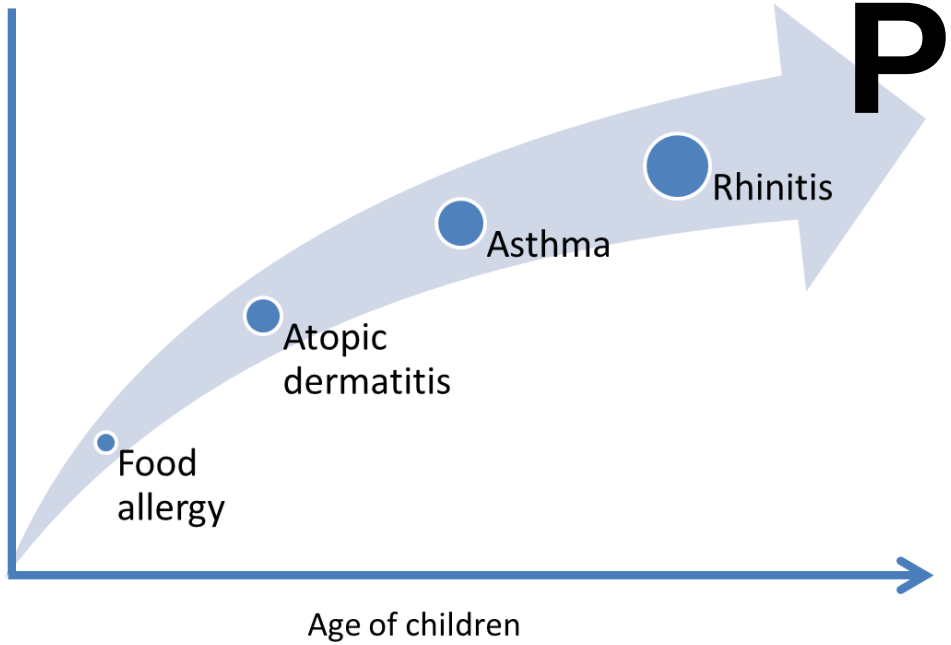
Food Allergy, Current Problems, Future Perspectives



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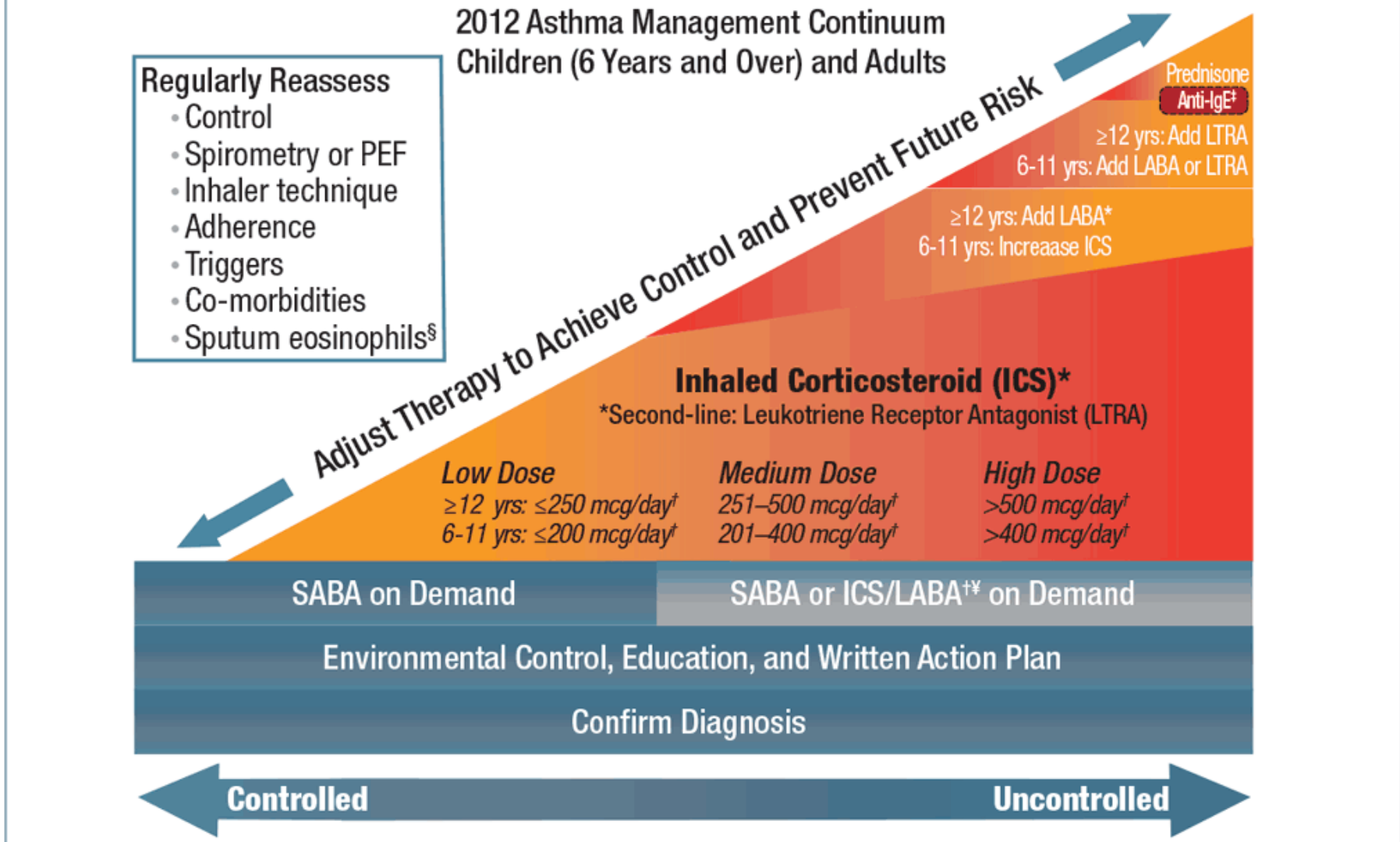
ALMATY 25, 2015

FIGURE 1. ASTHMA MANAGEMENT CONTINUUM

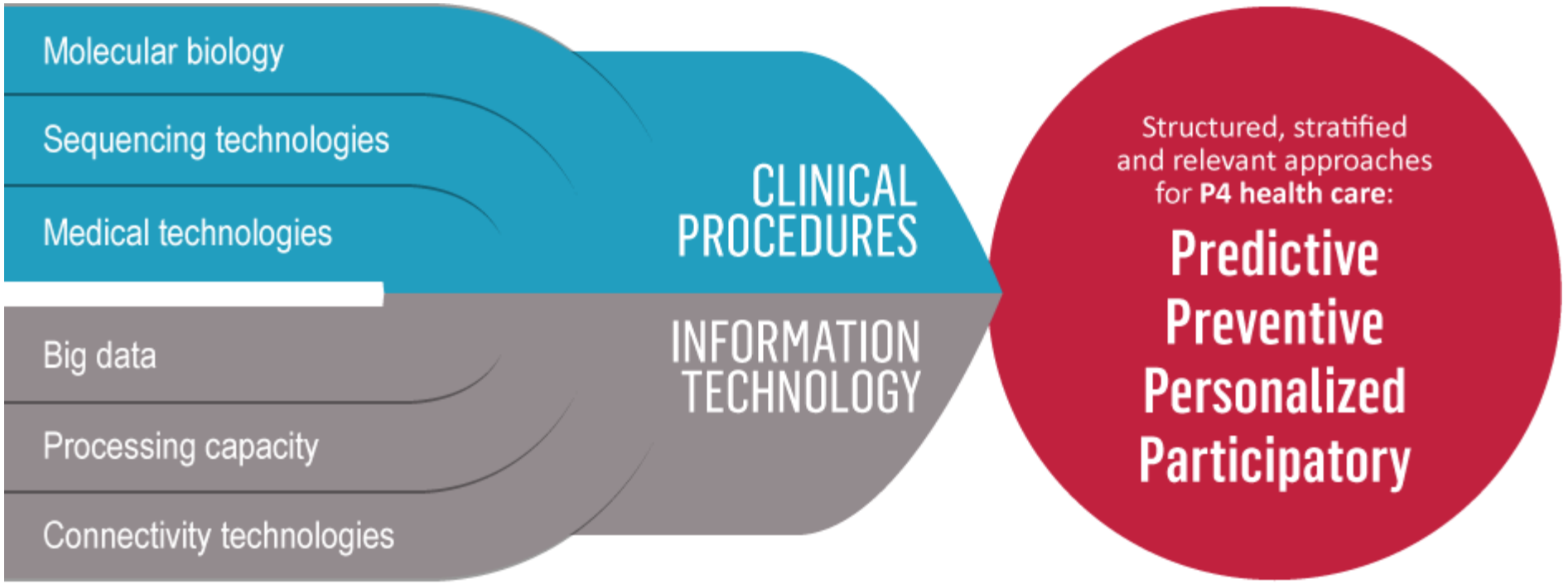


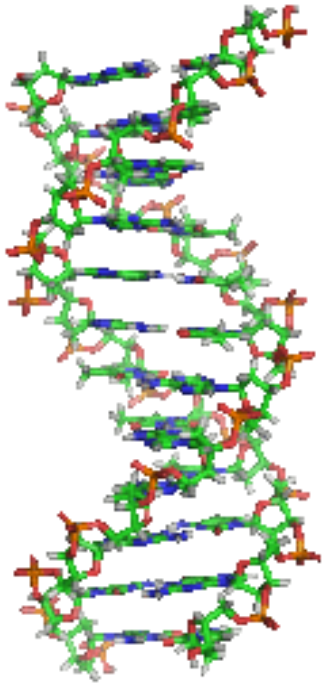
†HFA Beclomethasone or equivalent. *Second-line: LTRA. ‡Approved for 12 years and over.
¥Using a formulation approved for use as a reliever.
§In adults 18 years and over with moderate to severe asthma.

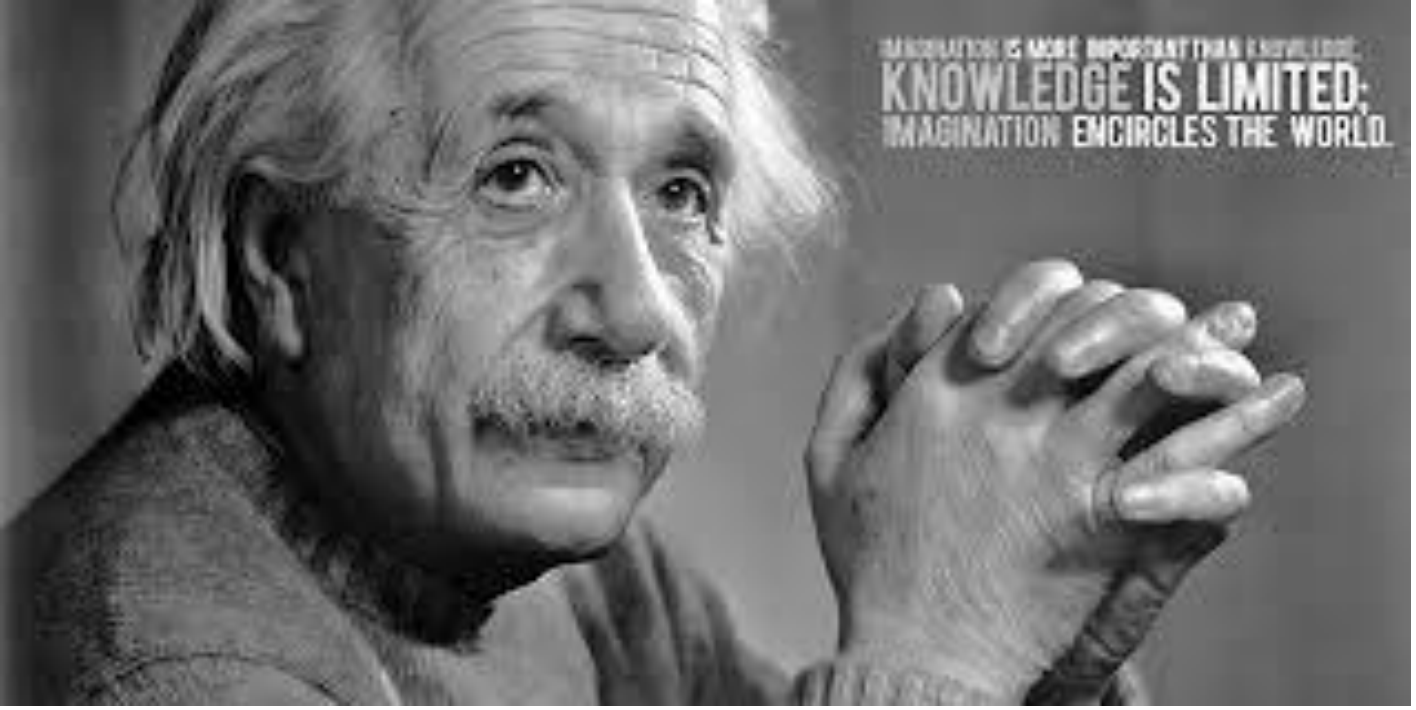
P4 Medicine: A Change of View that Changes Everything

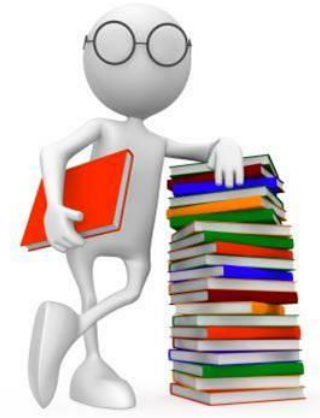
Leroy E. Hood, Institute for Systems Biology

- P4 Medicine is a term coined by biologist Leroy Hood, and is short for **"Predictive, Preventive, Personalized, and Participatory Medicine."**









Albert Einstein

“To raise new questions, new possibilities, to regard old problems from a new angle, requires creative imagination and marks real advance in science”.

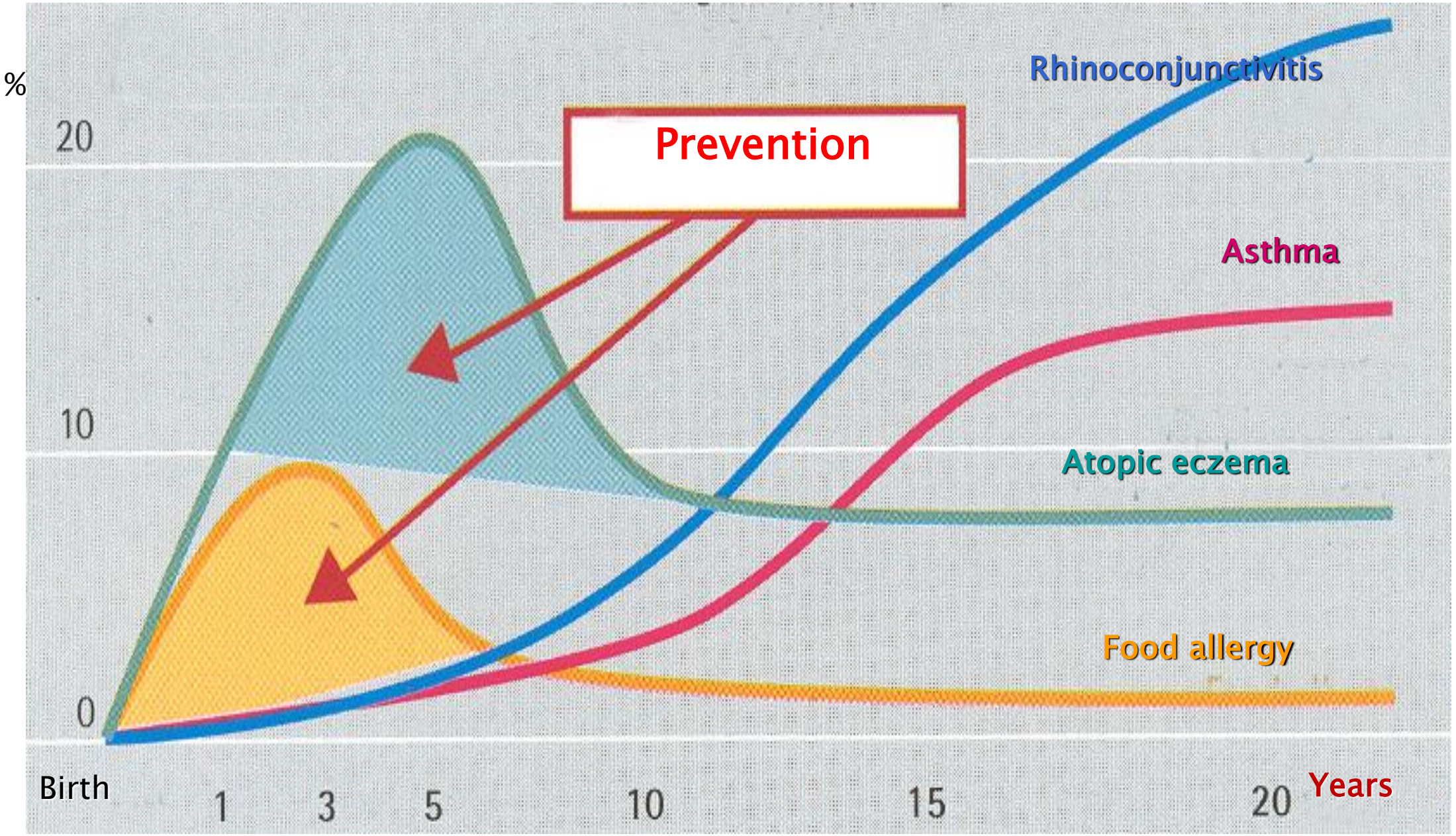
“Imagination is more important than knowledge".

ATOPY

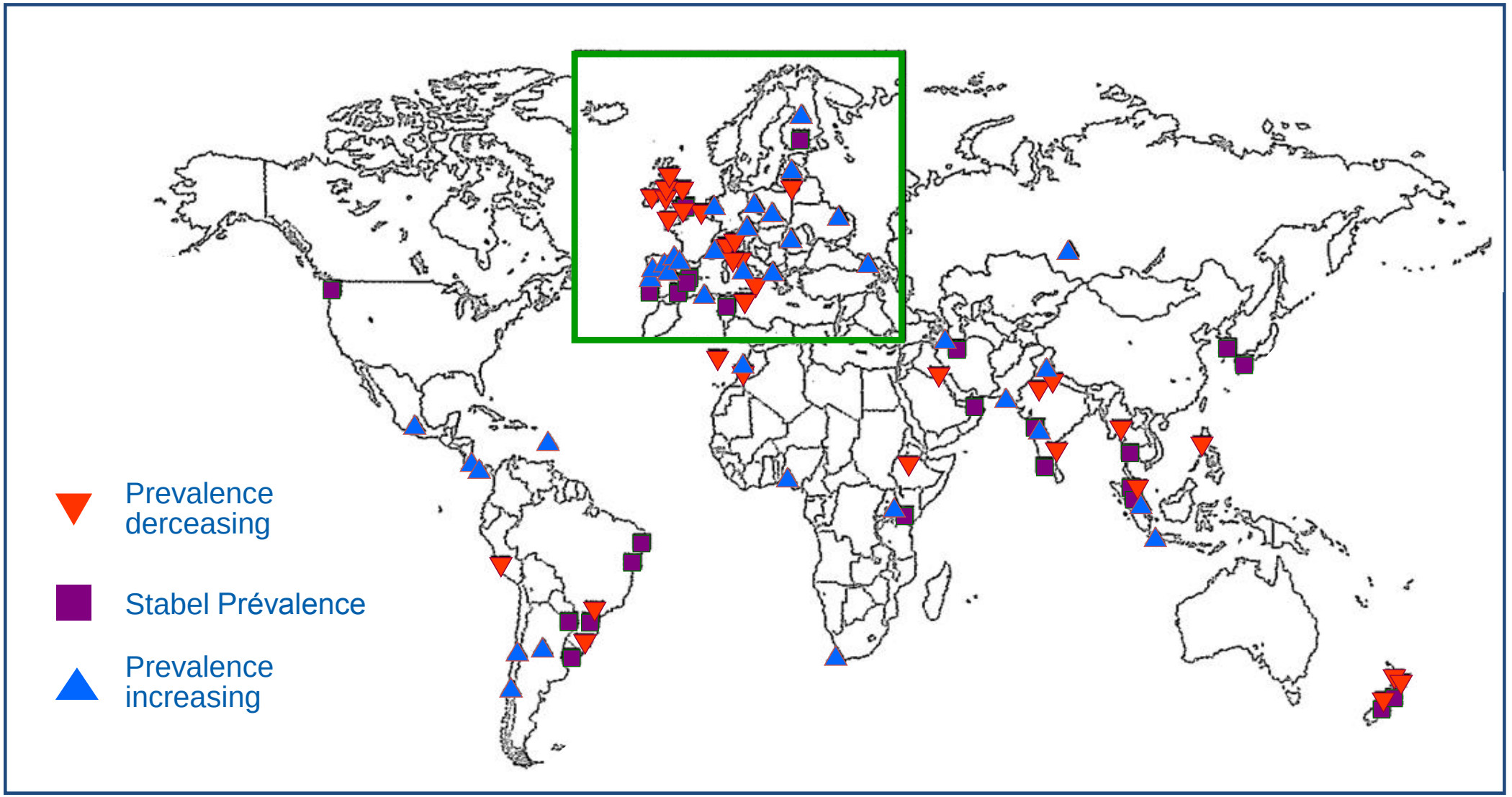
— Atopy is the genetic predilection to produce specific IgE following exposure to allergens. At a cellular level, atopy appears to result, in part, from a predisposition toward a certain response on the part of CD4+ T helper cells, called a Th type 2 (Th2) response [Borish L. Allergic rhinitis: systemic inflammation and implications for management. J Allergy Clin Immunol 2003; 112:1021.**]. Th2 cells secrete large quantities of IL-4 and IL-13, which promote the production of allergen-specific IgE by plasma cells.**

