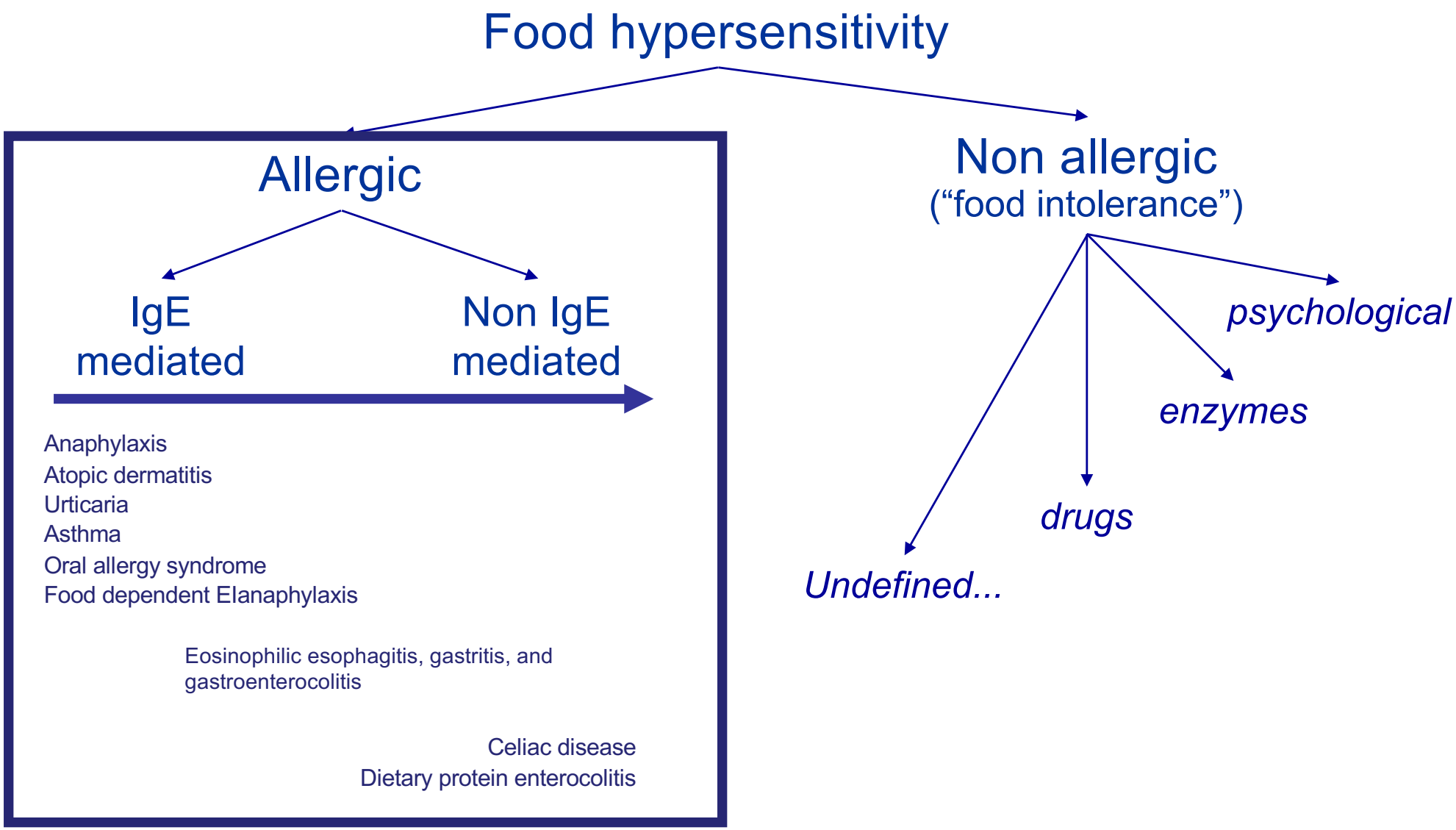
Ara h 1 on the site of a kiss on a nitrocellulose membrane
5 minutes after ingestion of a peanut butter sandwich

Nolan RC e*t al.* **J Allergy Clin Immunol. 2007** Mar;119(3):755

Myriam Ducre-Lemay's mother said she suffered the allergic reaction after kissing her new boyfriend, who had eaten peanut butter and wasn't aware of her severe allergy

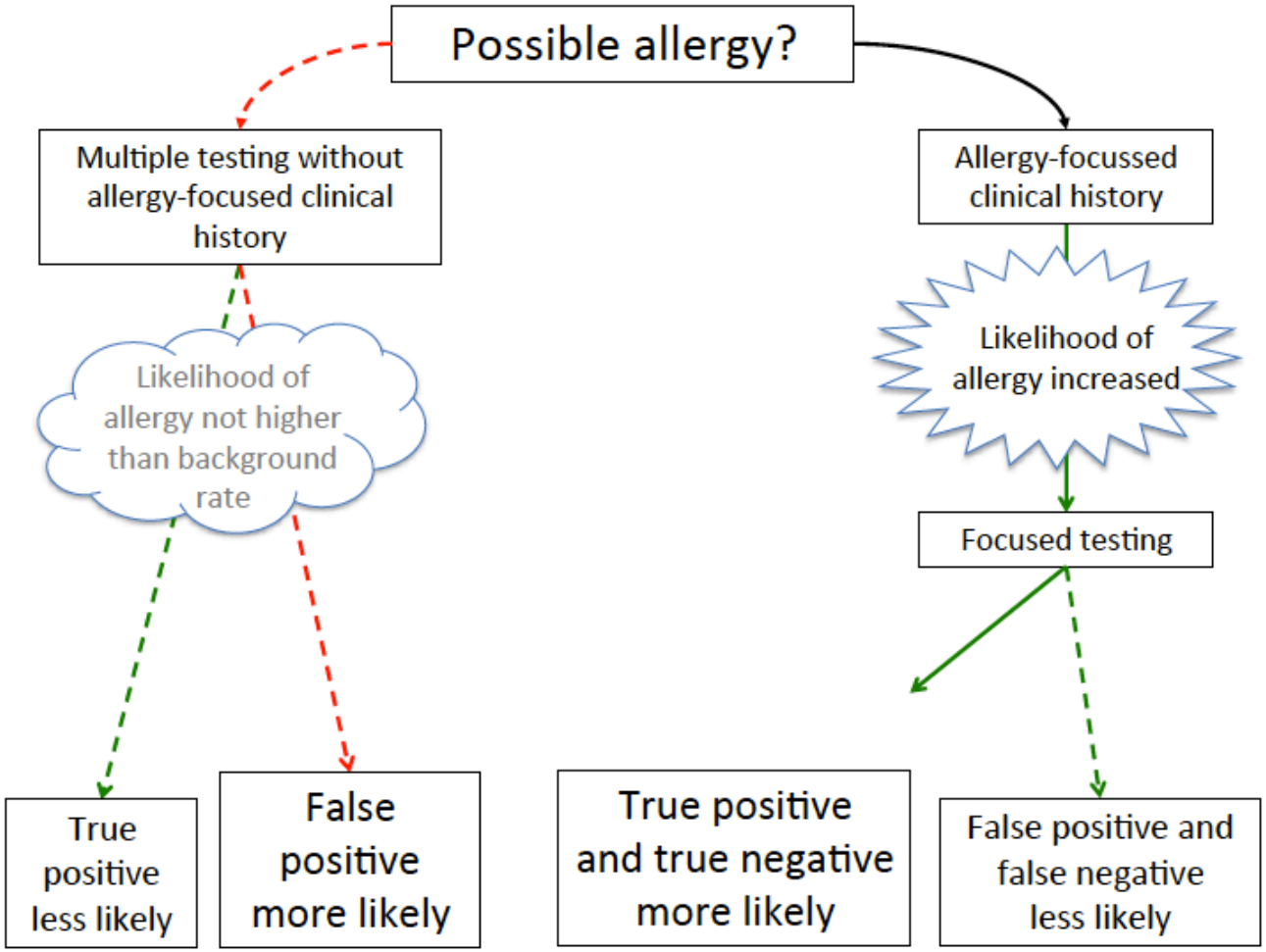
Myriam Ducre-Lemay did not carry her epipen on the night of her death, and did not inform her boyfriend of her peanut allergy, her mother said

Food allergy *vs.* food intolerance



Sicherer and Sampson. **Food allergy: Epidemiology, pathogenesis, diagnosis, and treatment** J Allergy Clin Immunol **2014**;133:291-307

Multiple testing undertaken without an allergy focused history will give false-positive results



Robert G *et al.* **Allergy. 2016 Nov;**71(11):1540-1551.

1 SMS

1 in 5 avoid food because of a

perceived allergy;

however only **1 in 100** have

true food allergy!

