bsaci

improving allergy care

through education, training and research

This study day has been organised by

The British Society for Allergy and Clinical Immunology (BSACI).

The BSACI is the national, professional and academic society which represents the specialty of allergy at all levels.

Its aim is to improve the management of allergies and related diseases of the immune system in the United Kingdom, through education, training and research.

The study day has been funded by an educational grant from Mylan

RHINITIS – an update

RHINITIS IS STILL…

- IGNORED
- UNDERDIAGNOSED
- MISDIAGNOSED
- & MISTREATED

WHY TREAT RHINITIS?

- PREVALENCE
- CO-MORBIDITIES
- COMPLICATIONS
- QUALITY OF LIFE
- COSTS

How common is allergic rhinitis?

Country	Prevalence (95% CI)
Belgium	28.5% (24.5% - 32.5%)
France	24.5% (21.0% - 28.0%)
Germany	20.6% (16.5% - 24.6%)
Italy	16.9% (12.9% - 20.9%)
Spain	21.5% (18.5% - 24.4%)
UK	26.0% (20.3% - 31.7%)
All countries	22.7% (21.1% - 24.2%)

Prevalence of clinically confirmable allergic rhinitis in Europe

Bauchau V Durham SR Eur Respir J 2004; 24: 758-764

Patient 1

Patrick

- aged 14
- every summer he gets a “cold”
- which comes and goes.
- His nose blocks, runs and he sneezes
- He sleeps badly
- making it hard to get up for school
- And reducing his exam results

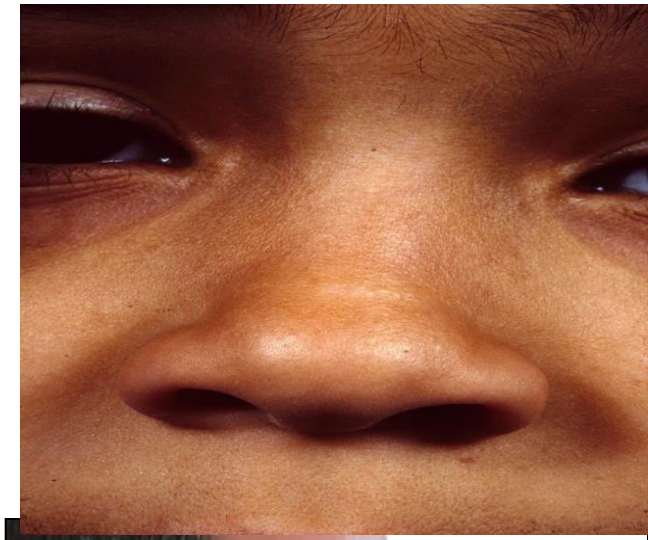
Question 1

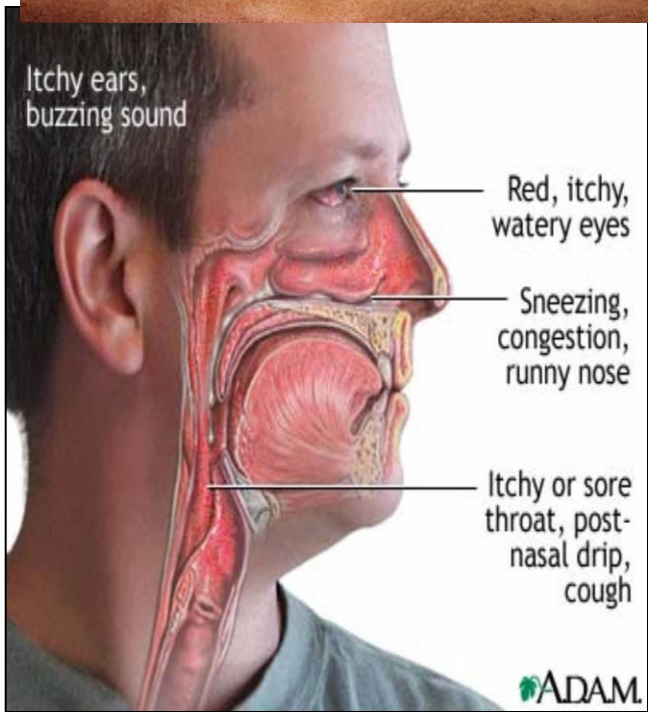
- Does Patrick have rhinitis?

- YES

RHINITIS DEFINITION

- Rhinitis means nasal inflammation, but is defined clinically as two or more of:
- Running
- Blocking
- Sneezing/Itching
- >1 hour per day Rhinoconjunctivitis in 50-70%
- Allergic when IgE -mediated





Patient 2

Shona

Aged 8

Chronically blocked nose

Asthma

Worse in winter, also gets otitis media with effusion (glue ear)

Question 2

- Does Shona have rhinitis?
- POSSIBLY – in particular ask about post nasal secretions

RECOGNIZING RHINITIS IN CHILDHOOD

Classic symptoms and signs:

- **Rhinorrhoea** – clear or discoloured discharge, sniffing
- **Pruritus/sneezing** - nose rubbing, the “allergic salute”, “allergic crease”, “paroxysmal sneeze”, may be associated with complaints of an itchy mouth or throat in older children
- **Congestion** - mouth breathing, snoring, sleep apnoea, allergic shiners
- **Eustachian tube dysfunction** - ear pain on pressure changes (e.g. flying), reduced hearing, chronic otitis media with effusion

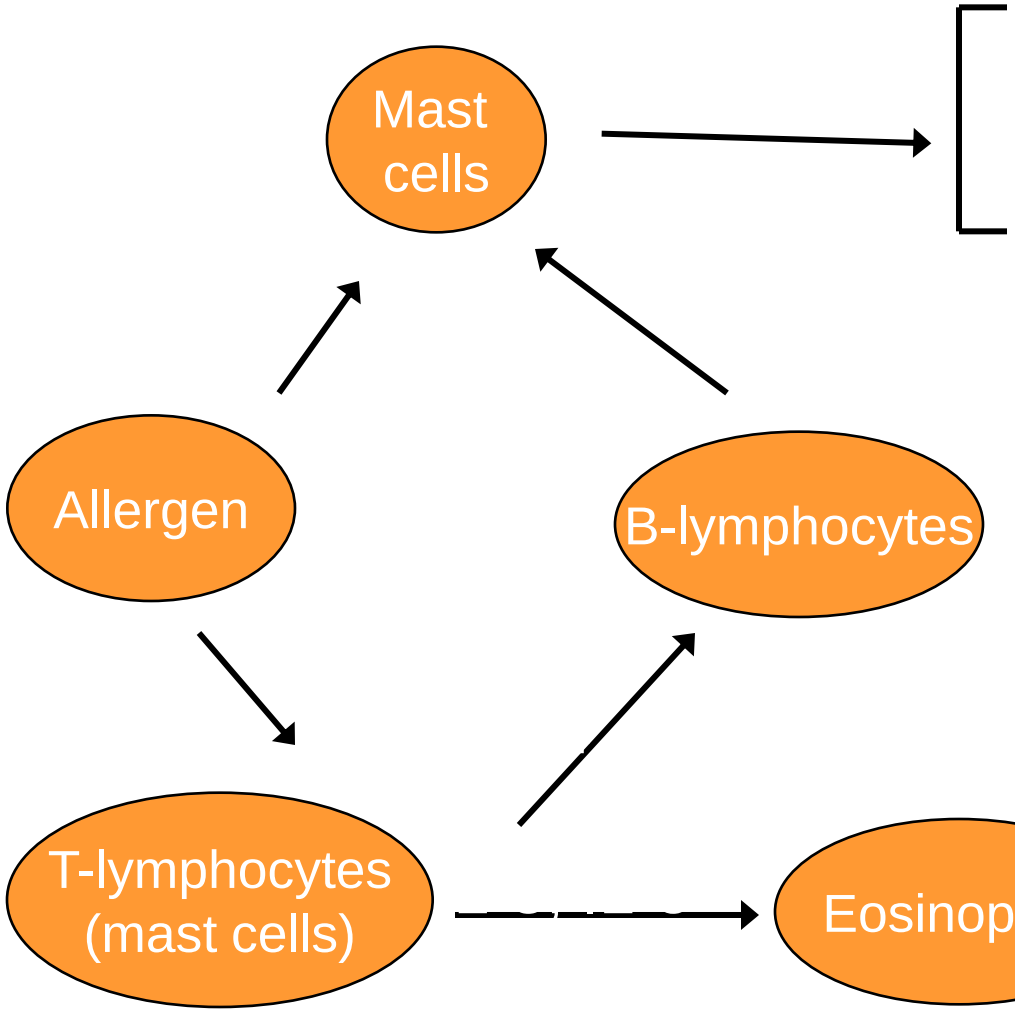
Recognising Rhinitis in Childhood

- **Potential atypical presentations:**
- **Cough** – often mislabelled as asthma
- **Poorly controlled asthma** – may co-exist with asthma
- **Sleep problems** - tired, poor school performance, irritability
- **Prolonged and frequent respiratory tract infections**

- **Rhinosinusitis** - catarrh, headache, facial pain, halitosis, cough, hyposmia

- **Pollen-food syndrome** in pollen driven allergic rhinitis

AR & Allergic Asthma: Immunology



Immediate symptoms

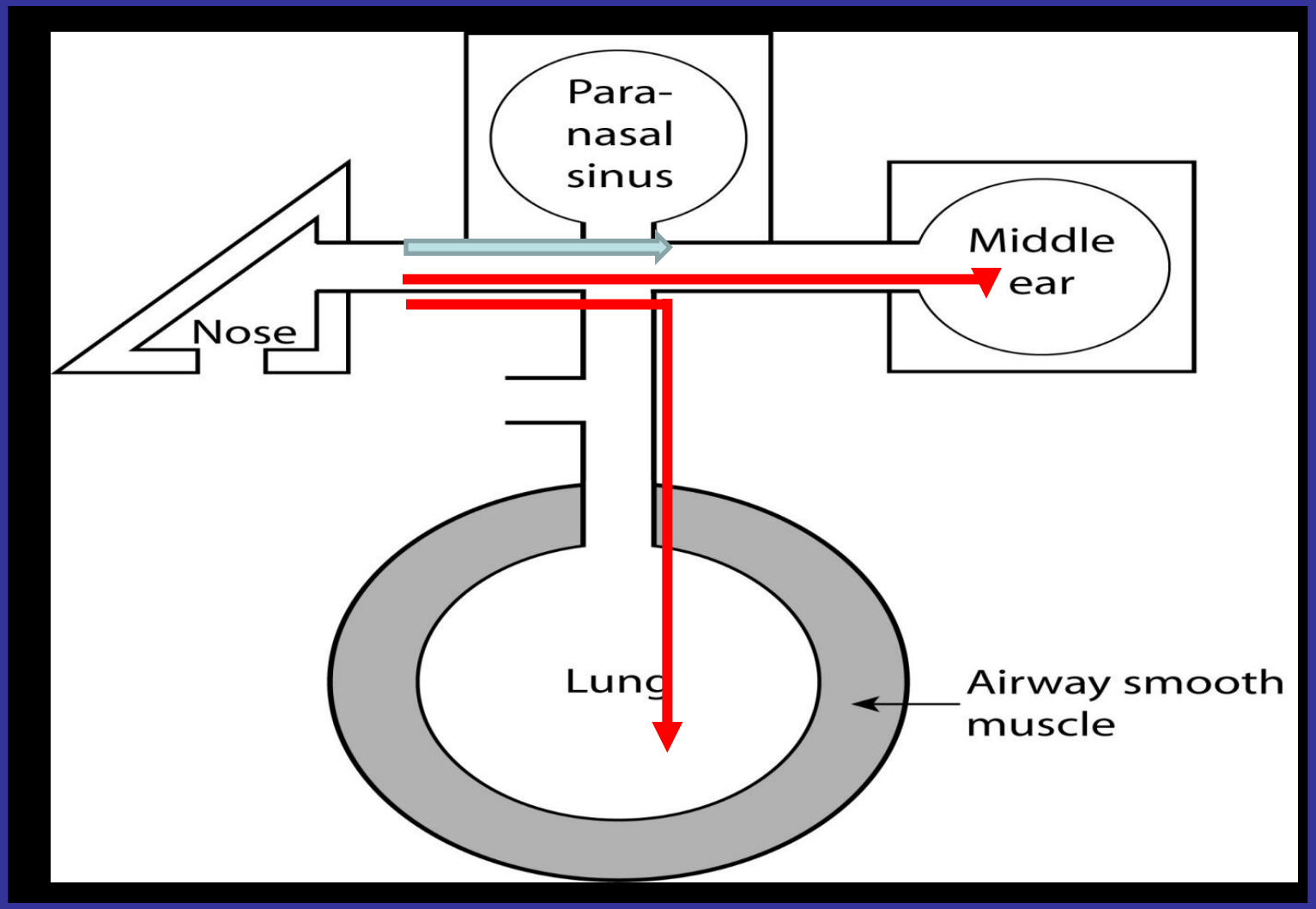
Wheeze, Itch, sneeze

Bronchospasm
Watery discharge
Congestion

Chronic symptoms

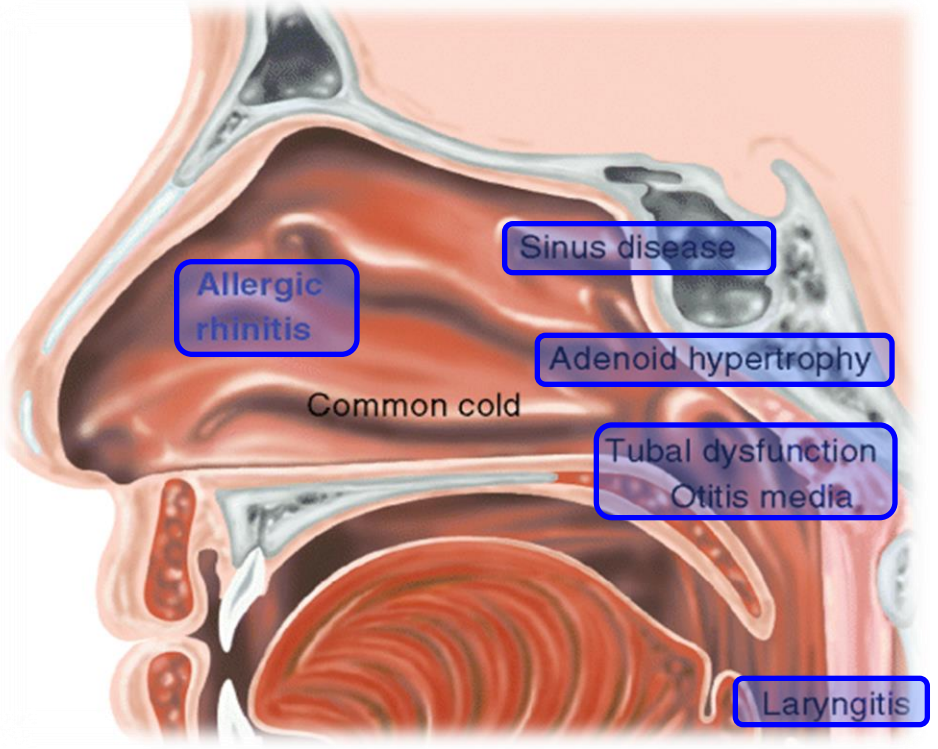
Airway reduction
Sticky Mucus
Loss of smell
“Hyper-reactivity’
Co- morbidities

Co- morbidities

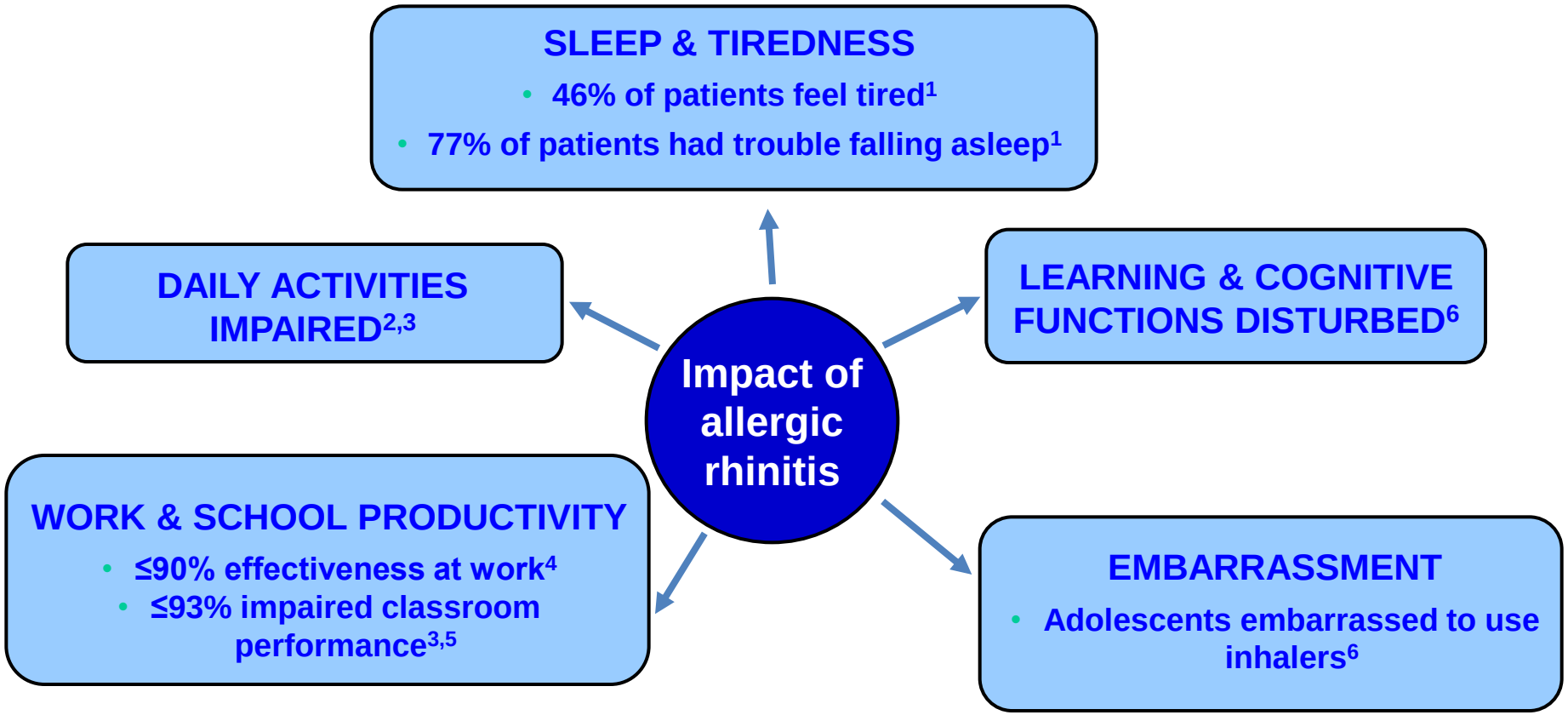


Co-morbidities of rhinitis

- **Other atopic disease:** asthma, eczema, food allergy (particularly pollen-food syndrome), anaphylaxis, eosinophilic oesophagitis
- **Anatomical:** rhinosinusitis, chronic otitis media, laryngitis, cough, adenoidal hypertrophy
- **Sleep disturbance**