Table 2. Gell And Coombs Classification Schema Of Hypersensitivity Reactions

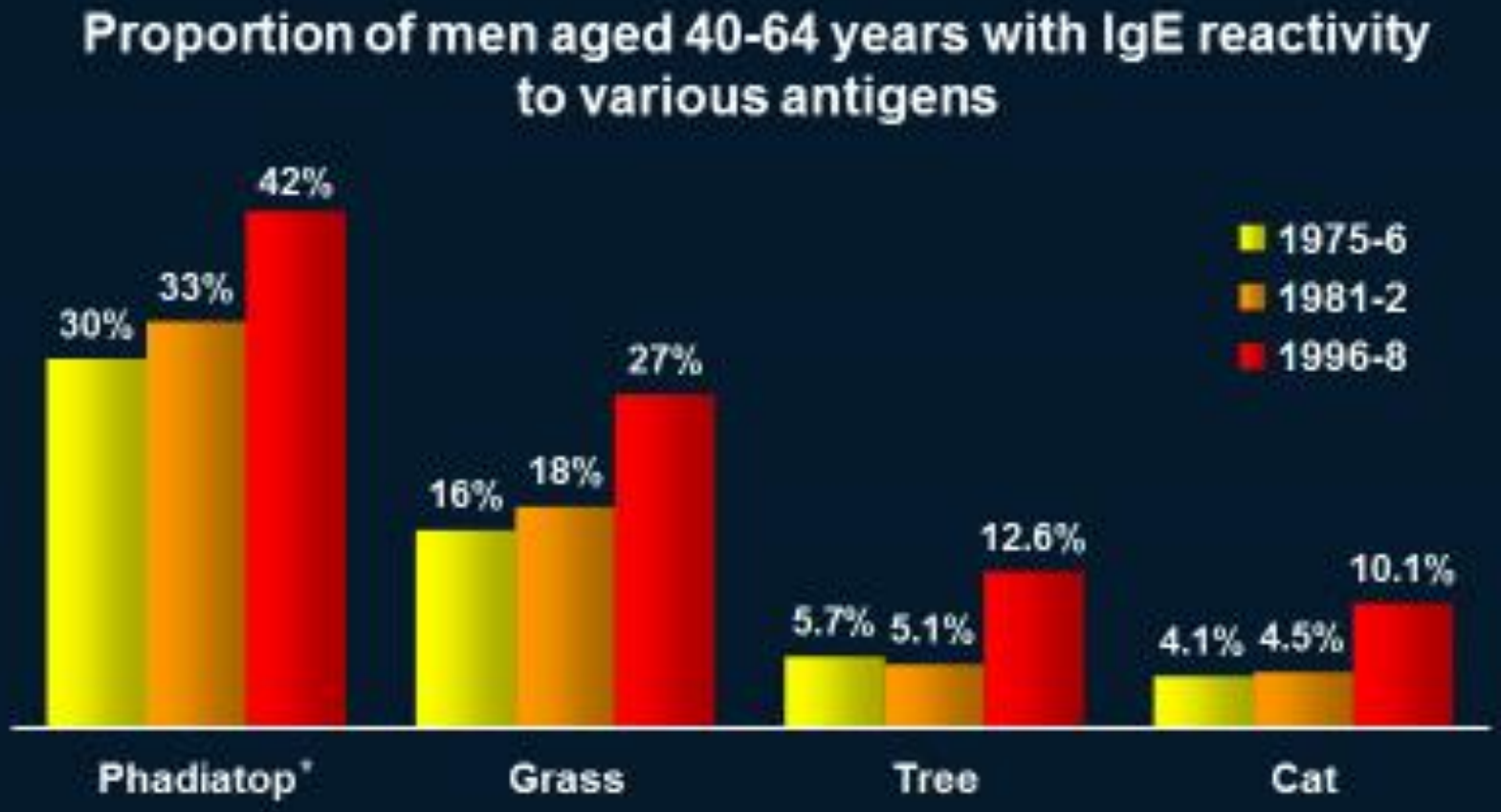
Classification	Effector Mechanism	Typical Clinical Manifestations
Type I *Immediate*	IgE	Anaphylaxis, angioedema, urticaria
Type II *Cytotoxic*	IgM, IgG, complement, phagocytosis	Cytopenia, nephritis
Type III *Immune Complex*	IgM, IgG, complement, precipitins	Serum sickness, vasculitis
Type IV *Delayed*	T-Lymphocytes	Contact dermatitis
Other *Idiopathic*	Varies	Non-specific rash


%
20
10
0
Prevention
Rhinoconjunctivitis
Asthma
Atopic eczema
Food allergy
Birth
1
3
5
10
15
20
Years

Allergy Prevalence is globally increasing all over the world



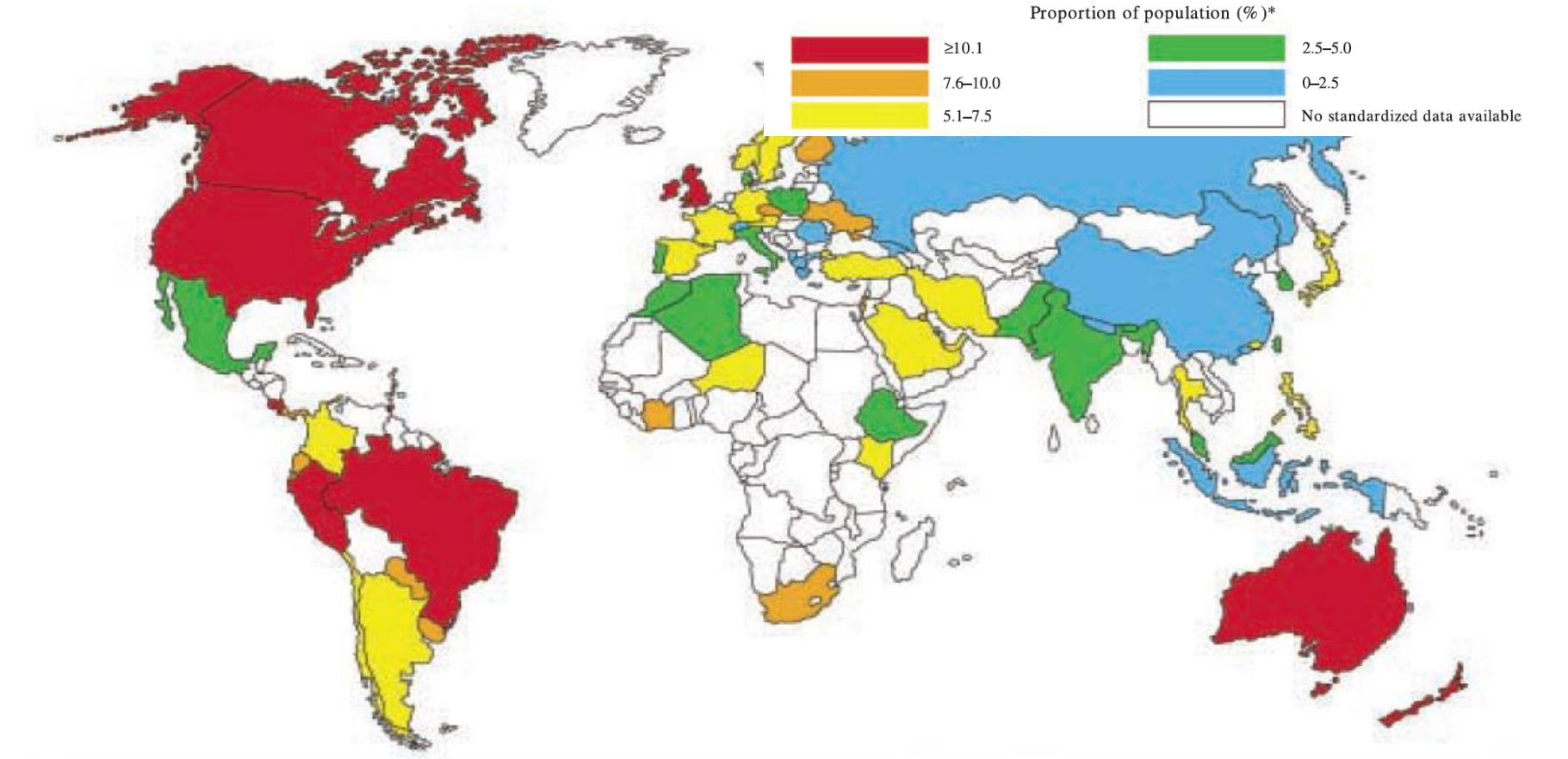
Allergy Prevalence Is Increasing in Older Age Groups



*Phadiatop is a standard mixture of 11 indoor and outdoor antigens.

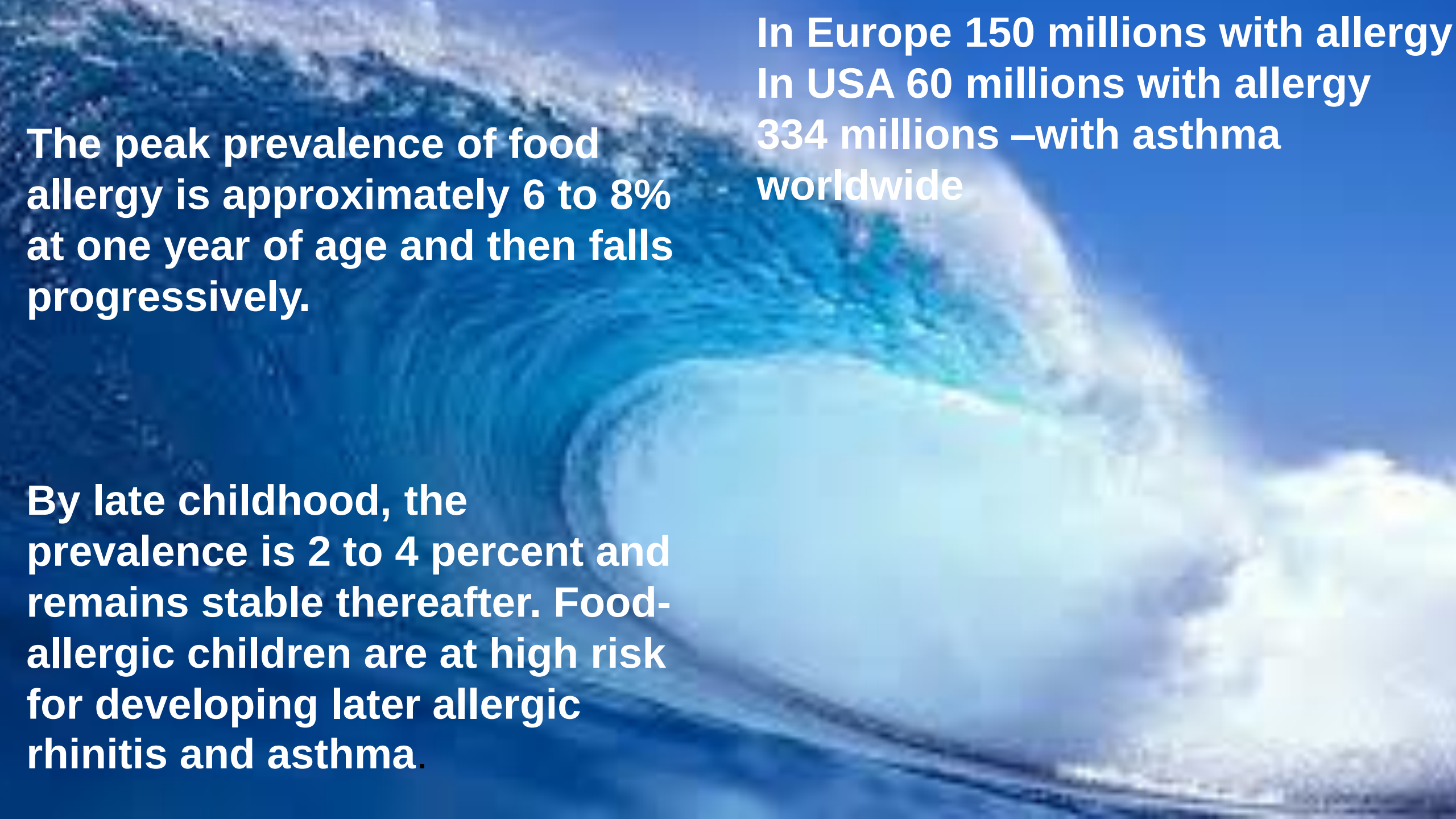
Law et al. *BMJ*. 2005;330:1187.
Linneberg. *BMJ*. 2005;331:352.

Prevalence of clinical asthma



In this report an arbitrary figure of 50% of the prevalence of 'current wheezing' in children (self-reported wheezing in the previous 12-month period in 13- to 14-year old children) has been used as the prevalence of "clinical asthma'. The prevalence rates for 'clinical asthma' reported in this report represent a conservative estimate. Data from: International Study of Asthma and Allergies in Childhood (ISAAC) and the European Community Respiratory Health Survey (ECRHS).

GINA 2004



In Europe 150 millions with allergy
In USA 60 millions with allergy
334 millions –with asthma worldwide

The peak prevalence of food allergy is approximately 6 to 8% at one year of age and then falls progressively.

By late childhood, the prevalence is 2 to 4 percent and remains stable thereafter. Food-allergic children are at high risk for developing later allergic rhinitis and asthma.

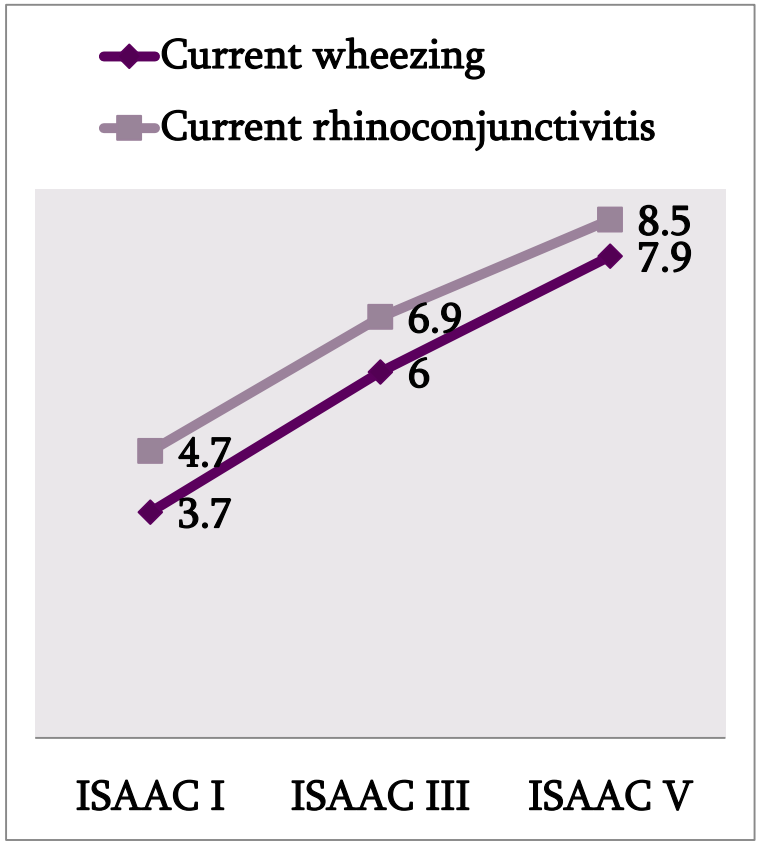
ISAAC study in Georgia

	ISAAC I	*ISAAC II*	*ISAAC III*	*ISAAC V**
Study population	13 516	1 036	11 655	11 095
Study centers	Tbilisi Kutaisi	Tbilisi	Tbilisi Kutaisi	Tbilisi Kutaisi
Age group	13 -14 yrs 6-7 yrs	10-12 yrs	13 -14 yrs 6-7 yrs	13 -14 yrs 6-7 yrs
Current wheezing	3.6% 7.6%	9.2%	5.6% 7.8%	7.3% 11.2%
Current rhinoconjunctivitis	4.6% 3.3%	7.0%	5.7% 2.5%	5.7% 7.1%
Itchy rash past year	4.1% 5.7%	6.2%	4.3% 4.7%	3.8% 4.2%

Time trends of prevalence - Tbilisi

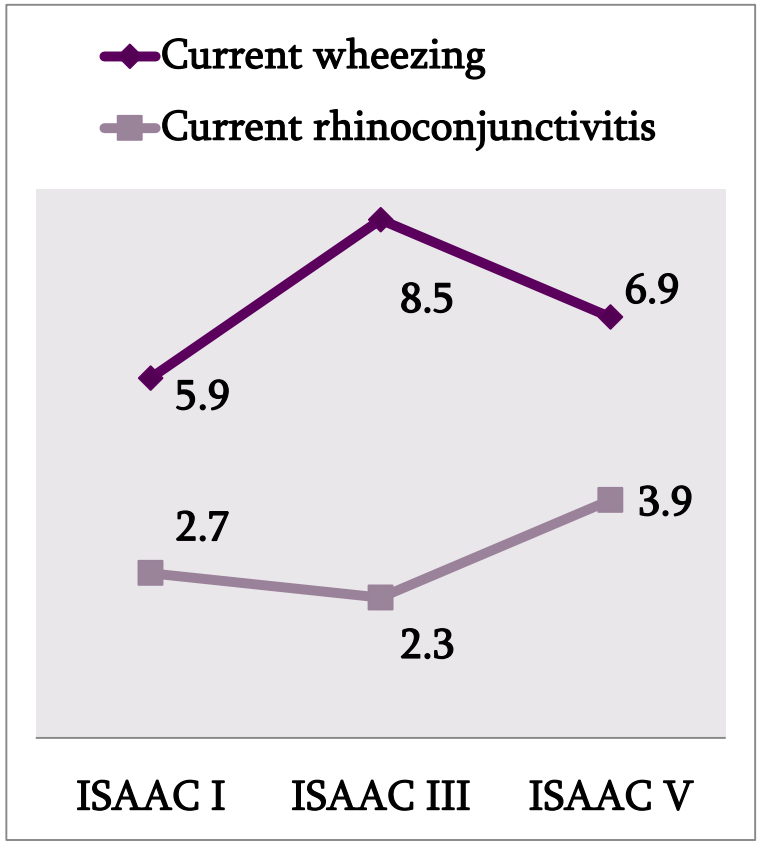
ISAAC – Tbilisi

(group 13-14)



ISAAC – Tbilisi

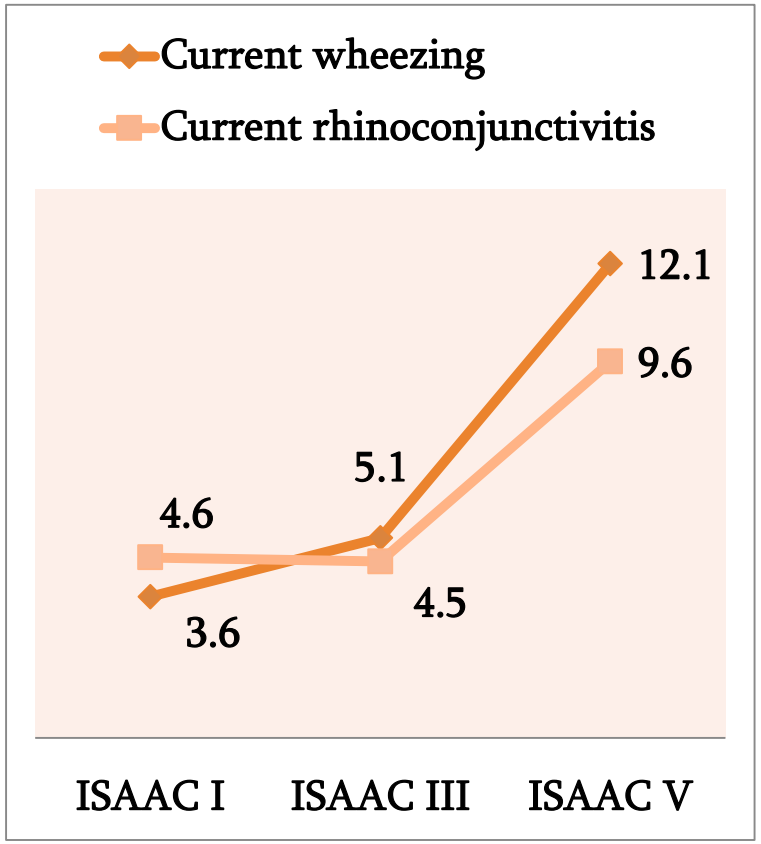
(group 6-7)



Time trends of prevalence - Kutaisi

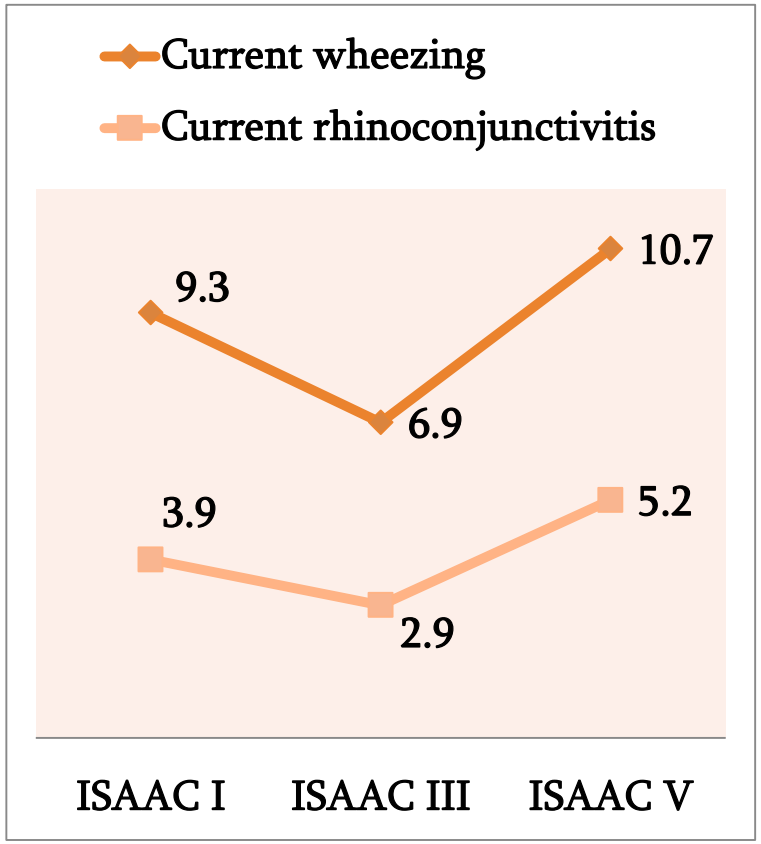
ISAAC – Kutaisi

(group 13-14)



ISAAC – Kutaisi

(group 6-7)



Environmental Risk Factors Contributing to Allergic Symptoms among Georgian Schoolchildren (ISAAC V Kutaisi data)

Asthma symptoms:

- family history of allergy [OR 2.3; (95% CI, 1.9-2.8)];
- food allergy [OR 3.0; (95% CI, 2.5-3.7)];
- drug allergy [OR 1.8; (95% CI, 1.4-2.4)],
- mother smoking at present [OR 2.2; (95% CI, 1.3-3.6)],
- cat exposure at present [OR 1.4; (95% CI, 1.1-1.7)];
- consumption of cereal three times or more per week [OR 1.3; (95% CI, 1.1-1.6)].

Rhinoconjunctivitis:

- family history of allergy [OR 2.8; (95% CI, 2.3-3.6)];
- food allergy [OR 2.9; (95% CI, 2.2-3.6)];
- drug allergy [OR 2.8; (95% CI, 2.1-3.6)];
- cat exposure at present [OR 1.5; (95% CI, 1.1-2.0)];
- cooking with open fire [OR 1.75; (95% CI, 1.1-2.9)];
- consumption of fast-food three times or more per week [OR 1.4; (95% CI, 1.1-1.7)].

Diet factors
(consumption more than 3 times per week)

Asthma

Fruits [OR 0.78; (95% CI, 0.67-0.91)];

Butter [OR 0.85; (95% CI, 0.75-0.97)];

Milk [OR 0.85; (95% CI, 0.73-0.98)],

Egg [OR 0.85; (95% CI, 0.73-0.98)].