Food allergy epidemics in Europe

Lifetime prevalence of self-reported: 17.3%

Point prevalence for self-reported: 5.9%

Positive skin prick test to at least one food: 2.7%

Positive specific IgE: 10.1%

Challenge-verified FA: 0.9%

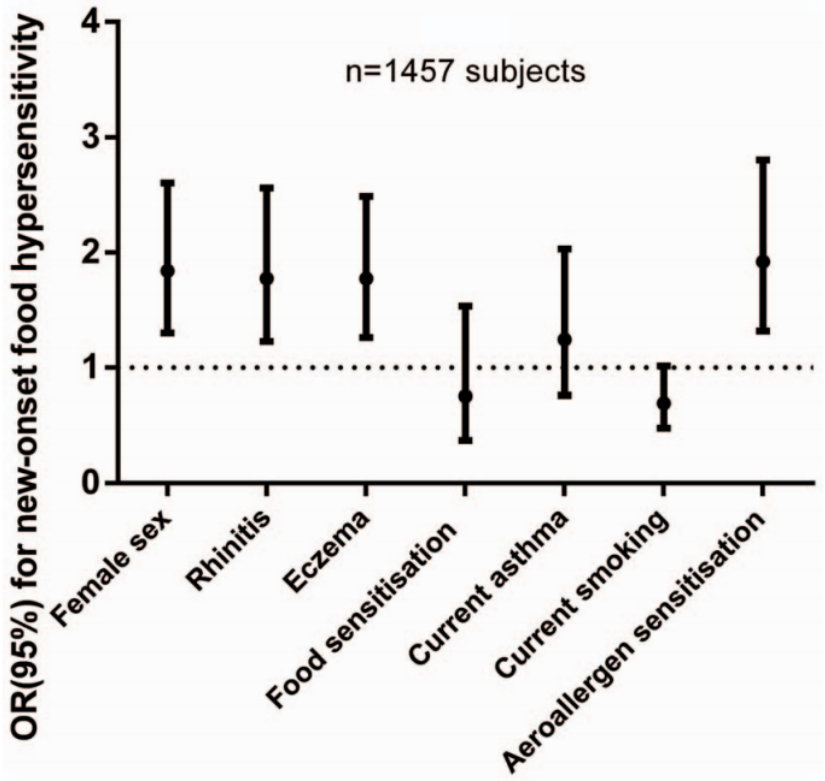
Table 1 Summary of range of estimates of the frequency of FA in Europe by self-report, skin prick (SPT) positivity, IgE positivity, food challenges, and symptoms or clinical history: estimates from studies published between 1 January 2000 and 30 September 2012

	Frequency of FA							
	Point prevalence							Lifetime prevalence
Age bands, years	Self-report	Positive IgE	Positive SPT	Symptom plus positive IgE	Symptom plus positive SPT	Clinical history or food challenge	Food challenge	Self-report
≤1	1.7–9.8%	19.4–20.3%	2.2–4.3%	1.3–4.6%	1.6–13.1%	2.7–3.0%	0.3–4.2%	5.7–38.4%
2–5	1.6–38.7%	4.1–21.5%	3.2–4.5%	4.6%	13.1%	2.1–6.8%	0.0–4.2%	5.7–38.4%
6–10	1.6–24.4%	4.1–52.0%	1.8–6.1%	4.6%	0.1–13.1%	1.1–2.1%	0.4–4.2%	5.7–41.8%
11–17	1.6–24.4%	4.1–16.1%	1.8–6.1%	4.6%	0.1–13.1%	1.4–2.3%	0.1–5.7%	10.6–38.4%
18–60	3.5–19.6%	2.0–21.9%	–	2.2%	–	–	0.1–3.2%	9.5–35.0%
>60	3.3%	9.0–16.8%	–	2.2%	–	–	2.9%	15.5–35.0%

Nwaru *et al.* **The epidemiology of food allergy in Europe: a systematic review and meta-analysis**. Allergy 69 (**2014**) 62–75

Female, rhinitis, eczema, asthma and IgE sensitization to aeroallergens are risk factors for food allergy onset in adults

2307 individuals (aged 20–45 years) from Iceland and Sweden followed-up for 9 years



Patelis *et al.* **Natural history of food hypersensitivity and IgE sensitisation to food allergens in a cohort of adults.** PLoS One. **2014 Jan** 10;9(1)

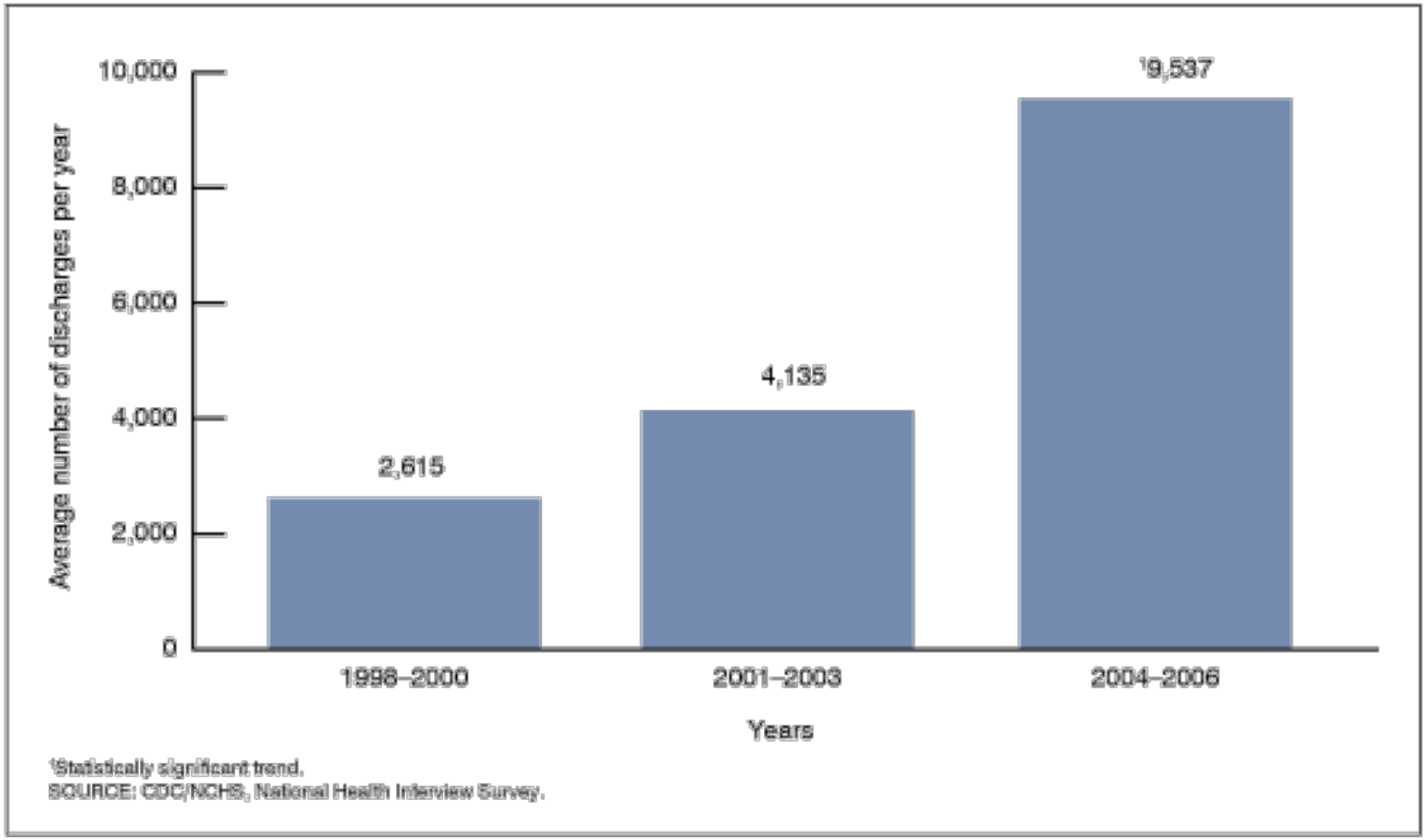
 # 2 SMS

Life-threatening food allergies

are **on the rise!**

Severity of food allergy reactions on the rise

Figure 4. Average number of hospital discharges per year among children under age 18 years with any diagnosis related to food allergy: United States, 1998–2006



[1]Statistically significant trend.
SOURCE: CDC/NCHS, National Health Interview Survey.

Food-related anaphylaxis increased significantly particularly in children up to 9 years

incidence rate of anaphylaxis 42 per 100,000 person-years from 2001-2010
9.8% increase per year in the incidence rate of food-related anaphylaxis

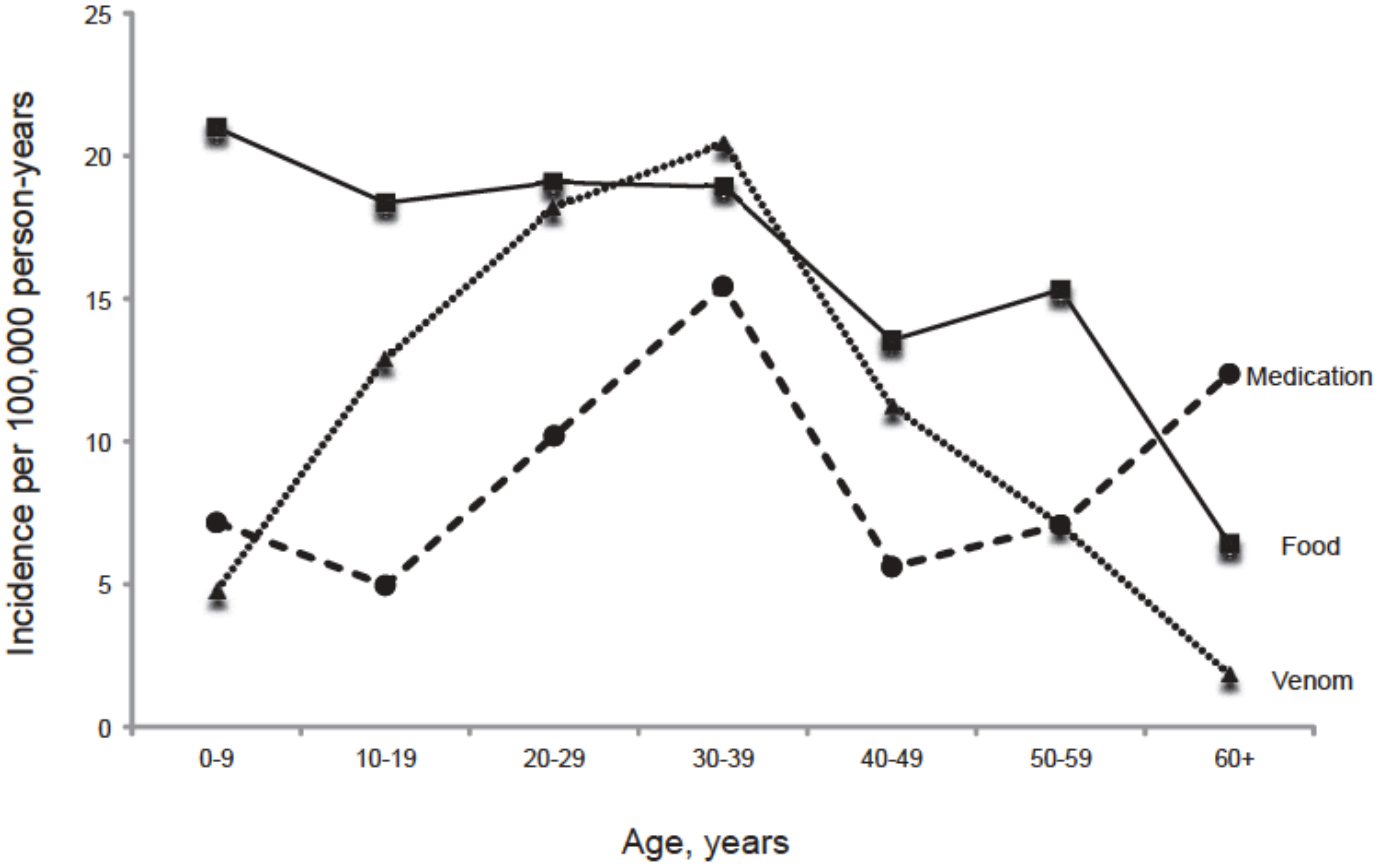


FIG 2. Incidence rate of anaphylaxis by age group and inciting triggers.