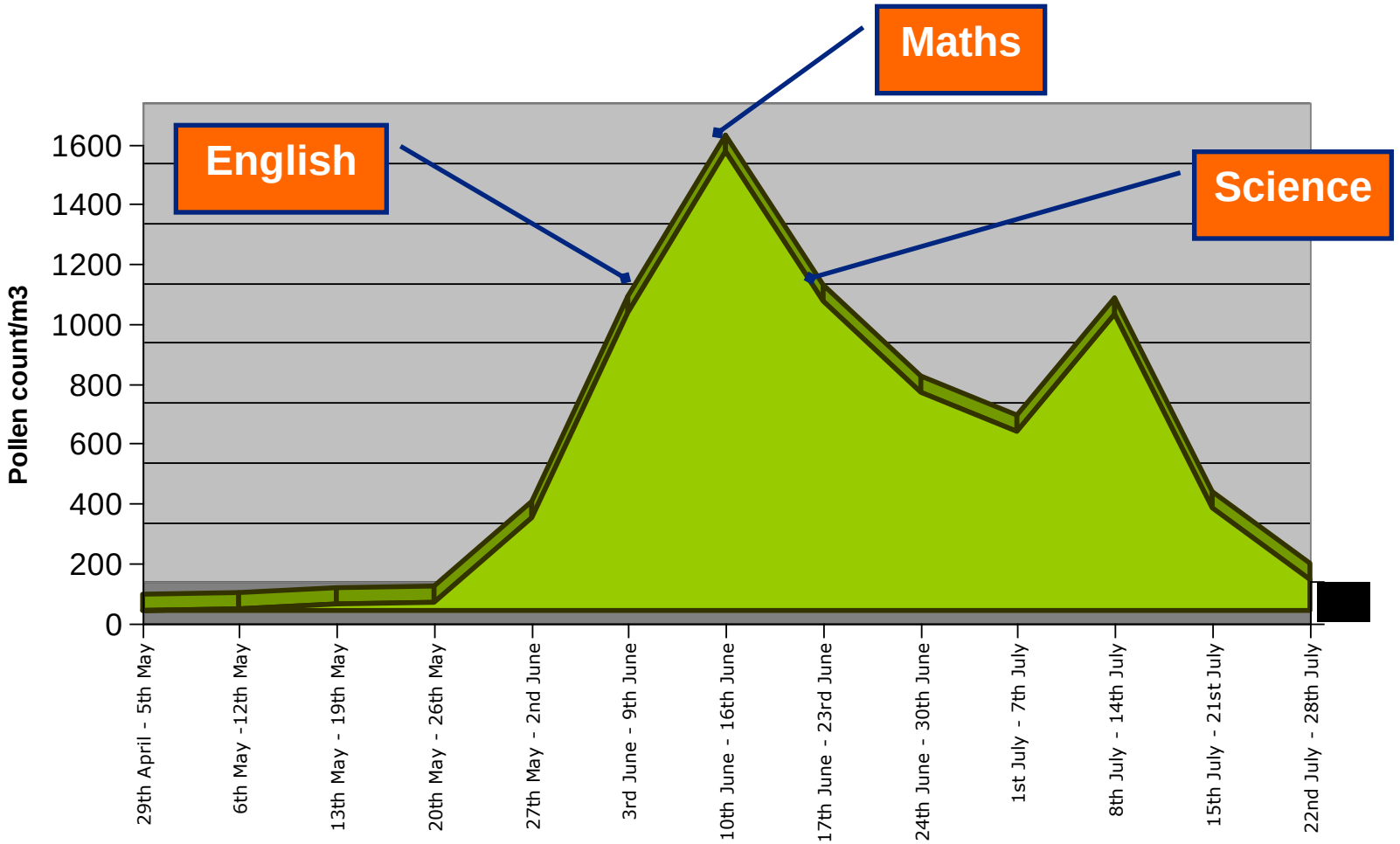


Impact of allergic rhinitis on patients' daily life



1. Scadding G et al. XXVI EAACI, 2007; Abs 1408; 2. Reilly MC et al. *Clin Drug Invest* 1996;11:278–288; 3. Tanner et al. *Am J Manag Care* 1999;5(Suppl 4):S235–S247; 4. Blanc PD et al. *J Clin Epidemiol* 2001;54:610–618; 5. Juniper EF et al. *J Allergy Clin Immunol* 1994;93:413–423; 6. Marshall PS, Colon EA. *Ann Allergy* 1993;71:251–258.

Grass pollen counts 2003 and GCSEs



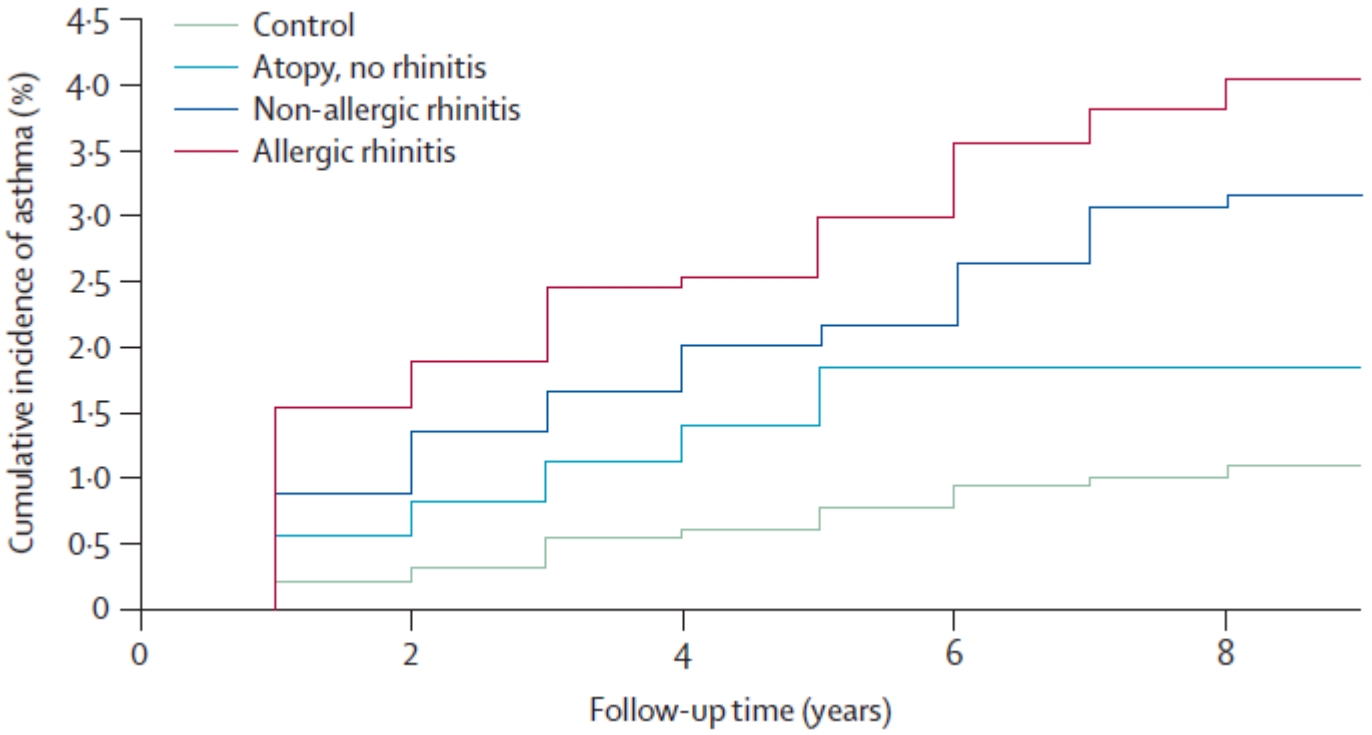
Walker SM. J Allergy Clin Immunol 2007; 120: 381-7.

Summary

- Symptomatic hay fever in adolescents:
- a 43% increase in the odds of dropping an exam grade between summer and winter
- In those taking sedating antihistamines the risk increase was 71% .
- **AVOID 1st GENERATION ANTI-HISTAMINES!**

Walker SM. J Allergy Clin Immunol 2007; 120: 381-7.

Rhinitis is a predictor of onset of asthma in adults: data from European Respiratory Health Survey



20-44 year olds, asthma free at baseline

Adjusted relative risk of developing asthma in those with allergic rhinitis at baseline: 3.53 (2.11 – 5.91)

Shabaan et al Lancet 2008

Rhinitis is dangerous!

Allergy EUROPEAN JOURNAL OF ALLERGY AND CLINICAL IMMUNOLOGY

EAACI

Allergy

ORIGINAL ARTICLE EXPERIMENTAL ALLERGY AND IMMUNOLOGY

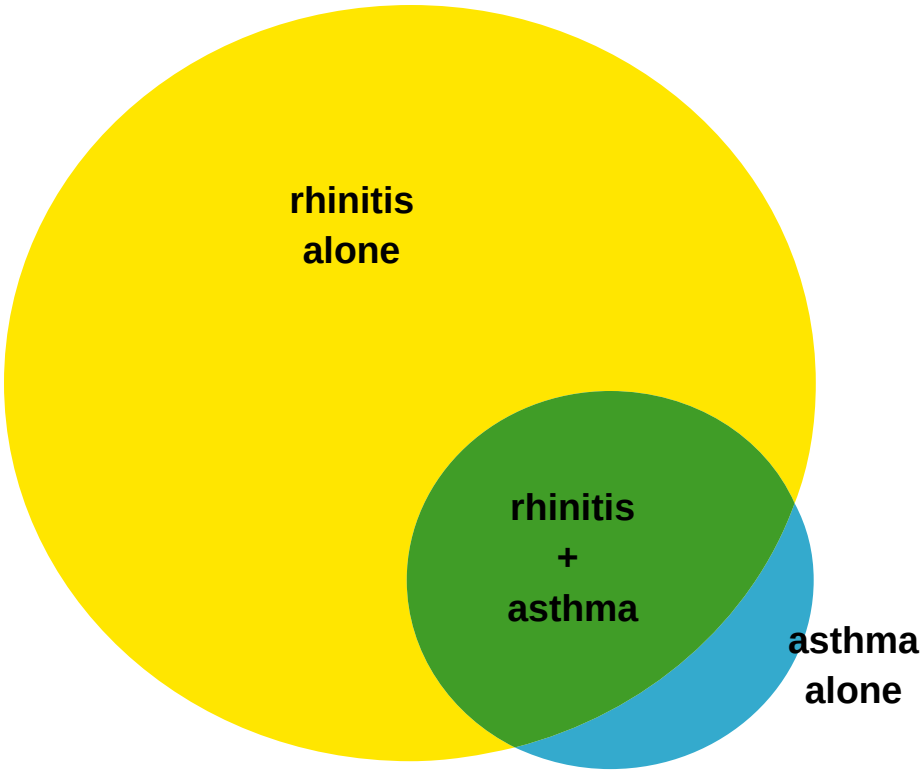
Allergic rhinitis is a risk factor for traffic safety

E. F. P. M. Vuurman[1], L. L. Vuurman[2], I. Lutgens[3] & B. Kremer[4]

[1]Faculty of Psychology and Neuroscience, Maastricht University; [2]Faculty of Health, Medicine and Life sciences, Maastricht University, Maastricht; [3]Department of Otorhinolaryngology, Orbis Medical Center, Sittard; [4]Department of Otorhinolaryngology, Head & Neck Surgery, Maastricht University Medical Centre, Maastricht, the Netherlands

Asthma and rhinits

- Up to **80%** of asthmatics have rhinitis



Adapted from The Workshop Expert Panel. *Management of Allergic Rhinitis and its Impact on Asthma (ARIA) Pocket Guide. A Pocket Guide for Physicians and Nurses.* 2001; Bousquet J and the ARIA Workshop Group *J Allergy Clin Immunol* 2001;108(5):S147-S334; Sibbald B, Rink E *Thorax* 1991;46:895-901; Leynaert B et al *Am J Respir Crit Care Med* 2000;162:1391-1396.

Impact of Rhinitis on Asthma : one airway

- **Rhinitis is a risk factor for asthma: OR>3, >7 farmers, >40 HDM**
- **Rhinitis reduces asthma control ≡ smoking, > poor Rx compliance**
- **Most asthma exacerbations start in the nose with a viral URTI .**
- **Rhinitis increases viral URTI effects**
- **Rhinitis treatment reduces need for emergency treatment and hospitalization for asthma**

Scadding G, Walker S. Poor asthma control?--then look up the nose. The importance of co-morbid rhinitis in patients with asthma. Prim Care Respir J. 2012 Jun;21(2):222-8.

ARIA Classification of AR

Intermittent
symptoms
- < 4 days per week
- OR < 4 weeks

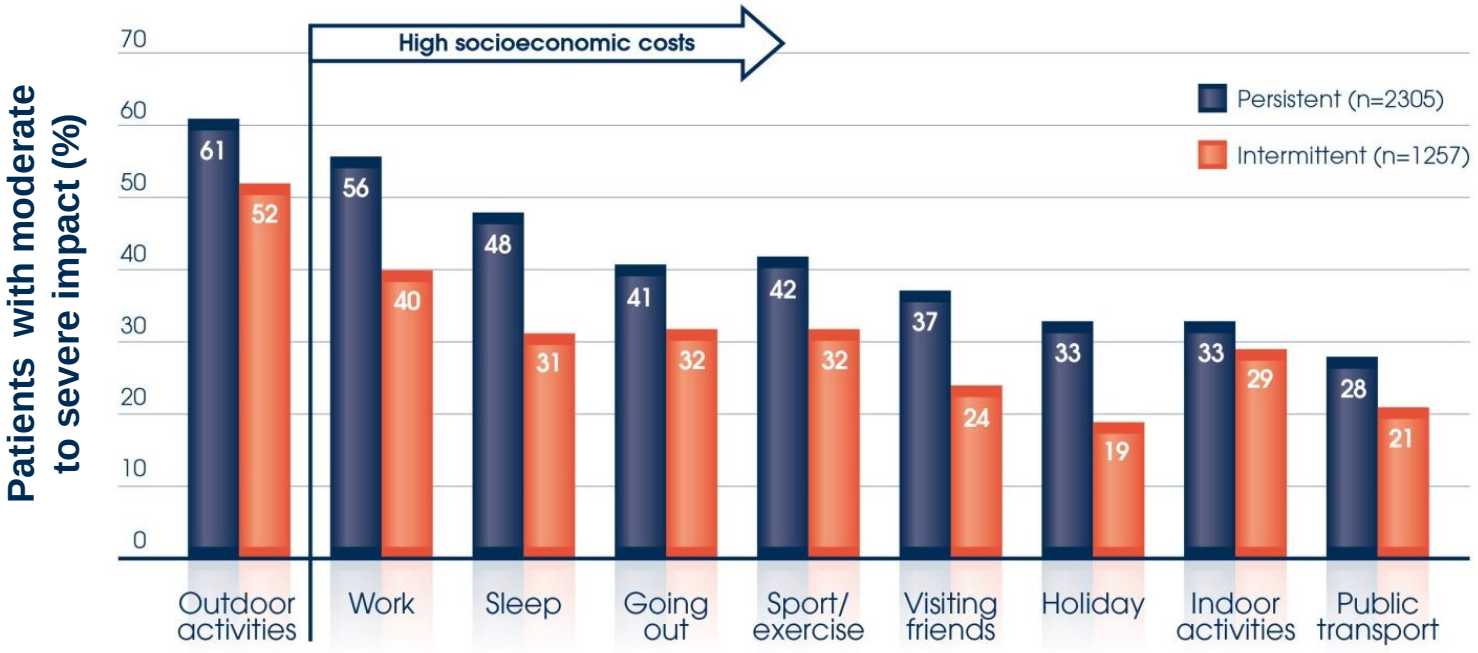
Persistent
symptoms
- > 4 days per week
- AND > 4 weeks

Mild
- Normal sleep
- Normal daily activities
- Normal work and school
- No troublesome symptoms

Moderate-severe
One or more items
- Abnormal sleep
- Impairment of daily activities, sport, leisure
- Problems caused at school or work
- Troublesome symptoms

Allergic Rhinitis impacts negatively on patients' activities: Data from Finland

The patient voice allergy survey



In Sweden, the cost of rhinitis is €2.7 billion/yr in terms of lost productivity

Valovirta et al. Curr Opin Allergy Clin Immunol 2008; Hellgren et al. Allergy 2010

Impact of seasonal allergic rhinitis on work productivity

- Work is negatively impacted in over 90% of patients when symptomatic

Pitman et al. EAACI 2012

The allergic rhinitis landscape

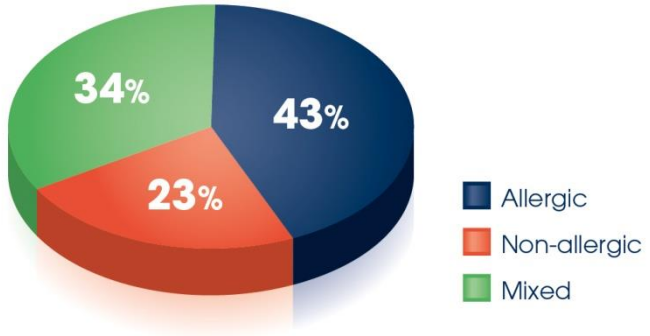
Most patients have 'moderate/severe' Allergic Rhinitis

European Survey

- **67.2% = moderate or severe**
- 42.5% = persistent disease

Many patients have mixed forms of Allergic Rhinitis

Many patients are poly-sensitized



Evolution of treatment-resistant phenotypes

- Severe Chronic Upper Airway Disease (SCUAD)

SCUAD

- approx. 20% of AR patients

Canonica et al. Allergy 2007; Settipane. Allergy Asthma Proc 2001; Mösges et al. Allergy 2007; Bousquet et al. JACI 2009
Pie chart: data refers to non-infectious rhinitis; AR: Allergic Rhinitis

The allergic rhinitis landscape: Patients remain symptomatic on treatment

- 990 patients recruited by 161 GPs in France
- 72.5% were currently taking allergic rhinitis medication

The vast majority of treated patients remain symptomatic

89% Rhinorrhea

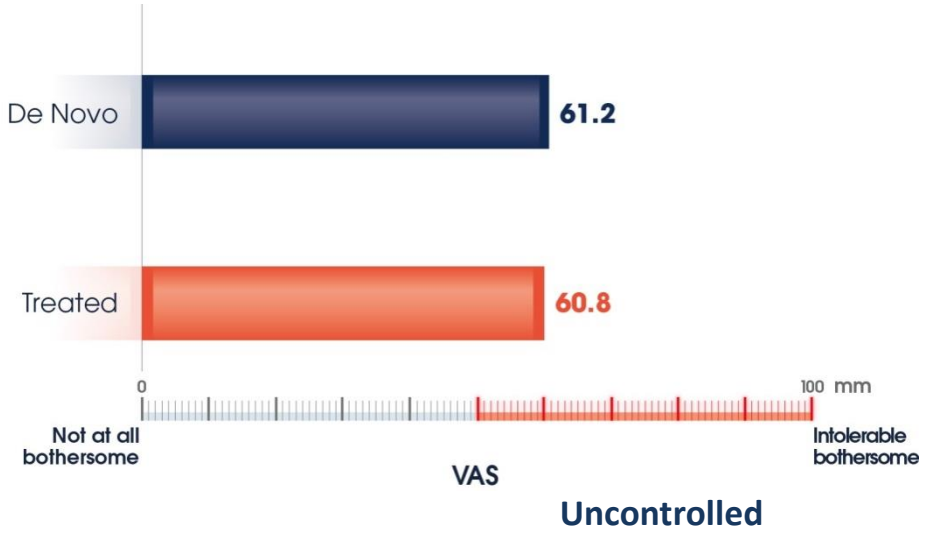
82% Sneezing

82% Congestion

68% Itching

68% Ocular symptoms

Global discomfort caused by their AR during the previous week (VAS)



There is a clear need for a new and more effective therapy

Bousquet et al. Int Arch Allergy Immunol 2013
VAS: visual analog scale; AR: allergic rhinitis

What do allergic rhinitis patients want and how do they treat their symptoms?