Cottage cheese [OR 0.72; (95% CI, 0.6-0.88)].

Rhinitis

Fruits [OR 0.74; (95% CI, 0.62-0.88)];

Vegetables [OR 0.84; (95% CI, 0.71-0.98)];

Butter[OR 0.71; (95% CI, 0.61-0.83)],

Egg[OR 0.82; (95% CI, 0.68-0.98)].

Fast food [OR 1.37; (95% CI, 1.14-1.65)]

Crude Odds Ratios and Association Between Rhinoconjunctivitis Symptoms and Different Environmental Factors

	6/7 years		13/14 years	
	OR	95% CI	OR	95% CI
Environmental factors				
Cat past year	1.47	0.95-2.27	1.37	1.05-1.79
Dog past year	1.06	0.74-1.51	1.38	1.22-1.69
Pets first year of life	1.51	1.12-2.04		
Pets past year	1.00	0.71-1.40	1.35	1.11-1.65
Mother smoking past year	1.17	0.70-1.93	1.32	0.93-1.86
Father smoking past year	1.15	0.9-1.49	1.04	0.85-1.25
Traffic (frequently passing of trucks through the day)	1.41	1.10-1.80	1.53	1.27-1.85
Other factors				
Paracetamol using during last 12 months	1.50	1.08-2.07	1.26	1.02-1.55
Antibiotics during first 12 months of child	1.56	1.21-2.02		
BMI - overweight and obese	1.10	0.79-1.53	1.03	0.77-1.36
History of food allergy	3.19	2.46-4.15	2.39	1.94-2.96
History of drug allergy	2.19	1.55-3.09	2.45	1.95-3.08
Family history of allergy	3.21	2.46-4.18	2.19	1.75-2.69
Sedentary behavior				
Exercise 3 and more time per week	0.75	0.50-1.11	0.81	0.65-1.02
TV watching more than 5 hours	1.61	1.03-2.51	1.22	0.90-1.67
Computer working more than 5 hours	1.25	0.81-1.92	1.38	1.12-1.71

According to experts, 1 out of every 3 children have an allergy and they expect the disease to affect more than 50% of all Europeans in 10 years' time.

American Academy of Allergy Asthma & Immunology

Anaphylaxis

- **Food** allergies account for 35% - 50% of all cases of anaphylaxis. Fatal food anaphylaxis is most often caused by peanuts (50-62%) and tree nuts

- At least 40 people in the United States die each year as the result of **insect** stings.Life-threatening reactions to insect stings occur in 0.4% to 0.8% of children and 3% of adults.
- **Latex allergy** affects between 5% and 15% of healthcare workers, but less than 1% of the general population. Between 24% and 60% of people with spina bifida have latex allergy.
- **Anaphylactic reactions to penicillin cause 400 deaths.**
- **Between 6% and 10% of adverse drug reactions are allergic or immunologic in nature.**

Why allergy prevalence is increasing?

Genotype: no change

- The decrease of infections and microbe exposure in the early life might be associated with the increase of allergic diseases, asthma and auto-immune disease.

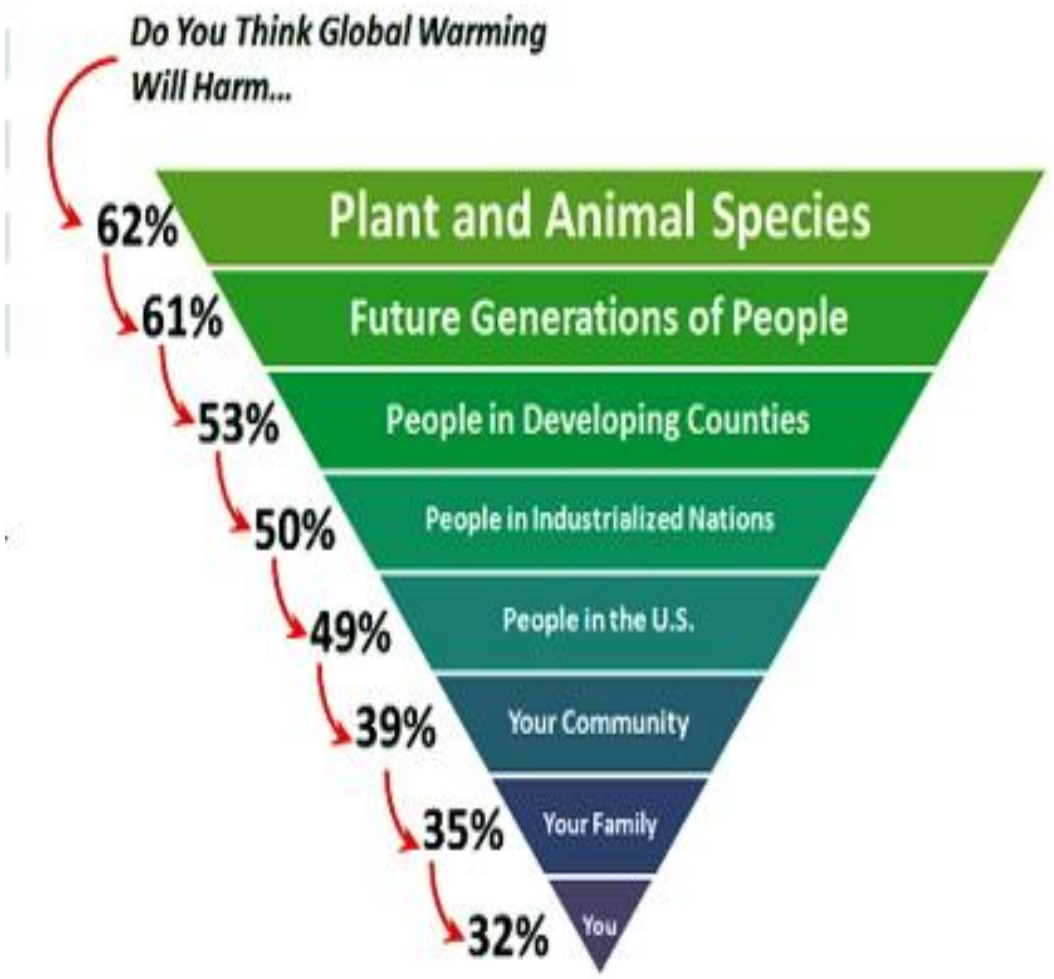
New factors
- Allergens
- Polutions

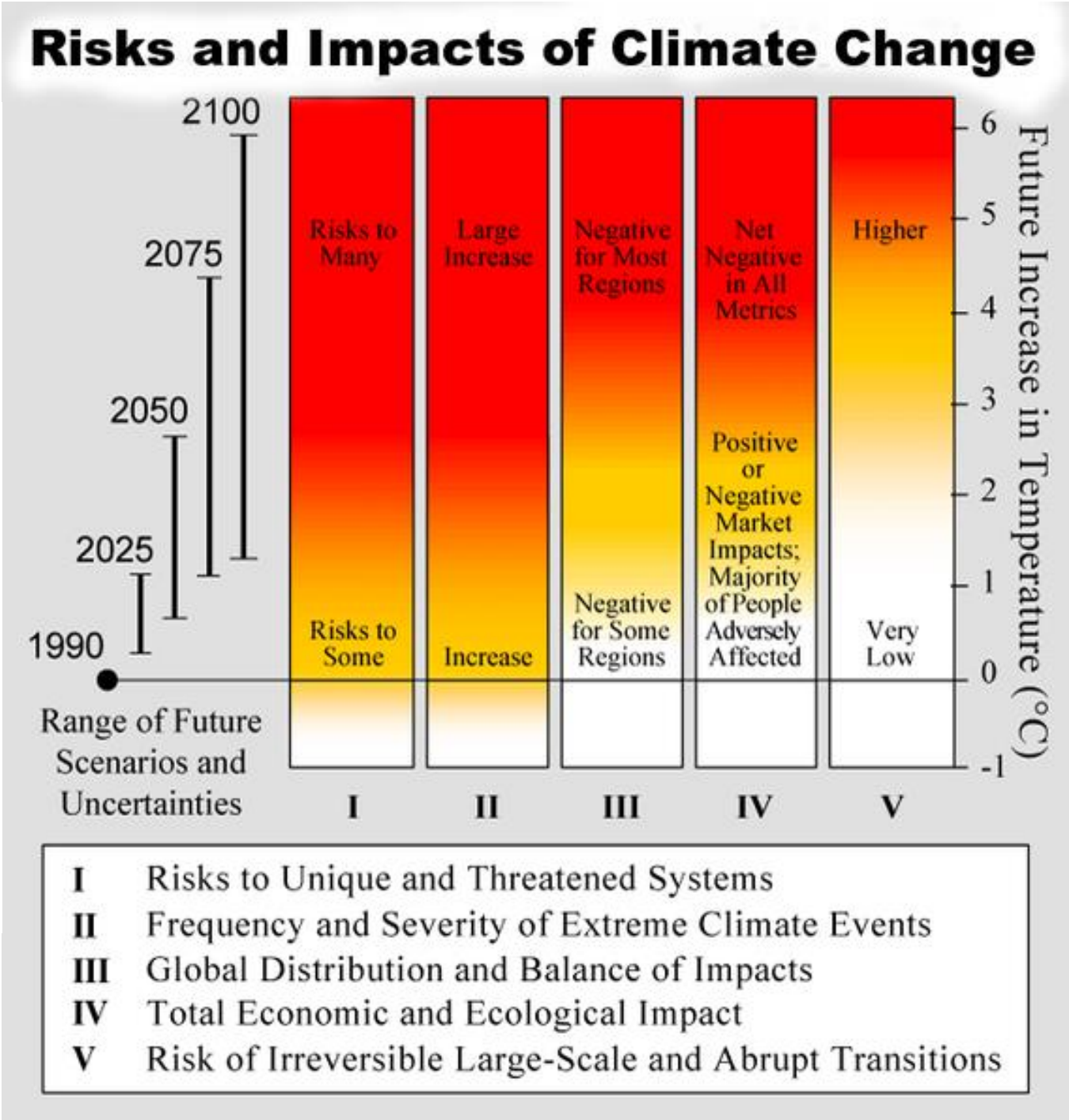
Factors on the individu (25%):

- Immunological situation
- *In utero* environment
- Event in the early life

Factors who are changing

- Allergens ↗ ?
- Irritants: smoking, polutions… ↗
- Obesity ↗
- Diet: vitamins and antioxydants ↘
- Physical activities ↘
- Stress ↗


Do You Think Global Warming Will Harm...
62%
Plant and Animal Species
61%
Future Generations of People
53%
People in Developing Counties
50%
People in Industrialized Nations
49%
People in the U.S.
39%
Your Community
35%
Your Family
32%
You

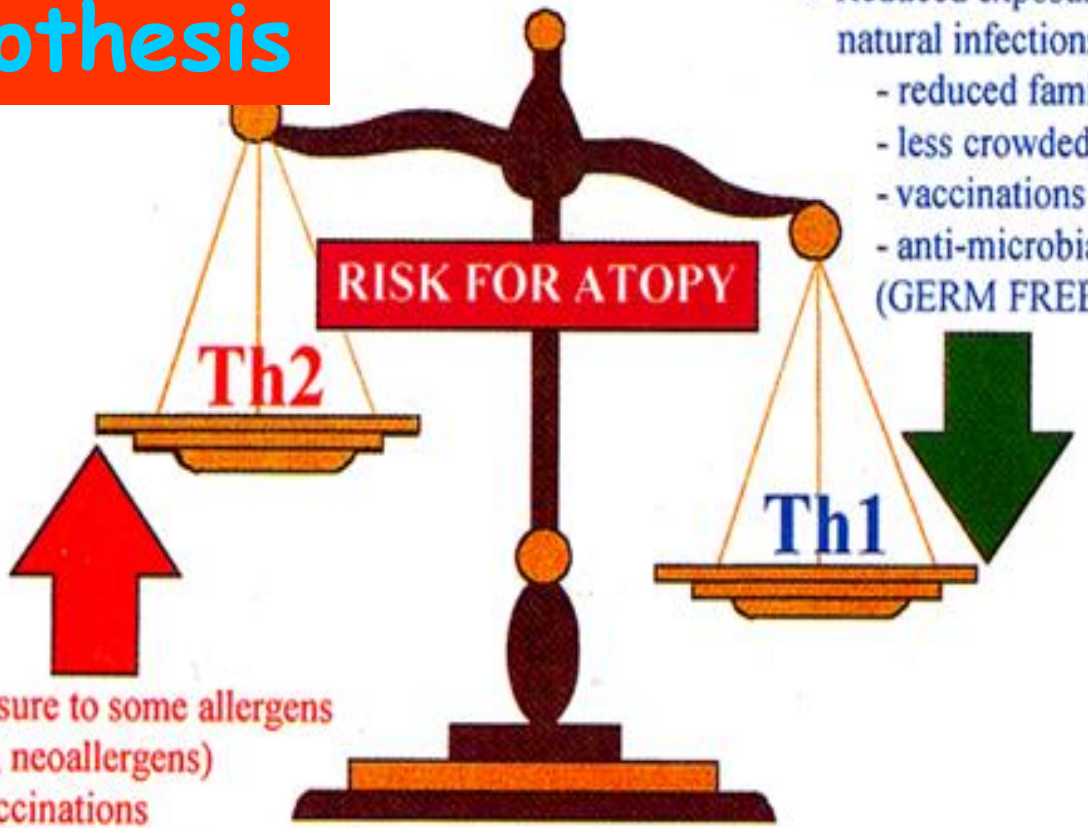

Risks and Impacts of Climate Change
2100
2075
2050
2025
1990
Risks to Many
Risks to Some
Large Increase
Increase
Negative for Most Regions
Negative for Some Regions
Net Negative in All Metrics
Positive or Negative Market Impacts; Majority of People Adversely Affected
Higher
Very Low
Range of Future Scenarios and Uncertainties
I
II
III
IV
V
Future Increase in Temperature (°C)
6
5
4
3
2
1
0
-1
I Risks to Unique and Threatened Systems
II Frequency and Severity of Extreme Climate Events
III Global Distribution and Balance of Impacts
IV Total Economic and Ecological Impact
V Risk of Irreversible Large-Scale and Abrupt Transitions

Hygiene hypothesis

⇨ Changes of the commensal flora, due to:
- consumption of semi-sterile foods
- use of cleaner water

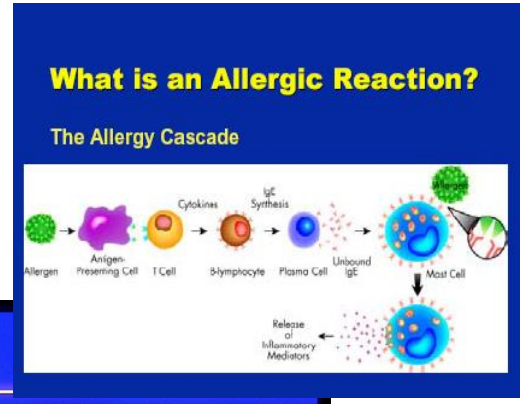
⇨ Reduced exposure to and/or severity of natural infections, due to:
- reduced family size
- less crowded accomodation
- vaccinations
- anti-microbial treatment

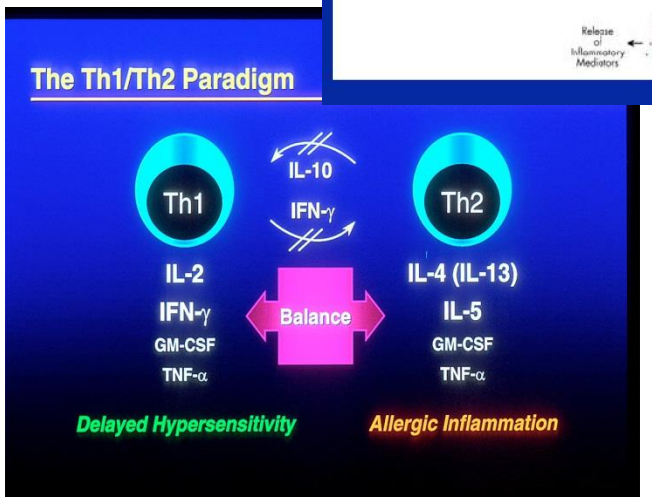
(GERM FREE-LIKE STATE)



⇨ Increased exposure to some allergens (mites, cat pets, neoallergens)

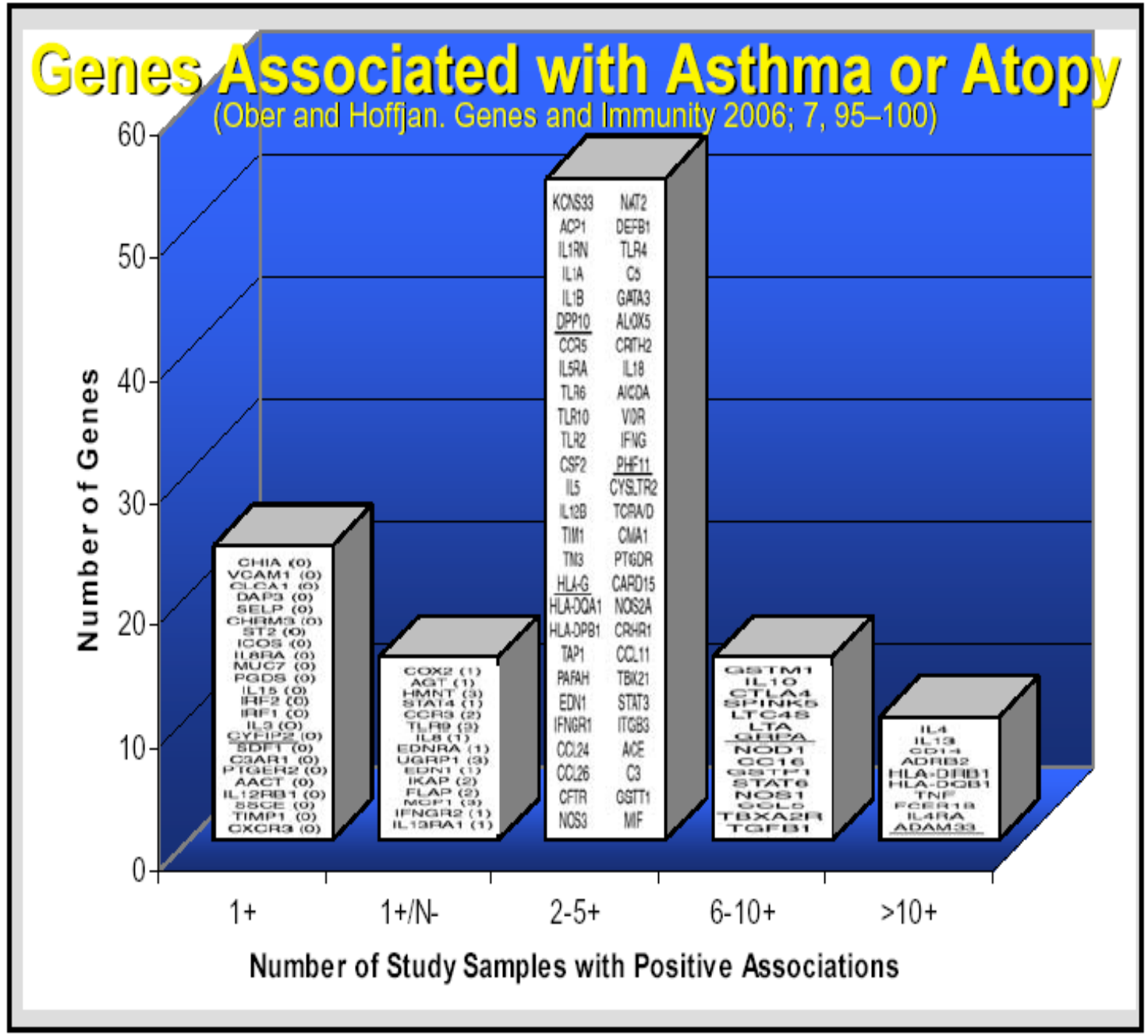
⇨ Th2-biasing vaccinations (tetanus, pertussis, diphteria; alum as adjuvant)





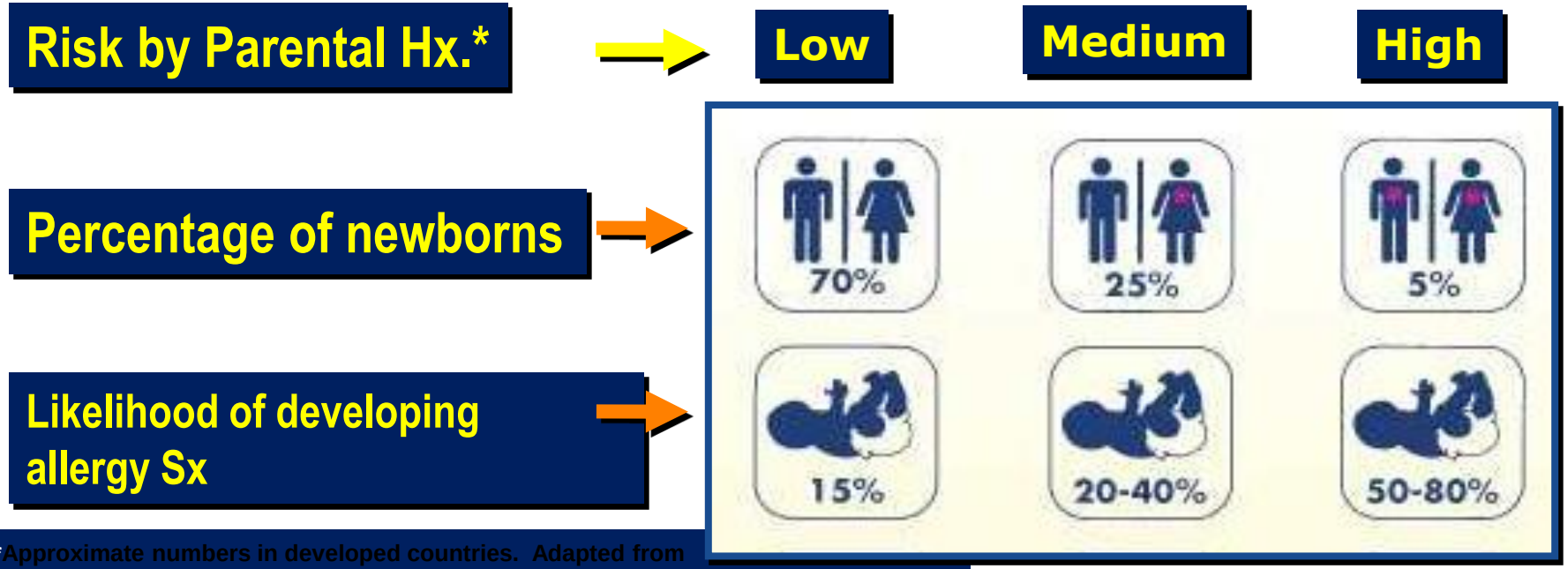
Genes Associated with Asthma or Atopy

(Ober and Hoffjan. Genes and Immunity 2006; 7, 95–100)