Lee S et *al.* Trends, characteristics, and incidence of anaphylaxis in 2001-2010. **J Allergy Clin Immunol. 2016** Jun 4

3 SMS

90% of all food allergy reactions are caused by 8 allergens

90% of all reactions comes from 8 allergens

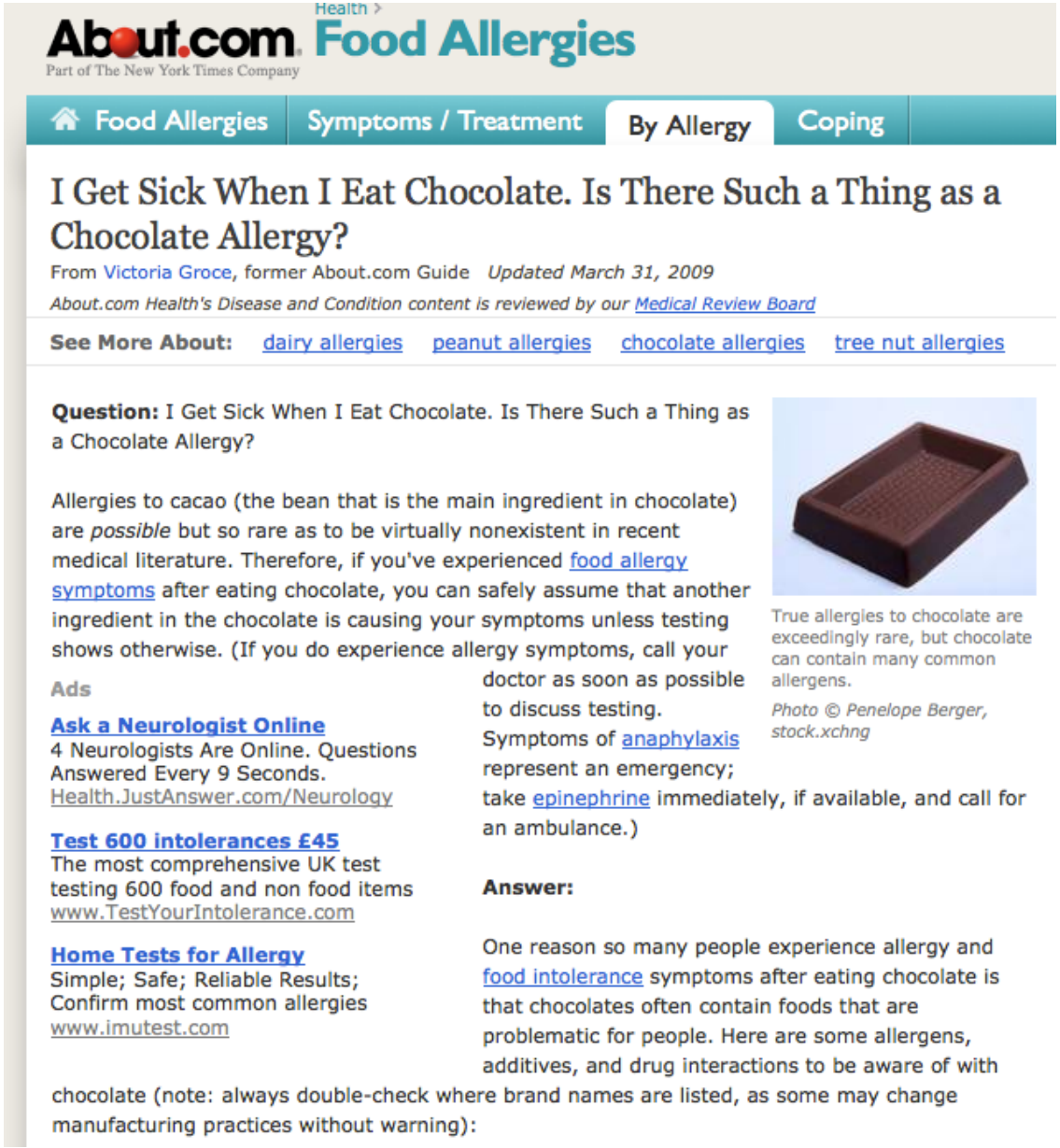
50 were included in a narrative synthesis and 42 studies in the meta-analyses.

Age (years) for each allergen	SR lifetime prevalence, %	Point prevalence, %				
		Self-report	IgE positivity	SPT positivity	Clinical history or FC	OFC or DBPCFC
Cow's milk						
≤ 1	1.5-12.8	1.5-55.7	0.7-9.0	0.1-2.5	1.6-3.7	0.0-3.0
2-5	1.5-12.8	2.2-55.7	0.5-10.1	0.0-2.5	0.2-2.1	0.0-3.0
6-17	0.9-15.0	1.3-55.7	0.5-10.1	0.2-2.5	--	0.0-3.0
≥ 18	1.5-14.0	0.3-3.5	0.0-7.1	0.2-2.8	--	0.0-3.0
Hen's egg						
≤ 1	1.6-6.3	0.2-27.9	<1.0-9.0	0.4-5.2	0.0-1.4	0.0-1.7
2-5	1.6-6.3	0.2-27.9	0.4-9.0	0.4-5.0	0.7-1.3	0.0-1.7
6-17	0.8-2.9	0.2-27.9	0.4-9.0	0.0-5.0	--	0.0-1.7
≥ 18	1.6-2.0	0.2-2.0	0.2-9.0	0.5-5.0	--	0.0-1.7
Wheat						
≤ 1	1.5-4.1	0.5-28.6	--	0.0-0.4	0.1-0.4	0.0-0.4
2-5	1.0-4.1	0.4-28.6	0.7-8.8	0.2-1.2	0.1-0.3	0.0-0.5
6-17	~1.0	0.4-28.6	0.7-8.8	0.4-11.8	--	0.0-0.3
≥ 18	--	0.4-0.8	0.7-3.4	0.4-8.7	--	~0.0
Soy						
≤ 1	~0.3	0.1-0.3	--	~0.2	--	0.0-0.7
2-5	~0.3	0.3-0.8	1.2-6.1	~0.2	--	0.0-0.7
6-17	~0.3	0.3-1.3	1.2-6.1	~0.2	--	0.0-0.7
≥ 18	~0.3	0.3-1.3	0.0-1.4	~1.7	--	0.0-0.1
Peanut						
≤ 1	--	0.0-2.0	0.2-10.9	0.4-6.0	--	0.0-0.2
2-5	~1.1	0.0-2.8	<1.0-10.9	1.0-3.3	0.4-1.9	0.0-1.4
6-17	0.1-1.7	0.0-6.0	<1.0-10.9	1.0-8.2	0.4-2.0	0.0-0.8
≥ 18	~1.3	0.0-6.0	1.2-1.8	1.0-10.1	--	0.0-0.6
Tree nut						
≤ 1	1.7-2.7	0.03-19.0	--	0.02-1.0	~0.0	0.7-1.4
2-5	0.3-2.7	0.03-19.0	--	0.02-1.0	0.0-0.1	0.7-1.4
6-17	0.1-2.7	0.2-19.0	--	0.02-6.3	--	0.0-4.3
≥ 18	2.7-5.3	0.4-7.3	0.6-3.5	11.3	--	~0.0
Fish						
≤ 1	0.5-4.6	0.0-17.4	~0.0	0.0-2.0	~0.1	0.0-0.2
2-5	0.5-4.6	0.0-17.4	0.0-0.7	0.0-2.0	~0.0	~0.0
6-17	0.3-0.7	0.0-17.4	0.0-0.7	0.0-2.0	--	~0.0
≥ 18	0.5-1.0	0.0-2.0	0.0-0.7	0.0-2.8	--	0.0-0.2
Shell fish						
≤ 1	--	0.0-13.0	--	~2.5	--	~0.0
2-5	--	0.0-13.0	--	~2.5	--	~0.0
6-17	~1.4	0.0-13.0	--	~2.5	--	0.0-0.1
≥ 18	~1.0	0.0-10.0	~5.2	1.9-2.5	--	0.0-0.5

DBPCFC = double blind placebo-controlled food challenge; OFC = oral food challenge; sIgE = specific immunoglobulin E; SPT = skin prick test; SR = self-reported

EAACI Food Allergy and Anaphylaxis Guidelines Group. **Prevalence of common food allergies in Europe**. **Allergy. 2014 Aug;69(8):992-1007**

There is no such thing as cacao allergy !



About.com Health > Food Allergies
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Food Allergies | Symptoms / Treatment | By Allergy | Coping

I Get Sick When I Eat Chocolate. Is There Such a Thing as a Chocolate Allergy?

