

Allergic Rhinitis- the need for better symptom control

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- Chair of BSACI rhinitis guidelines

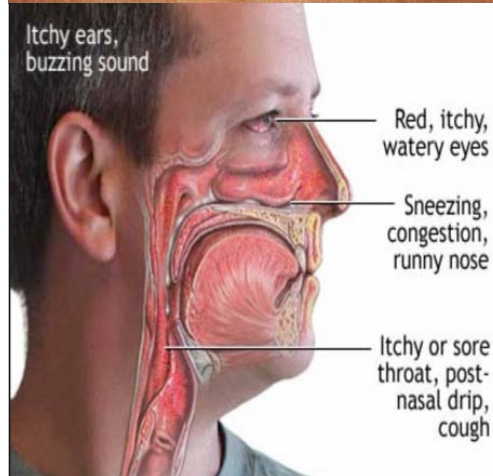
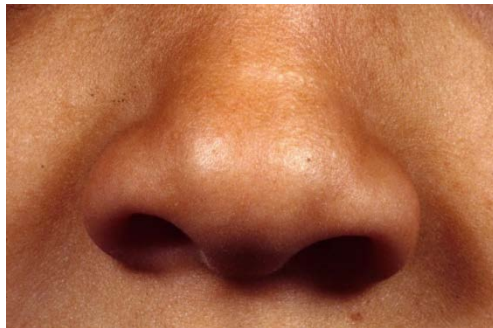
WHY TREAT RHINITIS?



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



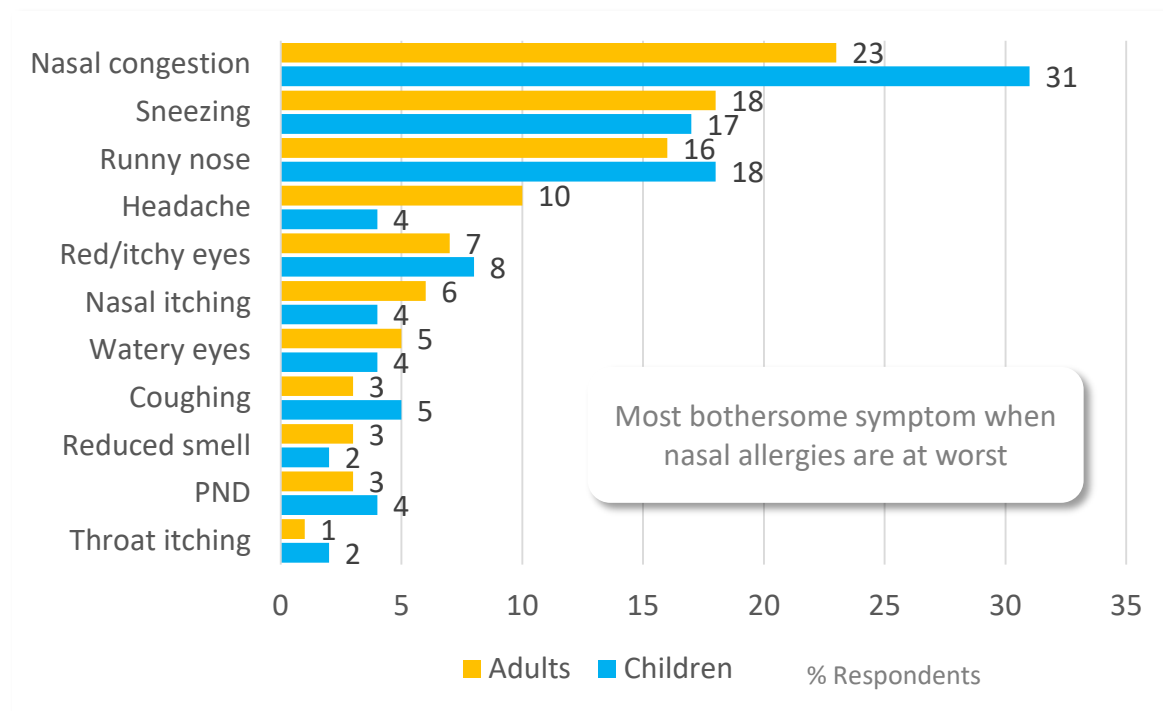
Rhinitis symptoms



- Rhinitis means nasal inflammation, but is clinically defined as two or more of:
 - running nose
 - blocked nose
 - sneezing/itching
 - >1 hour per day rhinoconjunctivitis (in 50–70%)
 - allergic when IgE-mediated