Results from a health survey including 1,000 patients

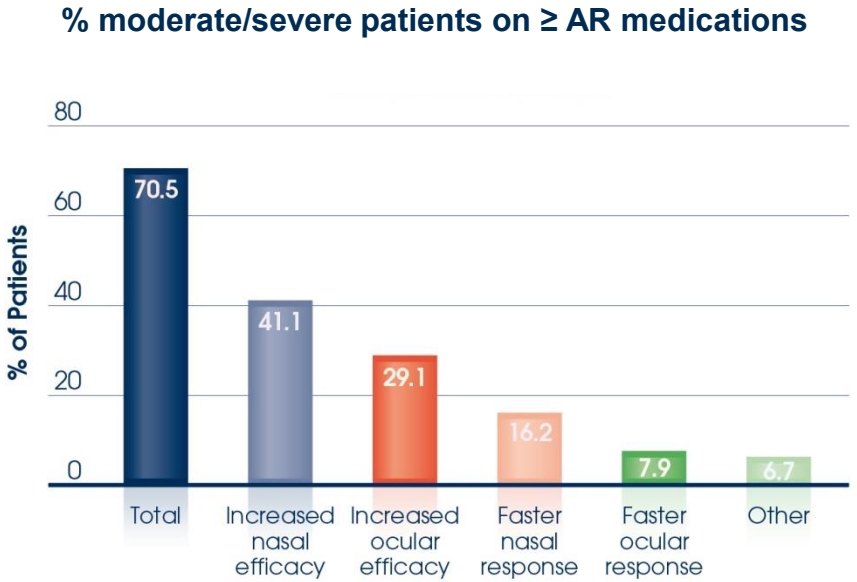
- 1,000 Allergic Rhinitis patients completed the survey
  - 254 mild
  - 746 moderate/severe patients (total nasal symptom score [TNSS]) ≥8/12, (incl. congestion score ≥2)
  - Recruited through a patient panel
- The survey included questions on respondents'
  - Treatment
  - Episode duration
  - Impact of symptoms on productivity
  - Other questions

Pitman et al, 2012

Results from a health utilisation survey including 1,000 patients

Most patients use multiple therapies to control their symptoms

- Two thirds of all patients included in the survey reported using ≥ 2 AR medications
  - 70.5% of moderate to severe
  - 56.1% of mild patients
- The need for faster and more effective treatment was the primary reason for co-medicating
  - True for both moderate/severe and mild patients



Faster and more effective reduction of nasal and ocular symptoms are the treatment targets of drug development

Pitman et al, 2012; AR: Allergic Rhinitis

Patient 3

- 28 year-old woman,
- 1 year ‘hay fever’:
  - blocked nose
  - runny nose
  - sneezing
- ‘allergic’ to perfumes, dusts, pollution, spicy foods
- Moved into new flat 18 months ago

Patient 3

- What questions might you ask?
- Investigations?

Patient 3

- Perennial symptoms
- No childhood or family history of atopy
- No pets
- No changes in work environment
- No regular medications
- Reasonable sense of smell
- Takes ibuprofen for headaches

Patient 3

- Skin tests:

HDM 0
mixed grass 0
Timothy grass 0
Silver birch 0
mugwort 0
cat 0
dog 0
Alternaria 0
Aspergillus 0
+ve control 5
-ve control 0

Specific IgE:

HDM <0.35

Mixed grass pollen < 0.35

Cat dander < 0.35

Peak flow 450 L/min (110%)

FEV1 3.5 L/s (108%)

FVC 4.6 L/s (105%)

Nasal examination:

Rhinitic mucosa – mild turbinate hypertrophy, mild rhinorrhoea

Patient 3

- Diagnosis:

  Non-allergic rhinitis (idiopathic, NARES, other?)

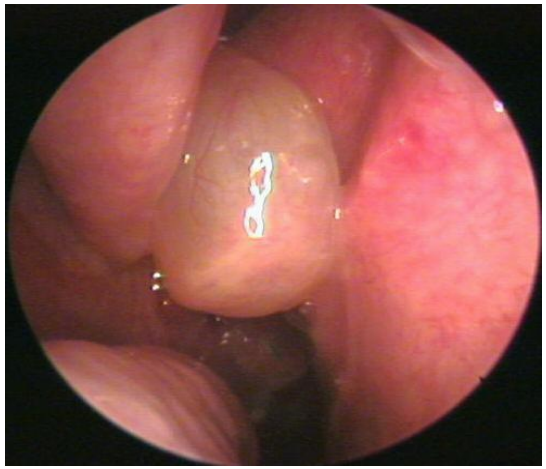
Patient 4

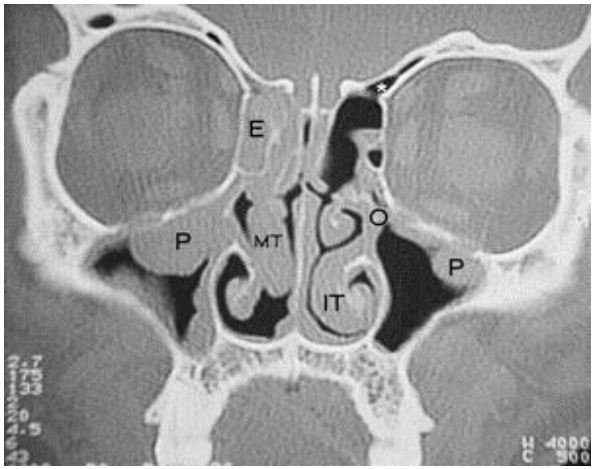
- 32 year old man
- Blocked nose last 2 years, episodes of nose running and sneezing
- Diagnosed with asthma last year following acute attack of breathlessness day after a friend's party
- ?allergic to wine, lemon-lime cordial
- Seretide 250 2 puffs bd, salbutamol 4x/day, uniphyllin bd, 3 courses of oral prednisolone in the last year
- What questions might you ask?

Patient 4

- No history atopic disease
- Absent sense of smell and taste
- Took 2 ibuprofen the morning after party for a headache
- What do you expect to find on endoscopy?

Patient 4





Peak flow 300 (60% predicted)

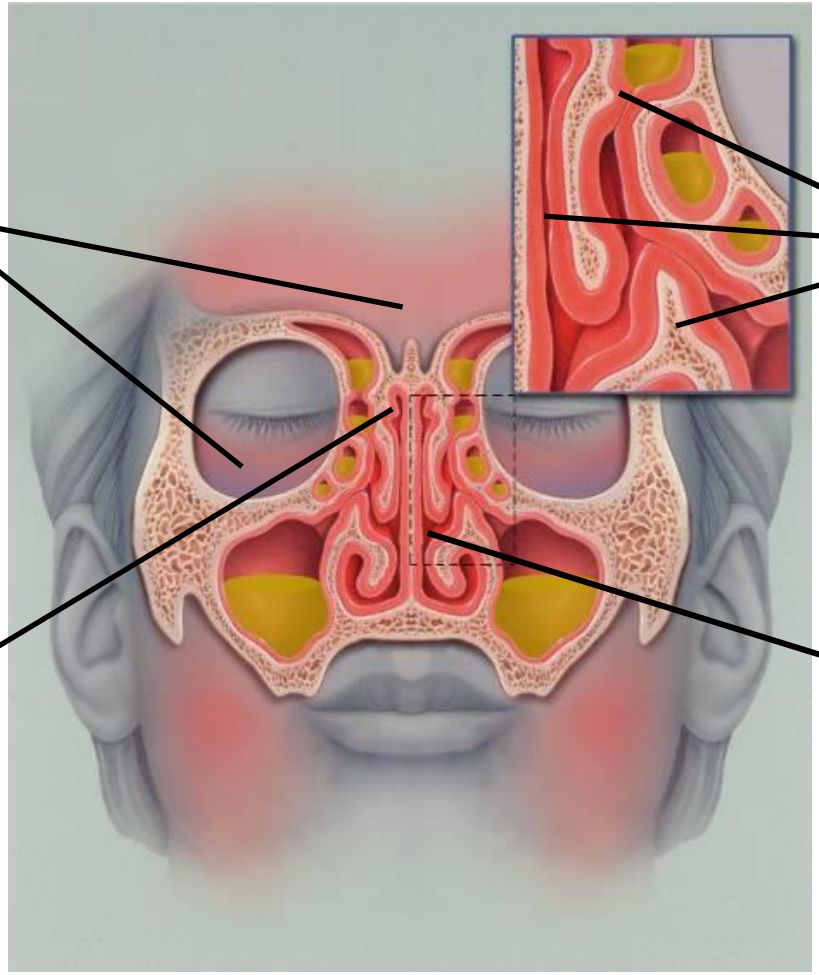
FEV1 2.5 (60% predicted)

FVC 4.3 (85% predicted)

Skin tests:

All negative

Rhinosinusitis



facial pain / pressure

blockage / obstruction / congestion

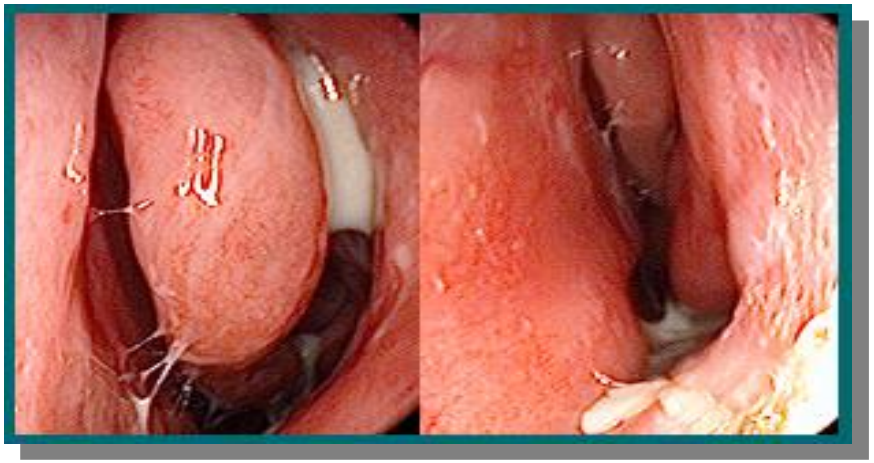
reduction / loss of smell

anterior / posterior rhinorrea

Fokkens W, Lund V, Mullol J, et al. *Rhinology* 2007 (Suppl 20): 1-136.

web: www.ep3os.com

Chronic rhinosinusitis +/- nasal polyps



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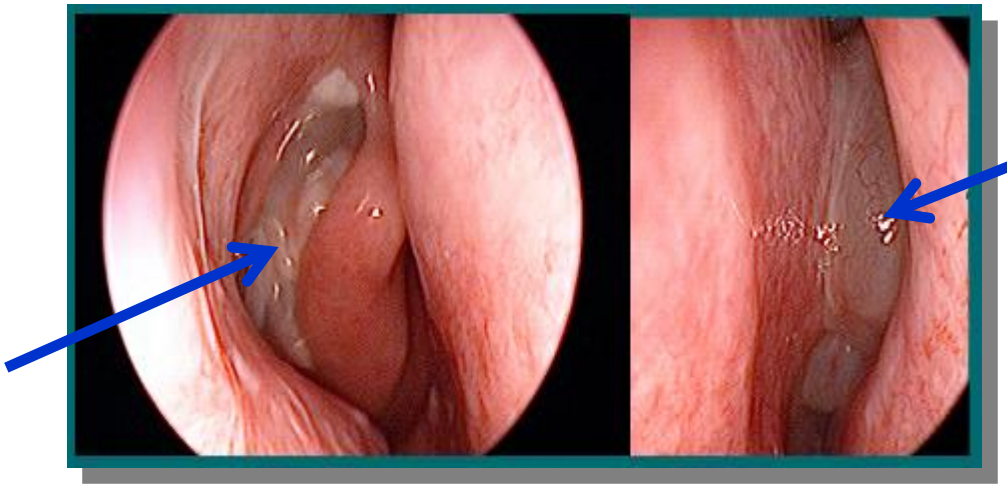

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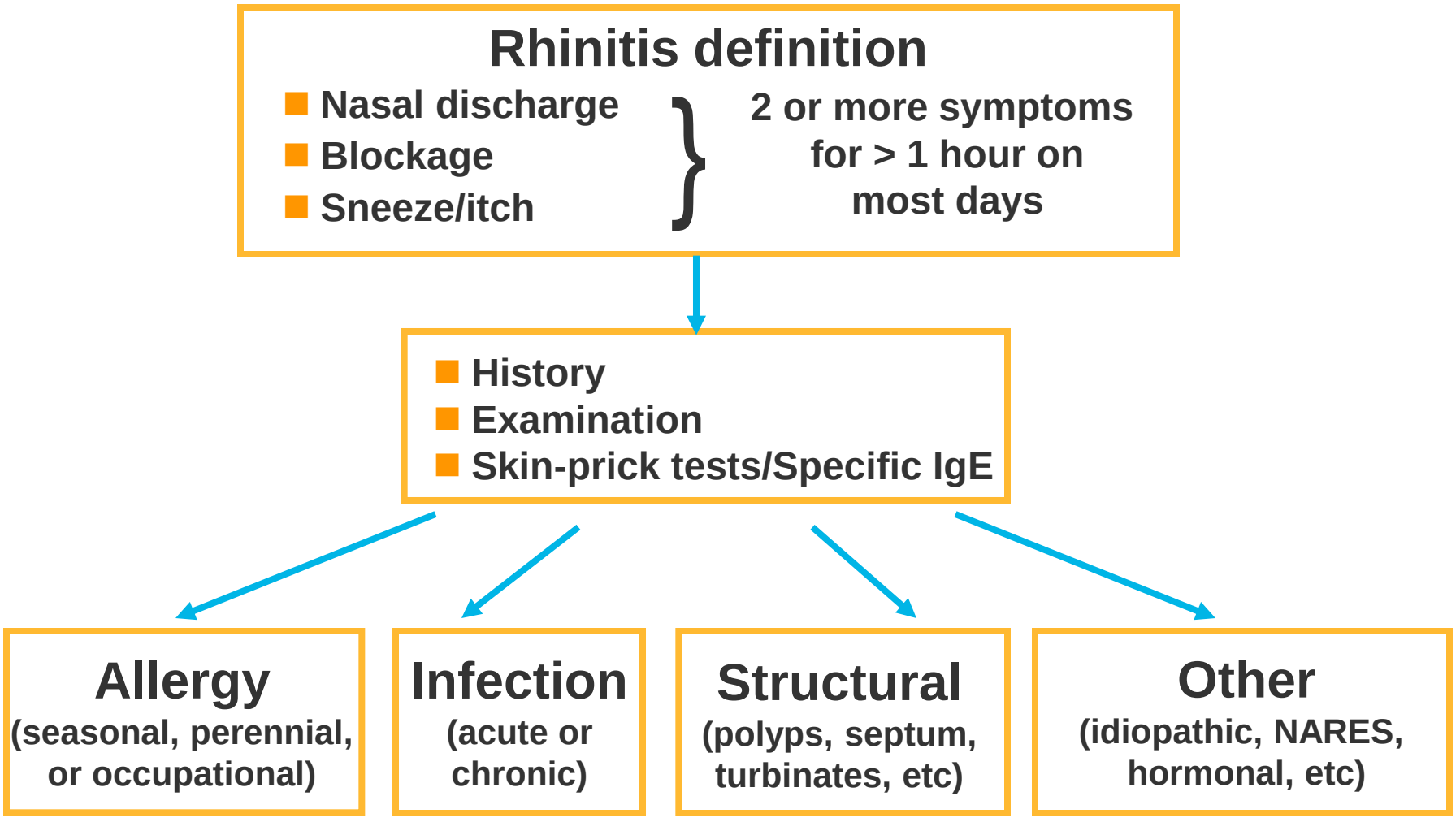
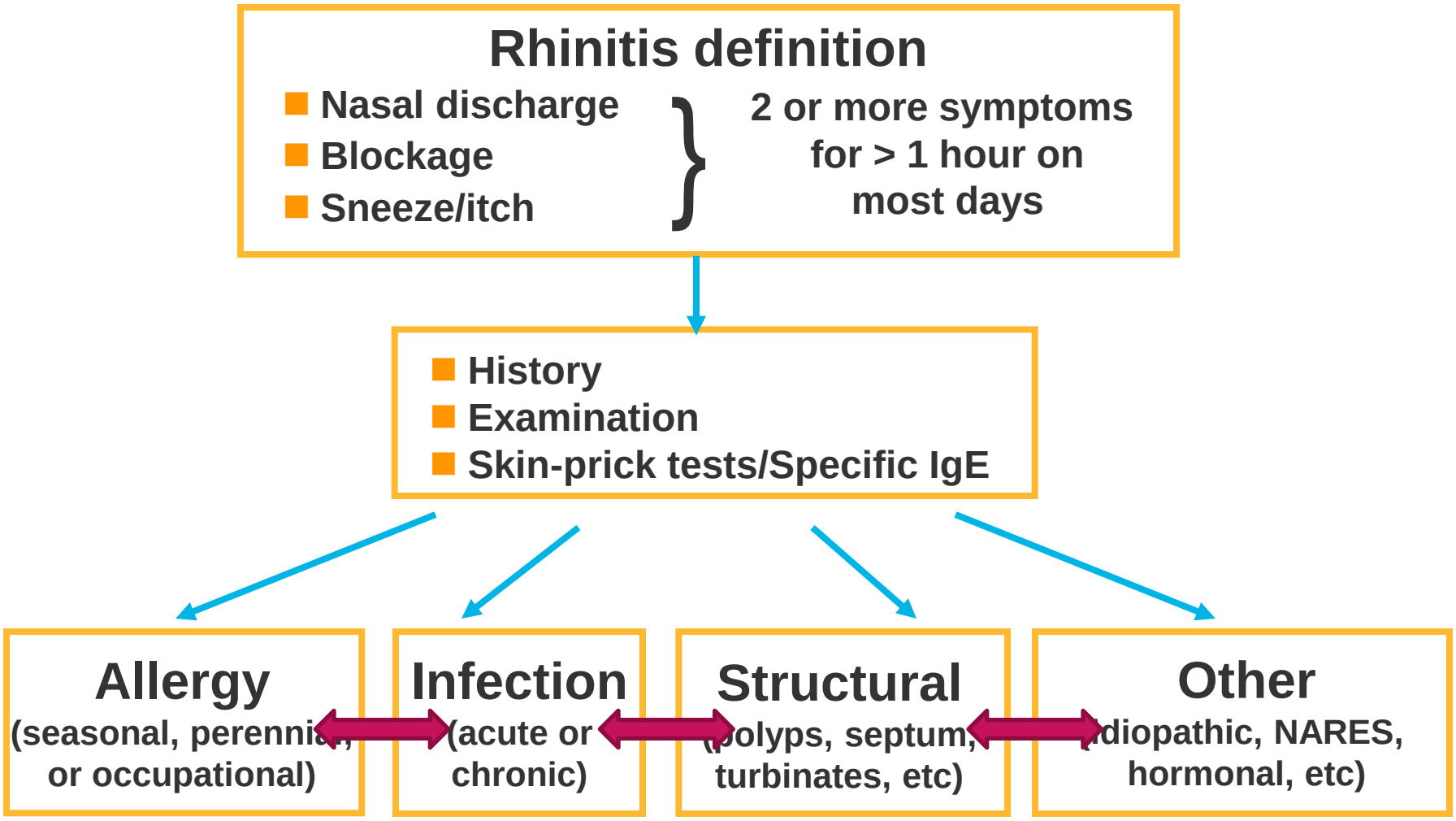
Rhinitis Diagnosis



Rhinitis Diagnosis



Causes of rhinitis/rhinosinusitis

Infectious
Viral
Bacterial
Other infective agents
Allergic
Intermittent
Persistent
Occupational (allergic/non-allergic)
Intermittent
Persistent
Drug-induced
Aspirin
Other medications
Hormonal
Other Causes
Non-allergic rhinitis with eosinophilia syndrome
Churg Strauss syndrome
Irritants
Food
Emotional
Atrophic
Gastro-oesophageal refiux
Idiopathic

World Health Organisation Initiative. Allergic rhinitis and its impact on asthma. (ARIA). Bousquet J, van Cauwenberge P. Geneva: WHO;2000.

HISTORY

- Worst symptoms- in order
- When?
- Where?
- What increases them ?
- What decreases them?
- Treatment?
- Past history
- Family history
- Social history-housing
- Associated symptoms?
- school/ work, hobbies, food , medication and reactions, smoking, etc.