From Victoria Groce, former About.com Guide *Updated March 31, 2009*

About.com Health's Disease and Condition content is reviewed by our Medical Review Board

See More About: dairy allergies | peanut allergies | chocolate allergies | tree nut allergies

Question: I Get Sick When I Eat Chocolate. Is There Such a Thing as a Chocolate Allergy?

Allergies to cacao (the bean that is the main ingredient in chocolate) are *possible* but so rare as to be virtually nonexistent in recent medical literature. Therefore, if you've experienced food allergy symptoms after eating chocolate, you can safely assume that another ingredient in the chocolate is causing your symptoms unless testing shows otherwise. (If you do experience allergy symptoms, call your doctor as soon as possible to discuss testing. Symptoms of anaphylaxis represent an emergency; take epinephrine immediately, if available, and call for an ambulance.)

True allergies to chocolate are exceedingly rare, but chocolate can contain many common allergens.

Photo © Penelope Berger, stock.xchng

Ads

Ask a Neurologist Online
4 Neurologists Are Online. Questions Answered Every 9 Seconds.
Health.JustAnswer.com/Neurology

Test 600 intolerances £45
The most comprehensive UK test testing 600 food and non food items
www.TestYourIntolerance.com

Home Tests for Allergy
Simple; Safe; Reliable Results; Confirm most common allergies
www.imutest.com

Answer:

One reason so many people experience allergy and food intolerance symptoms after eating chocolate is that chocolates often contain foods that are problematic for people. Here are some allergens, additives, and drug interactions to be aware of with chocolate (note: always double-check where brand names are listed, as some may change manufacturing practices without warning):

Major class 1 food allergens

Primary sensitizers
Sensitization may occur in the gastrointestinal tract
Water-soluble glycoproteins
Molecular weights ranging from 10 to 70 kD
Stable to heat, acid and proteases

Cow's milk: Caseins (α, β,κ), α-lactoalbumin, β-lactoglobulin,

Chicken egg: Ovomucoid, ovalbumin, ovotransferrin

Peanut: Vicillin, conglutin, glycinin

Soybean: Glycinin, profilin, trypsin inhibitor

Shrimp: Tropomyosin

Lipid transfer proteins (LTPs): Apple, apricot, peach, corn

Class 2 food allergens

Cross-reactive and associated with oral allergy syndrome

Generally plant-derived proteins
Highly heat-labile
Difficult to isolate
No good extracts are available for diagnostic purposes

Pathogen-related protein 2 group (glucanase): Latex, avocado, banana, chestnut, fig

Pathogen-related protein 5 (thaumatin-like): Cherry, apple, kiwi

Birch Bet 1 homologues (pathogen-related proteins 10): Apple, cherry, apricot, peach, pear, carrot, celery, parsley, hazelnut

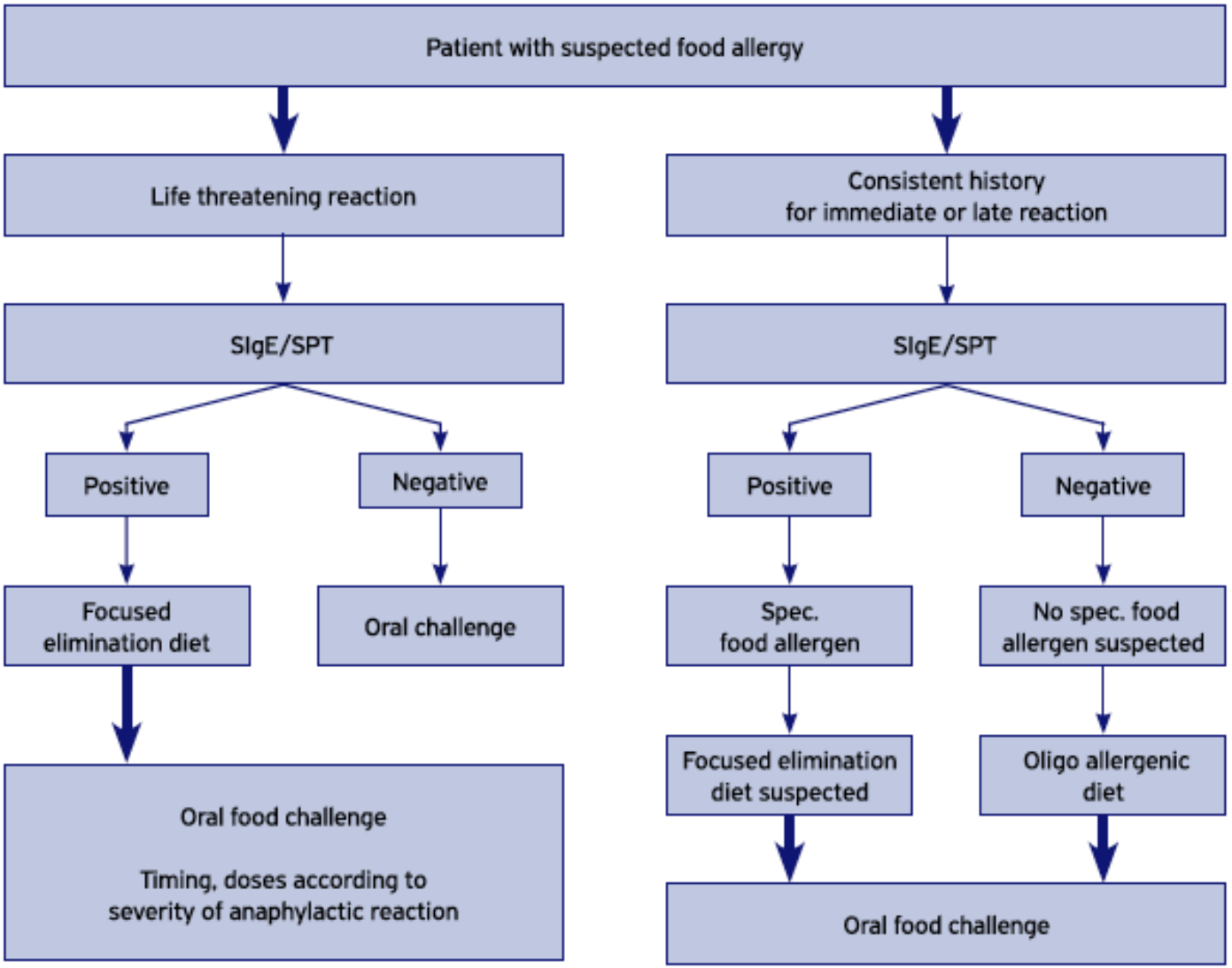
Birch Bet 2 homologues (celery-mugwort-spice syndrome) profilin: Latex, celery, potato, pear, peanut, soybean

Oral allergy syndrome

4 SMS

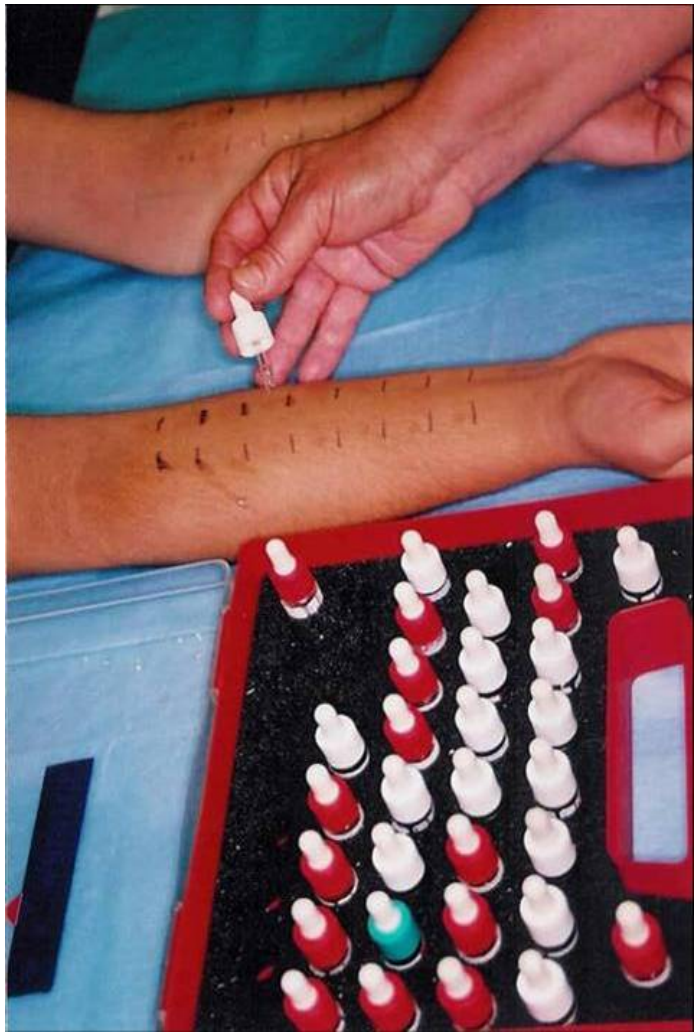
Diagnosis may be a challenge!