Identifying “At Risk” Infants

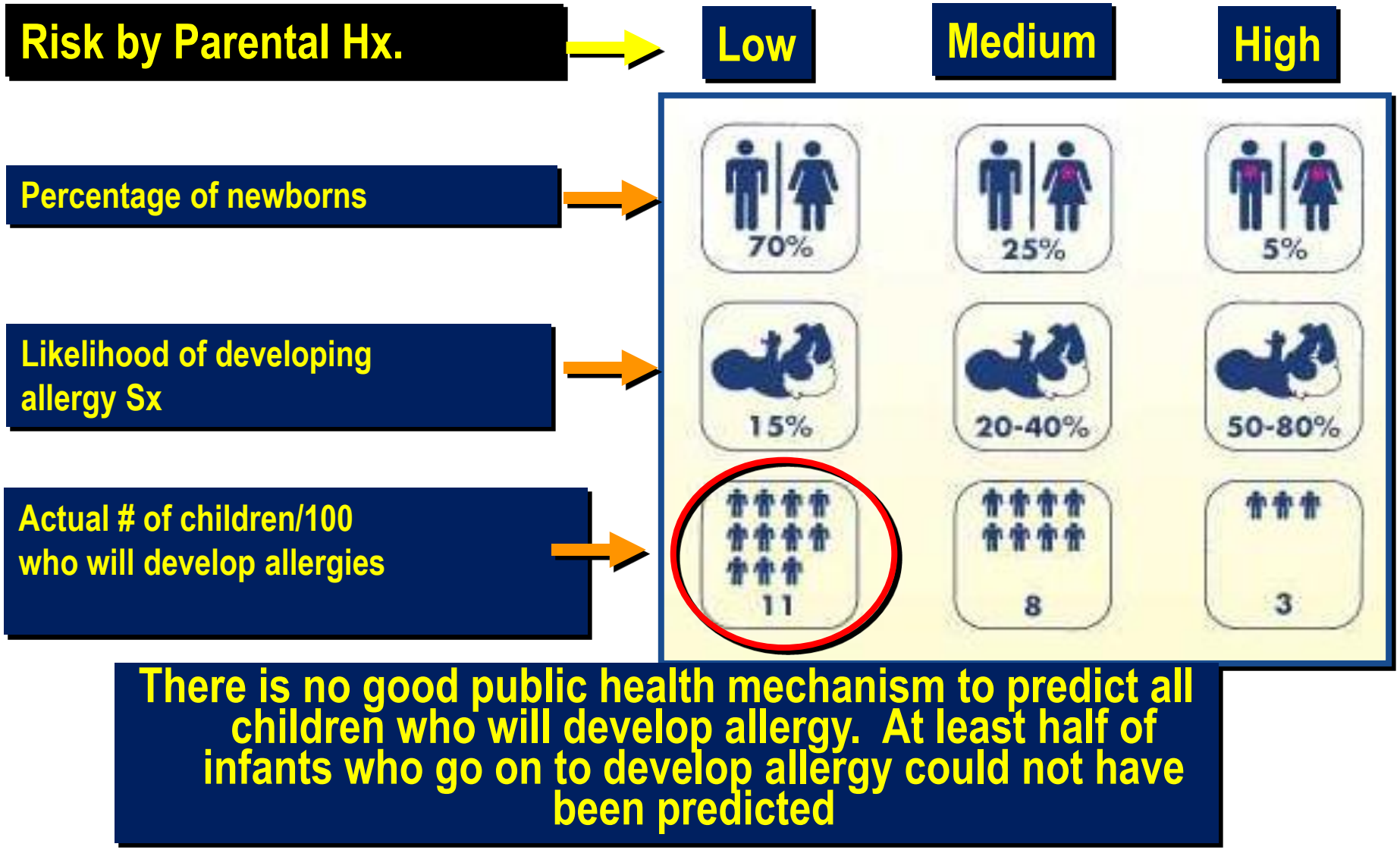
One parent or sibling with history of AD, urticaria, allergic rhinitis (hay fever) or asthma = “At Risk” by Family History



*Approximate numbers in developed countries. Adapted from

1. Bousquet J. et al. *J Allergy Clin Immunol* 1986;78: 1019-1022
2. Halken S et al. *Allergy* 2000;55: 793-802
3. Kjellman N. et al. *Acta Paediatr Scan* 1977;66: 565-71
4. Exl BM, *Nutr Res* 2001;21: 355-79

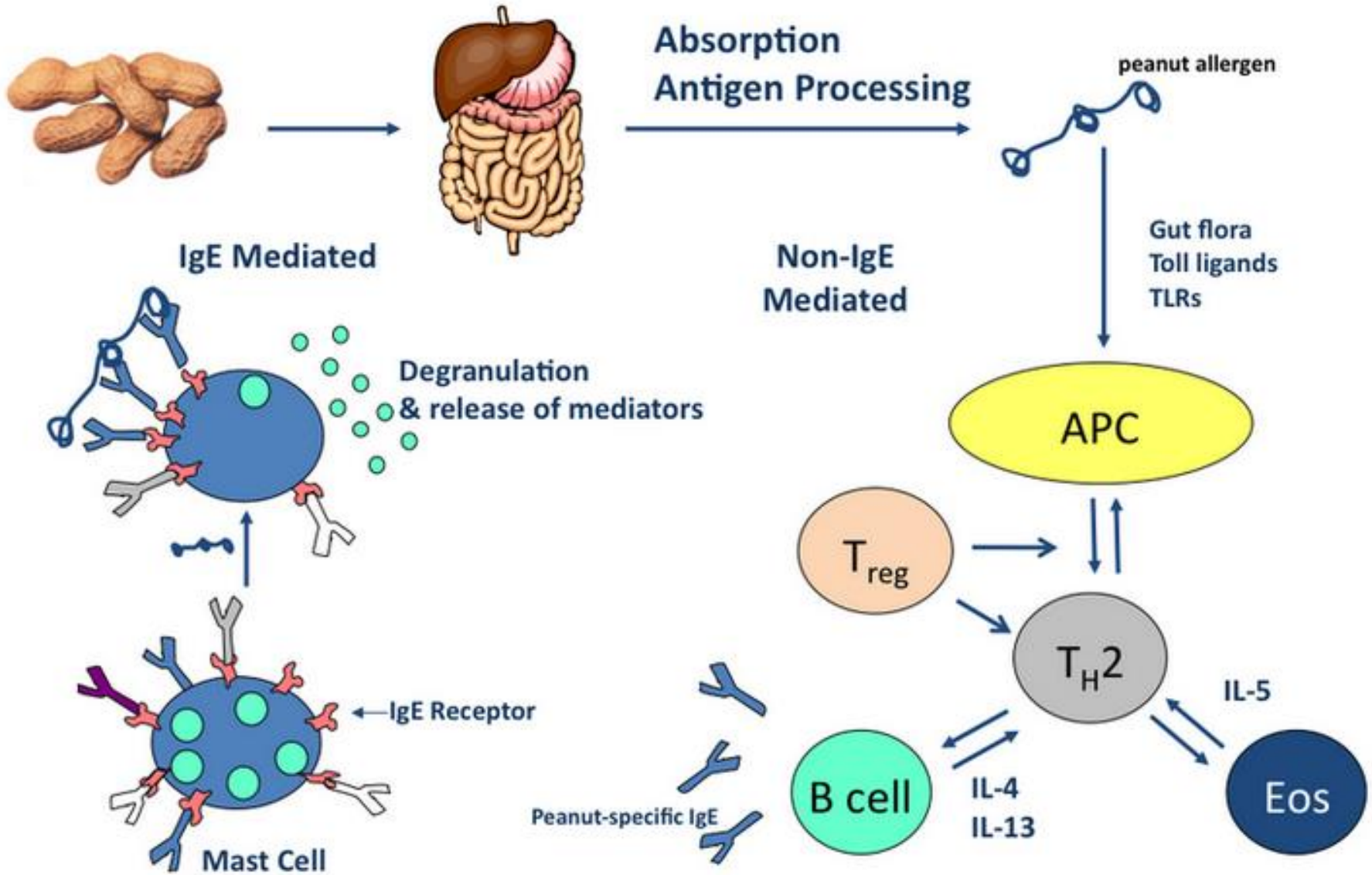
Predicting Pediatric Allergy



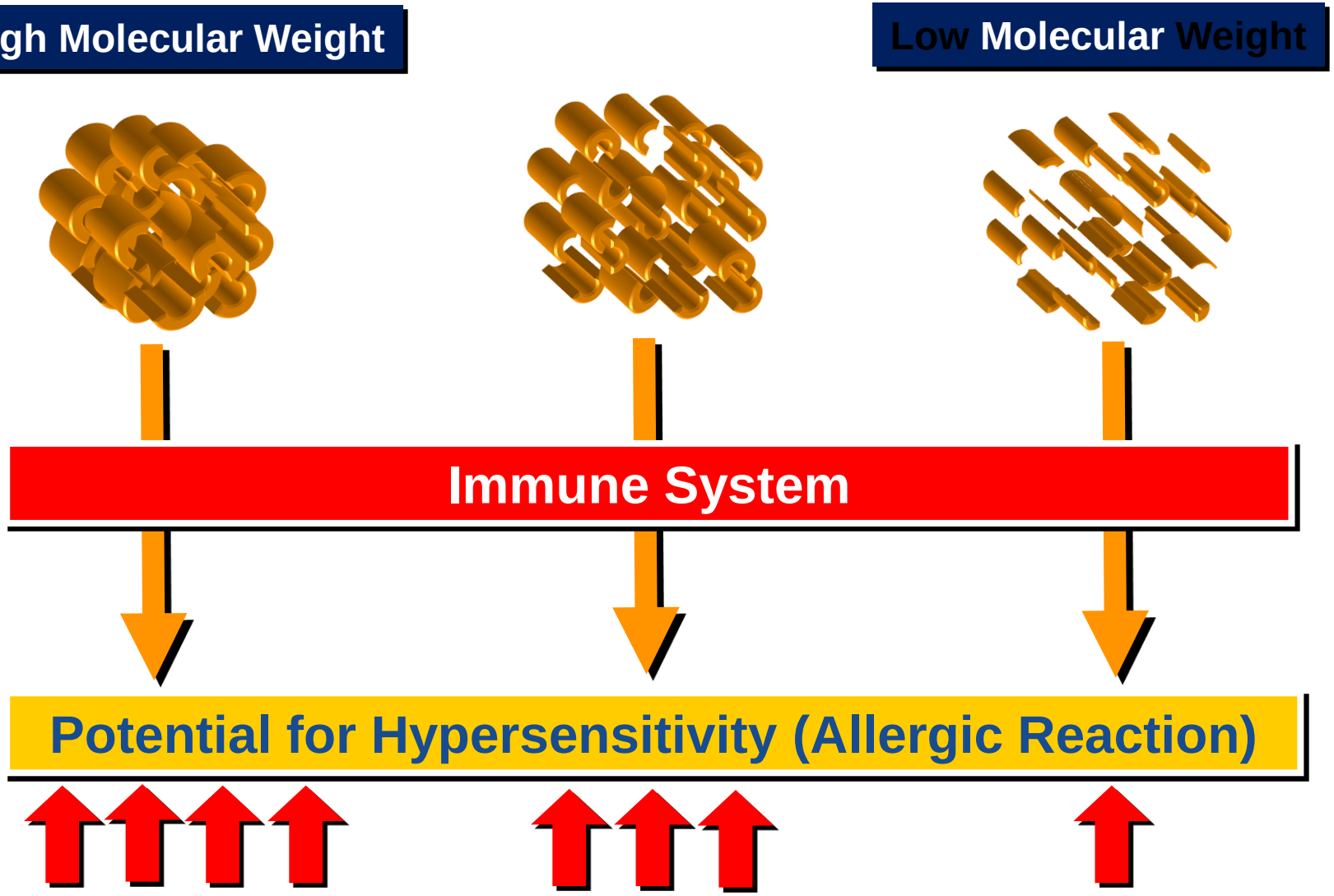
There is no good public health mechanism to predict all children who will develop allergy. At least half of infants who go on to develop allergy could not have been predicted

Mechanism of Food Allergen Sensitization

Failure of Oral Tolerance



Protein size and Allergenicity



Box 16: Modified asthma predicative index

History of ≥4 wheezing episodes with at least one physician diagnosed and either

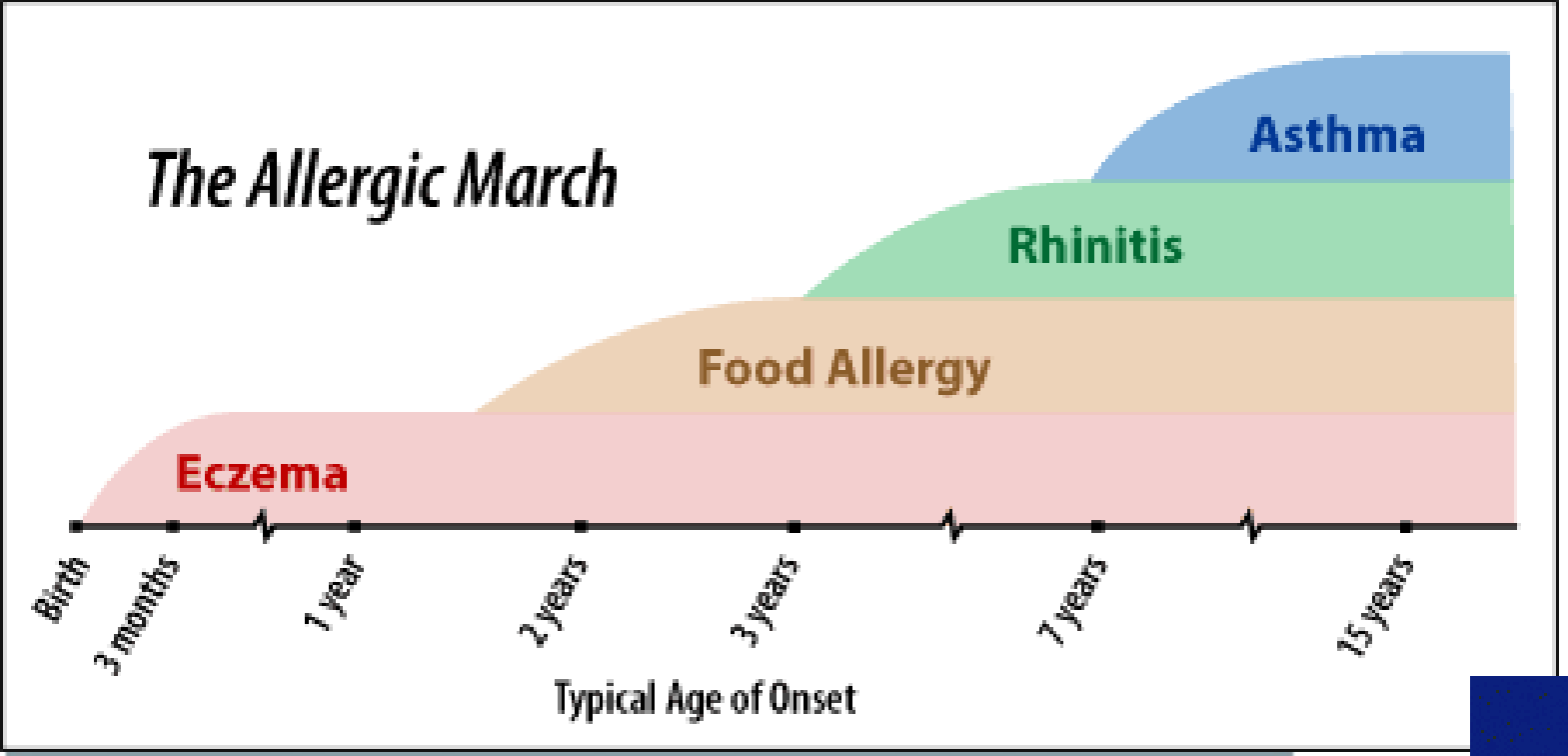
One (or more) of the major criteria	Or	Two (or more) of the minor criteria
• Parental history of asthma		• Eosinophilia (≥4%)
• Skin test positive to aero-allergens		• Wheezing unrelated to colds
• Eczema (physician-diagnosed atopic dermatitis)		• Allergic sensitization to milk, egg, or peanuts

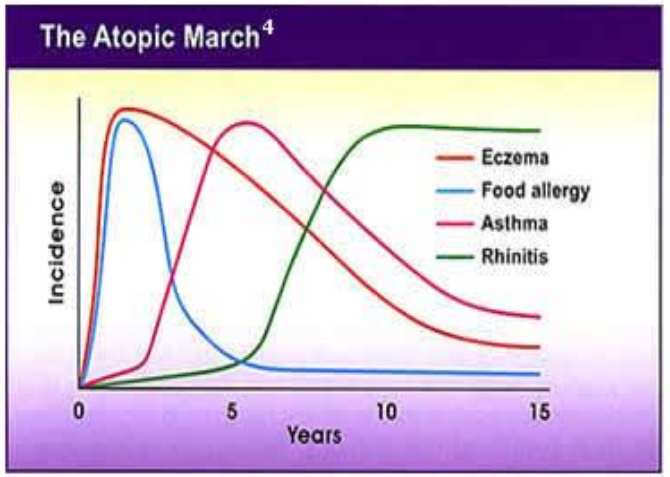
Adapted from reference[21 6]

- **Food allergen exposure is usually through ingestion, but the inhalation of food proteins in the form of dust or aerosolized particles may also trigger respiratory symptoms.**

- **Isolated asthma or rhinitis secondary to food allergy is reported, but is rare. More commonly, respiratory symptoms of food allergy are accompanied by skin and/or gastrointestinal manifestations. Foods can elicit asymptomatic airway hyperreactivity or symptomatic asthmatic responses.**

- **In addition, systemic anaphylactic reactions often have a respiratory component.**





Prevalence of...

- Eczema:[5] 14-22%
- Eczema + allergic rhinitis:[5] 34%
- Eczema + asthma:[5] 10%
- Respiratory and atopic disorders:[6] 41%

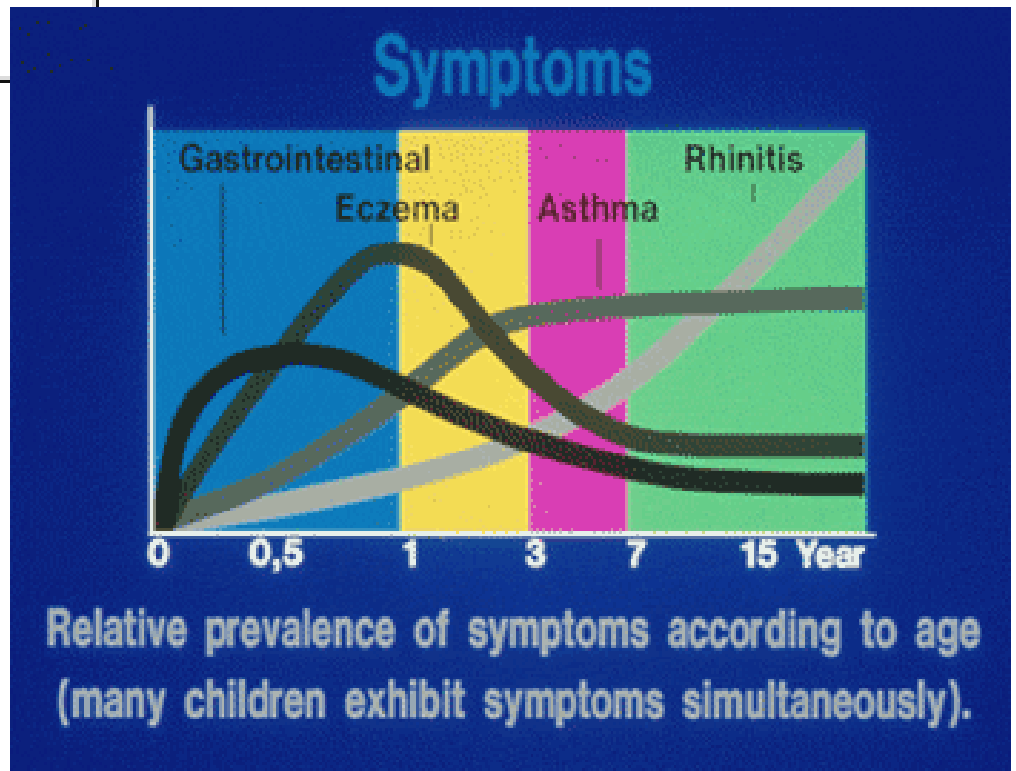
Eczema | GI disorders | Otitis media | Allergic rhinitis | Asthma | Adult asthma

As many as **40%** of infants with atopic dermatitis may become asthmatic by age 4

Sasai K, et al. J Periatr. 1996;128:834-40

It is estimated that **79%** of children with otitis media have been diagnosed with allergic rhinitis

ETAC™ Study Group Pediatr Allergy Immunol. 1998;9:116-24



DEFINITION OF FOOD ALLERGY

The terms "allergy" and "hypersensitivity" are used interchangeably to refer to an abnormal immunologic reaction to food. Such reactions can be mediated by IgE molecules directed against specific food proteins that activate mast cells and basophils, or can arise from other cellular processes involving eosinophils or T cells

	IgE Mediated	Mixed Mechanism	Non-IgE Mediated
Skin	Acute urticaria Angioedema	Atopic dermatitis	Dermatitis herpetiformes
GI	Immediate GI hypersensitivity Oral allergy syndrome	Eosinophilic gastroentero-colitis	Protein induced enterocolitis
Respiratory	Acute RAD (High risk anaphylaxis)	Asthma (Risk of anaphylaxis)	Food induced hemosiderosis Heiner syndrome

Common

Uncommon

Adopted from HA Sampson, 2000

Nonimmunologic adverse food reactions

Gastrointestinal disorders
Structural abnormalities
Hiatal hernia
Pyloric stenosis
Tracheoesophageal fistula
Hirschsprung's disease
Carbohydrate malabsorption
Lactase deficiency
Sucrose-isomaltase deficiency
Pancreatic insufficiency (cystic fibrosis)
Gastroesophageal reflux
Peptic ulcer disease
Gallbladder disease
Toxic reactions
Seafood
Scromboid poisoning (fresh tuna and mackerel)
Ciguatera poisoning (grouper, snapper)
Saxitoxin (shellfish)
Other food poisoning
Clostridium botulinum
Staphylococcus aureus
Fungal toxins (aflatoxins, trichothecanes, ergot)

Intolerances
Pharmacologic agents
Caffeine
Theobromine (tea, chocolate)
Histamine-like compounds (fish, wine, sauerkraut)
Tryptamine (tomato, plum)
Tyramine (aged cheeses, pickled fish)
Serotonin (banana, tomato)
Phenylethylamine (chocolate)
Glycosidal alkaloid solanine (potatoes)
Alcohol
Flavorings and preservatives
Sodium metabisulfite
Monosodium glutamate
Neurologic reactions
Auriculotemporal syndrome
Psychologic reactions
Food phobias
Food aversions
Accidental contaminations
Pesticides
Antibiotics (if allergy present)

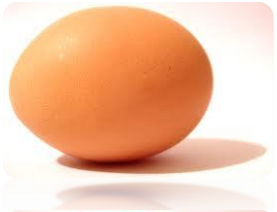
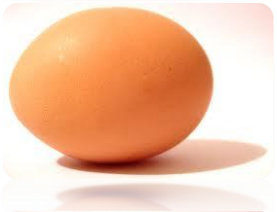
Adapted with permission from: Sampson HA. Differential diagnosis in adverse reactions to foods. J Allergy Clin Immunol 1986; 78:212.