Symptoms typical of *allergic* rhinitis

- Dominant itch/sneezing
- Watery anterior discharge
- Associated eye symptoms
- Symptoms on exposure to the relevant allergen

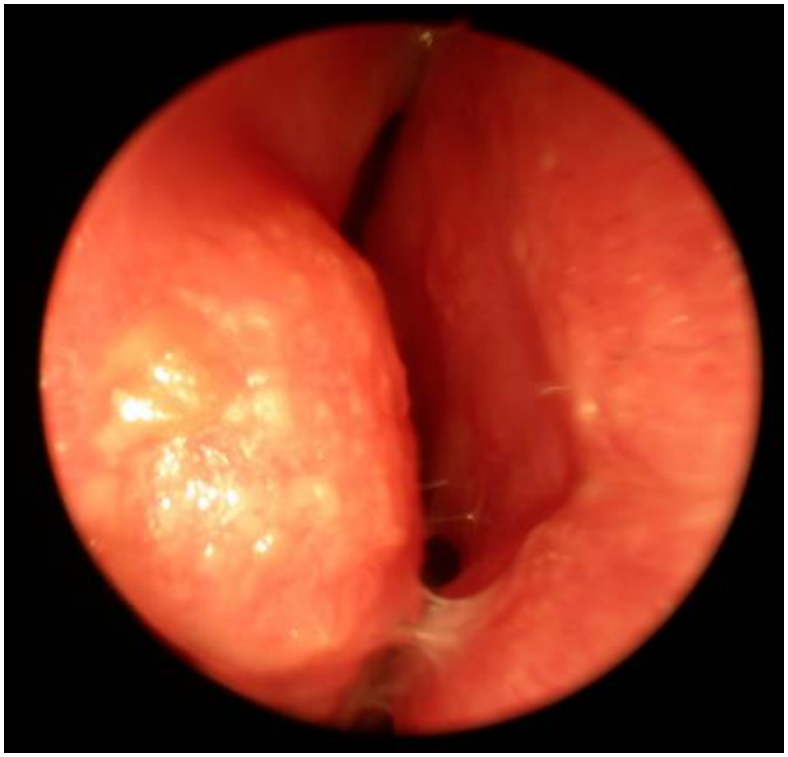
NB: chronic, persistent exposure – e.g. HDM, cat dander – blockage may predominate

Symptoms *not* typical of *allergic* rhinitis

- Unilateral symptoms
- Nasal obstruction without other symptoms
- Absent sense of smell
- Facial pain
- Recurrent epistaxis
- Nasal crusting
- Unpleasant smell
- Predominant posterior, mucopurulent discharge
- Ear symptoms (adults)

Warrant referral to specialist clinic

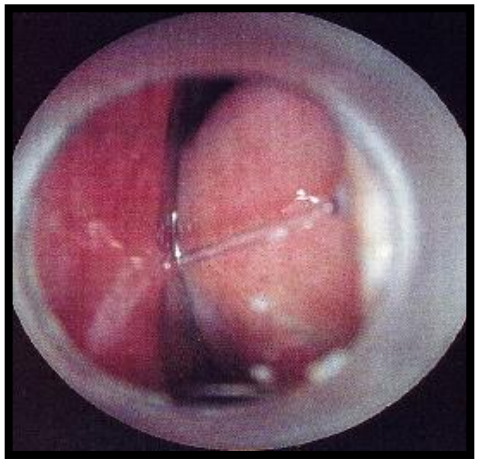
Nasal sarcoidosis

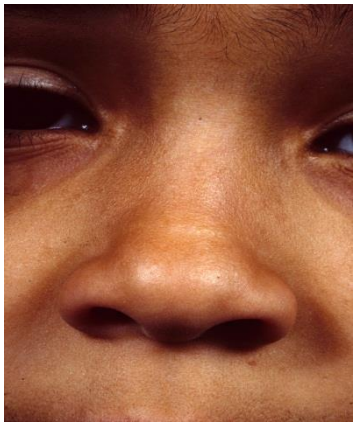


Rare

- Granulomatous (sarcoid, Wegener's)
- Atrophic (primary, secondary)
- Neoplasms (benign, malignant)
- CSF leak

Diagnosis: examination





Use an otoscope with largest attachment

Watery, boggy, swollen nasal mucosa

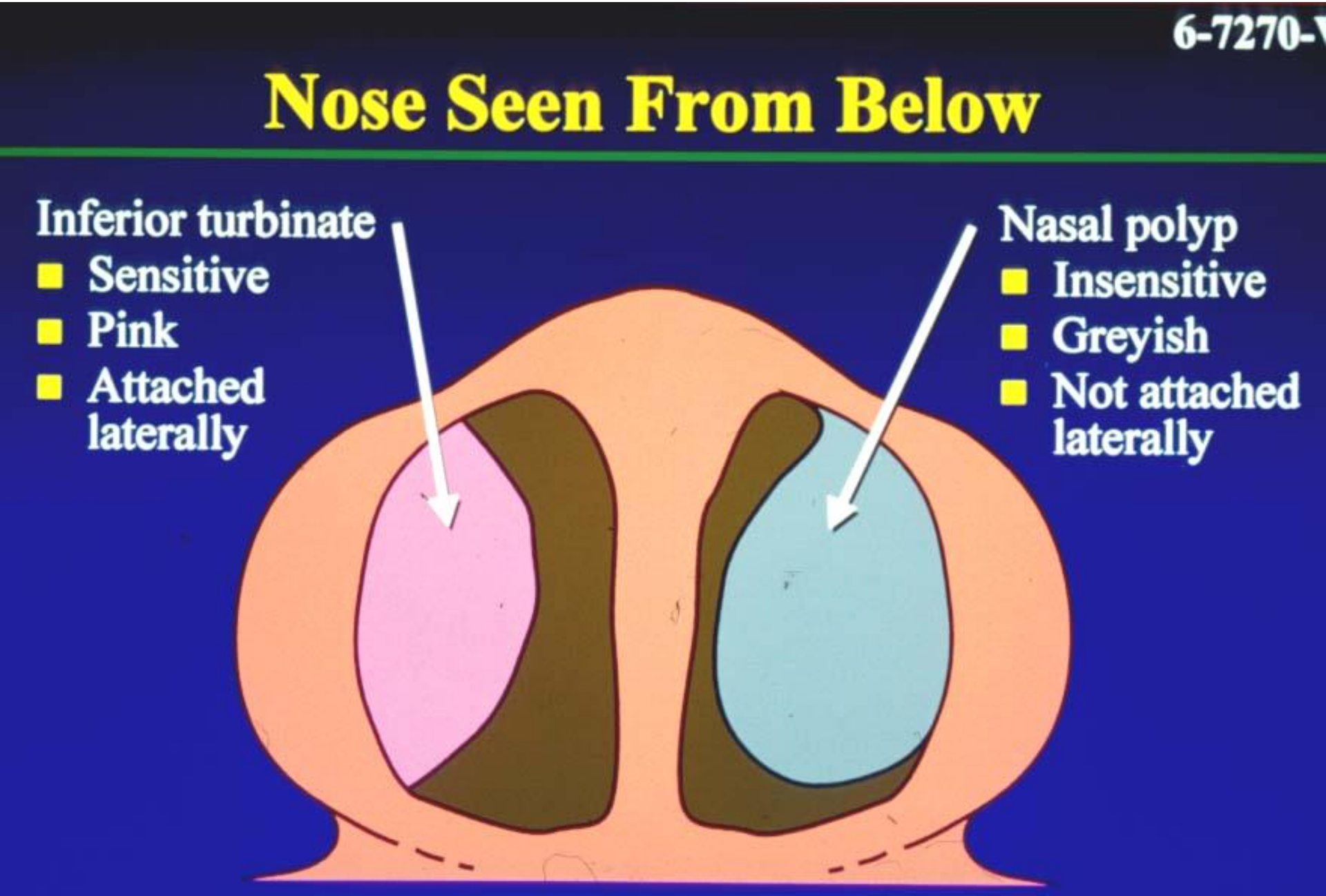
Large turbinates, ‘blue’

Conjunctivitis – itch, redness, watering

Transverse nasal crease

Allergic salute

EXAMINATION



SKIN TESTS FOR RHINITIS – basic panel

- Negative control (saline)
- House dust mite
- Grass pollen
- Positive control (histamine)
- Cat
- Tree pollen

OTHER SPTs

- **HISTORY**

- Animal contact
- Baker
- Damp housing, asthma
- Late summer exacerbation
- Small child

- **SPT**

- Relevant allergen
- Wheat, amylase
- Moulds
- Moulds

- Milk, egg etc

Patrick’s skin prick tests

Need to interpret IgE tests in the light of the history

Shona's results

- Skin prick test negative

Non-atopic?
False negative results?

Causes of False Negative SPTs

- Anti-histamines
- Topical corticosteroid
- High dose oral corticosteroid
- Early in disease- local sensitization in nose

Shona’s blood test

- IgE present to
- Grass pollen- grade 2
- Birch pollen- grade 2
- Cat – grade 4
- House dust mite – grade 6

PRACTICAL SESSION
and coffee

- Skin prick tests

- Nasal examination
- How to use a nasal spray

Allergic Rhinitis -Treatment

- Allergen Avoidance
- Pharmacotherapy
- Immunotherapy
- RARELY Surgery
- Education, Education, Education

www.whiar.org

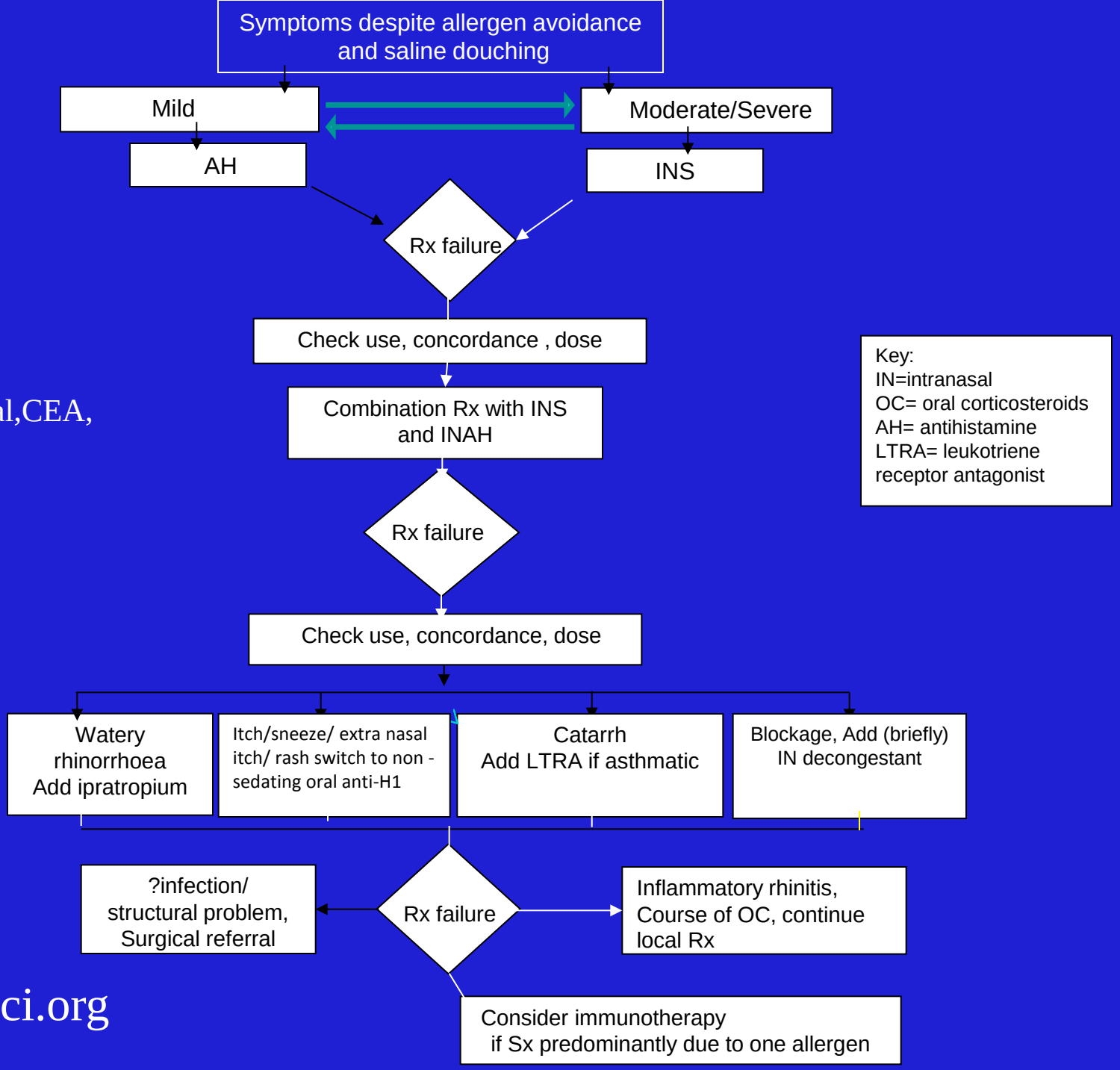
www.bsaci.org

www.eaaci.org

Managing Allergic Rhinitis

1. Diagnosis
2. Allergen avoidance
3. Choice of pharmacotherapy
4. Adherence and correct use of medication
5. Allergen Immunotherapy

(+ Diagnosis of concurrent asthma)



Scadding GK et al,CEA, 2017

www.bsaci.org

Managing Allergic Rhinitis

1. Diagnosis
2. Allergen avoidance
3. Choice of pharmacotherapy
4. Adherence and correct use of medication
5. Allergen Immunotherapy

(+ Diagnosis of concurrent asthma)

Allergen avoidance

- Works - no hay fever in January
- Occupational rhinitis - important to remove patient from trigger before asthma develops
- Difficult - travel away or avoid high pollen days
- Evening - close windows, washing in, hair wash
- Put something in nose - Vaseline, cellulose, Hay Balm, filters

Pollens Avoidance

- Holiday abroad
- Avoid grassy areas
- Stay indoors pm
- Fit a pollen filter to the car
- Keep windows tight shut
- Vaseline up the nose
- Wash hair

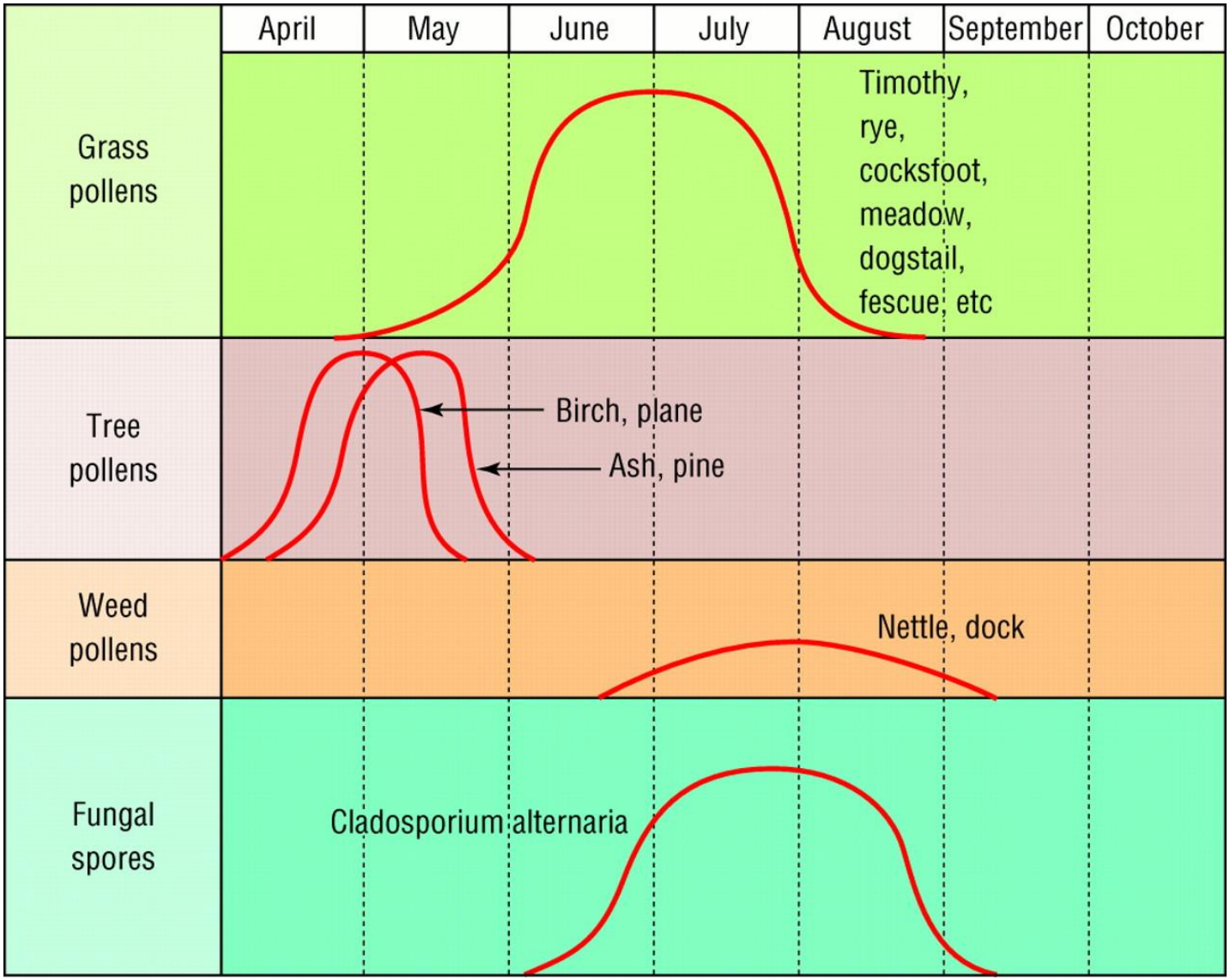
Pollens

Avoidance

- Holiday abroad 
- Avoid grassy areas 
- Stay indoors pm 
- Fit a pollen filter to the car 
- Keep windows tight shut 
- Vaseline up the nose 
- Wash hair 

Allergen avoidance can work!