EAACI **Food Allergy and Anaphylaxis Guidelines**: diagnosis and management of food allergy



EAACI Food Allergy and Anaphylaxis Guidelines Group. **Allergy 2014;** 69: 1008–102

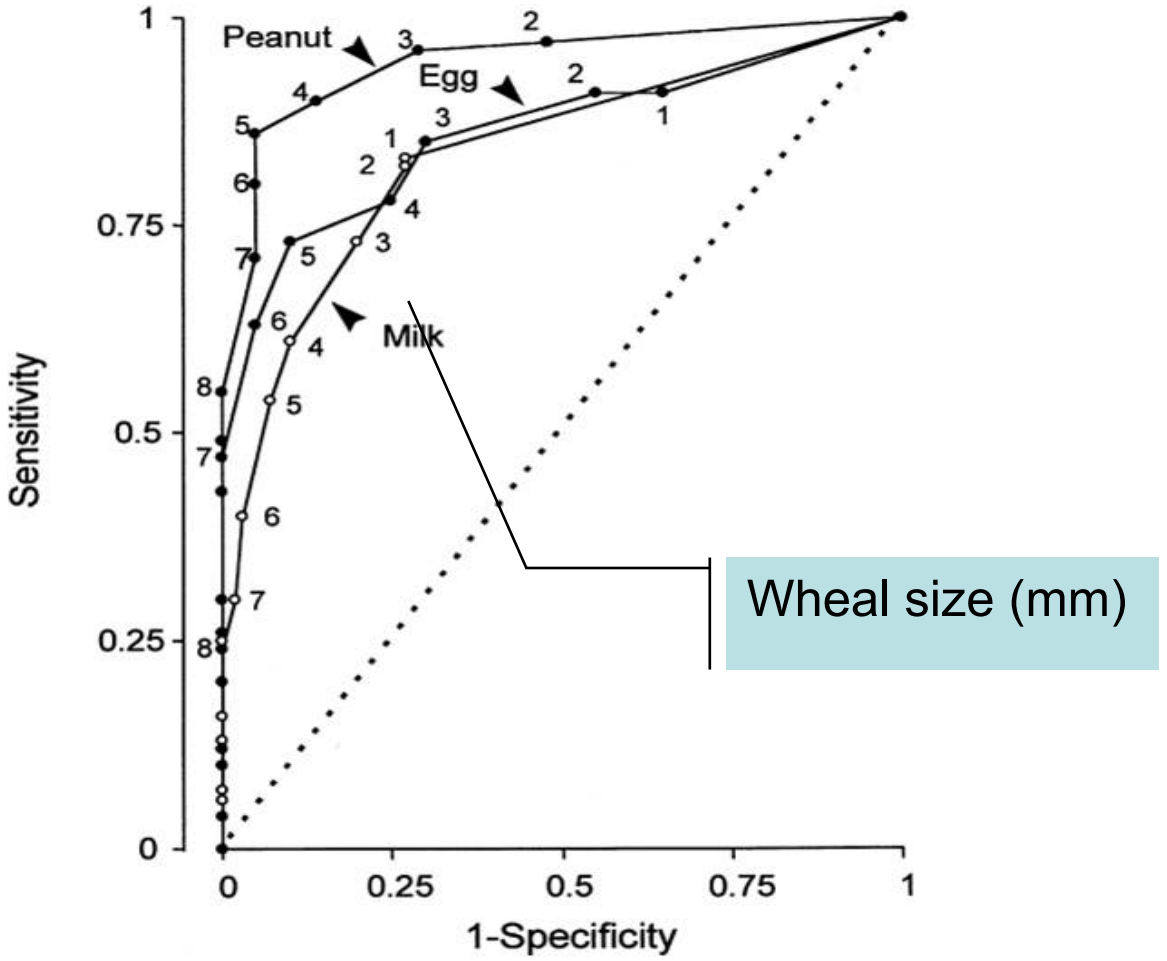
Skin prick tests



Predictive Positive Value < 50% (Kagan, 2003)

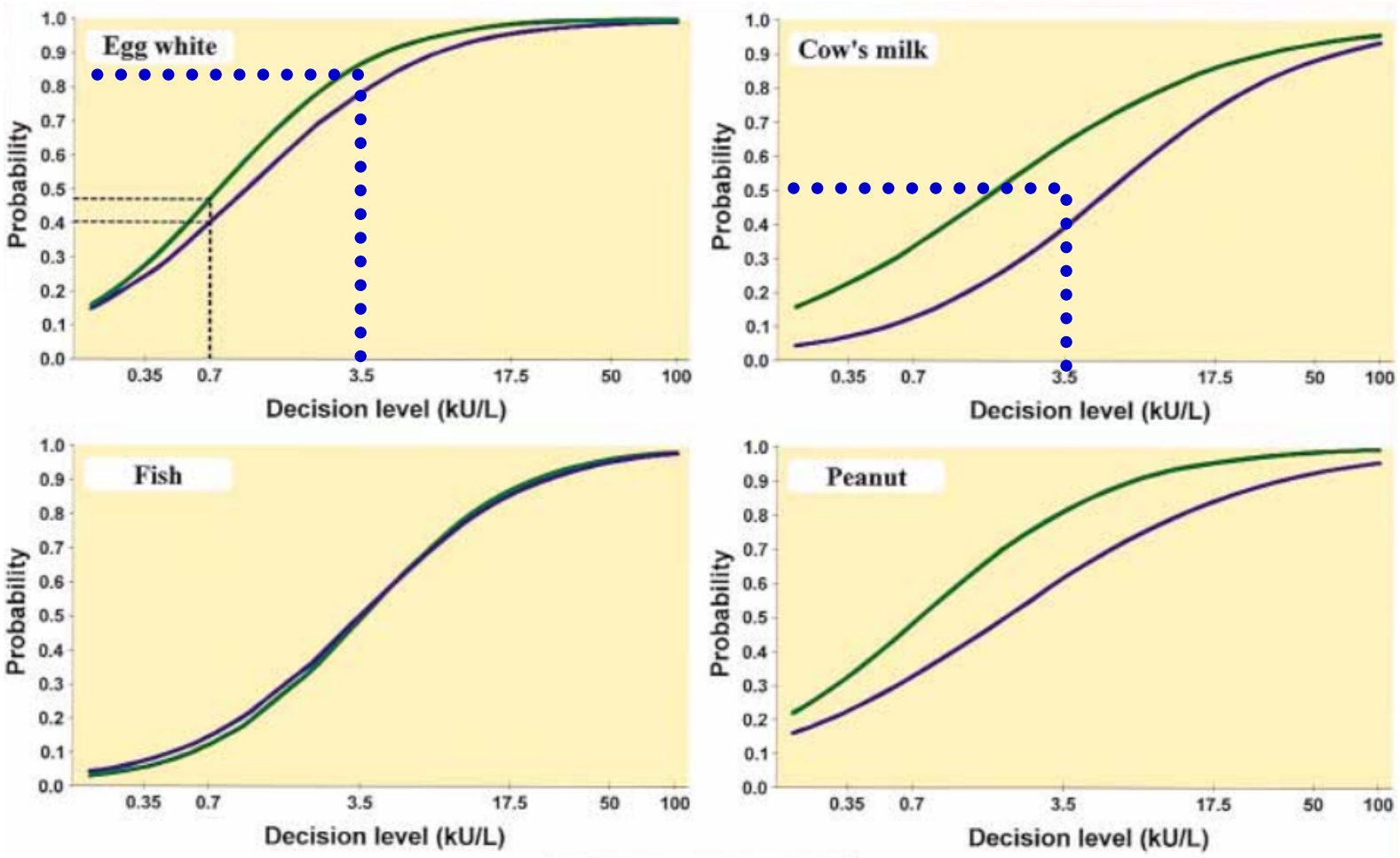
Predictive Negative Value >95% (Hill, 2001)

Skin prick tests to food allergens: high negative and low positive predictive value



Hill *et al.* **Clin Exp. Allergy 2000**;30:1540-1546

Likelihood of a positive oral food challenge



Wonak WA *et al*. **J Allergy Clin Immunol 2009;**123:S365-83

5 SMS

York test, α200, … are useless

PASSATEMPO

GANHE UM TESTE DE INTOLERÂNCIA ALIMENTAR

A200 DIETA MEDITERÂNICA

YORKTEST® LABORATORIES

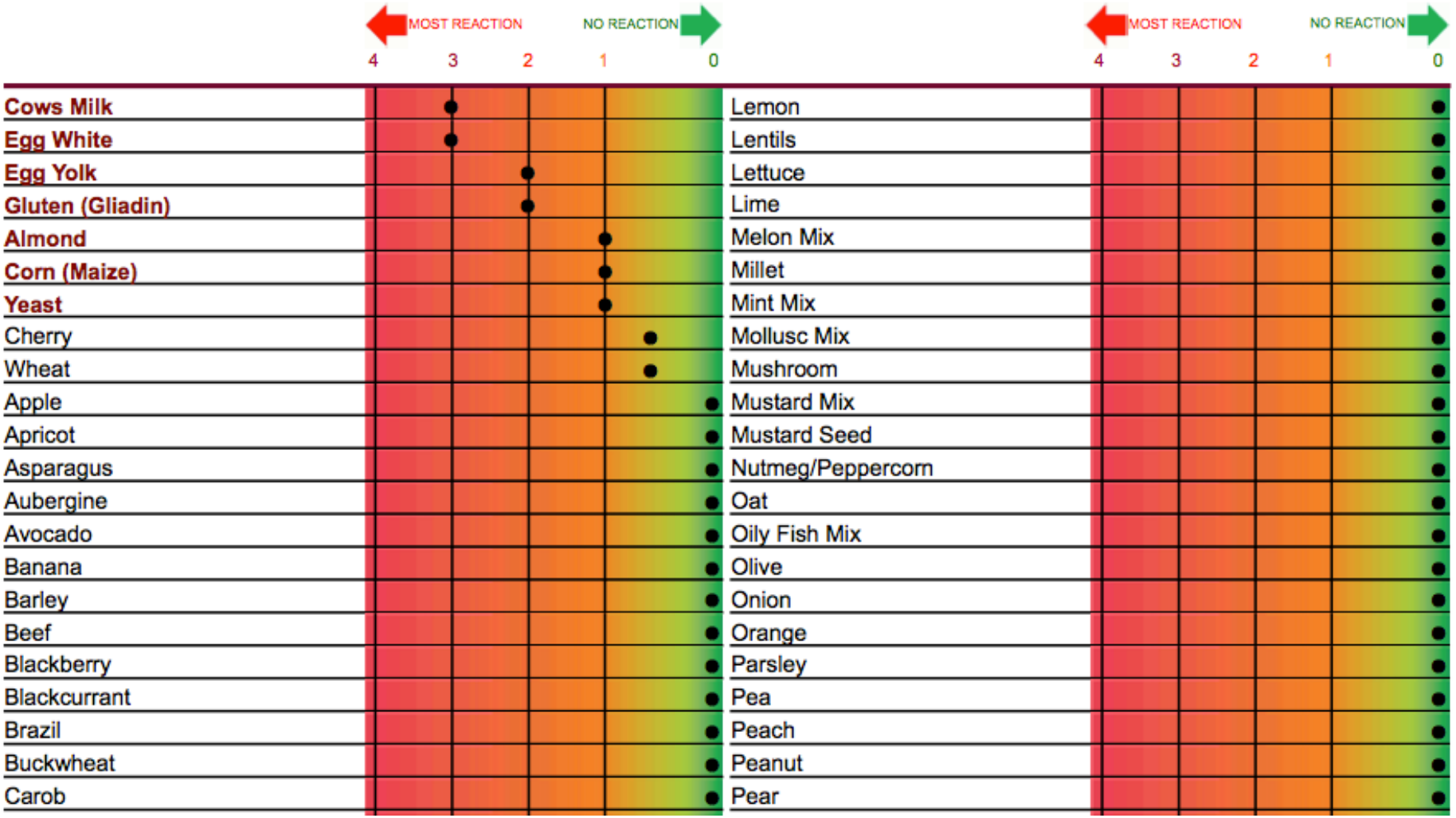
Your results

Foodscan 113

Food Intolerance Test

Client Name: Mr Example Results
Contact ID: 332597
Sample ID: 2006015520
Results Date: 07 December 2006
Print Date: 16 August 2010

KEY: ● Level of reaction identified for each individual food, from 0 (no reaction) to 4 (the highest reaction).