Figure 1: The "Big Eight" Allergens: Tree Nuts, Peanuts, Soy, Egg, Milk, Fish, Wheat and Shellfish.

The most common foods that trigger food hypersensitivity reactions involving the respiratory tract are peanut, tree nuts, fish, shellfish, hen's egg, cow's milk, and seeds.

Wheat and soybean are the most frequently implicated food allergens in inhalation induced reactions, although hen’s egg and seafood can also cause these types of reactions

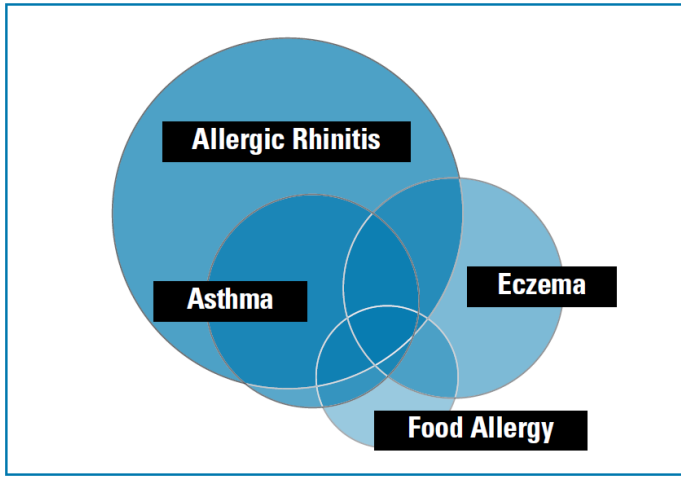
3 Main Allergens in Different Populations

	1st	2nd	3rd
USA			
Germany			
Spain			
Isreal			
Japan			

Guidelines for the Diagnosis and Management of Food Allergy in the United States: October 13, 2010.

Clinical manifestations of IgE-mediated reactions

Clinical features
Dermatologic - Pruritus, flushing, urticaria/angioedema, diaphoresis
Eyes - Conjunctival injection, lacrimation, periorbital edema, pruritus
Respiratory tract - Nose/oropharynx (sneezing, rhinorrhea, nasal congestion, oral pruritus, metallic taste), upper airway (hoarseness, stridor, sense of choking, laryngeal edema), lower airway (dyspnea, tachypnea, wheezing, cough, cyanosis)
Cardiovascular - Conduction disturbances, tachycardia, bradycardia (if severe), arrhythmias, hypotension, cardiac arrest
Gastrointestinal - Nausea/vomiting, abdominal cramping, bloating, diarrhea
Neurologic - Sense of impending doom, syncope, dizziness, seizures

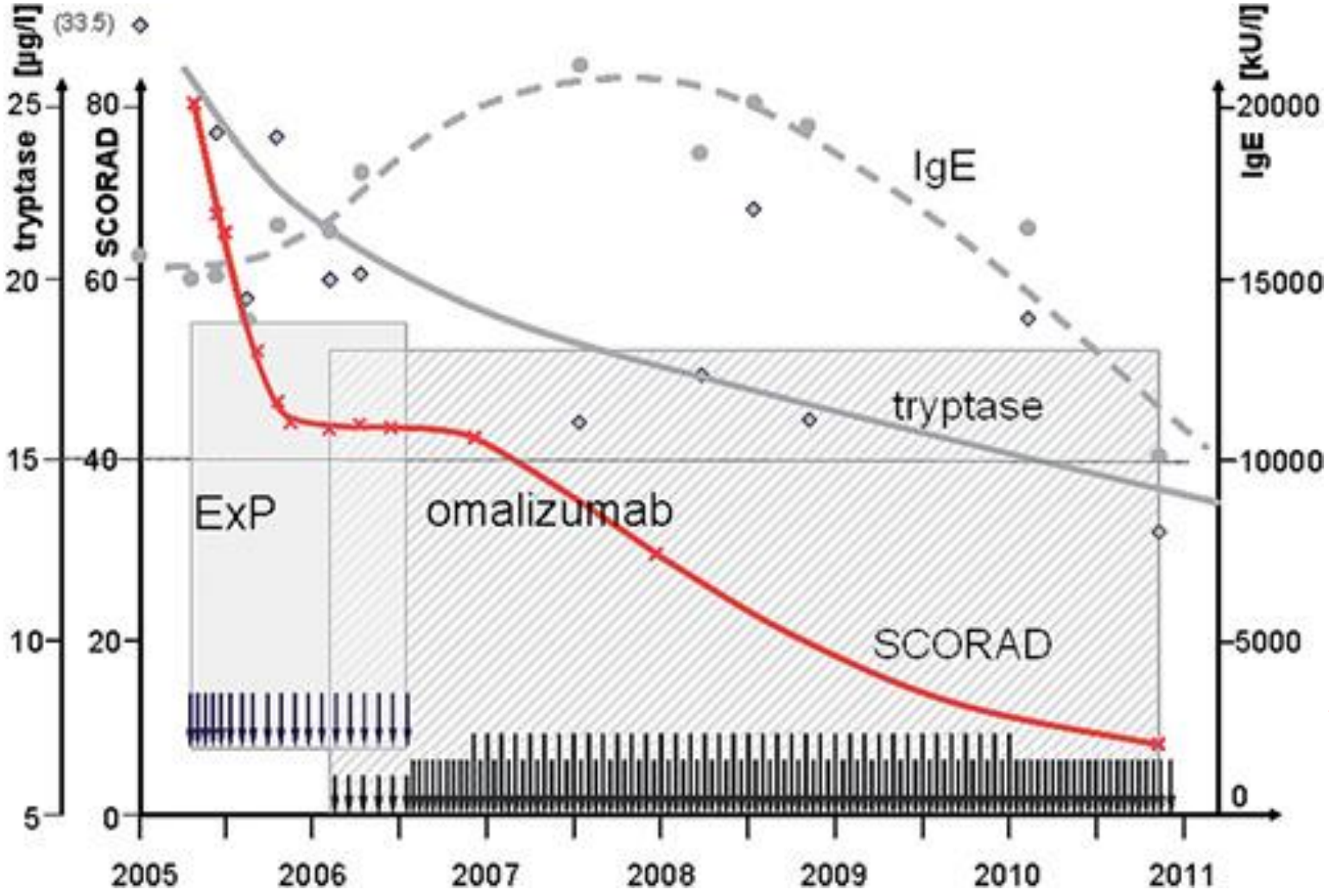


Atopic diseases tend to cluster in individuals and in families.

Among atopic patients of all ages, those with atopic dermatitis tend to have the highest IgE levels followed by atopic asthma, perennial allergic rhinitis, and seasonal allergic rhinitis.


For Allergic Emergencies (Anaphylaxis) 0.3 mg each
EPIPEN®
(Epinephrine) Auto-Injector 0.3mg
BECAUSE EVERY SECOND COUNTS
OPEN IMMEDIATELY
EPIPEN®
Auto-Injector 0.3mg


Use EPI-pen in
Allergy Alert!



Elevated total IgE levels can be demonstrated in 80 to 85 percent of patients with AD, although the precise relationship between the elevated IgE levels and disease pathogenesis is unclear. Some individuals have extremely high total IgE levels. Children with very high IgE (ie, >10,000 kU/L) are at greater risk for severe AD, sensitization to food and inhaled allergens, and anaphylaxis, compared to children with lesser elevations (ie, 1000 to 4000 kU/L).In patients with AD, the rate of sensitization to foods ranges from 30 to 80 percent, depending upon the population studied, although the actual rate of confirmed food allergy is much lower.

Some cross-reactions between inhalant allergens and food allergens

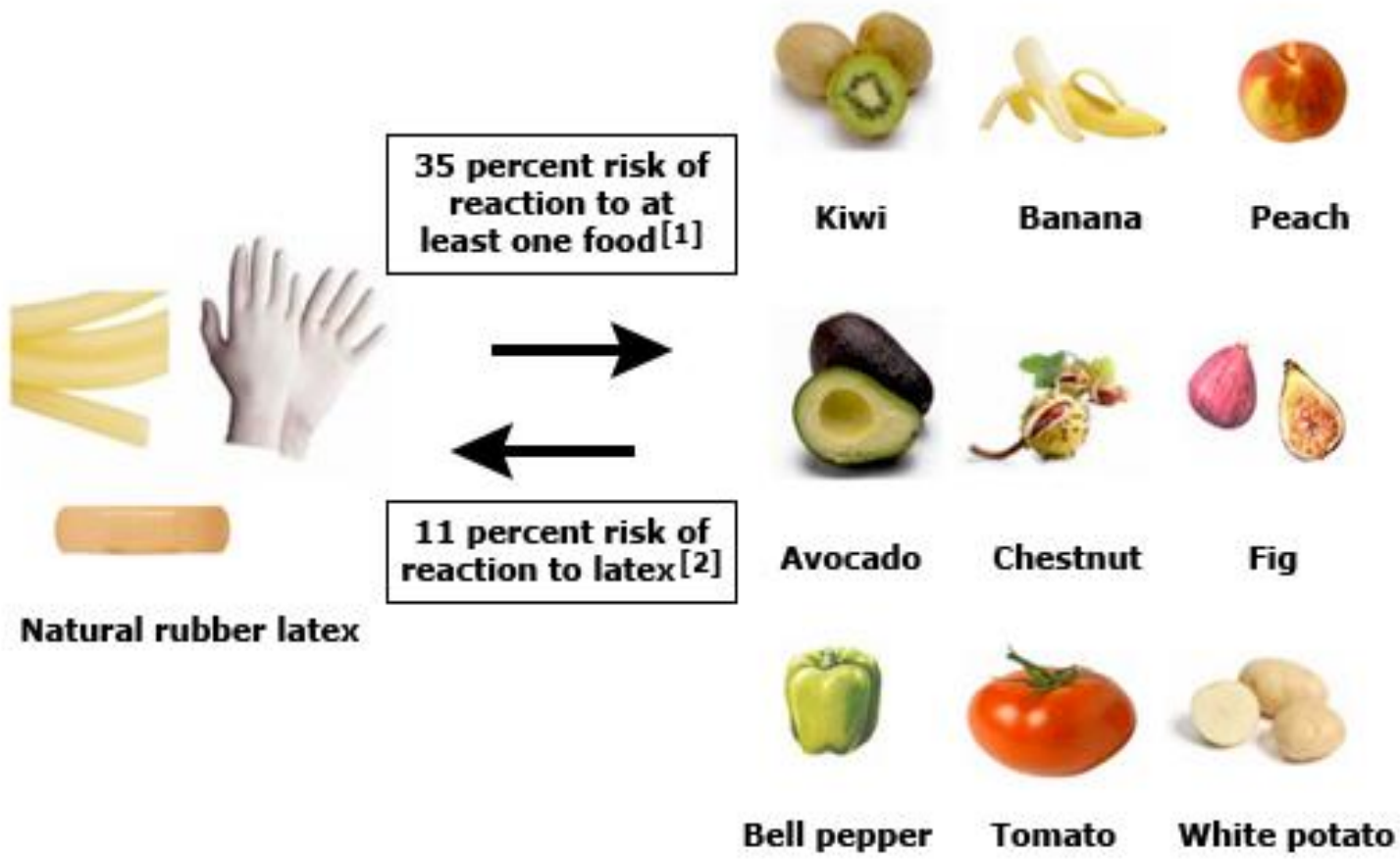
Inhalant allergy	Food allergy
Birch pollen	Nuts, apple, pear, peach, plum, cherry, carrot, peanut, soy
Ragweed pollen	Melon, banana
Grass pollen	Tomato, peanut, pea, wheat, rye
Latex	Banana, chestnut, kiwi, avocado
Chironomids	Crustaceans

Importance of considering 3-dimensional protein structure in prediction cross-reactivity

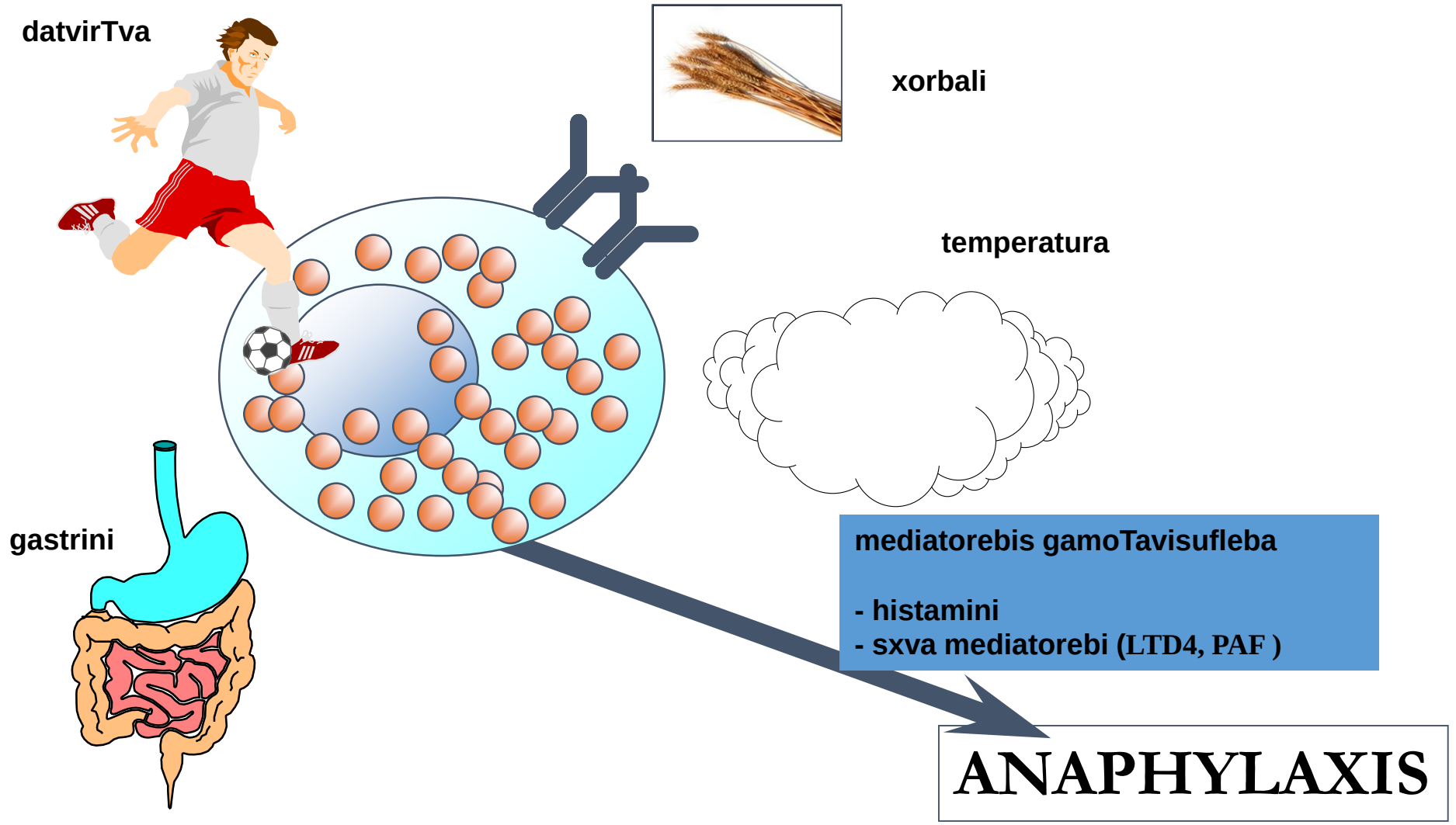
Van Ree R.
Curr Opin Allergy Clin Immunol, 2004;4:235-40

If Allergic to:	Risk of Reaction to at Least One:	Risk:
A legume* (peanut)	Other legumes (peas, lentils, beans)	5%
A tree nut (walnut)	Other tree nuts (brazil, cashew, hazelnut)	37%
A fish* (salmon)	Other fish (swordfish, sole)	50%
A shellfish (shrimp)	Other shellfish (crab, lobster)	75%
A grain* (wheat)	Other grains (barley, rye)	20%
Cow's milk*	Beef (hamburger)	10%
Cow's milk*	Goat's milk (goat)	92%
Cow's milk*	Mare's milk (horse)	4%
Pollen (birch, ragweed)	Fruits/vegetables (apple, peach, honeydew)	55%
Peach*	Other Rosaceae (plum, pear, apple, cherry)	55%
Melon* (cantaloupe)	Other fruits (watermelon, banana, avocado)	92%
Latex* (latex glove)	Fruits (kiwi, banana, avocado)	35%
Fruits (banana, kiwi, avocado)	Latex (latex glove)	11%

Patterns of allergic cross-reactivity between latex and food



Exercise induced Anaphylaxis



Food Allergy, A GLORIA™ Module, update 2011

Diagnostics of Food allergy

- History and physical examination
- Prick skin Testing *(The general sensitivity > 90 % and specificity –50% of skin prick testing for the diagnosis of food allergy)*
- In vitro testing (CAP-FEIA/RASTs) Specific IgE - Phadia

  (Clinical performance is expressed as sensitivity- 84-95 %, and specificity, ranging from 85-94%).
- Gastroenterologic tests
- Elimination diets
- Food challenges

Based primarily upon studies performed in the United States in children with a history of food allergy older than two years of age, the 95 percent predictive levels for egg, milk, peanut, tree nuts, and fish are as follows (Sampson HA)

- **Egg, 7 kUA/L (2 kUA/L for children less than two years of age)**
- **Milk, 15 kUA/L (5 kUA/L for children less than two years of age)**
- **Peanut, 14 kUA/L**
- **Tree nuts, approximately 15 kUA/L**
- **Fish, 20 kUA/L**

Thus, a child over two years old with a convincing history of egg allergy has a greater than 95 percent likelihood of experiencing an allergic reaction to egg upon challenge if their egg-specific IgE exceeds 7 kUA/L. Therefore, challenge is unnecessary in such children. Equivalent predictive positive levels for soy and wheat have not yet been established.

Diagnostics of Food allergy

- **FOOD DIARIES — Food diaries are written records of everything that is ingested by a patient, including all foodstuffs, beverages, condiments, and candies. Although rarely diagnostic on their own, food diaries may be helpful at times in identifying a food that was overlooked by the patient, a food containing hidden ingredients, or patterns of reactions (eg, in association with exercise, alcohol, or antiinflammatory medications).**

- **FOOD CHALLENGES — Oral food challenges are structured protocols in which the patient ingests a suspect food under clinician supervision. Food challenges should only be performed by allergy specialists familiar with food-allergic reactions and in settings equipped with the necessary medications, equipment, and staff to treat anaphylaxis. Food challenges are covered in detail separately.**

- **UNVALIDATED METHODS — Patients may present after having food allergy tests performed that have not been validated . These can include food-specific IgG and IgG4 tests, which typically yield multiple positive results and may represent a normal immune response to food.**

World Allergy Organization (WAO) Diagnosis and Rationale for Action against Cow's Milk Allergy (DRACMA) Guidelines

Alessandro Fiocchi, (Chair), Jan Brozek, Holger Schu¨nemann, (Chair), Sami L. Bahna,Andrea von Berg, Kirsten Beyer, Martin Bozzola, Julia Bradsher, Enrico Compalati, Motohiro Ebisawa,Maria Antonieta Guzman, Haiqi Li, Ralf G. Heine, Paul Keith, Gideon Lack, Massimo Landi,Alberto Martelli, Fabienne Rancé, Hugh Sampson, Airton Stein, Luigi Terracciano, and Stefan Vieths

WAO Journal. April 2010:57-161

Allergic and asthmatic reactions to food additives

Of the thousands of food additives in use, only a small number have been implicated in allergic or allergic-like reactions. Symptoms include urticaria and/or angioedema, asthmatic reactions, and anaphylaxis.

Clues that a patient may be reacting to a food additive include reactions that occur within minutes to a few hours of eating, a convincing history of similar reactions to several apparently unrelated foods, and reactions to commercially-prepared forms of foods that are tolerated when prepared at home. However, allergy to a nutritive food is far more likely than allergy to an additive, so this must be considered first in the differential diagnosis.