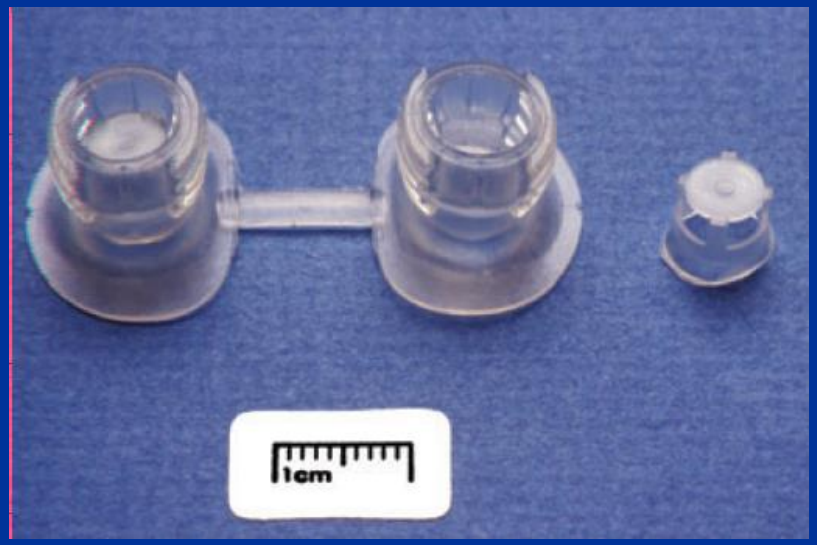
See: Peroni et al, AJRCCM 1994; 149:1442-6

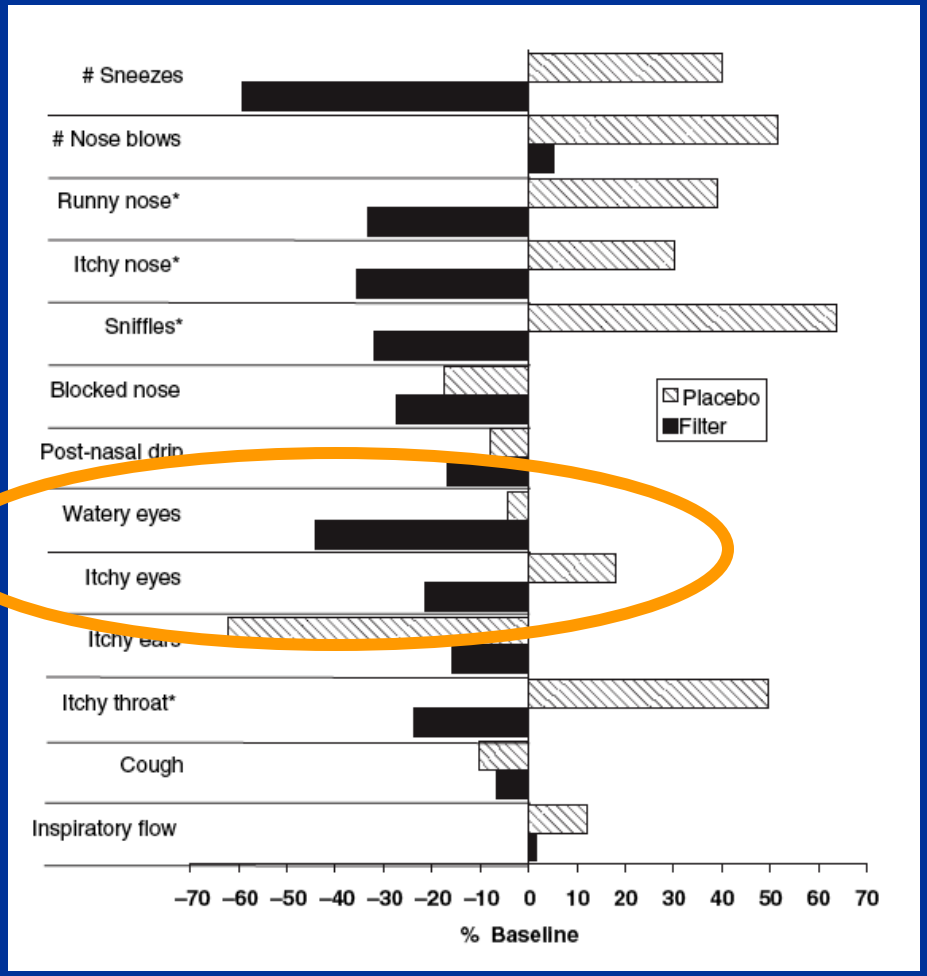


Durham SR, BMJ, 1998; 316: 843

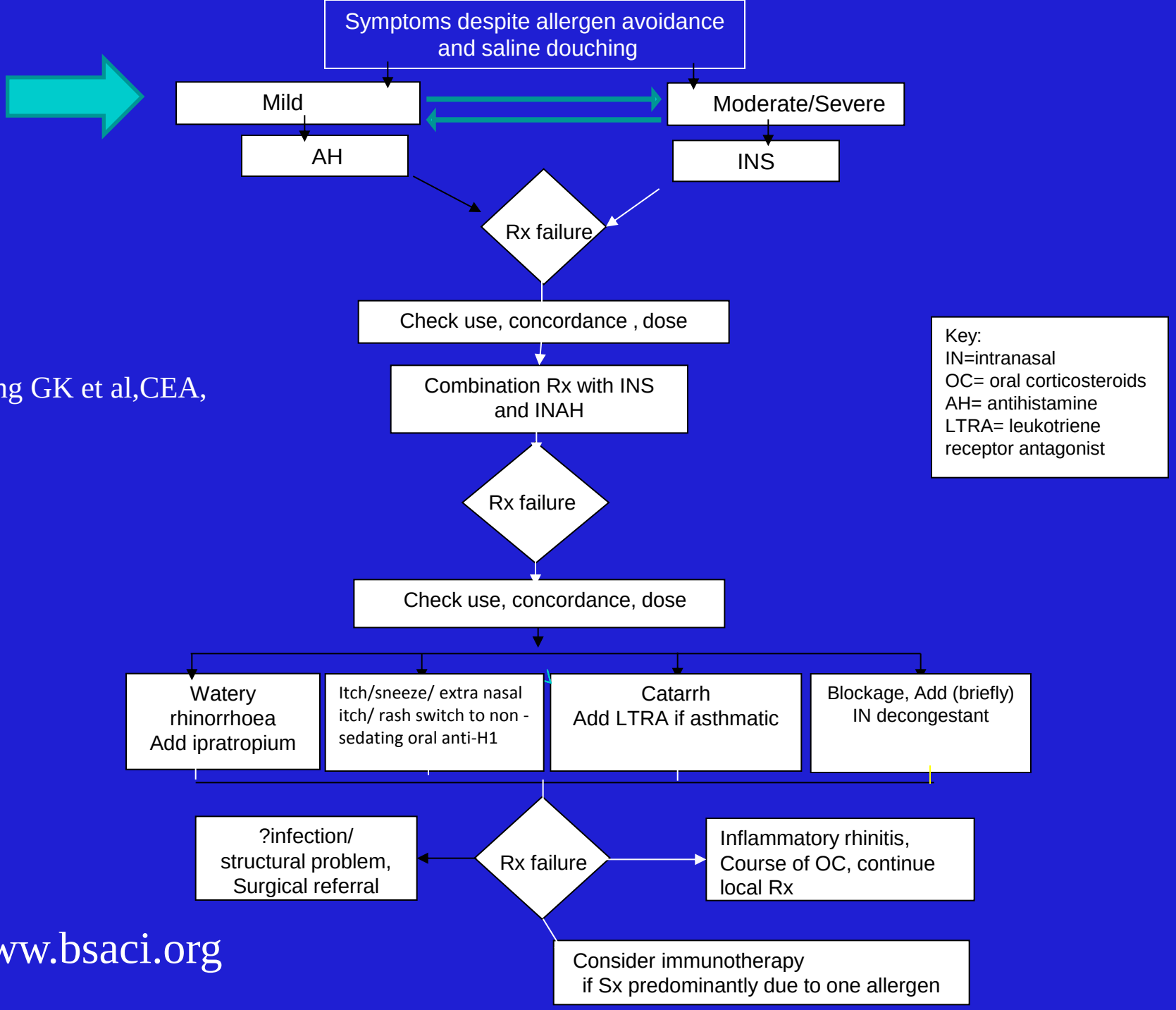
Allergen avoidance
Nasal air filters

Prevention of nasal inflammation





O'Meara et al., *Allergy 2005*



Scadding GK et al,CEA, 2017

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Managing Allergic Rhinitis

1. Diagnosis
2. Allergen avoidance
3. Choice of pharmacotherapy
4. Adherence and correct use of medication
5. Allergen Immunotherapy

(+ Diagnosis of concurrent asthma)

Question

- Which 2 forms of treatment for rhinitis have the lowest NNT?

- A) antihistamines and nasal steroids
- B) nasal steroids and antileukotrienes
- C) nasal steroids and immunotherapy
- D) antihistamines and antileukotrienes

Benefit and harm in treatments for allergic rhinitis- Portnoy et al, 2004.

Treatment	Benefit	NNT	Harm	NNH	Rx threshold,%
Antihistamine					
Class mean	0.066	15.2	0.02	51	23
Nasal sprays					
Class mean	0.229	**4.4**	0.021	48	8
Nasal antihistamines					
Azelastine (daily)	0.16	6.3	0.031	32	16
Azelastine (twice daily)	0.2	5	0.046	22	19
Other					
Montelukast	0.07	14.3	0.006	167	8
Omalizumab	0.081	12.3	0.08	13	50
Immunotherapy	0.218	**4.6**	0.072	14	25

Evidence-based Recommendations in Allergic Rhinitis

	Seasonal allergic rhinitis (SAR)		Perennial allergic rhinitis (PAR)	
	Adults	Children	Adults	Children
Oral anti-H1	A	A	A	A
Intranasal anti-H1	A	A	A	A
Intranasal CS	A	A	A	A
Intranasal chromone	A	A	A	A
Subcutaneous SIT	A	A	A	A
Sublingual/nasal SIT	A	A	A	A
Anti-leukotriene	A	A	–	–
Allergen avoidance	A	D	D	D

BSACI guidelines for the management of allergic and non-allergic rhinitis

CS, corticosteroid; SIT, specific immunotherapy.

Scadding et al., Clin Exp Allergy. 2008 Jan;38:19-42

Antihistamines licensed in UK for Allergy-related Indications

	Proprietary forms	Manufacturer	Availability	Licenced indications (BNF)	Liscenced dose (Adult)	Approx 1 month cost (BNF)	Time to Max plasma conc (hours)	Time to Onset (hrs)	D A
First Generation									
Chlorpheniramine	Piriton	Non-proprietary	POM	Allergy such as hay fever, urticaria, **anaphylactic reactions**	4 mg, max 4 hrly	£0.69-£4.14	2.8	3	
Hydroxyzine	Atarax	Alliance	POM	Pruritis, anxety	25 mg, max qds	£1.22-£4.88	2.1	2	
Alimemazine	Vallergan	Sanofi-Aventis	POM	Pruritis, urticaria, premedication	10 mg bd-tds	£7.78-£1.67	N/A	N/A	
Clemastine	Tavegil	Novartis	~~POM~~	Allergy such as hayfever, urticaria	1mg-6mg od	£1.18-£7.05	N/A	N/A	
Cyproheptadine	Periactin	MSD	~~POM~~	Allergy such as hayfever, urticaria, migraine	4-20mg daily	£0.86-£.25	N/A	N/A	
Promethazine	Phenergan	Sanofi-Aventis	~~POM~~	Hayfever, urticaria, **anaphylaxis**, sedation, motion sickness, premedication	25mg od or bd	£1.53 - £3.06	N/A	N/A	
Doxepin	Sinepin	Marlborough	POM	Pruritis in eczema, depression	75-300mg daily	£11.31-£34.26	2.0	N/A	
Second Generation									
Cetirizine	Zirtek	Non-proprietary	~~POM~~	Allergy such as hayfever, Chronic idopathic urticaria	10 mg od	£0.50	1.0	1	
Loratidine	Clarityn	Non-proprietary	~~POM~~	Allergy such as hayfever, Chronic idopathic urticaria	10 mg od	£0.99	1.2	2	
Fexofenadine	Telfast	Aventis-Pharma	POM	Seasonal allergic rhinitis, Chronic idopathic urticaria	120mg/180mg od	£6.23/£7.89	2.6	2	
Mizolastine	Mizollen	Sanofi-Aventis	POM	Allergy such as hayfever, urticaria	10 mg od	£5.77	1.5	1	
Third Generation									
Levocitirizine	Xyzal	UCB Pharma	POM	Allergy such as hayfever, urticaria	5 mg od	£5.20	0.8	1	
Desloratidine	Neoclarityn	Schering-Plough	POM	Allergy such as hayfever, Chronic idopathic urticaria	5 mg od	£7.04	1 - 3	2	

Sources: Simons FE, N. Engl. J. Med. 2004; 351:2203-17, and BNF56 (September 2008)

*Based on wheal and flare inhibition studies

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Side-effects common

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£ $ € kr

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BSACI guidelines for the management of allergic and non-allergic rhinitis

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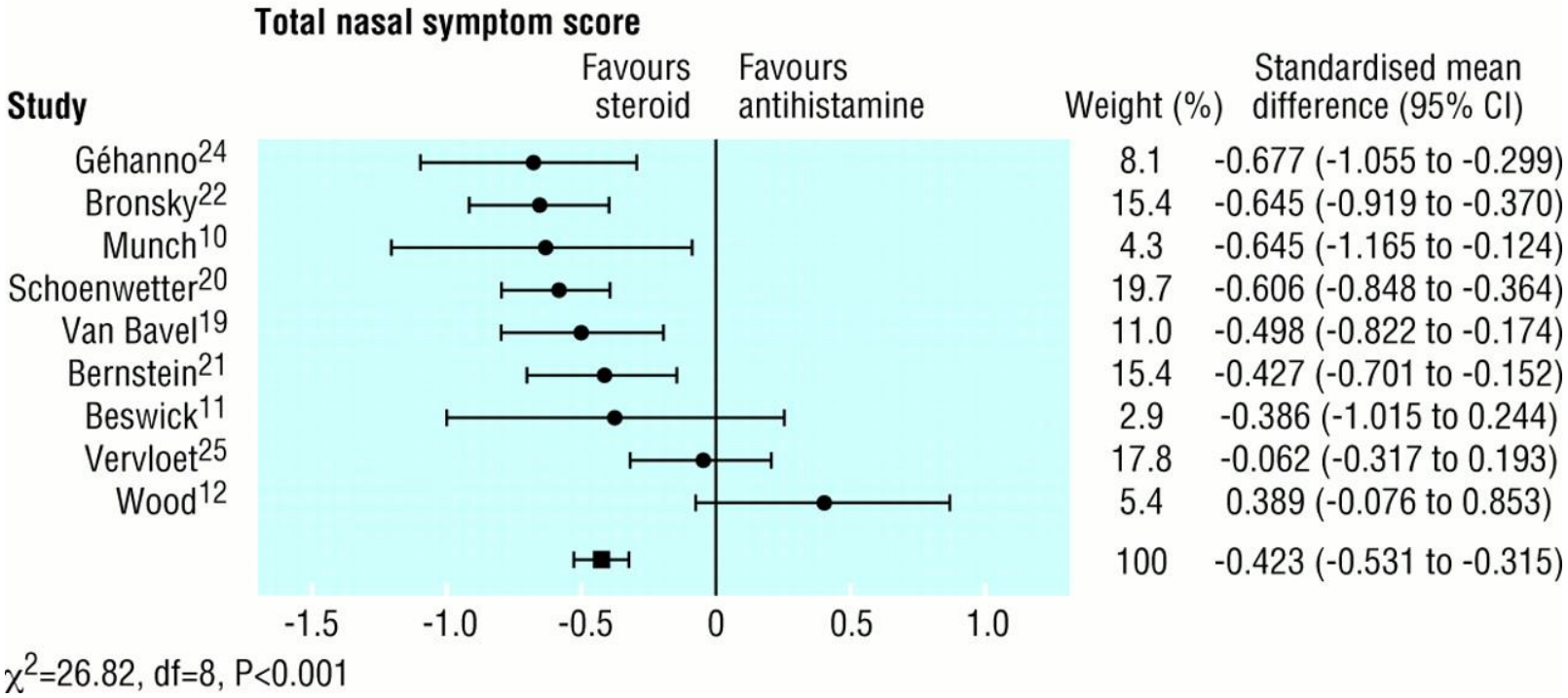
Scadding et al., Clin Exp Allergy. 2008 Jan;38:19-42

Intranasal steroids v antihistamines:
Total nasal symptoms



JM Weiner et al, *BMJ* 1998;317;1624-1629

Glucocorticoid efficacy (Rhinitis)

- Superior in meta- analyses to:

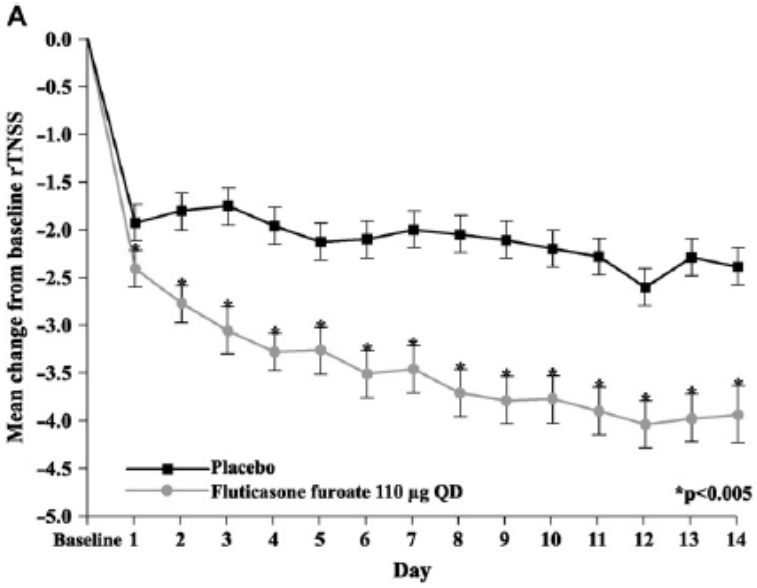
  - Oral antihistamine (Weiner et al ,1998)

  - Topical antihistamine (Yanez & Rodrigo 2002)

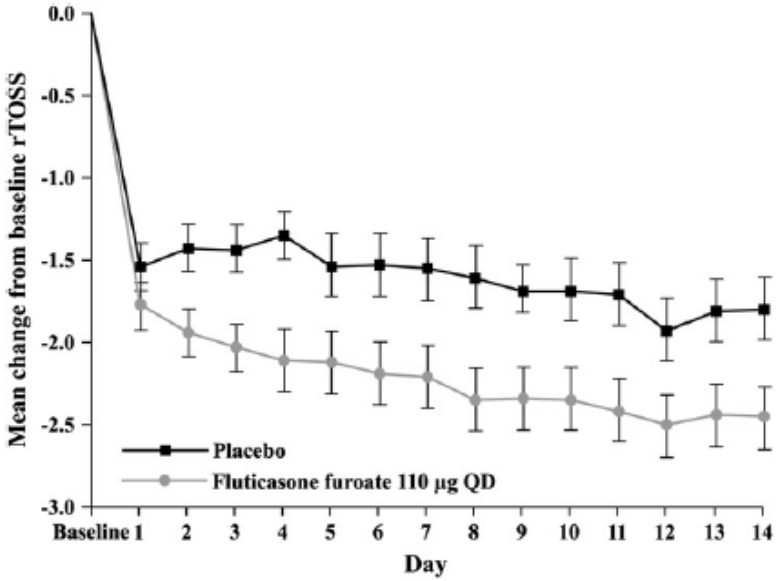
  - LTRAs (Wilson et al,2004)

  - Also superior to antihistamine +LTRA
(Di Lorenzo et al 2004)

INS and eye symptoms



Nasal symptoms



Eye symptoms

Kaiser HB, JACI 2007

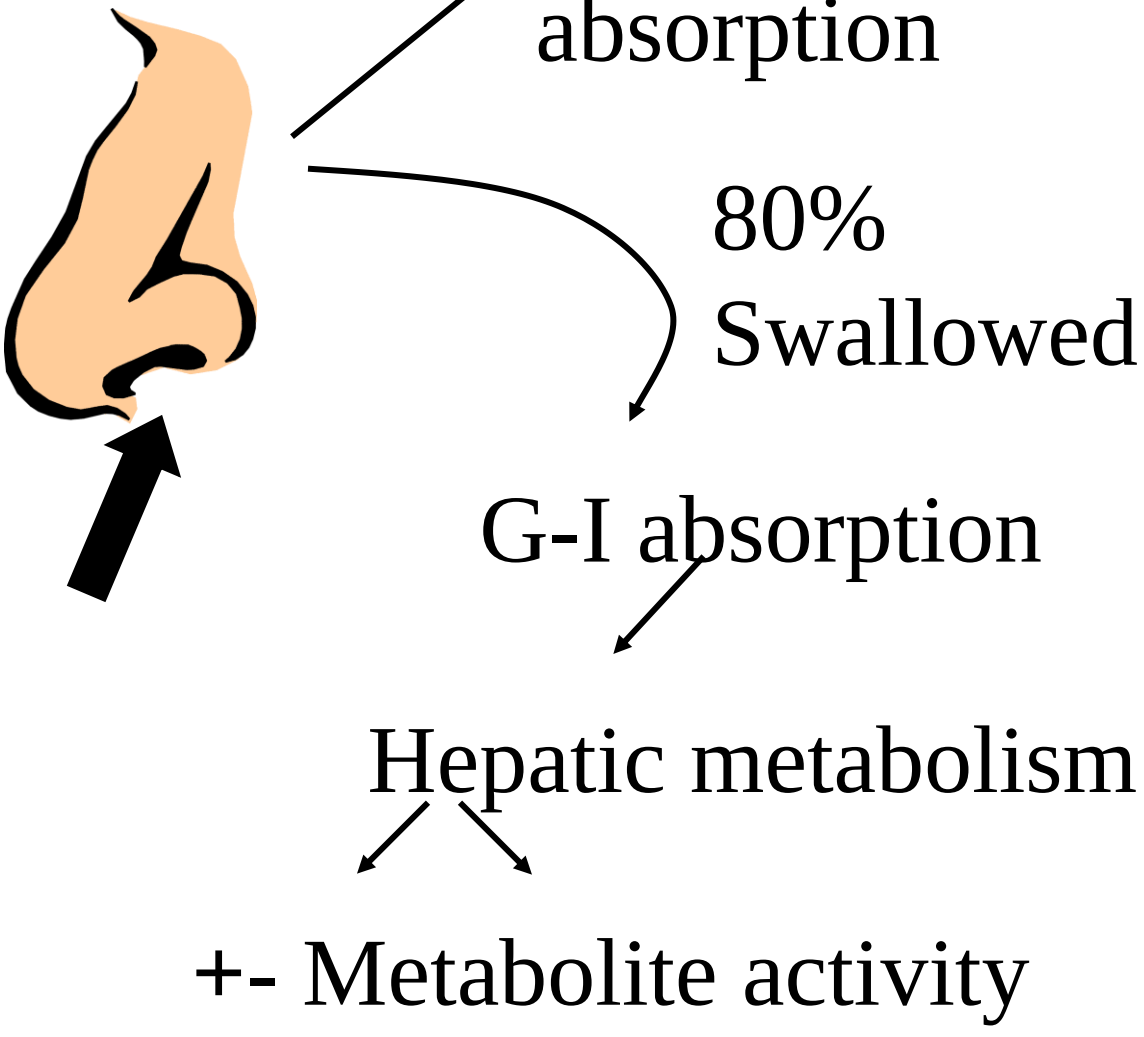
Troublesome eye symptoms

- Sodium cromoglicate or nedocromil sodium first line
- Inadequate response: add in azelastine, olopatidine or other topical anti-histamine
- Ensure patient also taking an intranasal corticosteroid
- Still inadequate response or worrying signs: request ophthalmology opinion

Which nasal steroid?