Dietary advice based on food-specific IgG results

Geoffrey Hardman
Centre for Health Economics, University of York, Heslington, York, UK, and
Gillian Hart
YorkTest Laboratories Ltd, York Science Park, York, UK

Abstract

Purpose – To provide evidence that elimination diet based on food-specific IgG test results is an effective, reliable and valid aid to the management of chronic medical conditions.

Design/methodology/approach – A postal survey, commissioned by Allergy UK, was carried out with 5,286 subjects reporting a wide range of chronic medical conditions, who had taken a food-specific IgG enzyme-linked immunosorbant assay blood test. Questionnaires, issued three months after the results, were analysed to investigate the effect of eliminating the foods identified by the test. To check for response bias, a separate group of patients who had not responded were interviewed by telephone. The analysis and reporting of the data was carried out at the University of York.

Findings – Of patients who rigorously followed the diet 75.8 per cent had a noticeable improvement in their condition. Of patients who benefited from following the recommendations 68.2 per cent felt the benefit within three weeks. Those who reported more than one condition were more likely to report noticeable improvement. 81.5 per cent of those that dieted rigorously and reported three or more co-morbidities showed noticeable improvement in their condition. For those who dieted rigorously and reported high benefit, 92.3 per cent noticed a return of symptoms on reintroduction of the offending foods.

Originality/value – These data provide evidence for the use of elimination diet based on food-specific IgG blood test results as an aid to management of the symptoms of a range of chronic medical conditions.

Keywords Food products, Diet

Paper type Research paper

Agreement between tests is 64% !

	Second test			
First test	No reaction	Low	Intermediate	Significant
No reaction	35	32	5	1
Low	31	376	65	15
Intermediate	5	101	52	12
Significant	1	24	13	87

Jenkins and Vickers. **Clinical and Experimental Allergy,** 28, 1526–1529

Results and clinical actions recommended by the “laboratory”

Category of result	Recommended clinical action
No reaction	No restrictions, may eat food daily
Low	No restrictions, may eat food daily
Intermediate	Eat food on 4 day rotation schedule
Significant	Eliminate food entirely, follow computer diet

Jenkins and Vickers. **Clinical and Experimental Allergy,** 28, 1526–1529

Agreement between tests categorized by recommended clinical action

	Second test	
First test	Clinical action required	Clinical action not required
Clinical action required	164	131
Clinical action not required	86	474

Jenkins and Vickers. **Clinical and Experimental Allergy,** 28, 1526–1529

Higher IgG to foods during infancy are associated with tolerance later in life

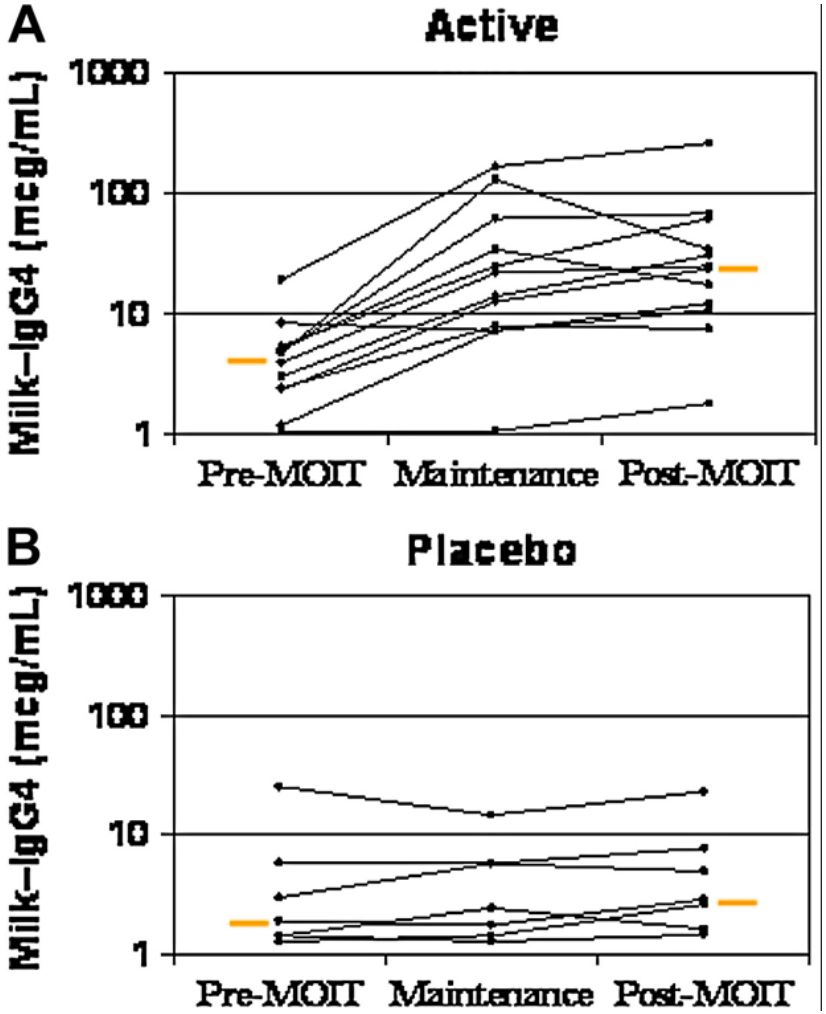
89 food allergic children, aged below 2 yr, followed until 4½ yr of age

	Tolerant	Non-tolerant
To egg and/or milk		
	n = 47	n = 13
Tot IgE (kU/l)	20.2 (2.07–434)	38.3 (8.09–272)
SIgA (ng/ml)	18.8 (5.99–58.5)	17.3 (8.72–123)
Tot IgA (ng/ml)	36.4 (10.3–106)	28.6 (12.2–118)
To egg		
	n = 37	n = 11
Egg IgE (kUA/l)	1.260 (0.175–22.2)	4.67 (0.175–38.4)
OVA IgA (AU)	0.41 (0.08–0.94)	0.29 (0.08–1.2)
OVA IgG_1(AU/l)	152 (11.2–8650)	74.0 (1.57–11300)
OVA IgG_1/egg IgE	168 (4.81–7800)	47.4 (3.90–11200)
OVA IgG_4 (AU/l)	**279 (14.9–42700)****	**62.0 (9.03–572)****
To milk		
	n = 28	n = 6
Milk IgE (kUA/l)	0.725 (0.175–33.1)	0.175 (0.175–23.4)
BLG IgA (AU)	0.19 (0.05–0.55)	0.36 (0.05–0.68)
BLG IgG_1 (AU/l)	161 (1.63–12000)p = 0.05	15.4 (1.57–238)p = 0.05
BLG IgG_1/milk IgE	129 (3.16–68600)p = 0.07	19.7 (0.365–107)p = 0.07
BLG IgG_4 (AU/l)	**2210 (98.5–90400)*****	**46.2 (13.2–172)*****

Significant differences are in bold. **p < 0.01; ***p < 0.001.
SIgA, secretory IgA; OVA, ovalbumin; BLG, β-lactoglobulin.

Pediatr Allergy Immunol. 2009 Feb;20(1):35-41.

Milk IgG levels increased significantly after milk oral immunotherapy



J Allergy Clin Immunol. 2008 Dec;122(6):1154-60.