High symptom burden



- Nasal congestion the most bothersome
- Followed by sneezing and runny nose

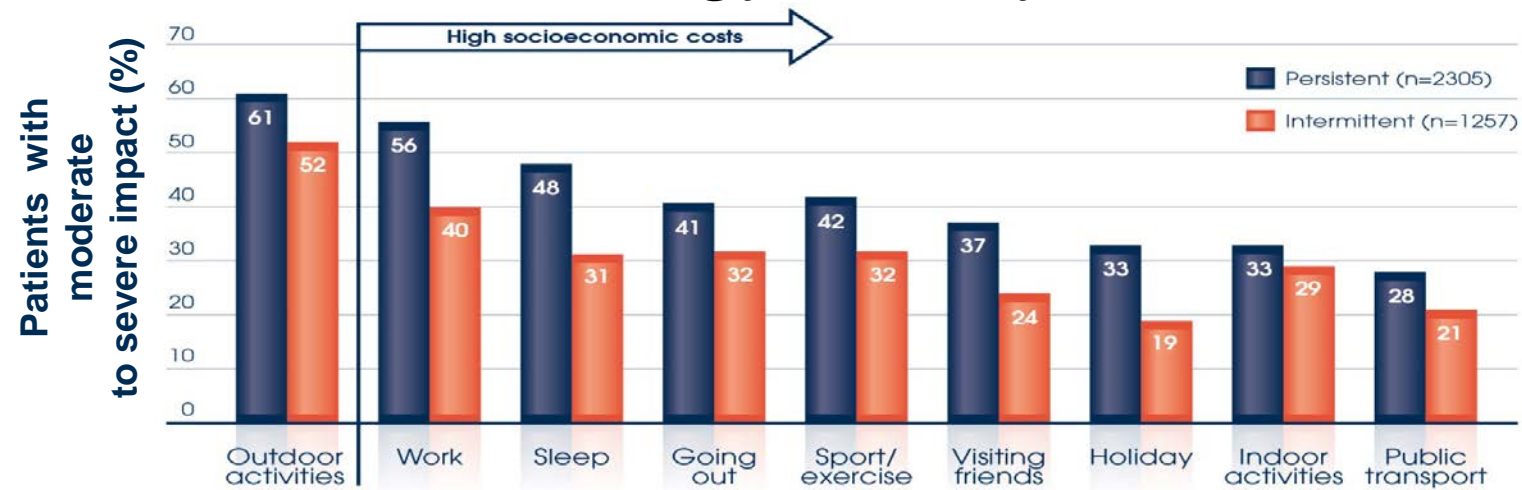
8. Allergic rhinitis has a negative impact on sleep

- 73.5% of adults and 65.8% of children with AR report that their sleep disorders had prompted them to consult their physician.
- The most commonly observed sleep complaints
 - **poor-quality sleep** (50.3% of adults and 37.3% of children),
 - **snoring** (48.1 and 41.4%, respectively) and
 - **nocturnal awakening** (37.6 and 28.2%, respectively).



1. Allergic rhinitis negatively impacts all areas of daily life

- Patient voice allergy survey





3. Uncontrolled AR negatively impacts patients' QoL

Table 5 WPAI questionnaires results in AR, depression, hypertension, and DM

WPAI Score (%)	AR (n = 223)	Depression (n = 58)	Hypertension (n = 165)	DM (n = 149)
Absenteeism	4.6 (1.1)*	31.7 (2.6)¶	2.1 (1.5)	4.2 (1.7)
Lost of productivity	23.5 (1.6)*#§	49.4 (4.1)¶	7.3 (2.1)**	15.4 (2.4)
Global loss of productivity	26.8 (1.3)*#§	59.5 (4.3)¶	8.8 (1.6)**	16.7 (2.8)
Restriction on daily activities	27.8 (1.3)*#	59.4 (2.6)¶	19.8 (2.5)**	25.7 (1.6)

Note: Only patients with all items correctly filled out were included.

Analysis of covariance. Adjusted by age, sex, comorbidities, and number of prescribed drugs. Mean and standard error (SE).

* $p < 0.05$, AR vs depression.

$p < 0.05$, AR vs hypertension.

§ $p < 0.05$, AR vs diabetes.

¶ $p < 0.05$, depression vs hypertension.

|| $p < 0.05$, depression vs diabetes.

** $p < 0.05$, hypertension vs diabetes.

AR = allergic rhinitis; DM = diabetes mellitus; WPAI = Work Productivity and Activity Impairment.

- Negative impact on daily activities greater for **AR** patients than those with diabetes mellitus or hypertension.