Drug	Trade name	Efficacy	Safety	Once Daily	Eye Sx	No Odour	No BKC	Device
FP	Flixonase	++	++	++	+	-	-	+
MOM	Nasonex	++	++	++	+	-	-	+
BUD	Rhinocort	++	+/+-	++	+	-	+	+
TRIAM	Nasocort	++	+/+-	++	+	+	+	+
BECLO	Beconase	++	+/+-	-	+	-	-	+
FLUNIS	Syntaris	++	+/+-	-	?	-	-	+
FF	Avamys	++	++	++	++	-	-	++

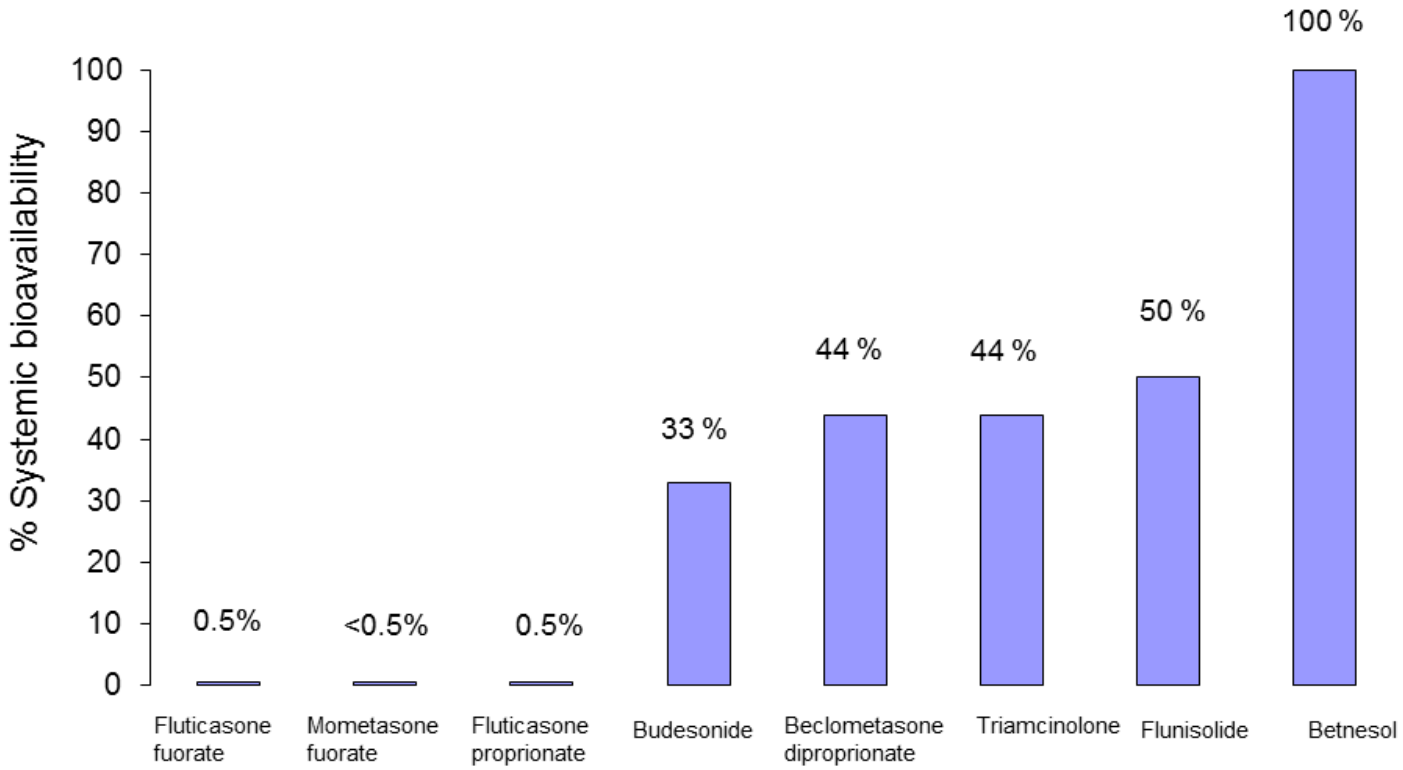
Systemic Bioavailability of Nasal Corticosteroids



QUESTION

- The least bioavailable nasal steroids are :
- A)FF, FP and MF
- B)BDP, MF and Betnesol
- C) Triamcinolone, Syntaris, Budesonide?

Bioavailability of intranasal steroids



Kariyawasam H and Scadding GK Journal of Asthma and Allergy 2011
Scadding GK Paediatric Drugs 2008
Homer JJ, Gazis TJ. BMJ 1999

Nasonex Summary of Product Characteristics. 2011
Rhinocort: Summary of Product Characteristics. 2011
Beconase Summary of Product Characteristic 2011

Bryson HM, Faulds D. *Drugs* 1992;43:760–75.
Daley-Yates PT, Baker RC. *Br J Clin Pharmacol* 2001;51:103–5.
Daley-Yates PT et al. *Eur J Clin Pharmacol* 2004;60:265–8.
Allen A et al. *Clin Ther* 2007;29:1415–20.

OUTCOMES

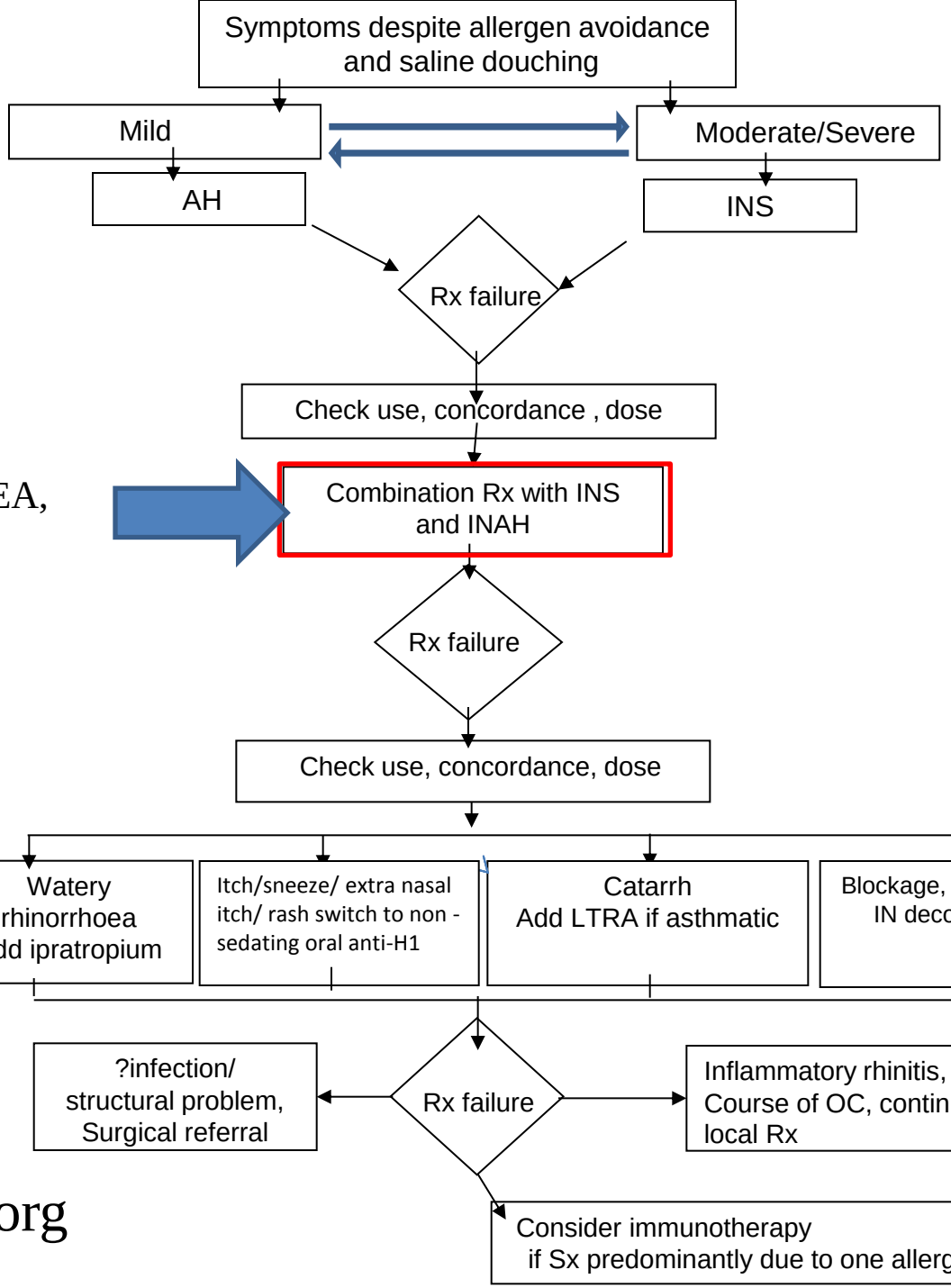
Fine on pre- and co- seasonal INS

SCUAD

SCUAD in allergic rhinitis

Bousquet P et al, 2010

- **Majority of patients with chronic upper airway diseases controlled during treatment (81.5%)**
- **But many patients inadequately controlled despite adequate (i.e. effective, safe and acceptable) pharmacologic treatment (SCUAD) (18.5%)**
- **SCUAD patients have impaired quality-of-life, social functioning, sleep, daily and work performances**



Key:
IN=intranasal
OC= oral corticosteroids
AH= antihistamine
LTRA= leukotriene receptor antagonist

Scadding GK et al,CEA, 2017

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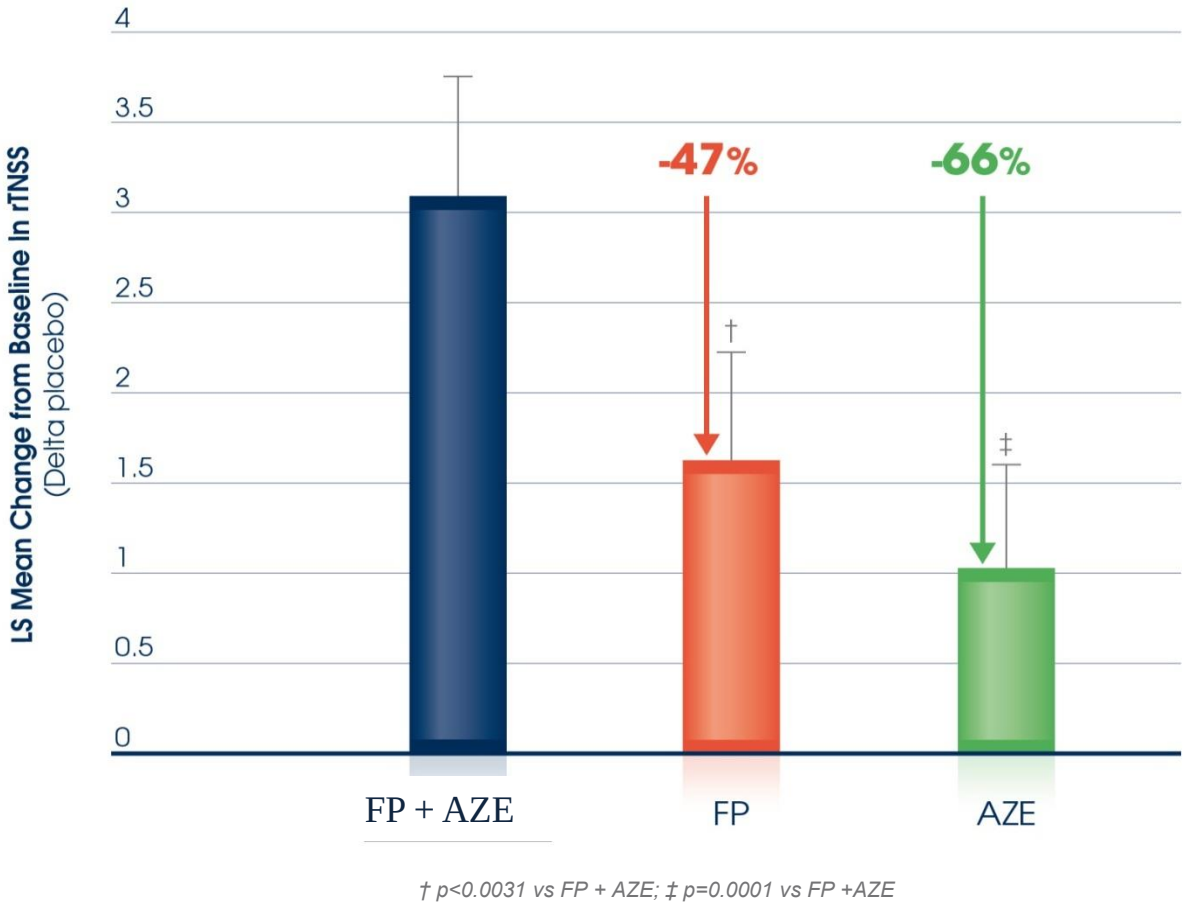
Efficacy of combined fluticasone propionate + azelastine nasal spray (Dymista)



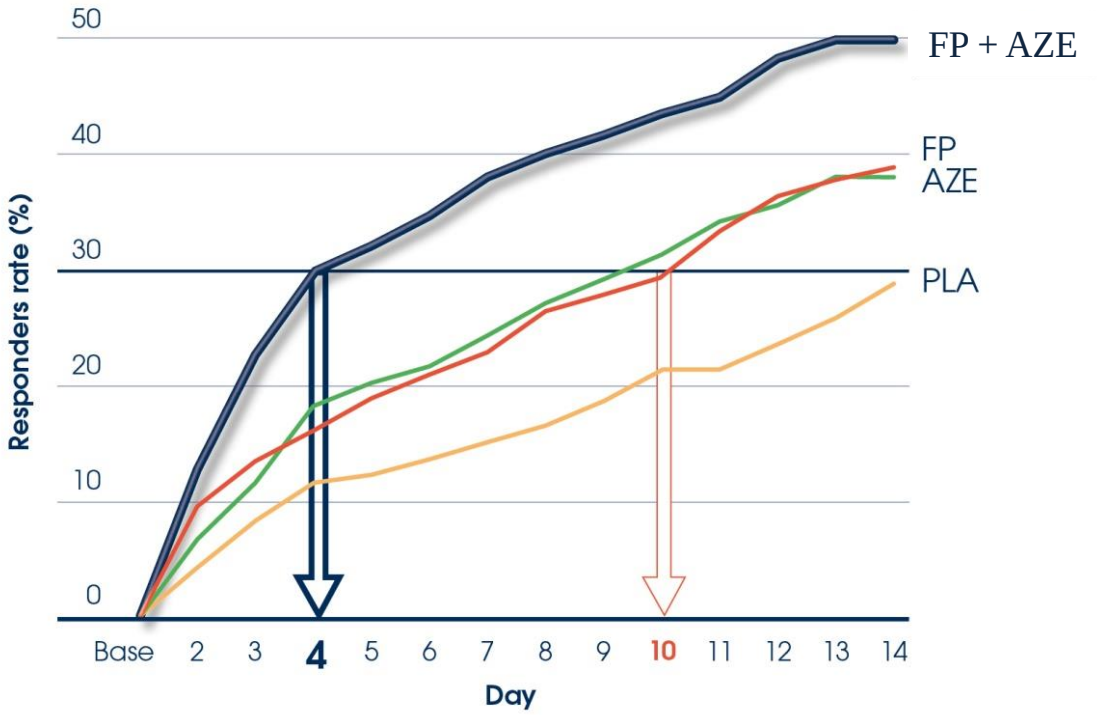
† p<0.0031 vs FP + AZE; ‡ p=0.0001 vs FP +AZE

Hampel et al, 2010

FP + AZE (n=153) FP: fluticasone propionate (n=151); AZE: azelastine (n=152); rTNSS: reflective total nasal symptom score

Data presented as LS mean change from baseline delta placebo with 95% CI

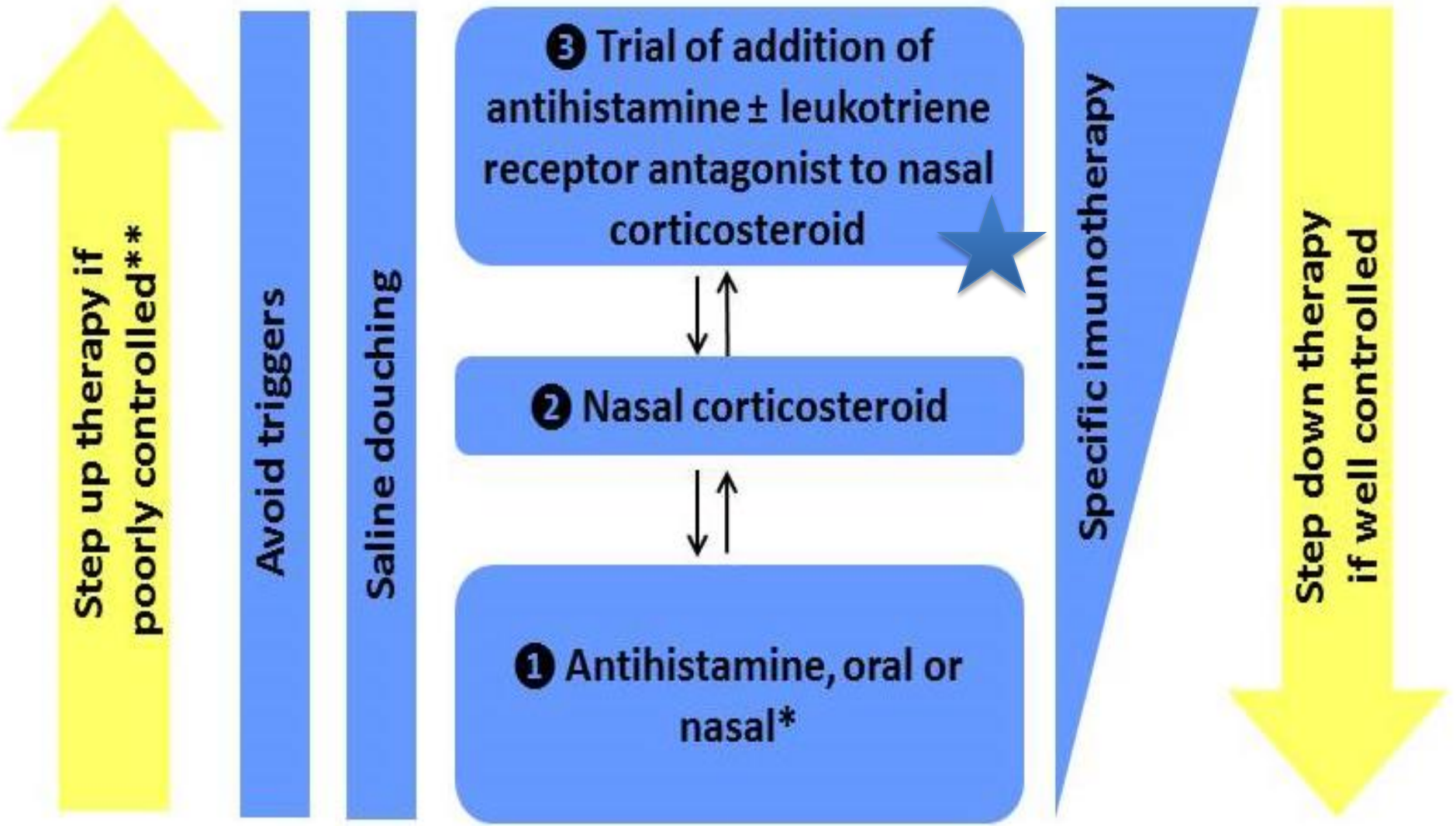
Efficacy of combined fluticasone propionate + azelastine nasal spray - % of patients with a 50% + improvement