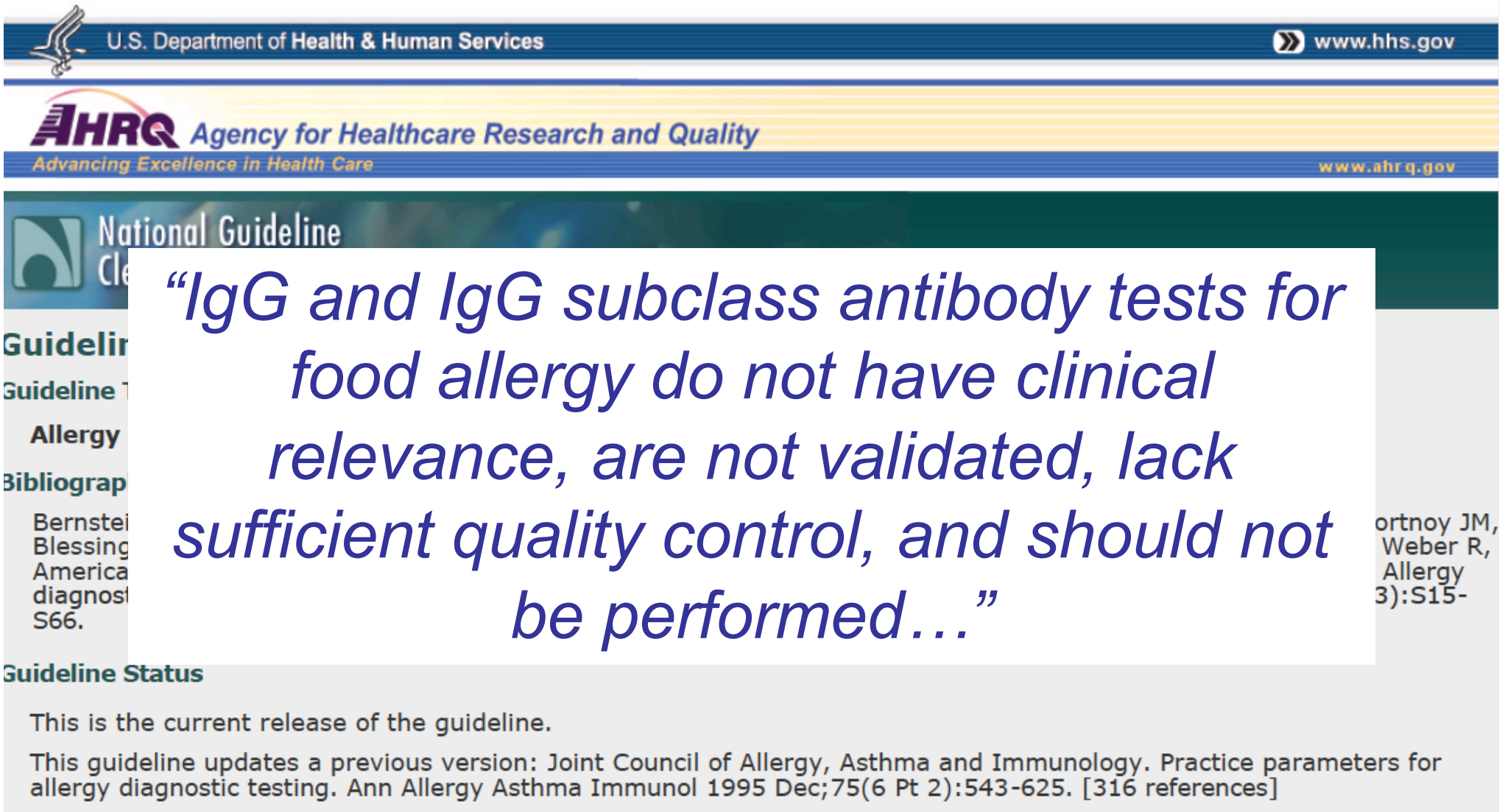
IgG may actually be a marker

for **food *tolerance***,

not intolerance!

From the American Academy of Allergy, Asthma and Immunology & American College of Allergy, Asthma and Immunology:

Allergy diagnostic testing: an updated practice parameter



"IgG and IgG subclass antibody tests for food allergy do not have clinical relevance, are not validated, lack sufficient quality control, and should not be performed…"

Ann Allergy Asthma Immunol 2008 Mar;100(3 Suppl 3):S15-S66

American Academy of Allergy, Asthma and Immunology (AAAAI) Practice Paper, *Current approach to the diagnosis and management of adverse reactions to foods*

Food allergy, dermatologic diseases, and anaphylaxis

- *"…Some tests are considered unproven in regard to the diagnosis of specific food allergies. Those for which there is no evidence of validity include provocation-neutralization, cytotoxic tests, muscle response testing (applied kinesiology), electrodermal testing, the "reaginic" pulse test, and chemical analysis of body tissues.* ***Measurement of specific IgG antibodies to foods is also unproven as a diagnostic tool..."***

statements are defined as follows: "Practice Papers of the Academy provide further comment or clarification on appropriate methods of treatment or care. They may be created by committees or work groups, and the end goal is to aid practitioners in making patient decisions. They do not constitute official statements of the

exclusive course of action, nor is it intended to replace the medical judgment of healthcare professionals. The unique circumstances of individual patients and environments are to be taken into account in any diagnosis and treatment plan. This statement reflects clinical and scientific advances as of the date of publication and is subject to change.

J Allergy Clin Immunol. 2004 Nov;114(5):1146-50

From the European Academy of Allergy and Clinical Immunology

Position paper

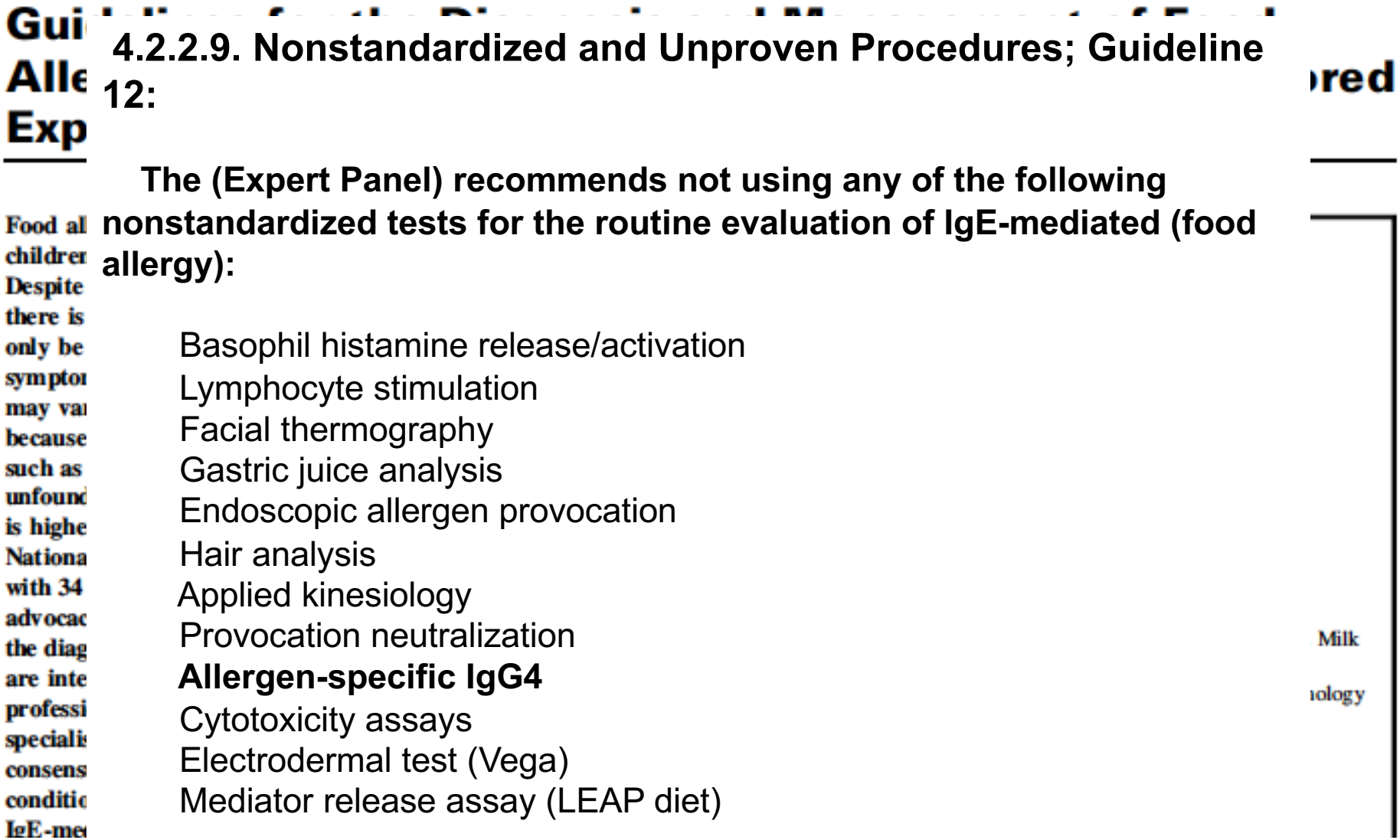
Testing for IgG4 against foods is not recommended as a diagnostic

"…in contrast to the disputed beliefs, IgG4 against foods indicates that the organism has been repeatedly exposed to food components, recognized as foreign proteins by the immune system.... food-specific IgG4 does not indicate food allergy or intolerance, but rather a physiological response of the immune system after exposition to food components. Therefore, testing of IgG4 to foods is considered as irrelevant for the laboratory work-up of food allergy or intolerance and should not be performed in case of food-related complaints.

Food-specific IgG4 does not indicate (imminent) food allergy or intolerance. But | Dr Steven D. Stapel

Allergy 2008: 63: 793–796

From the National Institute of Allergy and Infectious Diseases
Guidelines for the Diagnosis and Management of Food Allergy in the United States



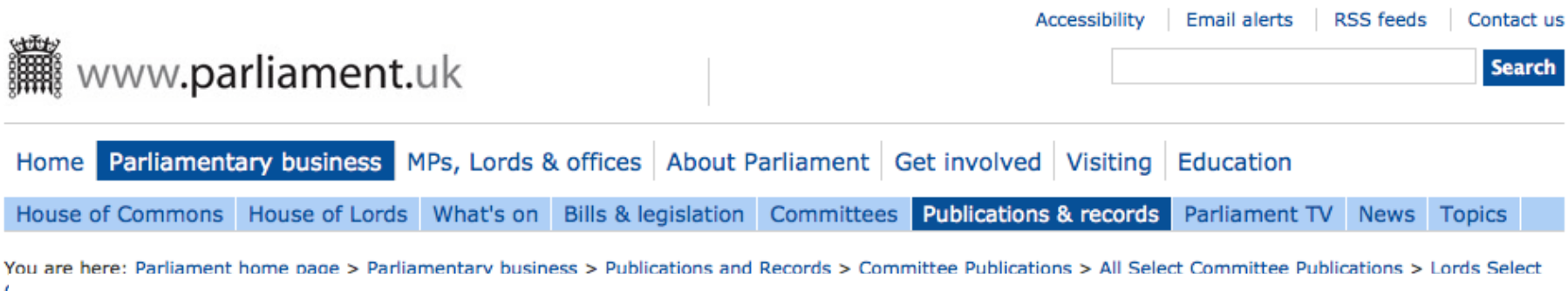
4.2.2.9. Nonstandardized and Unproven Procedures; Guideline 12:

The (Expert Panel) recommends not using any of the following nonstandardized tests for the routine evaluation of IgE-mediated (food allergy):

- Basophil histamine release/activation
- Lymphocyte stimulation
- Facial thermography
- Gastric juice analysis
- Endoscopic allergen provocation
- Hair analysis
- Applied kinesiology
- Provocation neutralization
- **Allergen-specific IgG4**
- Cytotoxicity assays
- Electrodermal test (Vega)
- Mediator release assay (LEAP diet)

J Allergy Clin Immunol 2010;126:S1-S58

From the UK House of Lords Science and Technology—Sixth Report on Allergy:



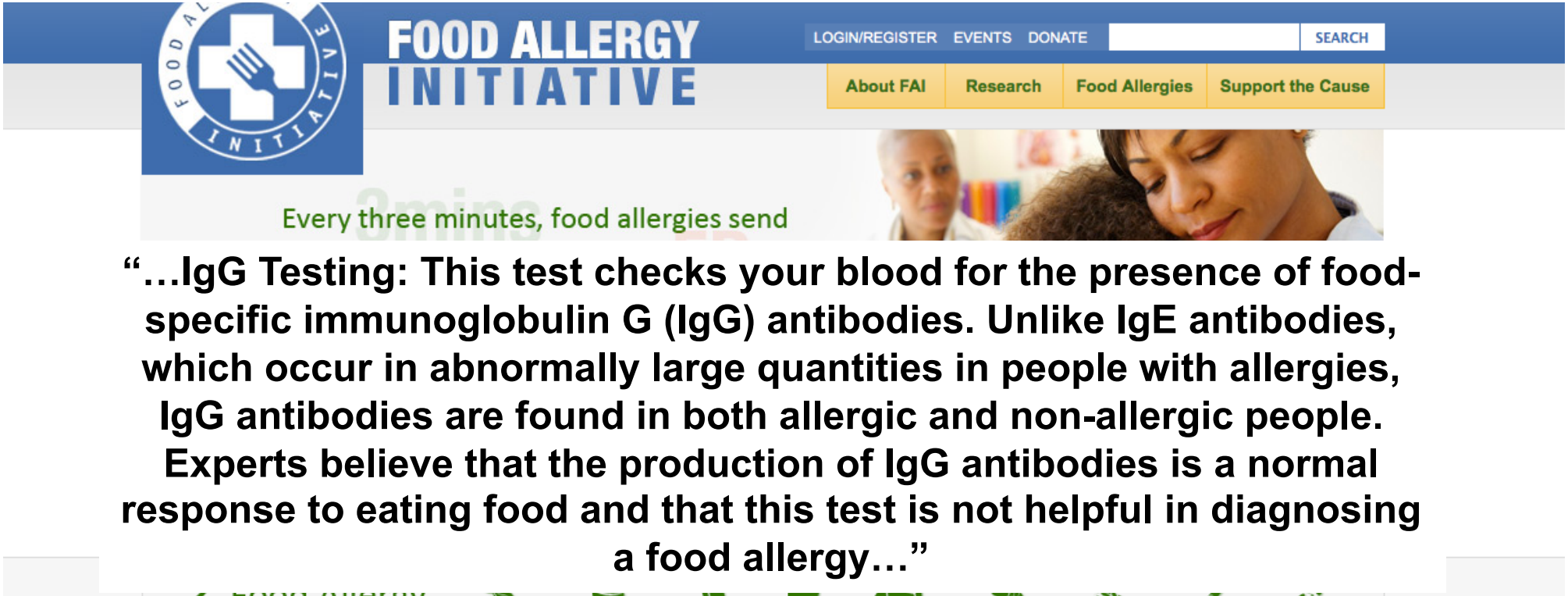
"…We are concerned both that the results of allergy self testing kits available to the public are being interpreted without the advice of appropriately trained healthcare personnel, and that the IgG food antibody test is being used to diagnose food intolerance in the absence of stringent scientific evidence…

..We urge general practitioners, pharmacists and charities not to endorse the use of these products until proof of their efficacy has been established…"

Immunotherapy

8.2.Treatment with drugs such as antihistamines or steroids can be used to manage the symptoms of allergic disease but do not modify the underlying disease process. In contrast, immunotherapy (sometimes called specific immunotherapy, desensitisation or "allergy vaccine") involves the administration of increasing doses of allergen, which over time desensitises the allergic patient by altering their immune system. As Professor Stephen Durham, President of the British Society for Allergy and Clinical Immunology (BSACI) told us, this could provide a useful long-term solution to the management of allergy for both "patients with severe hayfever which does not respond to conventional treatment," and "patients with venom anaphylaxis from stinging insects, wasps and bees" where the treatment could be life-saving (Q 193). Immunotherapy can be administered either via injection (subcutaneous immunotherapy) or via oral tablets (sublingual immunotherapy). At ALK-Abelló in Denmark we heard that immunotherapy, although not a cure for allergy irrespective of the allergen load, rendered the patient tolerant enough of an allergen in order to safely undertake or resume everyday tasks in normal life.[121]

http://www.faiusa.org



"…IgG Testing: This test checks your blood for the presence of food-specific immunoglobulin G (IgG) antibodies. Unlike IgE antibodies, which occur in abnormally large quantities in people with allergies, IgG antibodies are found in both allergic and non-allergic people. Experts believe that the production of IgG antibodies is a normal response to eating food and that this test is not helpful in diagnosing a food allergy…"

SMS's

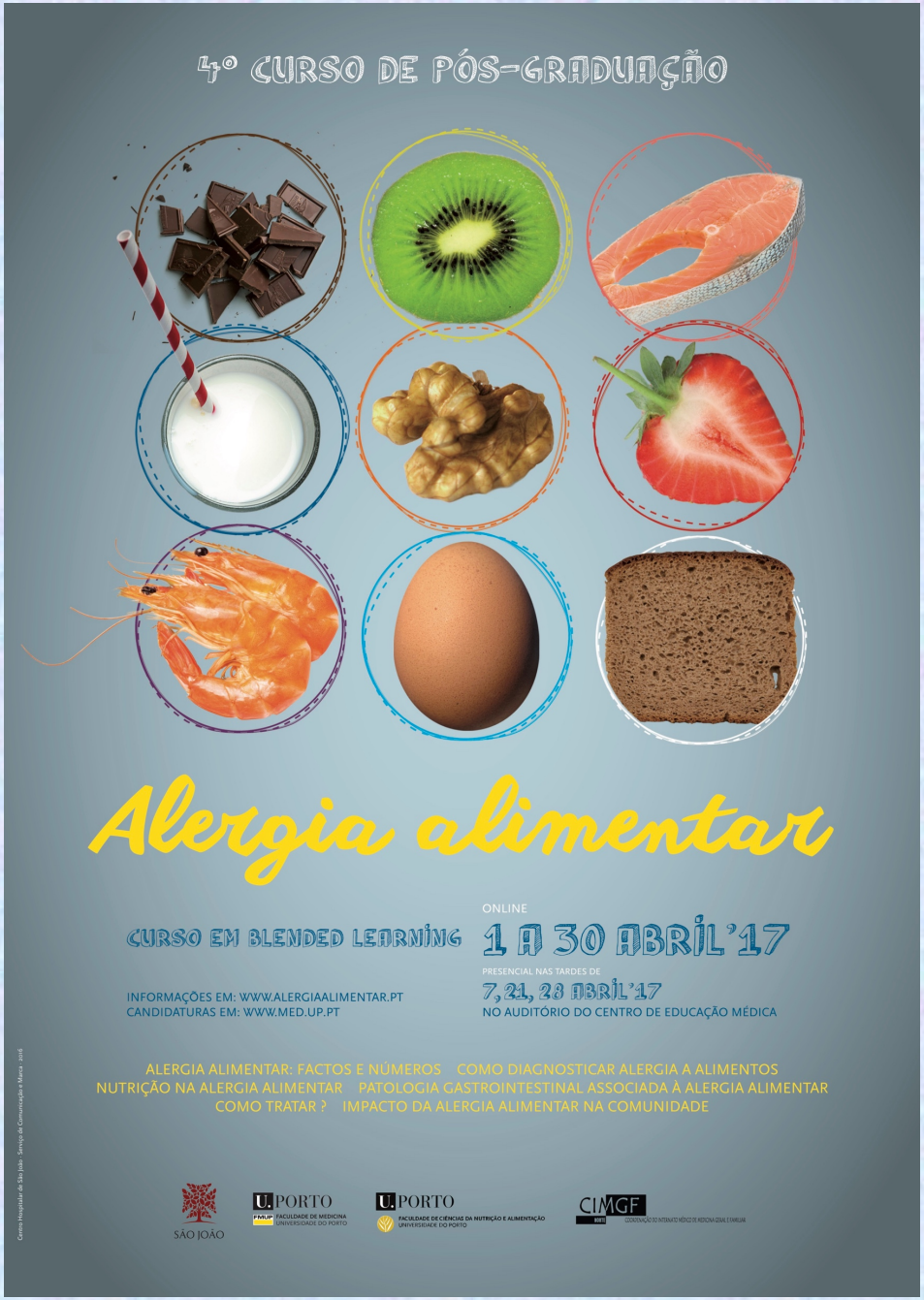
 # 1. **PERCEIVED ALLERGY MUCH HIGHER** that *true food allergy* !

 # 2. **LIFE-THREATENING** food allergies associated with **IGE ANTIBODIES**

 # 3. A positive blood allergy test **DOES NOT MEAN** you are allergic

 # 4. Diagnosis gold standard: double blind placebo controlled food challenge!

 # 5. The orthomolecular medicine for food allergy **is for NUTS**!



1 ECTS pela UP; candidaturas de 2 janeiro a 3 março de 2017; 25€ estudantes