Ronald A Simon, MD, 2014

Sulfites

- **Sulfites can cause potentially serious asthmatic reactions in as many as 5 percent of patients with asthma**, whereas individuals without asthma are rarely affected. **Sulfite-sensitive patients more often have severe and/or steroid-dependent asthma**.
  Patients with asthma who experience exacerbations after apparent exposure to sulfites should be counseled to avoid sulfite-containing foods and (if possible) referred to an allergy specialist with experience in evaluating for sulfite sensitivity

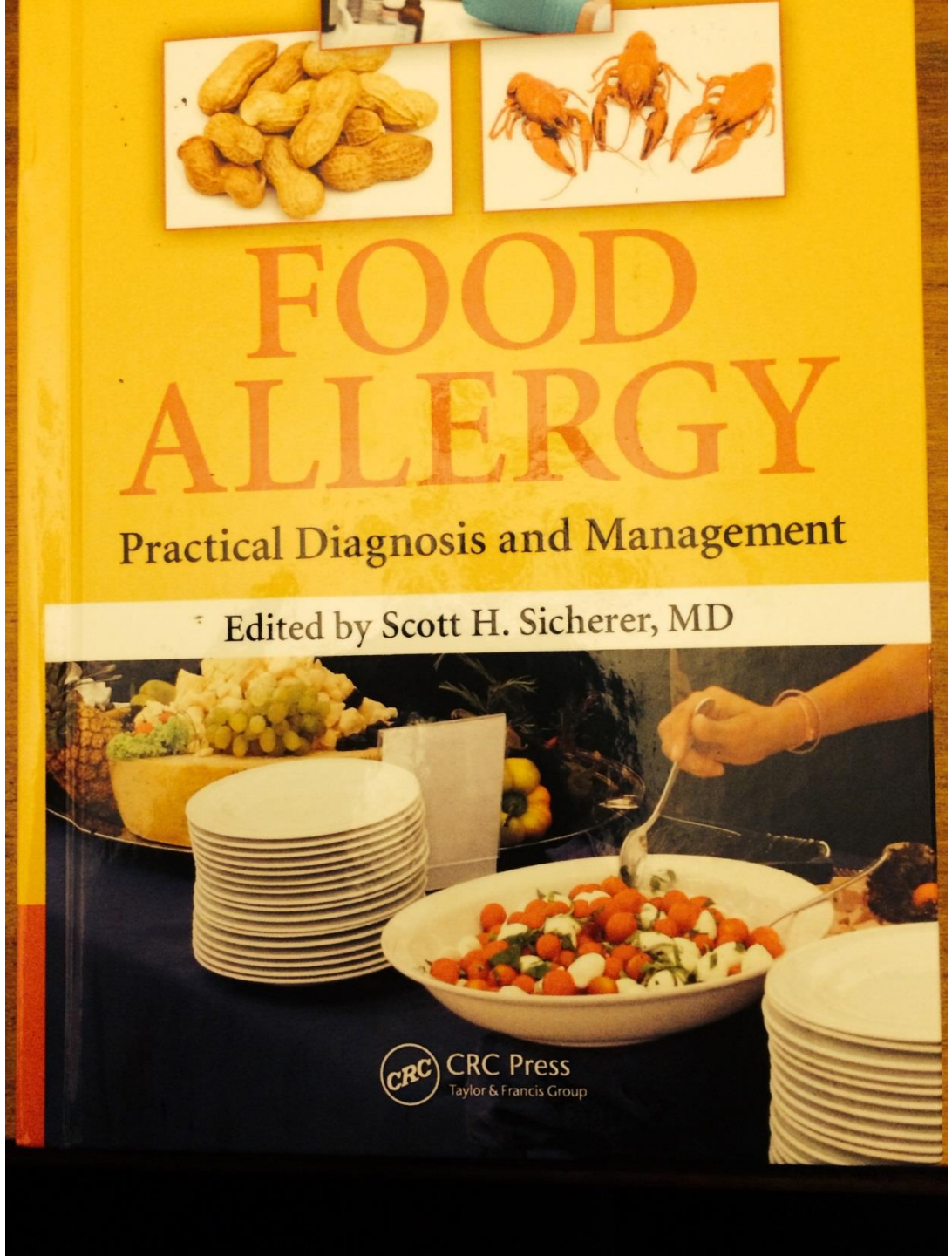
Sulfite-containing foods

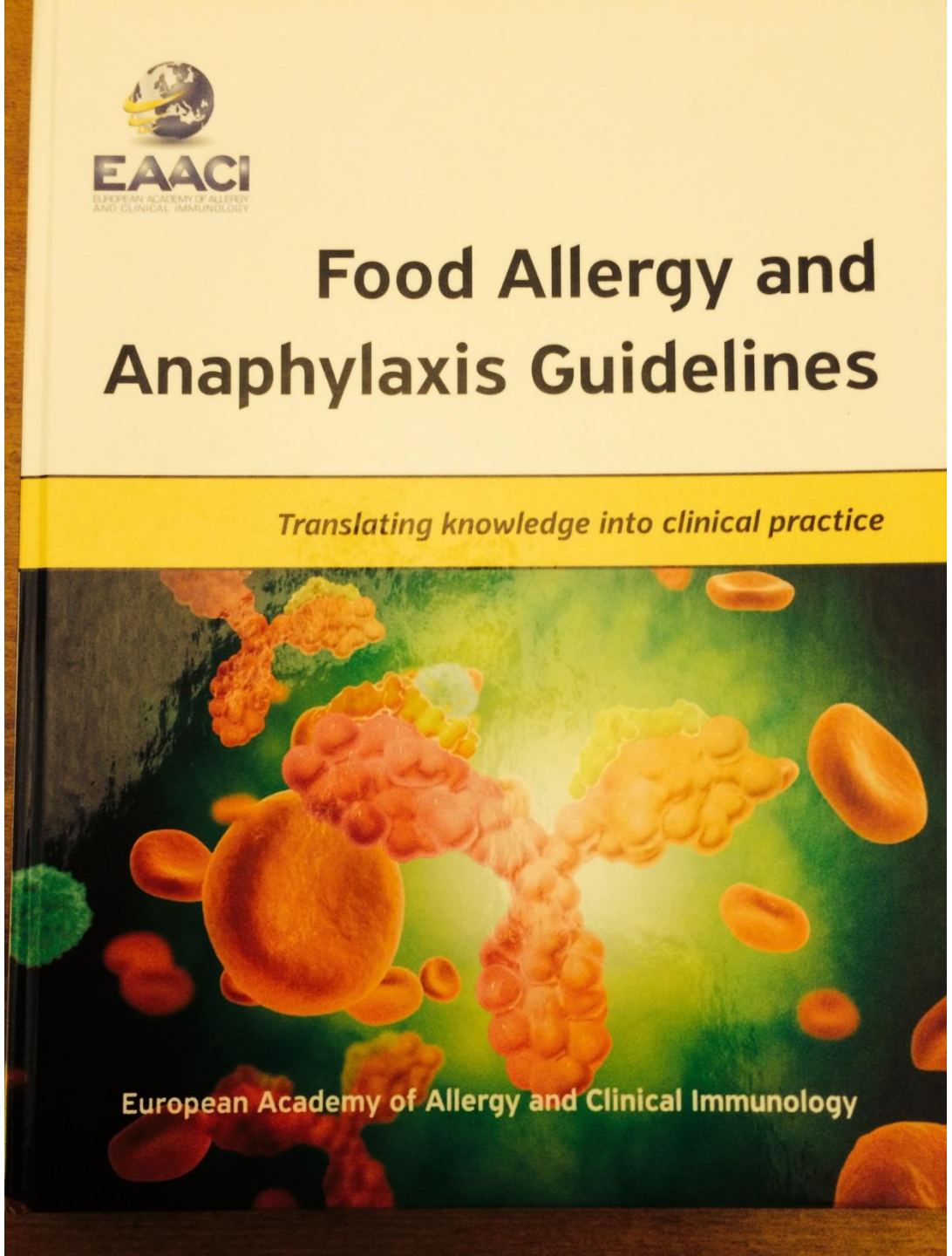
High content
Dried fruit (excluding dark raisins and prunes)
Lemon juice (nonfrozen)
Lime juice (nonfrozen)
Wine
Molasses
Sauerkraut juice
Grape juice (white, white sparkling, pink sparkling, red sparkling)
Moderate content
Dried potatoes
Wine vinegar
Gravies, sauces
Fruit topping
Maraschino cherries
Pectin
Shrimp (fresh)
Sauerkraut
Pickled peppers
Pickled cocktail onions
Pickles/relishes

Low content (<10 ppm)*
Corn starch
Hominy
Frozen potatoes
Maple syrup
Imported jams and jellies
Fresh mushrooms
Malt vinegar
Dried cod
Canned potatoes
Beer
Dry soup mix
Soft drinks
Instant tea
Pizza dough (frozen)
Pie dough
Sugar (especially beet sugar)
Gelatin
Coconut
Fresh fruit salad
Domestic jams and jellies
Crackers
Cookies
Grapes
High fructose corn syrup

* Foods with low sulfite content have not been implicated in inducing reactions in sulfite-sensitive individuals.

Courtesy of Ronald A Simon, MD.


FOOD
ALLERGY
Practical Diagnosis and Management
Edited by Scott H. Sicherer, MD
CRC Press
Taylor & Francis Group


EAACI
EUROPEAN ACADEMY OF ALLERGY AND CLINICAL IMMUNOLOGY
Food Allergy and Anaphylaxis Guidelines
Translating knowledge into clinical practice
European Academy of Allergy and Clinical Immunology

WAO - ARIA - GA²LEN consensus document on molecular-based allergy diagnostics Giorgio Walter Canonica et al.

World Allergy Organ J. 2013; 6(1): 17.

MA diagnostics allows for an increased accuracy in allergy diagnosis and prognosis and plays an important role in three key aspects of allergy diagnosis:

(1) resolving genuine versus cross-reactive sensitization in poly-sensitized patients, thereby improving the understanding of triggering allergens;

(2) assessing, in selected cases, the risk of severe, systemic versus mild, local reactions in food allergy, thereby reducing unnecessary anxiety for the patient and the need for food challenge testing;

(3) identifying patients and triggering allergens for specific immunotherapy (SIT).

Mapa możliwych reakcji krzyżowych

	ImmunoCAP ISAC test			Owoce	Warzywa	Orzechy	Strączkowe	Ziarna	Przyprawy	Pyłki traw	Pyłki chwastów	Pyłki drzew	Lateks	Pleśnie	Roztocza	Zwierzęta	Jajko	Mleko	Mięso	Ryba	Owoce morza	Pasożyty	Owady	Jady
	Źródło	**składnik**	**Rodzina białek/ funkcja**																					
Roztocza	**Roztocze**	**Der p 1**	Cysteine protease												■									
		Der p 2	NPC2 family												■									
		Der p 10	Tropomyosin												■						■	■	■	
		Der f 1	Cysteine protease												■									
		Der f 2	NPC2 family												■									
		Eur m 1	Cysteine protease												■									
		Eur m 2	NPC2 family																					
Zwierzęta	**Pies**	**Can f 1**	Lipocain																					
		Can f 2	Lipocain																					
		Can f 3	Serum albumin													■		■	■					
	Kot	**Fel d 1**	Uteroglobulin																					
		Fel d 2	Serum albumin													■		■	■					
		Fel d 4	Lipocain																					
	Mysz	**Mus m 1**	Lipocain																					
	Koń	**Equ c 3**	Serum albumin													■		■	■					
	Świnia	**Sus s PSA**	Serum albumin													■		■	■					
														■										
Pleśnie	**Alternaria**	**Alt a 1**	Acidic glycoprotein																					
		Alt a 6	Enolase											■										
	Aspergillus	**Asp f 1**	Mitogilin family											■										
		Asp f 2	Fibrinogen Binding Proteins											■										
		Asp f 3	Peroxysomal protein											■										
		Asp f 4	Unknown																					
		Asp f 6	Mn supeoxidde dismutase																					
	Cladosporium	**Cla h 8**	Mannitol dehydrogenase																					
Karaluch	**Karaluch**	**Bla g 1**	Cockrach group 1																				■	
		Bla g 2	Aspartic protease																				■	
		Bla g 4	Calycin																				■	
		Bla g 5	Glutathione S-transferase																				■	
		Bla g 7	Tropomyosin												■						■	■	■	
Jady	**Pszczoła**	**Api m 1**	Phospholipase																					■
		Api m 4	Melittin																					■
	Osa	**Pol d 5**	PR-1																					■
		Ves v 1	Phospholipase A1																					■
		Ves v 5	PR-1																					■
Pasożyty	**Anisakis**	**Ani s 1**	Serine protease inhibitor																			■		
		Ani s 3	Tropomyosin												■						■	■	■	

ImmunoCAP ISAC test

Źródło	składnik	Rodzina białek/ funkcja	Owoce	Warzywa	Orzechy	Strączkowe	Ziarna	Przyprawy	Pyliki traw	Pyliki chwastów	Pyliki drzew	Lateks	Pluskwa	Roztocza	Zwierzęta	Jajko	Mleko	Mięso	Ryba	Owoce morza	Pasożyty	Owady	Jady
Roślinne																							
Pokarmy pochodzenia roślinnego	Kiwi	Acd d 1	Cysteine protease																				
		Acd d 2	Thaumatin-like protein																				
		Acd 5	Kiwellin																				
		Acd 8	PR-10																				
	Seler	Api g 1	PR-10																				
	Marchew	Dau c 1	PR-10																				
	Jabłko	Mal d 1	PR-10																				
	Brzoskwinia	Pru p 1	PR-10																				
		Pru p 3	LTP																				
		Pru p 4	Profilin																				
	Orzech brazylijski	Bre e 1	Storage protein 2S albumin																				
	Orzech nerkowca	Ana o 2	Storage protein 2S albumin																				
	Orzech laskowy	Cor a 9	Storage protein 2S albumin																				
		Cor a 8	LTP																				
		Cor a 1.0401	Profilin																				
	Orzech włoski	Jug r 1	Storage protein, 2S albumin																				
		Jug r 3	LTP																				
	Sezam ziarno	Ses i 1	Storage protein 2S albumin																				
	Orzech ziemny	Ara h 1	Storage protein 2S albumin																				
		Ara h 2	Storage protein 2S albumin																				
		Ara h 3	Storage protein 2S albumin																				
		Ara h 8	PR-10																				
		Ara h 9	LTP																				
	Soja	Gly m 4	PR-10																				
		Gly m 5	Storage protein, Beta-conglycinin																				
		Gly m 6	Storage protein, Glycinin																				
	Pszenica	Gliadin	Gliadin																				
		Tri a 19	Omega 5 gliadin																				
		Tri a 18	Agglutinin isolectin 1																				
		Tri a aA_TI	Alpha-Amylase/Trypsin inhibitors																				
Pyliki traw	Trawa bermuda	Cyn d 1	1 grupa alergenów traw																				
	Tymotka łąkowa	Phl p 1	1 grupa alergenów traw																				
		Phl p 2	2 grupa alergenów traw																				
		Phl p 4	Berberine bridge enzyme																				
		Phl p 5	5 grupa alergenów traw																				
		Phl p 6	5 grupa alergenów traw																				
		Phl p 7	Polcalcin																				
		Phl p 11	Trypsin inhibitor																				
		Phl p 12	Profilin																				
Pyliki drzew	Olcha	Aln g 1	PR-10																				
	Brzoza	Bet v 1	PR-10																				
		Bet v 2	Profilin																				
		Bet v 4	Polcalcin																				
		Bet v 6	Isoflavone reductases																				
	Leszczyna	Cor a 1	PR-10																				
	Cyprys	Cup a 1	Pectate lyase																				
	Cedr japoński	Cry j 1	Pectate lyase																				
	Oliwka	Ole e 1	Trypsin inhibitor																				
		Ole e 2	Profilin																				
		Ole e 7	LTP																				
		Ole e 9	Glucanase																				
	Platan	Pla a 1	Invertase inhibitor																				
		Pla a 2	Polygalacturonases																				
Pyliki chwastów	Ambrozja	Amb a 1	Pectate lyase																				
	Byllica	Art. v 1	Defensin																				
		Art. v 3	LTP																				
	Parietaria	Par j 2	LTP																				
	Solanka kolczysta	Sal k 1	Pectin methylesterase																				
	Komosa	Che a 1	Trypsin inhibitor																				
	Mercury annual	Mer a 1	Profilin																				
	Babka lancetowata	Pla l 1	Pectase lyase																				
CCD	Bromelina	Ana c 2	CCD																				
		HUXF3 CCD	CCD																				
Lateks	Lateks	Hev b 1	Rubber elongation factor																				
		Hev b 3	Small rubber particle protein																				
		Hev b 5	Acidic protein																				
		Hev b 6	Hevein																				
		Hev b 8	Profilin																				
		Hev b 9	Glycolytic Enzyme																				
		Hev b 11	Chitinases																				
Nieroślinne																							
Pokarmy pochodzenia zwierzęcego	Mleko	Bos d 4	Alpha-lactalbumin																				
		Bos d 5	Beta-lactoglobulin																				
	Krowa	Bos d 6	Serum albumin																				
	Mleko	Bos d 8	Casein																				
		Lactoferrin	Transferrin																				
	Białko jajka	Gal d 1	Ovamucoid																				
		Gal d 2	Ovalbumin																				
		Gal d 3	Conalbumin																				
	Żółtko jajka	Gal d 5	Livetin (serum albumin but species specific)																				
	Karp	Cyp c 1	Parvalbumin																				
	Dorsz	Gad c 1	Parvalmumin																				
	Krewetka	Pen a 1	Tropomyosin																				
		Pen i 1	Tropomyosin																				
		Pen m 1	Tropomyosin																				

Component resolved diagnostics of plant food allergens

Causative food	Pollen cross-reactive components	Lipid transfer proteins	Pollen non-cross-reactive components
Peanut	Ara h 8* Ara h 5*	Ara h 9	Ara h 1; Ara h 2; Ara h 3 Ara h 4; Ara h 6; Ara h 7
Hazelnut	Cor a 1* Cor a 2*	Cor a 8	Cor a 9 Cor a 11
Soybean	Gly m 4* Gly m 3*	Gly m 1	Gly m 5 Gly m 6
Wheat	Tri a 12•	Tri a 14	Tri a 19 (ω-5 gliadin) Tri a 21 - alfa gliadin Tri a 26 - HMW glutenin Tri a 28 - AAI dimer 0.19

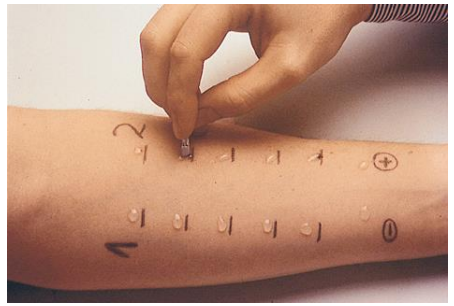
PRP-10
Profilin
Lipid transfer proteins
Storage seed proteins, albumins, and globulins

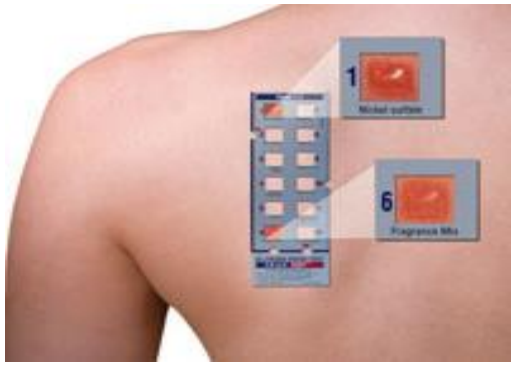
The table shows how the component-resolved diagnostics can be used to estimate the risk of anaphylaxis (Ana) in a patient sensitized to various pollen-related plant allergens. Patients who are sensitized to allergens in the profilin and pathogenesis-related-protein-10 (PRP-10) groups (shown in green and purple) have a relatively low risk of anaphylaxis. Those sensitized to lipid transfer proteins (shown in orange) have an intermediate risk. The highest rate of anaphylaxis is observed in patient sensitized to more stable proteins that are not cross-reactive with pollen allergens, such as storage seed proteins, albumins, and globulins (shown in yellow). The specific allergens circled in red have been implicated in systemic reactions.

* Reactive with birch tree pollen.
• Reactive with timothy grass pollen.

In vivo diagnostics
by Allergopharma and Stallergenes products

Testkit K consists of the same materials as Test Kit G plus additionally a broader range of allergens.





True Test,
Transdermal skin patch test used to facilitate the diagnosis of allergens that induce contact dermatitis

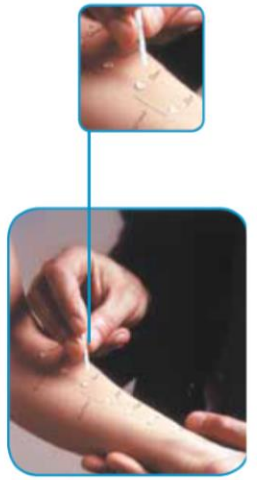
ALYOSTAL Prick®

PRESENTATION

- Glycerinated allergenic extracts dosed at 100 IR-IC/mL.
- 3 mL dropper vial.

Code	Positive control
2077	10 mg/mL Histamine hydrochloride

Code	Negative control
2069	Phenolated glycerol-saline solution



Molecular Allergology
ImmunoCAP® ISAC sIgE 112

Thermo SCIENTIFIC

ImmunoCAP ISAC

SAMPLE INFORMATION		PATIENT INFORMATION			
Sample ID:	A4M3427_3	Patient ID:			
Sampling date:	30.05.2012	Name:			
Approval status:	Measured	Birth date:		Age:	
Print date:	30.05.2012	ID/MR#:		Gender:	
Calibration curve:	CTR02 2012-05-25 A4J2327_1				

ORDERING PHYSICIAN INFORMATION	
Ordering physician:	Phadia Multiplexing Diagnostics GmbH
Address:	Tech Gate Vienna Donau-City-Strasse 1 AT-1220 VIENNA Austria

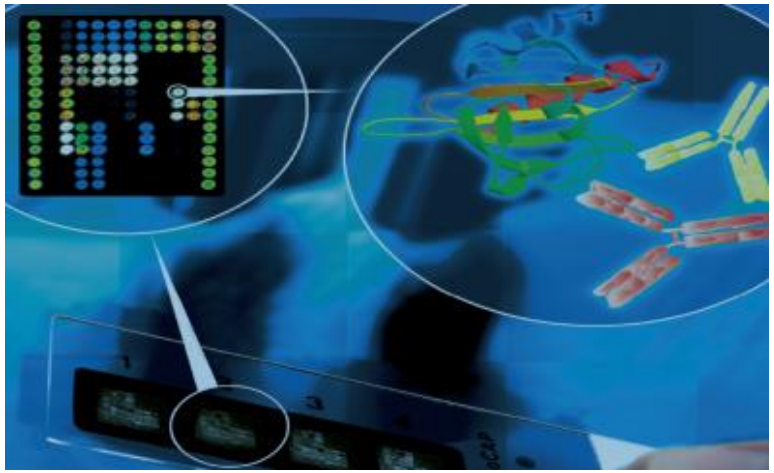
1. Summary of positive IgE results

Mainly species-specific aeroallergen components

Grass pollen			
Bermuda grass	nCyn d 1	Grass group 1	7,5 ISU-E
Timothy grass	rPhl p 1	Grass group 1	18 ISU-E
	rPhl p 2	Grass group 2	2,2 ISU-E
	nPhl p 4	Berberine bridge enzyme	0,5 ISU-E
	rPhl p 5	Grass group 5	13 ISU-E
	rPhl p 6	Grass group 6	0,7 ISU-E
Weed pollen			
Goosefoot	rChe a 1	Ole e 1-related protein	2,2 ISU-E
Animal			
Dog	rCan f 1	Lipocalin	44 ISU-E
	rCan f 2	Lipocalin	44 ISU-E
	rCan f 5	Arginine Esterase	38 ISU-E
Horse	rEqu c 1	Lipocalin	6,9 ISU-E
Cat	rFel d 1	Uteroglobin	32 ISU-E
	rFel d 4	Lipocalin	18 ISU-E
Mouse	nMus m 1	Lipocalin	3,3 ISU-E

Cross-reactive components

Serum albumin			
Cow's milk/meat	nBos d 6	Serum albumin	0,4 ISU-E
Dog	nCan f 3	Serum albumin	22 ISU-E
Horse	nEqu c 3	Serum albumin	4,8 ISU-E
Cat	nFel d 2	Serum albumin	23 ISU-E



- **uKnow™ Peanut ImmunoCAP® Molecular Allergy Test** Cutting-edge blood test identifies whether people are allergic to dangerous or more-benign peanut proteins, helping parents and patients create a food allergy management plan. *ThermoFisher Scientific*