Bachert et al. 2011
AZE: Azelastine; FP: Fluticasone propionate; PLA: placebo; AR: allergic rhinitis
Responder rate = % of patients with a 50% or more reduction in Total Nasal Symptom Score

Approach to therapy for paediatric allergic rhinitis

www.eaaci.org



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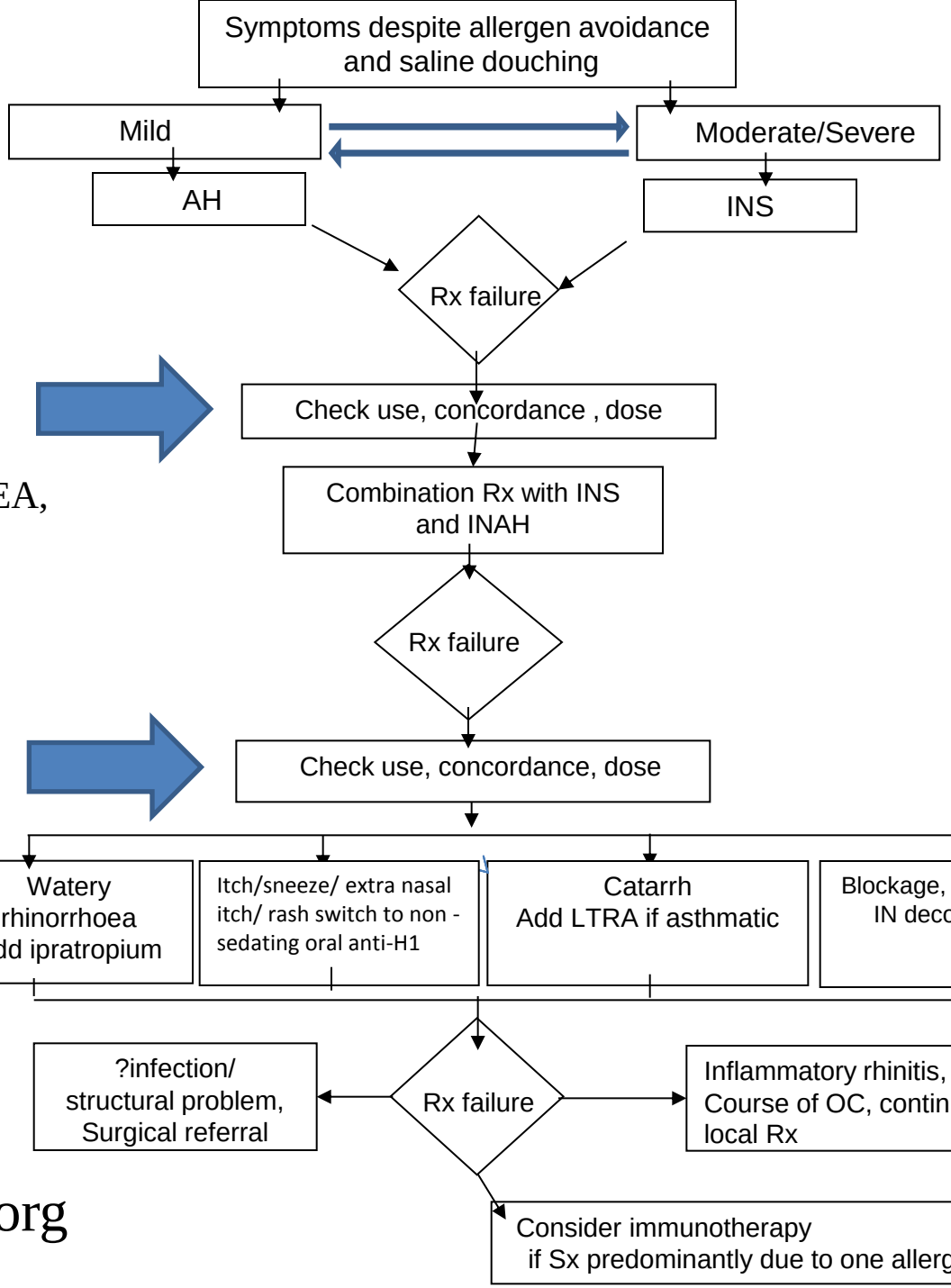

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Scadding GK et al,CEA, 2017

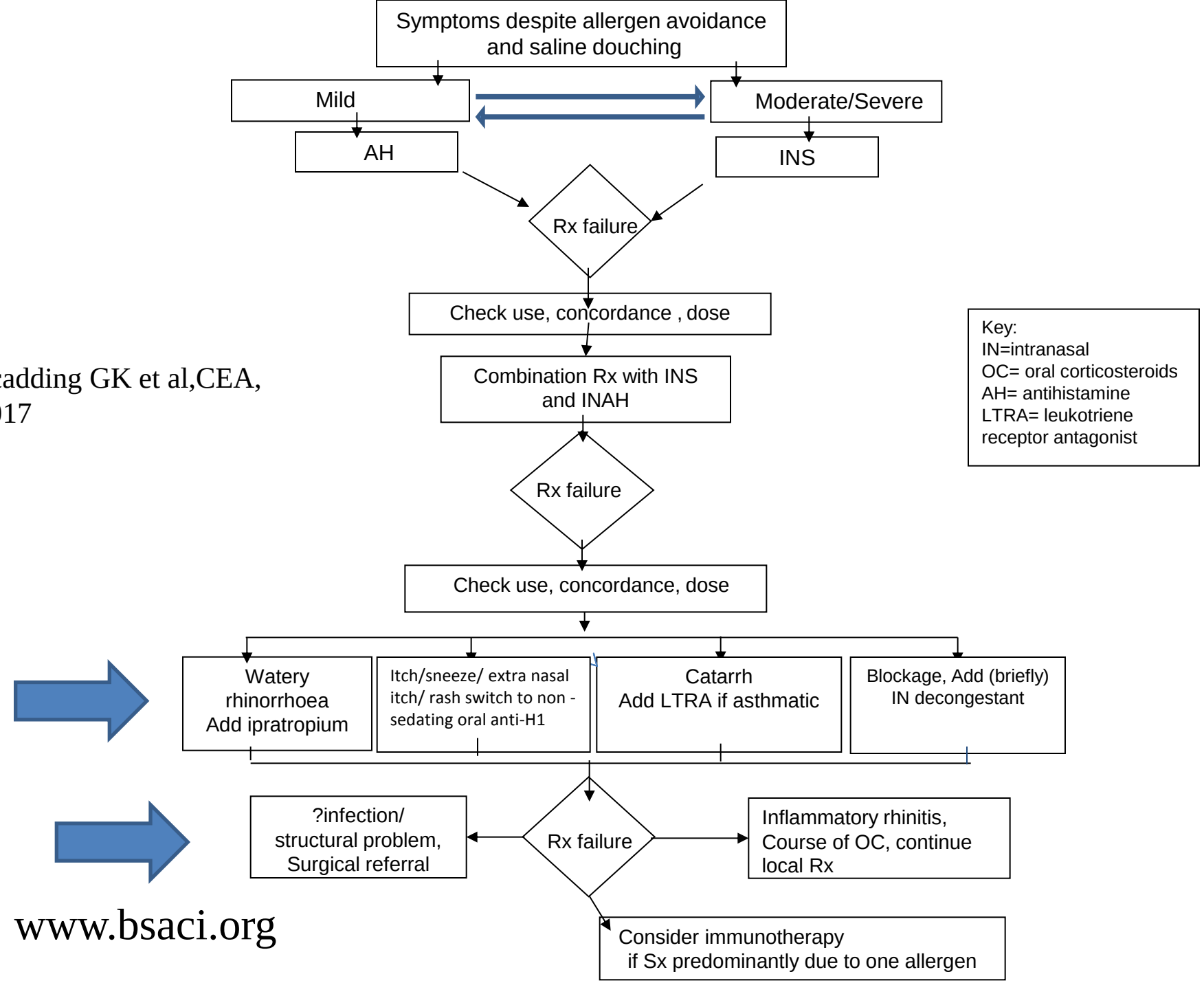
www.bsaci.org

Technique for nasal spray

- Head down and forward position
- 1 or 2 sprays each nostril
- Don’t sniff too hard

How long does a bottle last you?
How many bottles over the pollen season?

BSACI guidelines for the management of allergic and non-allergic rhinitis
Scadding et al., Clin Exp Allergy. 2008 Jan;38:19-42



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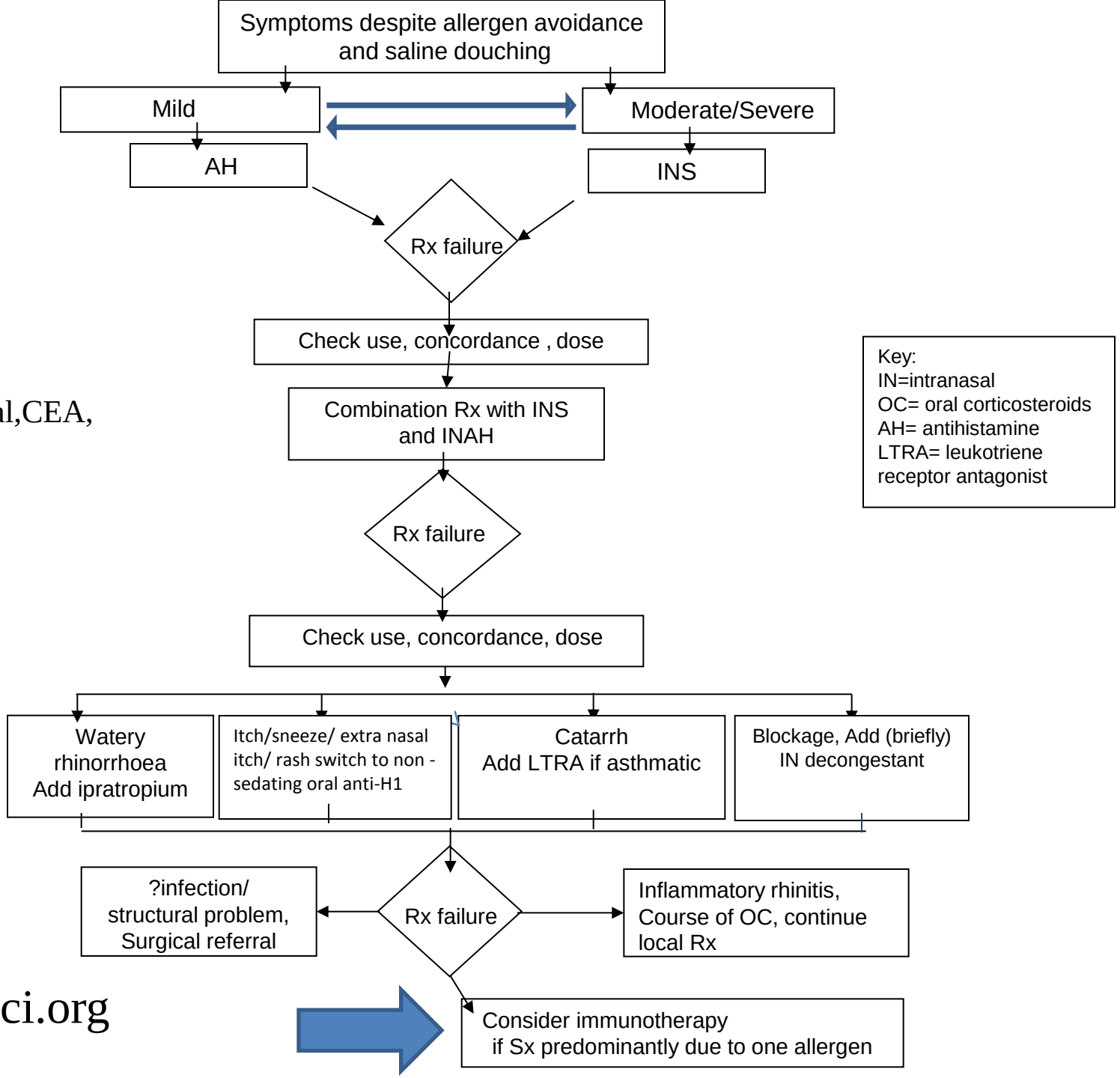

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Allergen immunotherapy

- ‘Allergen-specific immunotherapy is the practice of administering (gradually increasing) quantities of an allergen product to an individual with IgE-mediated allergic disease in order to ameliorate the symptoms associated with subsequent exposure to the causative allergen.’ *E. Alvarez-Cuesta et al. Standards for practical allergen-specific immunotherapy. Allergy 2006: 61 (Suppl. 82): 1–20*

Allergen immunotherapy – indications

- Allergic rhinitis/conjunctivitis, (allergic asthma*) and systemic reactions to wasp/bee venom
- Effective in IgE-mediated disease with a limited spectrum (1 or 2) of allergies
- Should be combined with allergen avoidance, pharmacotherapy and patient education

WHO position paper: Allergen immunotherapy
Bousquet J, Lockey RF, Malling HJ et al.
Allergy 1998;53:suppl 44:1-42

**not currently in UK, except with allergic rhinitis*

Allergen immunotherapy – contraindications

- Uncontrolled asthma or FEV1 < 70% predicted
- Beta-blockers
- Malignancy
- (Systemic) autoimmune/inflammatory disease
- Pregnancy at initiation of treatment
- (Acute) infection/illness

Allergen immunotherapy – allergic rhinitis

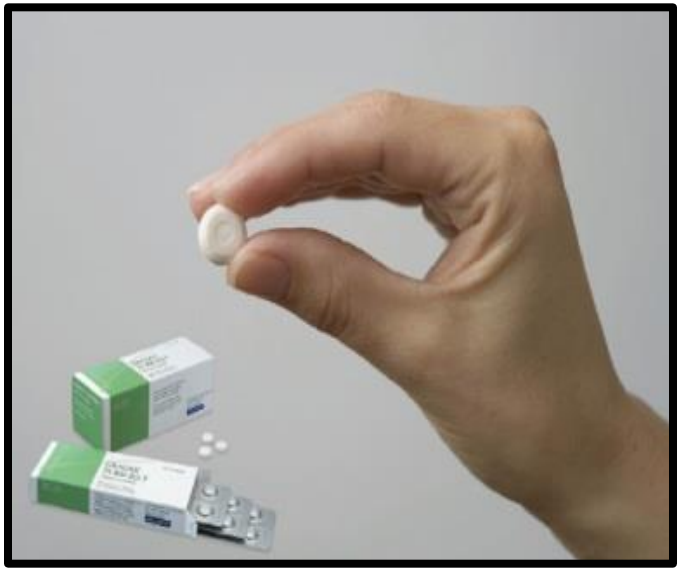
- IgE-mediated disease: IgE identified, symptoms on allergen exposure
- Troublesome symptoms
- Inadequate response to intranasal corticosteroids and anti-histamines
- Allergen avoidance impractical and/or ineffective
- Allergen (vaccine) product available
- Ability to comply with treatment (clinic visits/daily tablets)
- Absence of contraindications
- *Polysensitisation* ok, *polyallergy* less favourable

ARIA guidelines J Allergy Clin Immunol 2001

Allergen immunotherapy – how?

Subcutaneous

Sublingual



Allergen immunotherapy – protocols

- Subcutaneous immunotherapy:

- Dose-escalation over 12-14 weeks, weekly injections – 'up-dosing' phase
  - May be slowed down/reduced if large local reactions occur
  - Dose-reduction (or abandonment) in the event of systemic reactions

- High dose injections every 4-6 weeks thereafter, for 3 years – 'maintenance' phase
  - E.g. for venom immunotherapy, dose equivalent to approximately two full stings
  - Grass pollen: approximately 20µg major allergen per month

- Suitable facilities – specialist unit, in hospital
- 'Rush' and 'cluster' protocols may be used

Allergen immunotherapy – protocols

- <u>Sublingual immunotherapy:</u>

- Tablets (or drops)

- Usually single dose (or short up-dosing)
- Once daily, applied beneath the tongue
- UK: first dose under observation, in a suitable facility
- Subsequent doses at home for 3 years
  - Grass pollen: approximately 15µg major allergen per day

- Seasonal treatment with some vaccines (rather than perennial)

Allergen immunotherapy – which allergens?

- Efficacy demonstrated in DBRPCTs for:
  - Grass pollen
  - Silver birch pollen
  - House dust mite
  - Cat dander
  - Ragweed
- Efficacy for venom immunotherapy demonstrated using sting challenges
- Treatment only as good as the quality of the vaccine
- Major allergen content previously been shown to differ considerably between commercial vaccines

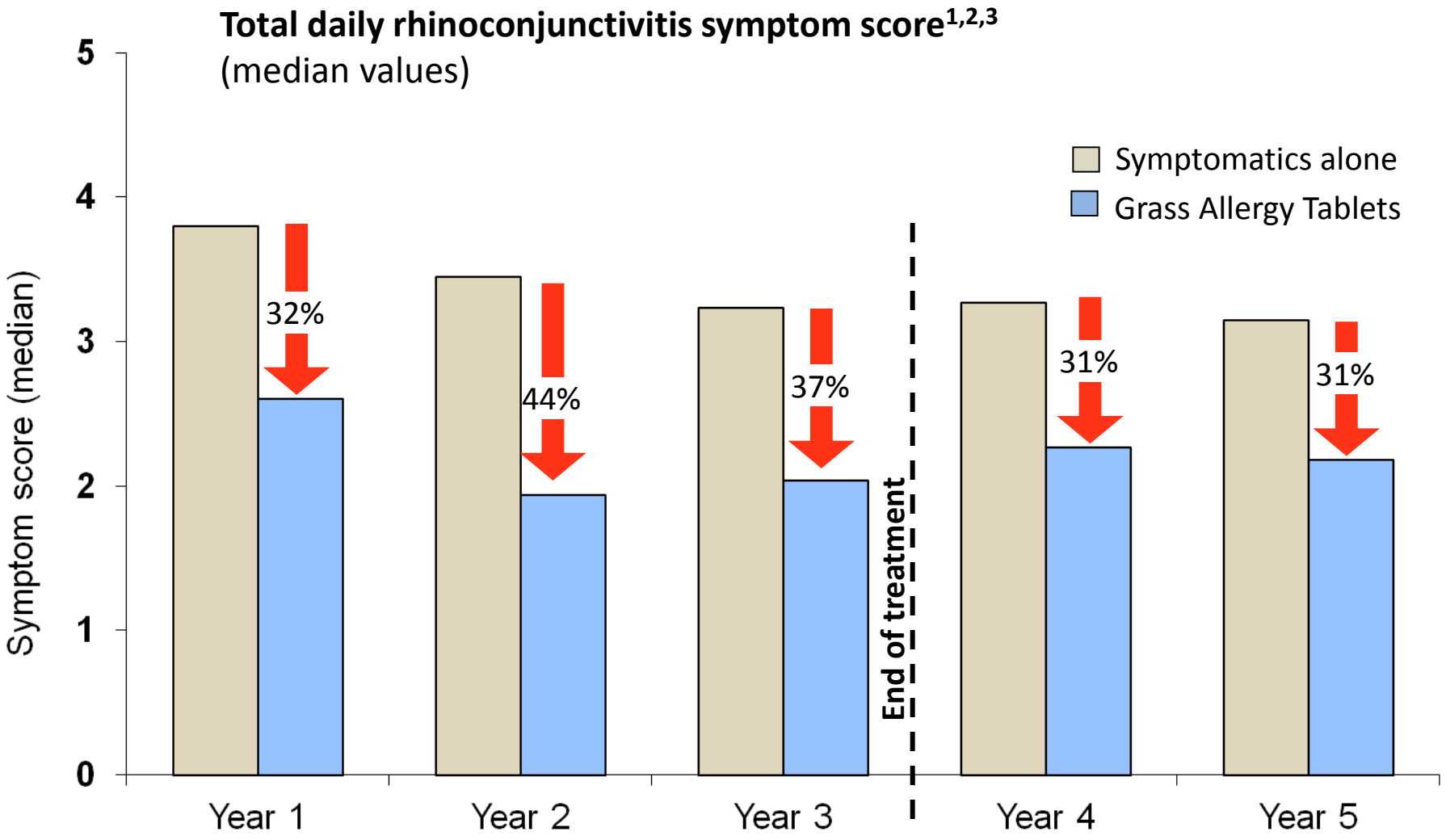
SLIT vs SCIT: safety

- SCIT:
  - systemic reactions: 1 in 1,000 injections
  - Grade 4 systemic reactions: 1 in 1,000,000 injections
  - Deaths: 1 in 2-2,500,000 injections