PEANUT

Ara h 1 - Storage protein , 7 s globulin

Ara h 2 - Storage protein , 2 s albumin

Ara h 3 - Storage protein , 11 s globulin

Ara h 8 - PR-10

Ara h 9 - LTP

. IgE results sorted by protein group

Mainly species-specific food components

Egg white	nGal d 1	Ovomucoid	0,6 ISU-E	
	nGal d 2	Ovalbumin	2,8 ISU-E	
	nGal d 3	Conalbumin/Ovotransferrin	<0.3 ISU-E	
Egg yolk/chicken meat	nGal d 5	Livetin/Serum albumin	<0.3 ISU-E	
Cow's milk	nBos d 4	Alpha-lactalbumin	53 ISU-E	
	nBos d 5	Beta-lactoglobulin	43 ISU-E	
	nBos d 8	Casein	16 ISU-E	
	nBos d lactoferrin	Transferrin	<0.3 ISU-E	

ISAC Standardized Units (ISU-E)	**Level**	
< 0.3	Undetectable	
0.3 - 0.9	Low	
1 - 14.9	Moderate / High	
•	Very High	

Mainly species-specific food components

Egg white	nGal d 1	Ovomucoid	0,6	ISU-E
	nGal d 2	Ovalbumin	2,8	ISU-E
Cow's milk	nBos d 4	Alpha-lactalbumin	53	ISU-E
	nBos d 5	Beta-lactoglobulin	43	ISU-E
	nBos d 8	Casein	16	ISU-E
Walnut	nJug r 2	Storage protein, 7S globulin	2	ISU-E

Mainly species-specific aeroallergen components

Grass pollen

Bermuda grass	nCyn d 1	Grass group 1	20	ISU-E
Timothy grass	rPhl p 1	Grass group 1	33	ISU-E
	nPhl p 4	Berberine bridge enzyme	2,4	ISU-E

Tree pollen

Japanese cedar	nCry j 1	Pectate lyase	4,4	ISU-E
Cypress	nCup a 1	Pectate lyase	62	ISU-E
Olive pollen	rOle e 9	Beta-1,3-glucanase	2,2	ISU-E
Plane tree	nPla a 2	Polygalacturonase	2,2	ISU-E

Weed pollen

Ragweed	nAmb a 1	Pectate lyase	45	ISU-E
Wall pelitory	rPar j 2	Lipid transfer protein (nsLTP)	1,1	ISU-E
Saltwort	nSal k 1	Pectin methylesterase	1,2	ISU-E

Mold

Alternaria	rAlt a 1	Acidic glycoprotein	32	ISU-E

Mite

D. farinae (HDM)	rDer f 2	NPC2 family	38	ISU-E
D. pteronyssinus (HDM)	rDer p 2	NPC2 family	13	ISU-E

Cockroach

Cockroach	rBla g 1	Cockroach group 1	0,6	ISU-E

We want to propose a Complete Allergy Products kit to doctors visiting Allergic / Asthmatic patients

ASTHMA PATIENTS MONITORING TOOLS

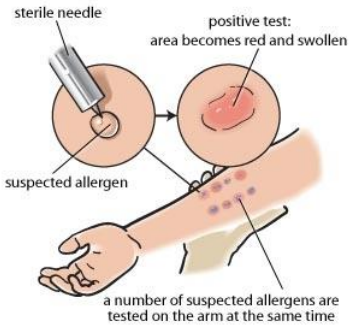
ANTI-ALLERGY BED COVERS

NEW PRODUCTS TO COME

ALLERGEN IMMUNOTHERAPY TREATMENTS

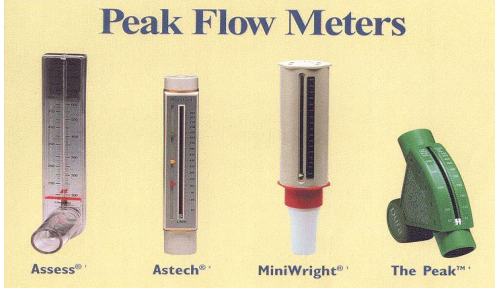
ALLERGY DIAGNOSIS

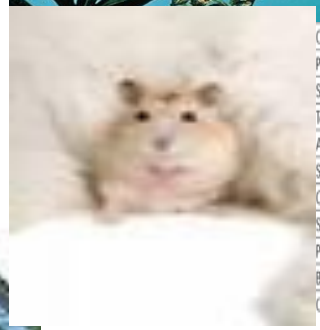
SKIN PRICK TESTING

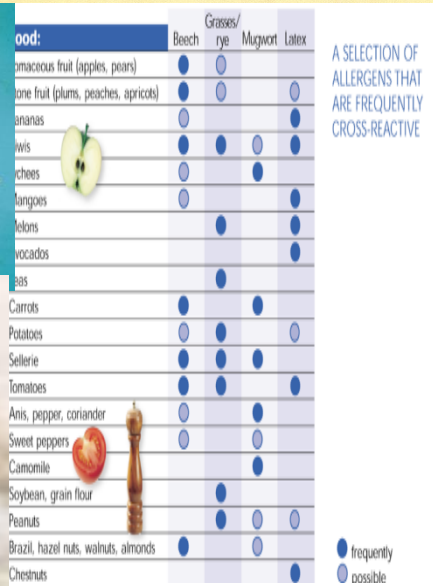


ATOPIC DERMATITIS PATCH TESTING

Diagnostics







Guide to Interpretation of F_{ENO} Values in Patients with Airway Disease.

Do not use this guide if the patient is a smoker. Data are inconclusive for current smokers.
F_{ENO} values are complementary to spirometry values in the diagnosis and assessment of airway disease.

	LOW	NORMAL	INTERMEDIATE	HIGH
Eosinophilic inflammation	**Unlikely**	**Unlikely**	**Present, but mild**	**Significant**
ADULTS				
F_{ENO} (ppb)*	**< 5**	**5–25**	**25–50**	**> 50** (or a rise of >60% since previous measurement)
CHILDREN <12 years				
F_{ENO} (ppb)*	**< 5**	**5–20**	**20–35**	**> 35** (or a rise of >60% since previous measurement)

** At 50 mL/s flow rate*

Consider:
- Smoker?

Children:
- PCD (2)
- CF (3)
- Chronic lung-disease of prematurity

If symptomatic, review diagnosis (1)

If asymptomatic and on treatment:
- Implies that patient is compliant
- Consider dose reduction or withdrawal of anti-inflammatory drug

Interpretation based on clinical presentation

If symptomatic and on anti-inflammatory treatment, consider:
- Infection as reason for worsening
- High levels of allergen exposure
- Dose increase
- Adding LABA

In addition for children
- Check
  - compliance
  - inhalation technique (4)

If asymptomatic and on treatment:
- No change of anti-inflammatory drug dose, if patient is stable

- Consider **atopic asthma** if the history is appropriate
- A positive response to a trial of inhaled or oral steroids is likely

In addition for children
- If combined with any objective evidence of reversible airway obstruction, asthma is very likely

If symptomatic and on anti-inflammatory treatment:
- Check
  - compliance
  - inhalation technique (4)
  - drug dose
- Consider
  - high levels of allergen exposure
  - imminent exacerbation or relapse
  - steroid resistance (rare)

If asymptomatic and on treatment:
- No change of anti-inflammatory drug dose, if patient is stable

(1) Consider: Neutrophilic asthma, anxiety/hyperventilation, vocal cord dysfunction, gastroesophageal reflux, rhinosinusitis and cardiac disease. In addition for children: Wheezy bronchitis, ENT disorders and immunodeficiencies.

(2) Primary ciliary dyskinesia (check nasal NO).

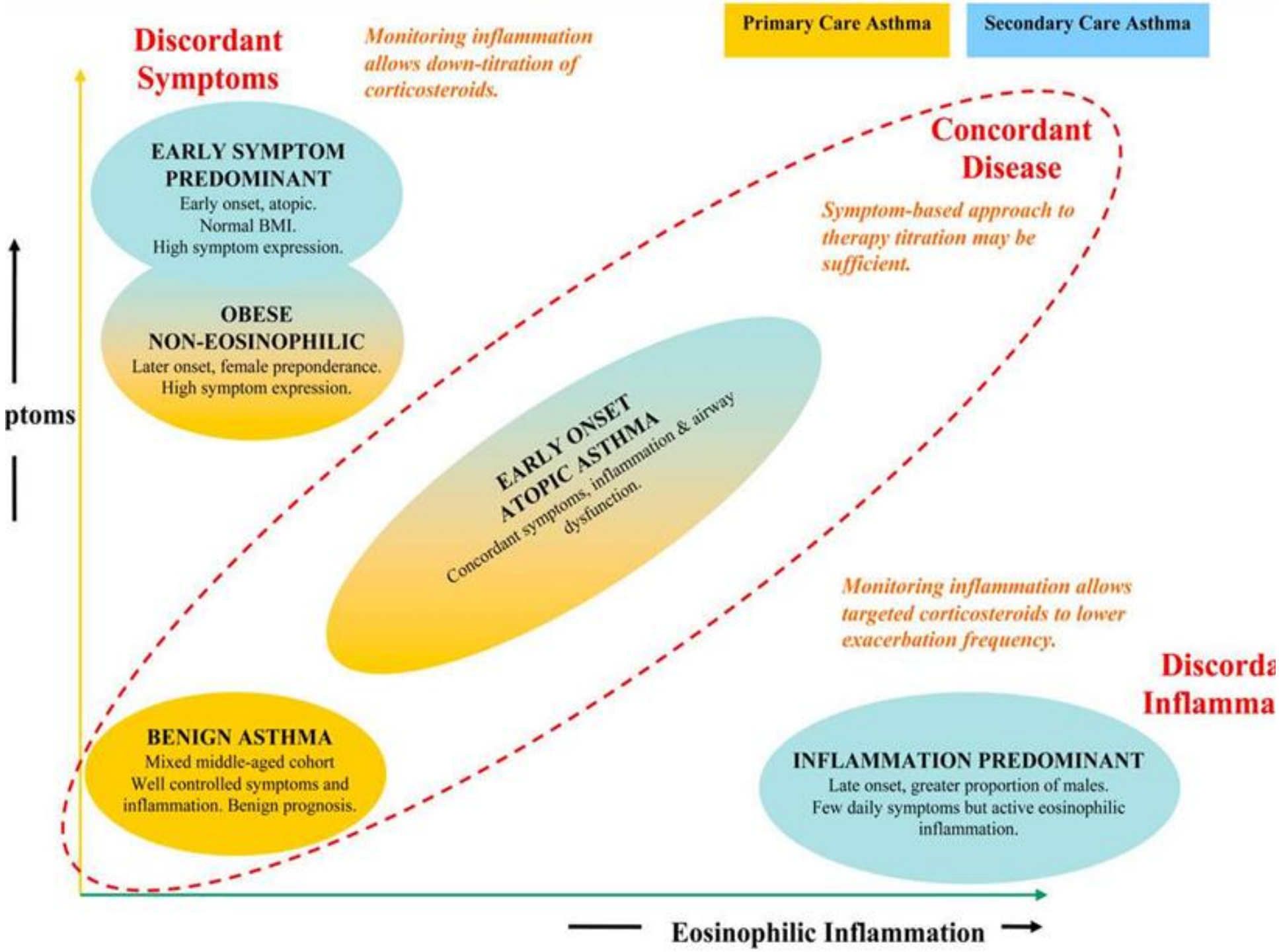
(3) Cystic fibrosis.

(4) For children, consider metered dose inhaler and spacer if patient is currently using a dry powder device.

The table is partly based on Taylor DR, Pijnenburg MW, Smith AD, De Jongste JC. Exhaled nitric oxide measurements: clinical application and interpretation. Thorax 2006; 61: 817-27.

ECP

- **Sensitivity**
- **Detection limit is <0.5 µg/l.**
- **Specificity - 87%**


Primary Care Asthma
Secondary Care Asthma
Discordant Symptoms
Monitoring inflammation allows down-titration of corticosteroids.
EARLY SYMPTOM PREDOMINANT
Early onset, atopic.
Normal BMI.
High symptom expression.
OBESE NON-EOSINOPHILIC
Later onset, female preponderance.
High symptom expression.
Concordant Disease
Symptom-based approach to therapy titration may be sufficient.
EARLY ONSET ATOPIC ASTHMA
Concordant symptoms, inflammation & airway dysfunction.
Monitoring inflammation allows targeted corticosteroids to lower exacerbation frequency.
Discorda
Inflamma
BENIGN ASTHMA
Mixed middle-aged cohort
Well controlled symptoms and inflammation. Benign prognosis.
INFLAMMATION PREDOMINANT
Late onset, greater proportion of males.
Few daily symptoms but active eosinophilic inflammation.
ptoms
Eosinophilic Inflammation

Asthma Phenotypes

:- **Trigger-induced asthma**

- **1) Allergic**
- **2) Non-allergic**
- **3) Aspirin-exacerbated respiratory disease (AERD)**
- **4) Infection**
- **5) Exercise-induced**
- **- Clinical presentation of asthma**
- **6) Pre-asthma wheezing in infants**
- **- Episodic (viral) wheeze**
- **- Multi-trigger wheezing**
- **7) Exacerbation-prone asthma**
- **8) Asthma associated with apparent irreversible airflow limitation**
- **- Inflammatory markers of asthma**
- **9) Eosinophilic and neutrophilic asthma**

PRACTALL (PEAACI/AAAAI) Allergy 2008:63:5-34

Diagnosis and treatment of asthma in childhood

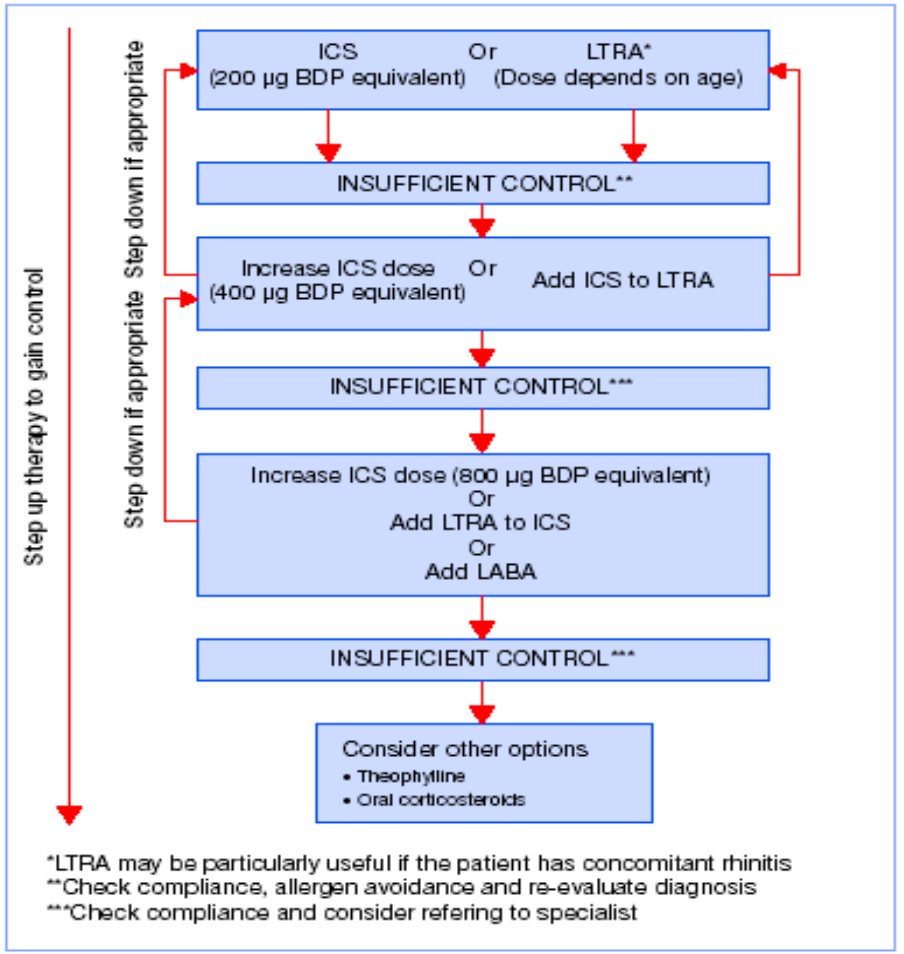
PRACTALL EAACI/AAAAI Consensus Report: *Pocket Guide*

EAACI · American Academy of Allergy Asthma & Immunology · Charité

Adapted from Bacharier LB et al. Diagnosis and treatment of asthma in childhood: a PRACTALL consensus report. *Allergy* 2008;63:5–34.

www.eaaci.net www.aaaai.org www.charite.de

Algorithm of preventive treatment for asthma in children >2 years of age



*LTRA may be particularly useful if the patient has concomitant rhinitis
**Check compliance, allergen avoidance and re-evaluate diagnosis
***Check compliance and consider refering to specialist

Allergy EUROPEAN JOURNAL OF ALLERGY AND CLINICAL IMMUNOLOGY

EAACI

International consensus on (ICON) pediatric asthma

N. G. Papadopoulos1, H. Arakawa2, K.-H. Carlsen3, A. Custovic4, J. Gern5, R. Lemanske6, P. Le Souef7, M. Ma¨ kela¨ 8, G. Roberts9, G. Wong10, H. Zar11, C. A. Akdis12, L. B. Bacharier13, E. Baraldi14, H. P. van Bever15, J. de Blic16, A. Boner17, W. Burks18, T. B. Casale19, J. A. Castro-Rodriguez20, Y. Z. Chen21, Y. M. El-Gamal22, M. L. Everard23, T. Frischer24, M. Geller25, J. Gereda26, D. Y. Goh27, T. W. Guilbert28, G. Hedlin29, P. W. Heymann30, S. J. Hong31, E. M. Hossny32, J. L. Huang33, D. J. Jackson34, J. C. de Jongste35, O. Kalayci36, N. Aı¨t-Khaled37, S. Kling38, P. Kuna39, S. Lau40, D. K. Ledford41, S. I. Lee42, A. H. Liu43, R. F. Lockey44, K. Lødrup-Carlsen45, J. Lo¨ tvall46, A. Morikawa47, A. Nieto48, H. Paramesh49, R. Pawankar50, P. Pohunek51, J. Pongracic52, D. Price53, C. Robertson54, N. Rosario55, L. J. Rossenwasser56, P. D. Sly57, R. Stein58, S. Stick59, S. Szefler60, L. M. Taussig61, E. Valovirta62, P. Vichyanond63, D. Wallace64, E. Weinberg65, G. Wennergren66, J. Wildhaber67 & R. S. Zeiger68

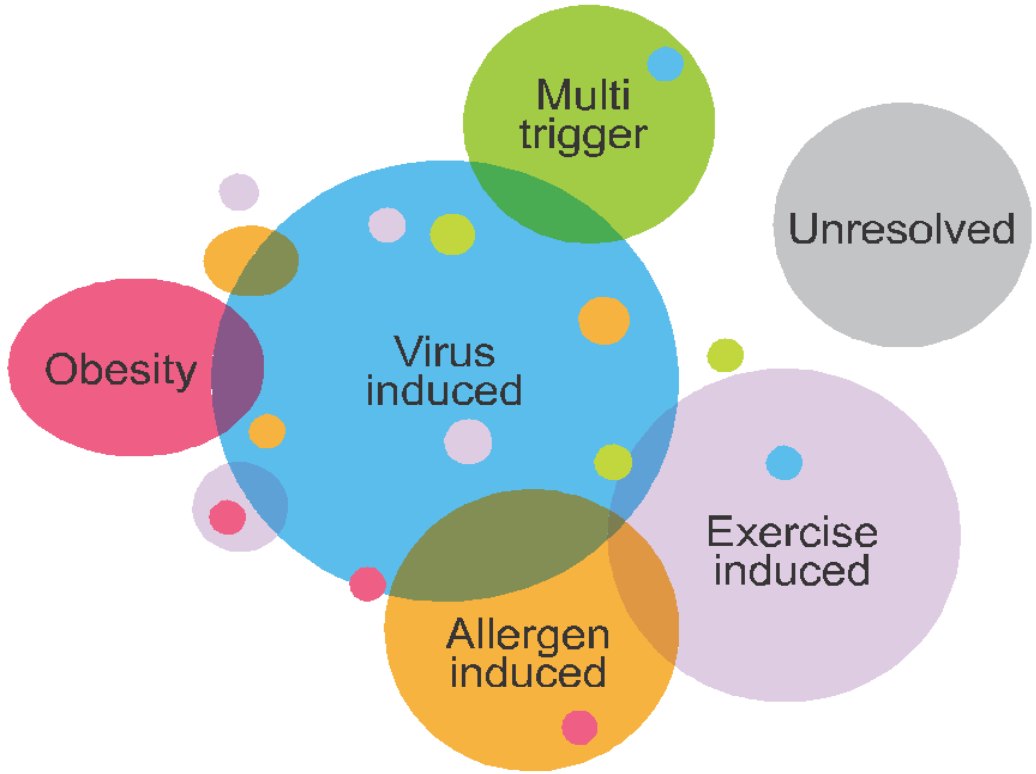
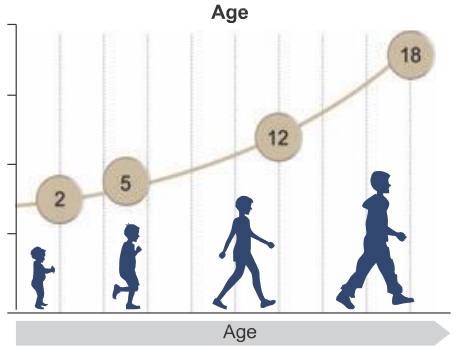
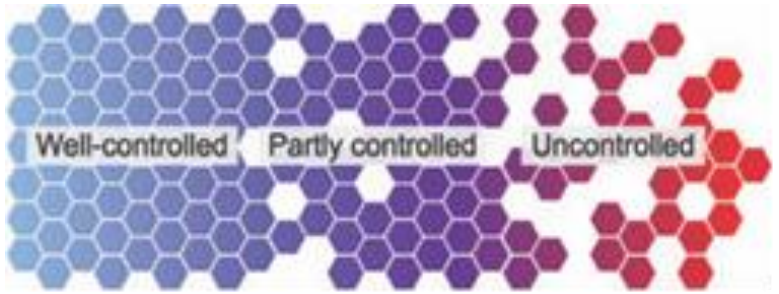
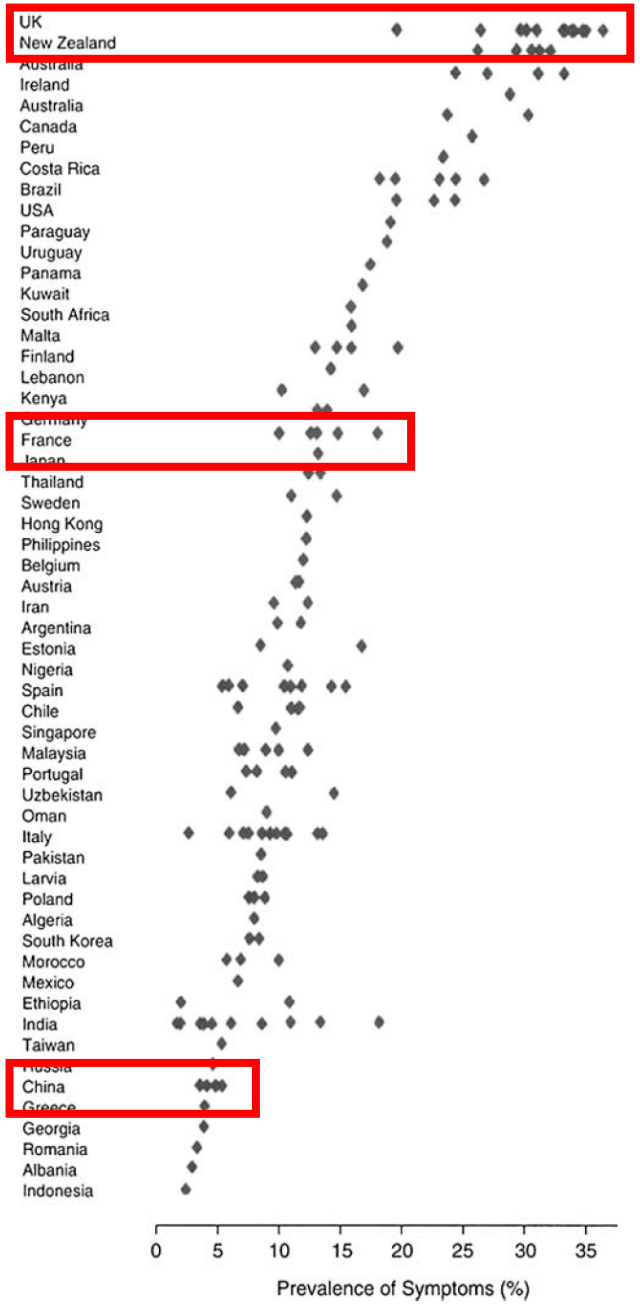