- SLIT:
  - one SLIT-related serious adverse reaction per 384 treatment years
  - Twelve non-fatal systemic reactions published
  - Local side effects common

Makatsori and Calderon. Curr Opin Allergy Clin Immunol. 2014

Grass pollen tablets - long-term efficacy with effect sustained 2 years after treatment

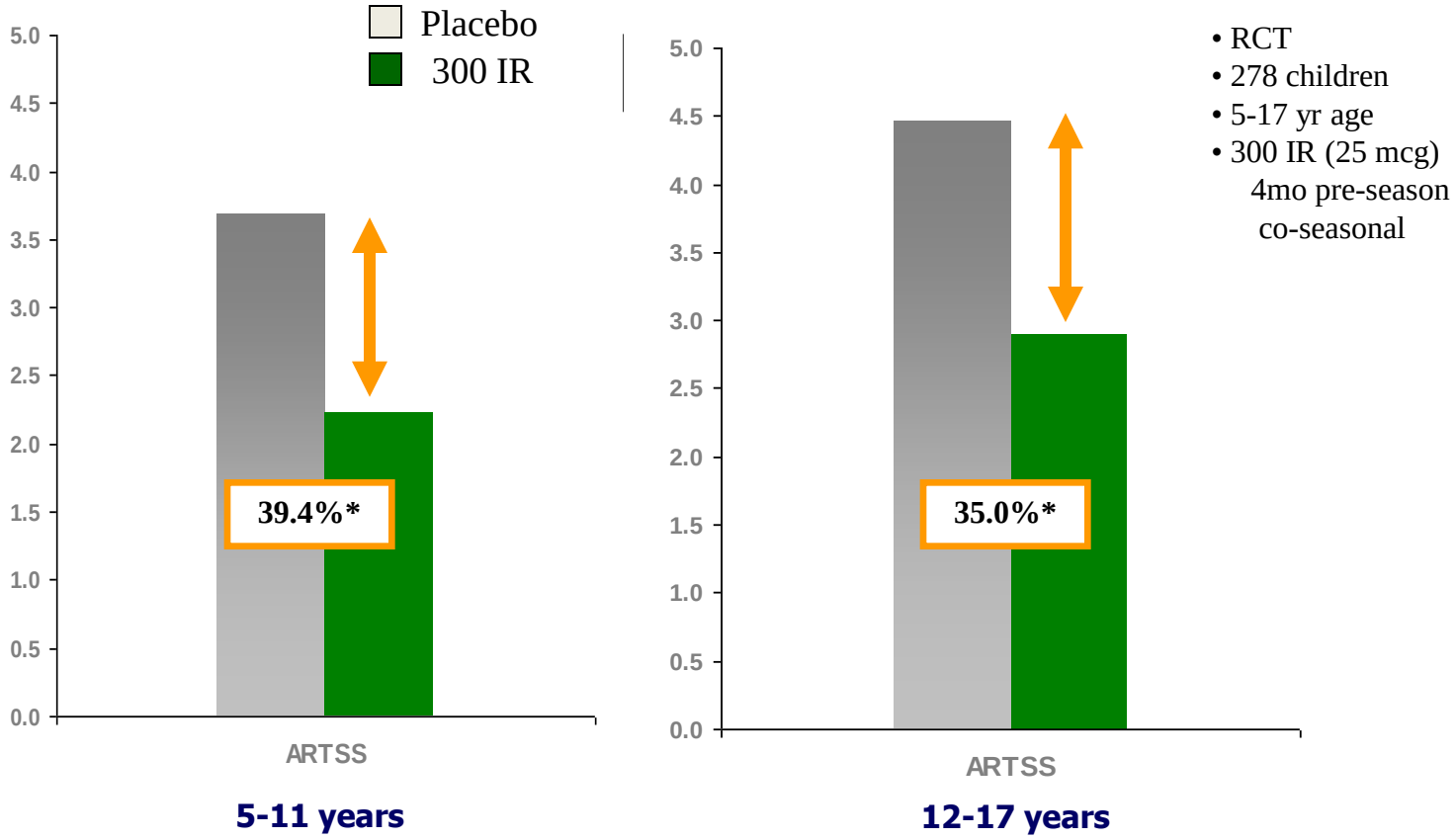


Durham SR et al. J Allergy Clin Immunol 2012;129: 717-725

SLIT Tablet in Children

Efficacy by sub-group of age

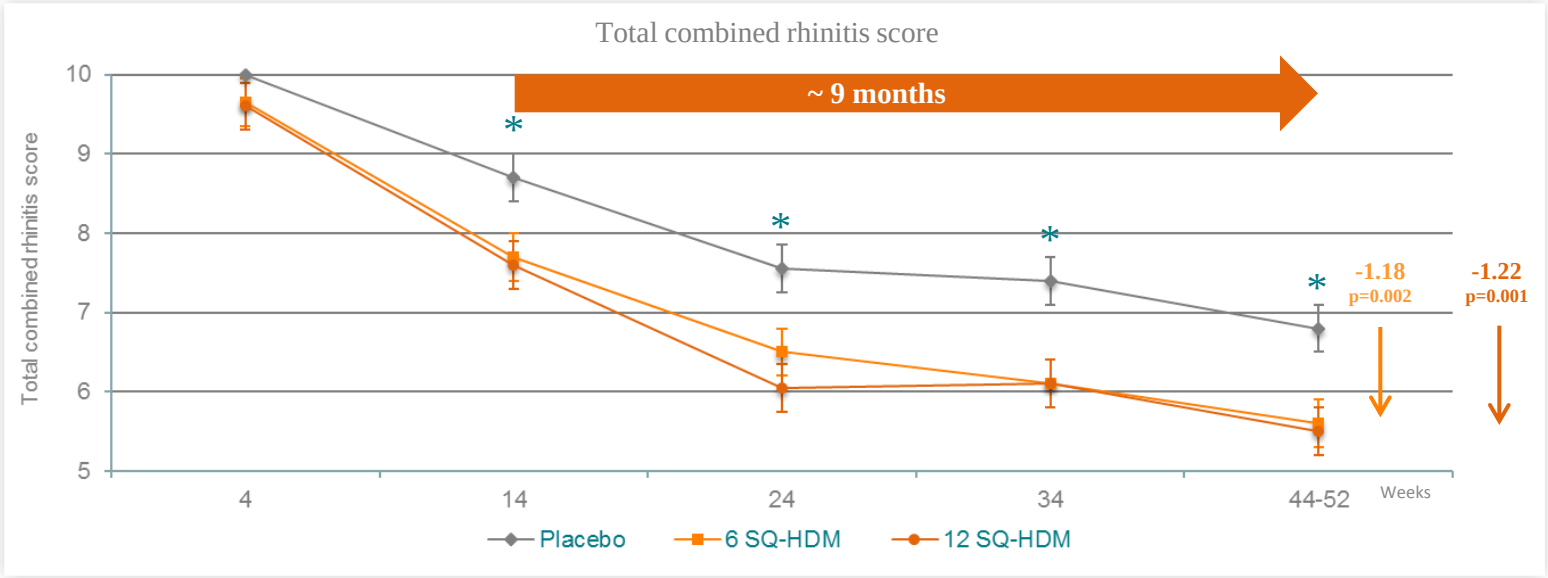
Median improvement *vs* placebo - *ITT* population



Wahn U et al. J Allergy Clin Immunol 2009; 123: 160-6.

House dust mite sublingual immunotherapy

- Add on treatment to ins + oral anti-histamine + azelastine eye drops
- 22% reduction vs placebo (12 SQ dose)



Error bars: Standard error of difference in adjusted means
* Statistically significantly different to Placebo

Immunotherapies: comparison

	Subcutaneous	**Sublingual**
Efficacy	Proven[1-5]	**Proven[7-9]**
Long-term efficacy	Proven[1-4]	**Proven[10]**
Prevention of asthma (children)	Documented[6]	**Documented[7]**

1. Durham SR *et al. N Engl J Med* 1999; 341: 468-75
2. Jacobsen L *et al. Allergy* 1997; 52: 914-20
3. Hedlin G *et al. J Allergy Clin Immunol* 1995; 96(6 Pt 1): 879-85
4. Mosbech H *et al. Allergy* 1988; 43: 523-9
5. Frew AJ *et al. J Allergy Clin Immunol* 2006; 117: 319-25
6. Möller C *et al. J Allergy Clin Immunol* 2002; 109: 251-6
7. Di Rienzo V *et al. Clin Exp Allergy* 2003; 33: 206-10
8. Novembre E *et al. J Allergy Clin Immunol* 2004; 114: 851-7
9. Dahl *et al. Allergy* 2006; 61: 185-90
10. Durham et al .JACI, 2012

Allergen immunotherapy: who?

- Case 1:
  - 26 year old man, sneezing, itching, red eyes, blocked nose
  - May-July for 10 years, poor response to pharmacotherapy, good compliance
  - Examination unremarkable
  - Skin test positive to grass only; sIgE mixed grass pollen 13.50

YES

- Case 2:
  - 18 year old girl, 4 years nasal blockage, post nasal drip: perennial
  - itching, sneezing, irritable eyes: March-August
  - Dislikes nasal sprays; pet cat
  - skin test positive to HDM, birch, grass, cat, alternaria, cladosporium
  - examination: rhinitis

NO

- Case 3:
  - 35 year old man, 2 years nasal blockage, running, absent sense of smell
  - poor response to anti-histamines and nasal sprays
  - skin test positive to dust mite only
  - previous operation for nasal polyps, 18 months ago

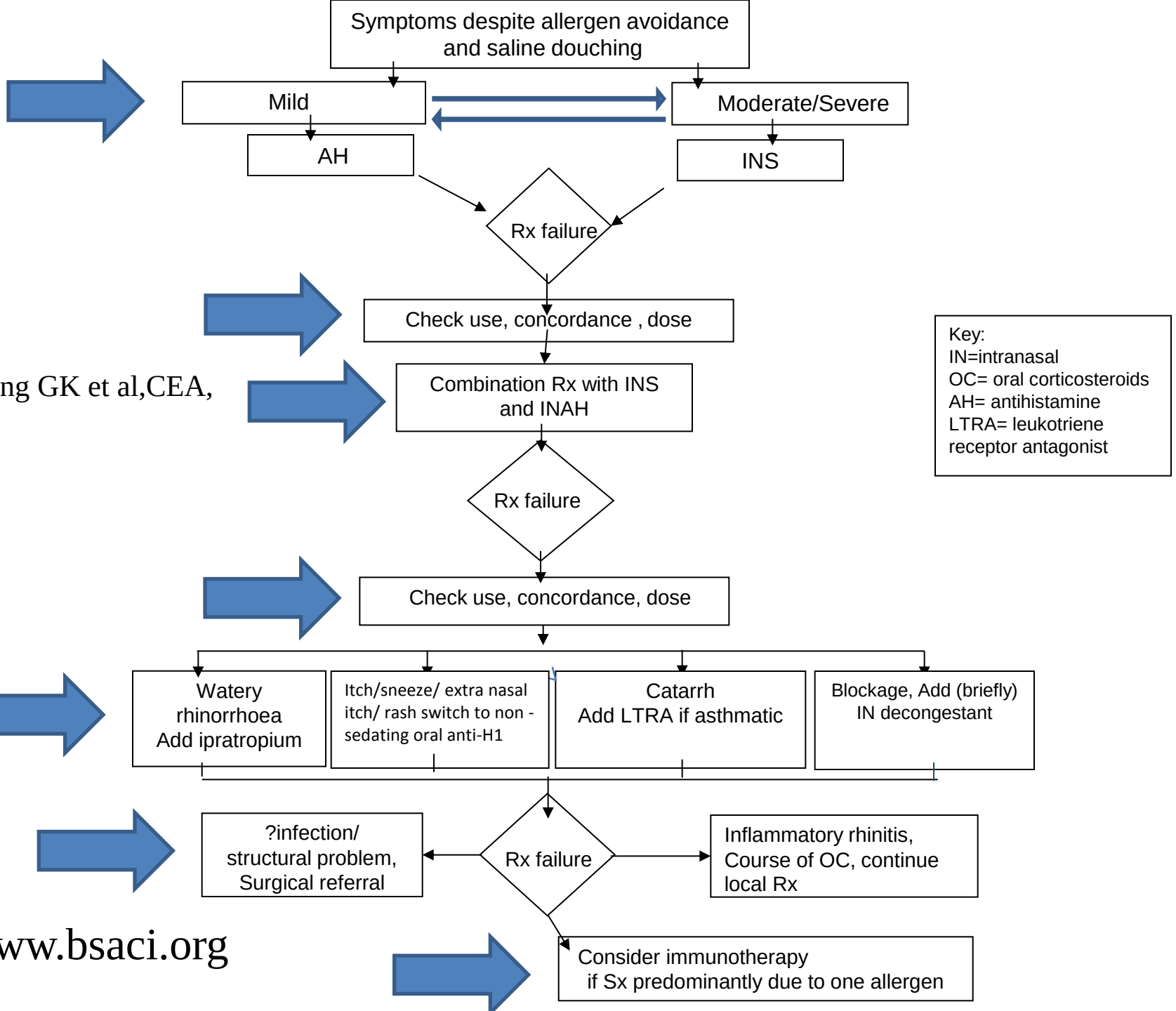
NO!

Allergy referral

- Uncontrolled symptoms (SCUAD)
- Investigation of allergens/ triggers
- Consideration of immunotherapy
- Occupational allergy
- Multisystem allergy
- Systemically unwell
- Recurrent nasal polyps

EDUCATION

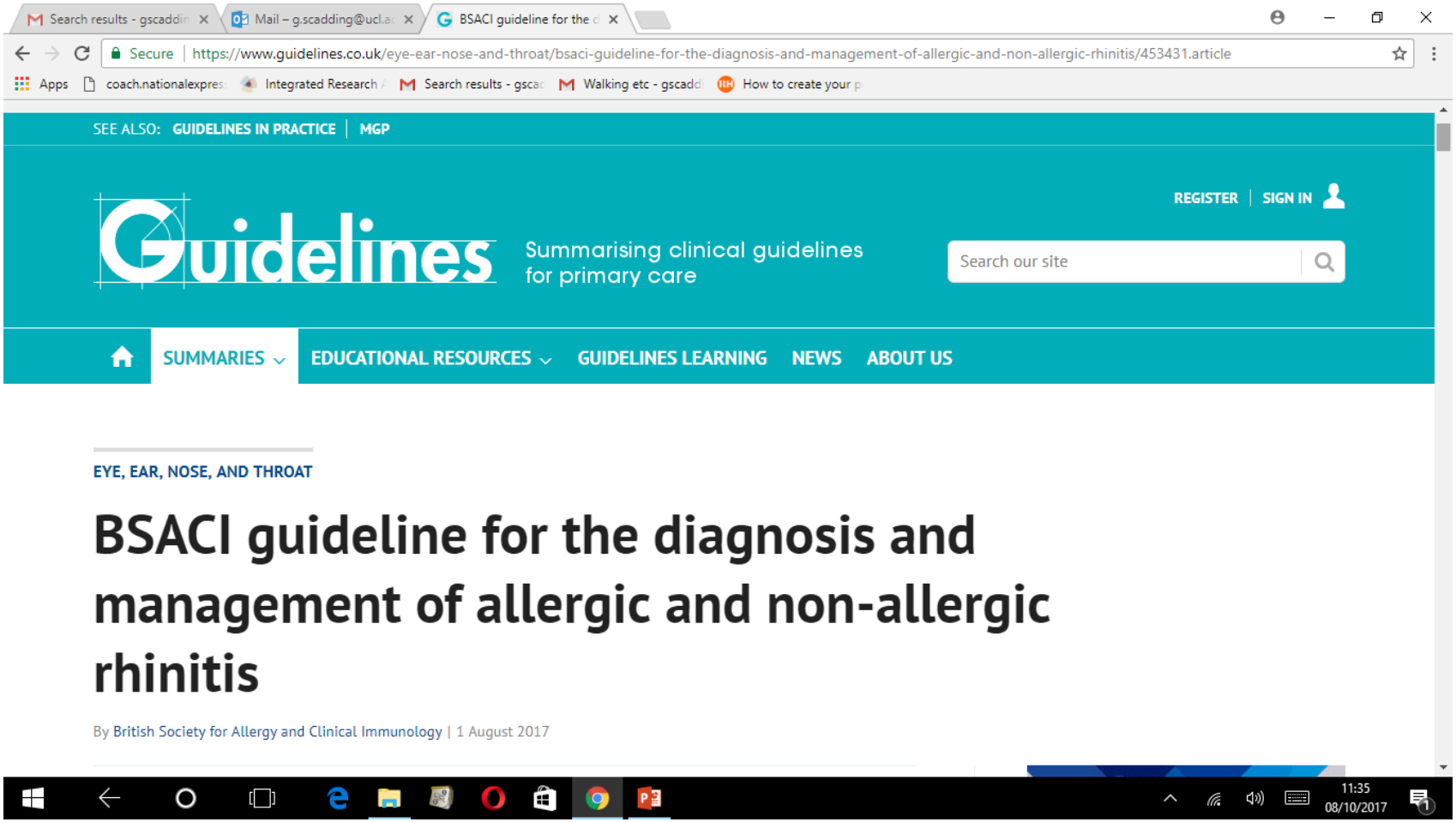
- Nature of disease
- need for long term treatment
- how to use it
- possible side effects
- contact number



Scadding GK et al,CEA, 2017

www.bsaci.org

Primary care version



TREATMENT OF RHINITIS

Avoid
- Sedating antihistamines
- Depot corticosteroids
- Chronic use of decongestants or systemically bioavailable intra-nasal steroids (INS) (e.g. dexamethasone, betamethasone)

RHINITIS

Nasal congestion, rhinorrhoea, itching, sneezing

Check for asthma and treat

Thick, green secretions

- Nasal crusting, bleeding
- nasal deformity

- New polyps (gelatinous, insensitive)
- Unilateral symptoms and signs

- History suggestive of allergy (itching, sneezing, conjunctivitis)
- Positive SPT or RAST

Systemically unwell (tired, sleep apnoea, rash, malaise, etc.

No obvious cause

INFECTIVE RHINITIS/SINUSITIS

ENT REFERRAL

ALLERGIC RHINITIS

OTHER

Orbital cellulitis

Nasal douching +/- INS*

+ antibiotics if severe pain/fever

If chronic/recurrent consider allergy or immune deficiency

allergen and irritant avoidance, where appropriate, consider douching

Mild intermittent

Moderate severe/persistent; affects QoL

Non-sedating anti-histamines

Regular INS* non systemically biovailable

*Poor response**

Combine above, i.e. non-sedating anti-histamines AND regular non-bioavailable INS*

*Poor response**

Consider
- non-allergic
- autonomic (vaso-motor)
- hormonal
- drug induced (decongestant overuse, aspirin/ NSAID sensitivity, nasal polyps, anti-hypertensive)

Treat the underlying cause; course of INS* (non-bioavailable) could be tried

*No improvement**

URGENT ENT REFERRAL

REFER TO ALLERGY CLINIC

*Check nasal inhalation technique and compliance

Treat the Whole Airway