Table 1 Asthma control







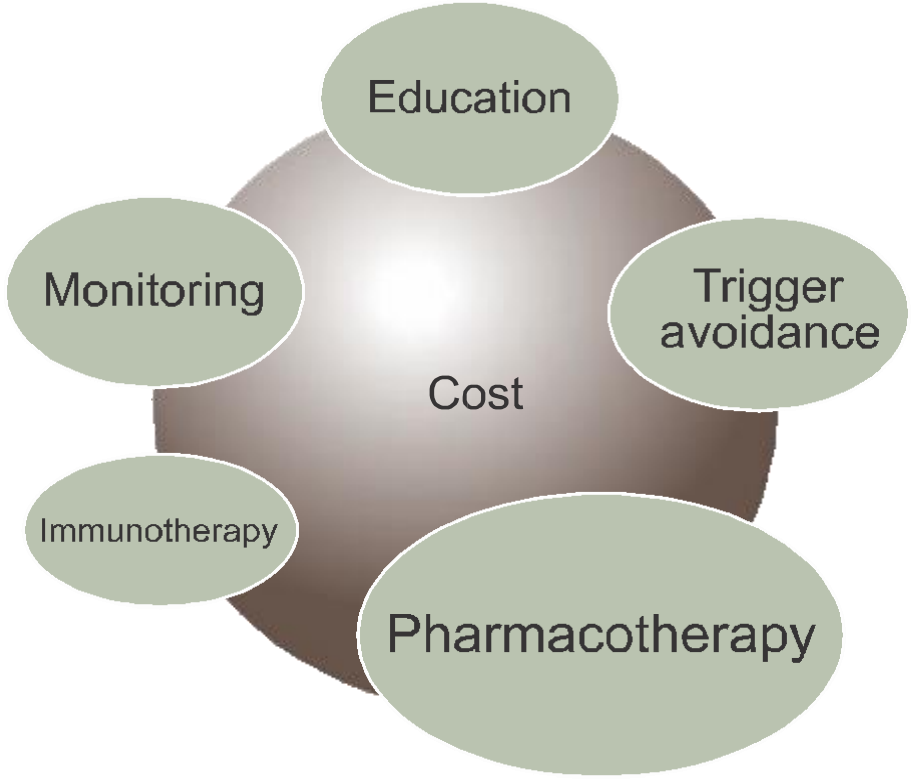


Figure 3 Asthma management should be 'holistic', including all the elements necessary to achieve disease control: patient and par- ent education, identification and avoidance of triggers, use of appropriate medication with a well-formed plan, and regular moni- toring, are all crucial for success. Management should be adapted

Guideline Update

- Phenotype-sp
- Probabilistic
  be helpful ir

Ventolin® HFA

- First aerosol MDI with an integrated dose counter, allowing parents and patients to track inhaler use more easily – a life-saving change.

Levels of Asthma Control
(Assess patient impairment)

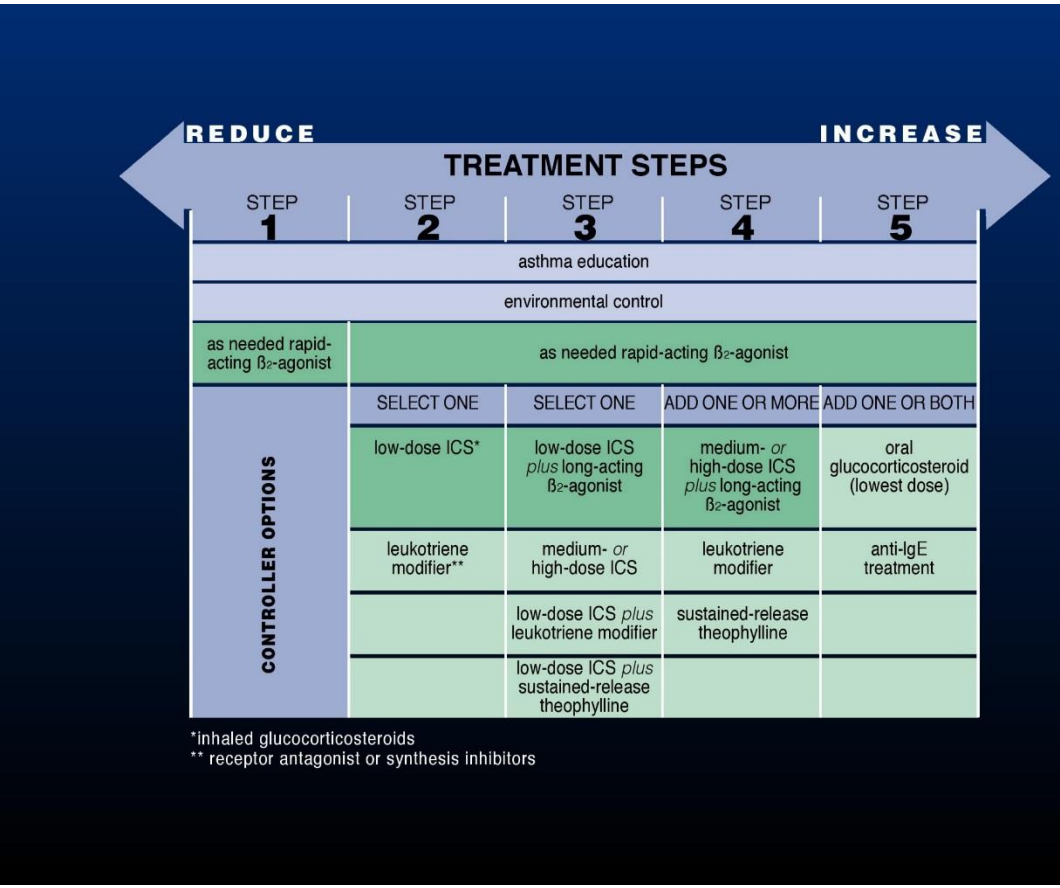
Characteristic	Controlled (All of the following)	Partly controlled (Any present in any week)	Uncontrolled
Daytime symptoms	Twice or less per week	More than twice per week	3 or more features of partly controlled asthma present in any week
Limitations of activities	None	Any	
Nocturnal symptoms / awakening	None	Any	
Need for rescue / "reliever" treatment	Twice or less per week	More than twice per week	
Lung function (PEF or FEV_1)	Normal	< 80% predicted or personal best (if known) on any day	

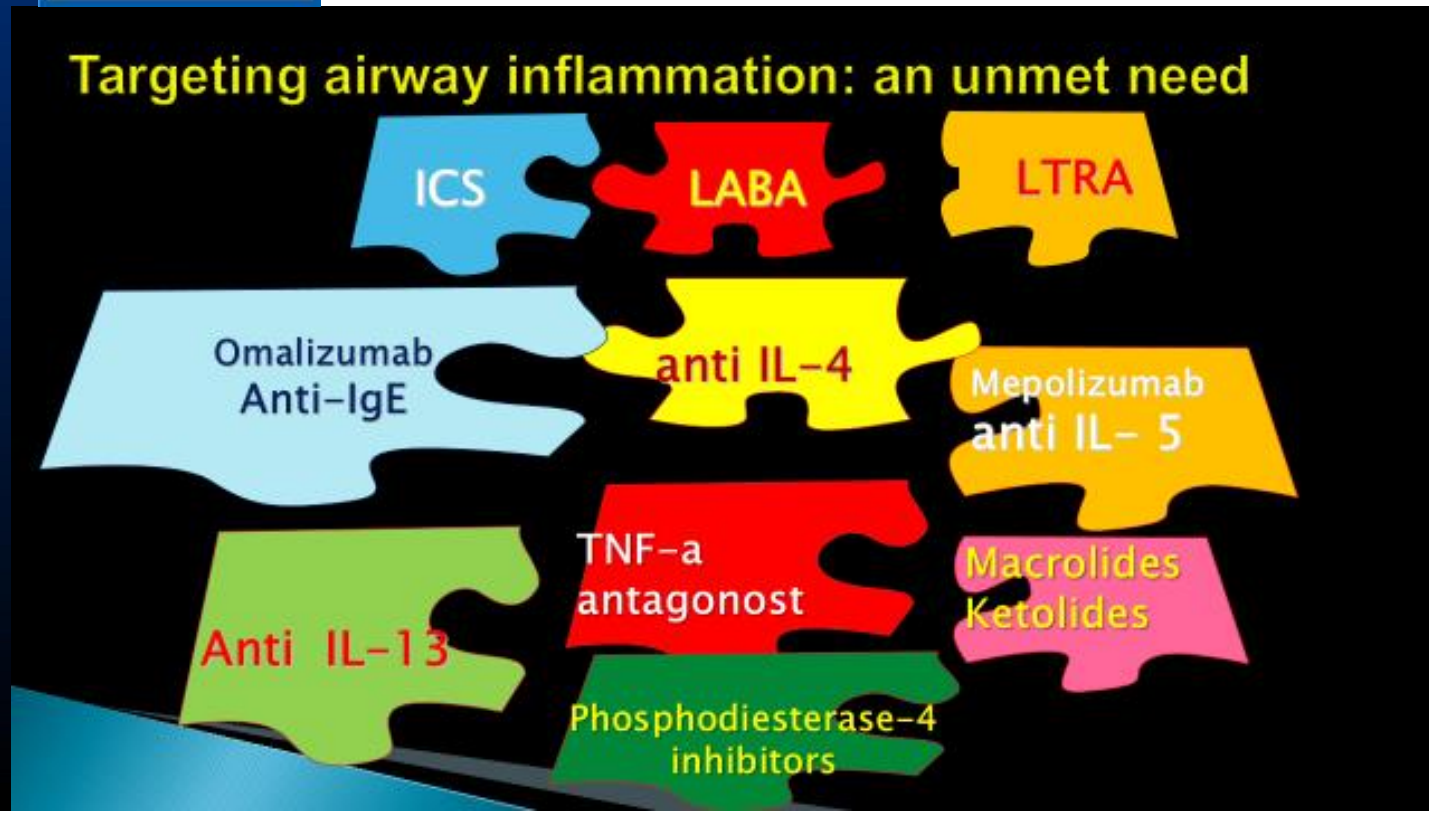
Assessment of Future Risk (risk of exacerbations, instability, rapid decline in lung function, side effects)

Global Initiative for Asthma

Xolair® Omalizumab anti-IgE

- First biologic medication interrupts allergic asthma episodes before they can get started – patients have called it life-changing. *Genentech*

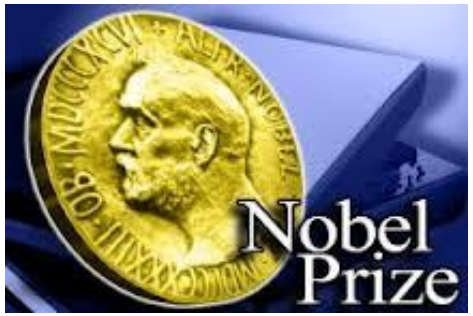




BERLIN-CHEMIE
MENARINI

FAES FARMA

www.faes.es



BILASTINE

The new non-sedating antihistamine

20 mg tablets contains:

- ***The active substance is bilastine. Each tablet contains 20 mg of bilastine.***

- ***The other ingredients are cellulose microcrystalline, sodium starch glycolate type A (derived from potato),***

colloidal anhydrous silica, magnesium stearate.

BILASTINE

The new non-sedating antihistamine

Nixar is inducated for children after

12 years

Bilastine 20mg :

Nixar, Bilastina, Ilaxten, Drynol, etc.

Bilastine approved in :

Spain, the UK, Ireland, Portugal, Germany, Denmark, Bulgaria, Sweden, Belgium, Lithuania, Georgia,etc. for treating seasonal & perennial allergic rhinoconjunctivitis & urticaria.

Nixar

BILASTINE

The new non-sedating antihistamine

BILASTINE
The new non-sedating antihistamine

Pharmacology

Bioavailability

Interaction with food and grapefruit juice

Concomitant intake of **bilastine 20 mg and**

- **food or**
- **grapefruit juice**

reduces the bioavailability of bilastine **by 30%**

→ **Intake 1 hour before or 2 hours after intake of food or fruit juice**

SmPC Bilastine

Taking other medicines

In particular, please discuss with your doctor if you are taking any of the following medicines:

Ketoconazole (an antifungal medicine)

- ***Erythromycin (an antibiotic)***
- ***Diltiazem (to treat angina)***
- ***Cyclosporine (to reduce the activity of your immune system, thus avoiding transplant rejection or reducing***

disease activity in autoimmune and allergic disorders, such as psoriasis, atopic dermatitis or rheumatoid arthritis)

- ***Ritonavir (to treat AIDS)***
- ***Rifampicin (an antibiotic)***

BILASTINE
The new non-sedating antihistamine

Pharmacology

H_1- receptor selectivity

vs. *other histamine receptors* [1]

No affinity for other histamine receptors

- **(H_2, H_3 and H_4)**

vs. other receptor types [1]

No clinically relevant affinity for 30 other receptors, including:

- **Serotonin → (Increased appetite)** [2]
- **Acetylcholine → (Dry mouth, urinary retention and sinus tachycardia)** [2]
- **Noradrenaline → (Hypotension, dizziness and reflex tachycardia)** [2]
- **Bradykinins**
- **Leukotrienes**
- **Calcium** …

→ Bilastine showed no affinity for other H- receptors

→ Bilastine showed no affinity for other important receptors

[1] *Corcóstegui R. et al.; Drugs R D 2005; 6 (6): 371-384*
[2] *Simons F.E.; N Engl J Med. 2004 Nov 18;351(21):2203-17*

Who needs?

Patient with rhinitis




Rhinoconjuctivitis




Urticaria


BILASTINE

The new non-sedating antihistamine

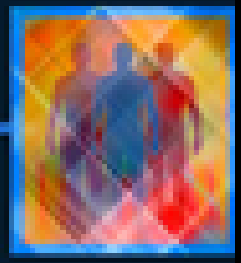
Key Messages

Bilastine the new non-sedating antihistamine

fully complies with ARIA and EAACI guidelines

- Effective in allergic rhinitis and urticaria
- Fast onset of action: 1 hour
- Long duration of action: 24 hours
- Side effects on placebo level
- Sedation: no somnolence or fatigue
- No metabolisation (CYP450)
- No interaction with other drugs at hepatic level
- Elderly patients, renal, hepatic or cardiac impairment
- No potentiation of the effects of alcohol *(and diazepam)*
- No impairment of driving performance
- Convenient to use

History of Antihistamines



Staub
Bovet
1937

Phenbenzamine
1942

Chlorpheniramine

Terfenadine
1979

Astemizole

Cetirizine
Loratadine
1988

Ebastine
Fexofenadine
1996

Desloratadine
2001

Levocetirizine
2003

NIXAR –
BILASTINE

Antihistaminic effect

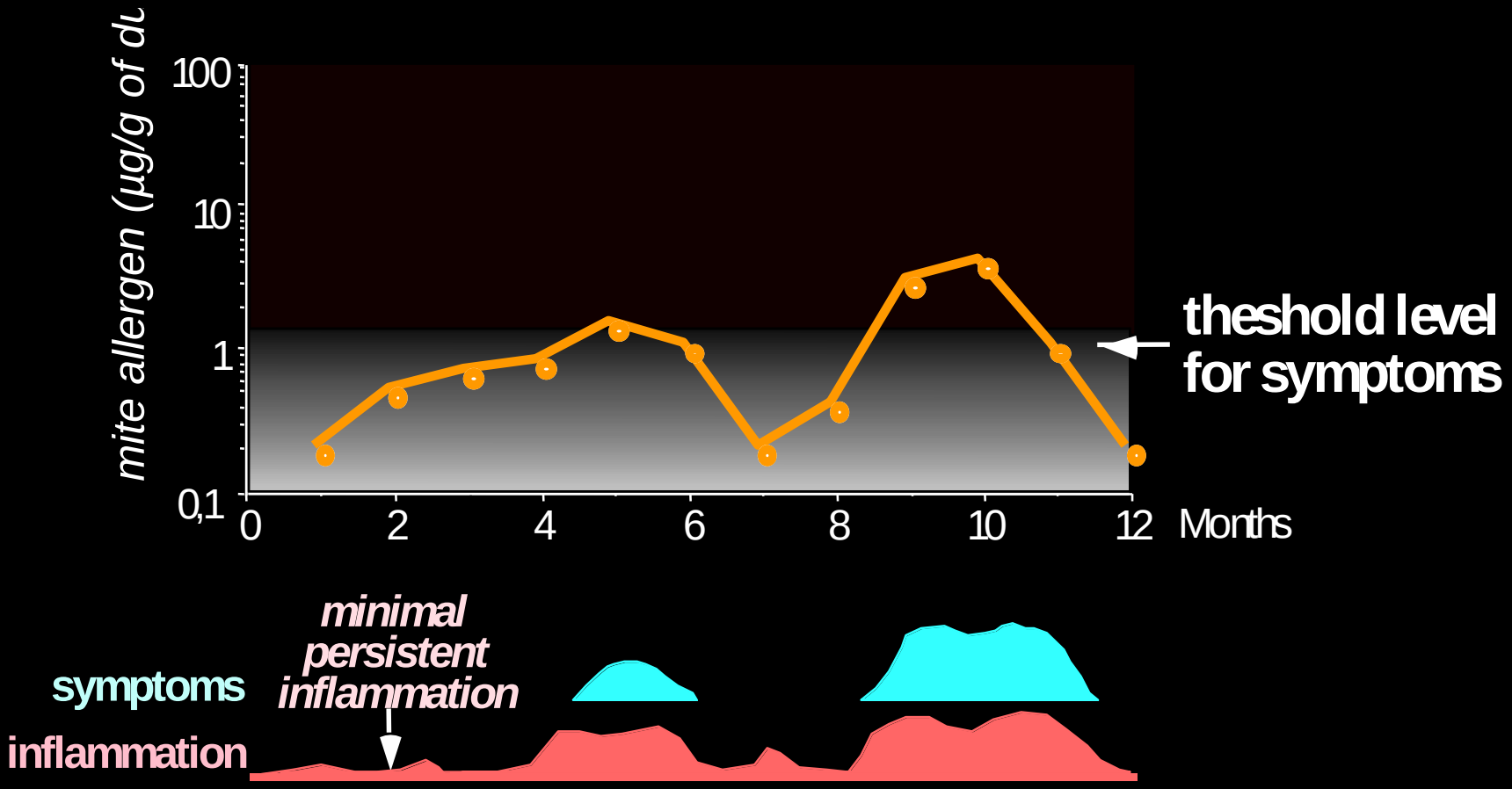
Anticholinergic effect

Sedative effect

Anti-inflammatory effects

Concept of "minimal persistent inflammation"

Ciprandi et al, J Allergy Clin Immunol 1996



EAACI / GA²LEN / EDF / WAO
Urticaria Guidelines: 2012 Revision and Update

Second-generation H_1-Antihistamine (sgAH)

If symptoms persist after **2 weeks**

Increase sgAH dose (up to 4x)

If symptoms persist after **1-4 weeks**

Add Omalizumab, Cyclosporine A, or Leukotrieneantagonist

Short course systemic corticosteroid may be tried for exacerbations

A

PESSIMIST

SEES THE

DIFFICULTY

IN EVERY

OPPORTUNITY

AN

OPTIMIST

SEES THE

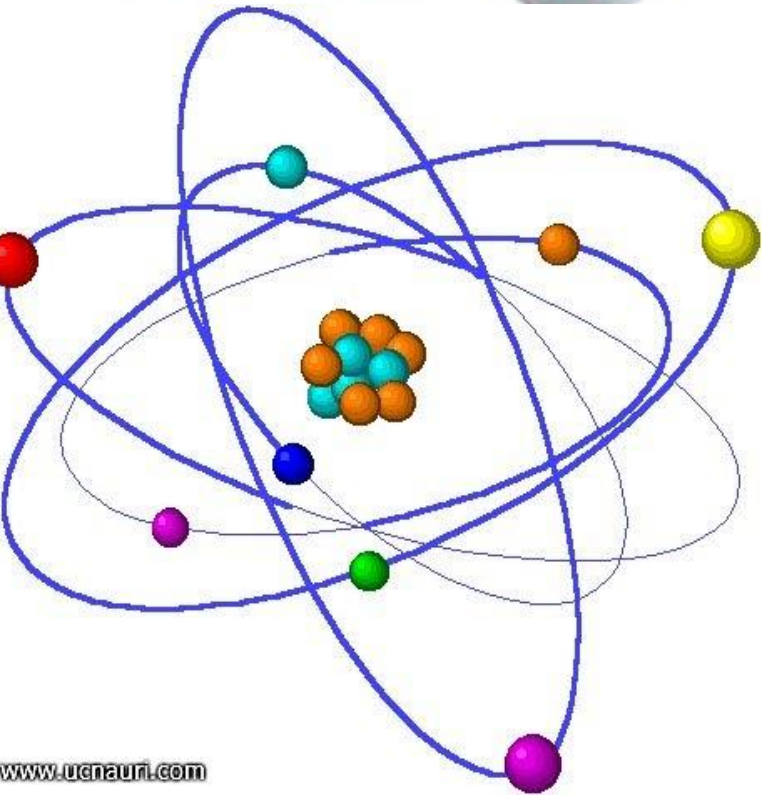
OPPORTUNITY

IN EVERY

DIFFICULTY

SIR WINSTON CHURCHILL
(1874 - 1965)

New antihistamine NIXAR – BILASTINE: Perspectives in Allergy



Thank you for your kind attention!!!