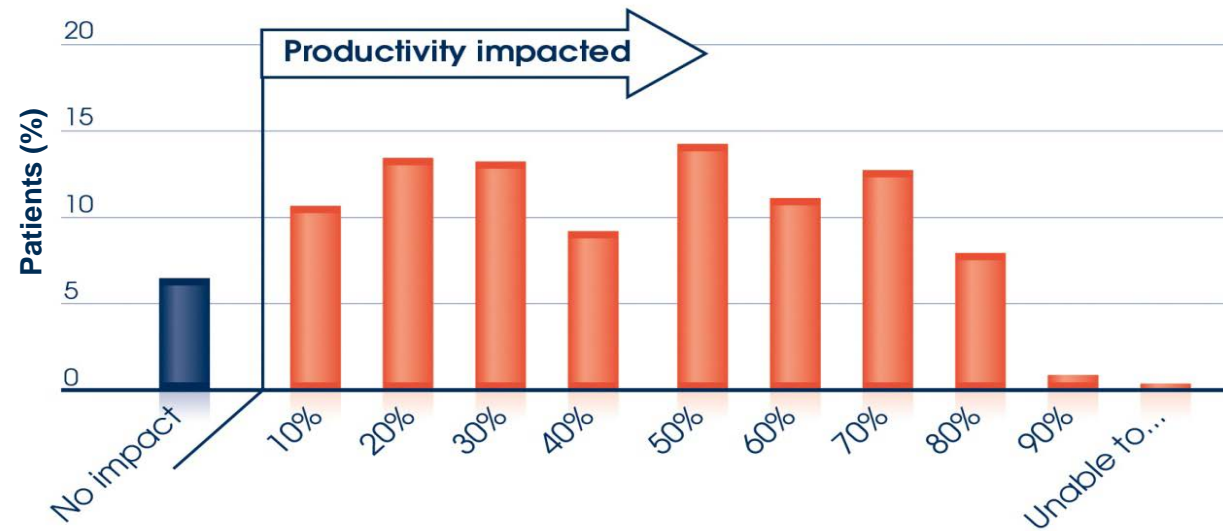
Presenteeism and absenteeism



- 44% of respondents reported absenteeism, presenteeism or both
- Productivity impaired by an average of 23% when symptoms are at their worst

4. Uncontrolled AR reduces work productivity...

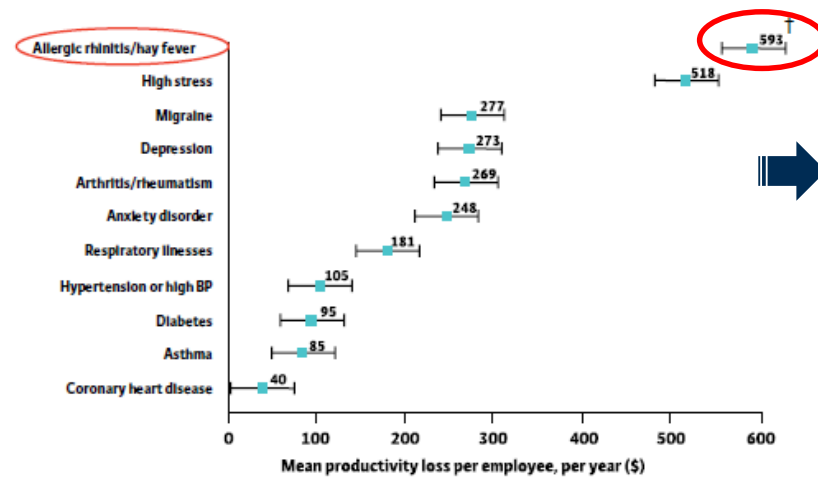
- Survey of 1000 SAR patients in UK
- Over 90% of patients experience a negative impact on work when symptomatic



Price et al, Clin Transl Allergy 2015
AR: allergic rhinitis

7. Allergic rhinitis carries a high socioeconomic burden

Comparison of the burden of allergic rhinitis to other diseases



Allergic rhinitis

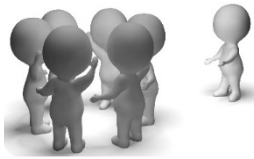
- Unproductivity for **2.3 h per work day** when symptomatic at a cost of **\$593/person/ year**
 - Greater than that for heart disease, asthma, diabetes, hypertension and respiratory illnesses combined!

4. ...and negatively impacts school performance



- Children with **SAR** more likely than non-allergic individuals to unexpectedly drop a grade during summer examinations if they are:
 - Symptomatic (**OR: 1.4**)
 - Taking AR medication (**OR: 1.4**)
 - Taking sedating **anti-histamine** (**OR: 1.7**)

5. Uncontrolled AR carries a high social burden



Social exclusion/embarrassment

- Socially embarrassing to be seen sneezing, sniffing, or nose-blowing¹



Psychological disturbance

- A risk factor for depressive mood in pre-adolescents.²



Practical issues

untreated AR can impair driving ability³

1. Juniper et al, JACI 2005;115:S390-413; 2. Audino et al, PAI 2014;25:360-5; 3. Vuurman et al, Allergy 2014;69:906-12;

Increase of air pollution significantly associated with AR visits

- Single pollutant model
 - Increased rate of AR occurrence and ambient concentration of
 - PM₁₀
 - SO₂
 - NO₂
 - CO
 - O₃



Table 3. Odds ratio (OR) and 95% confidence interval (CI) for daily clinic allergic rhinitis visits for each interquartile range increase^a in single-pollutant model in Taipei, Taiwan, 2006–2011

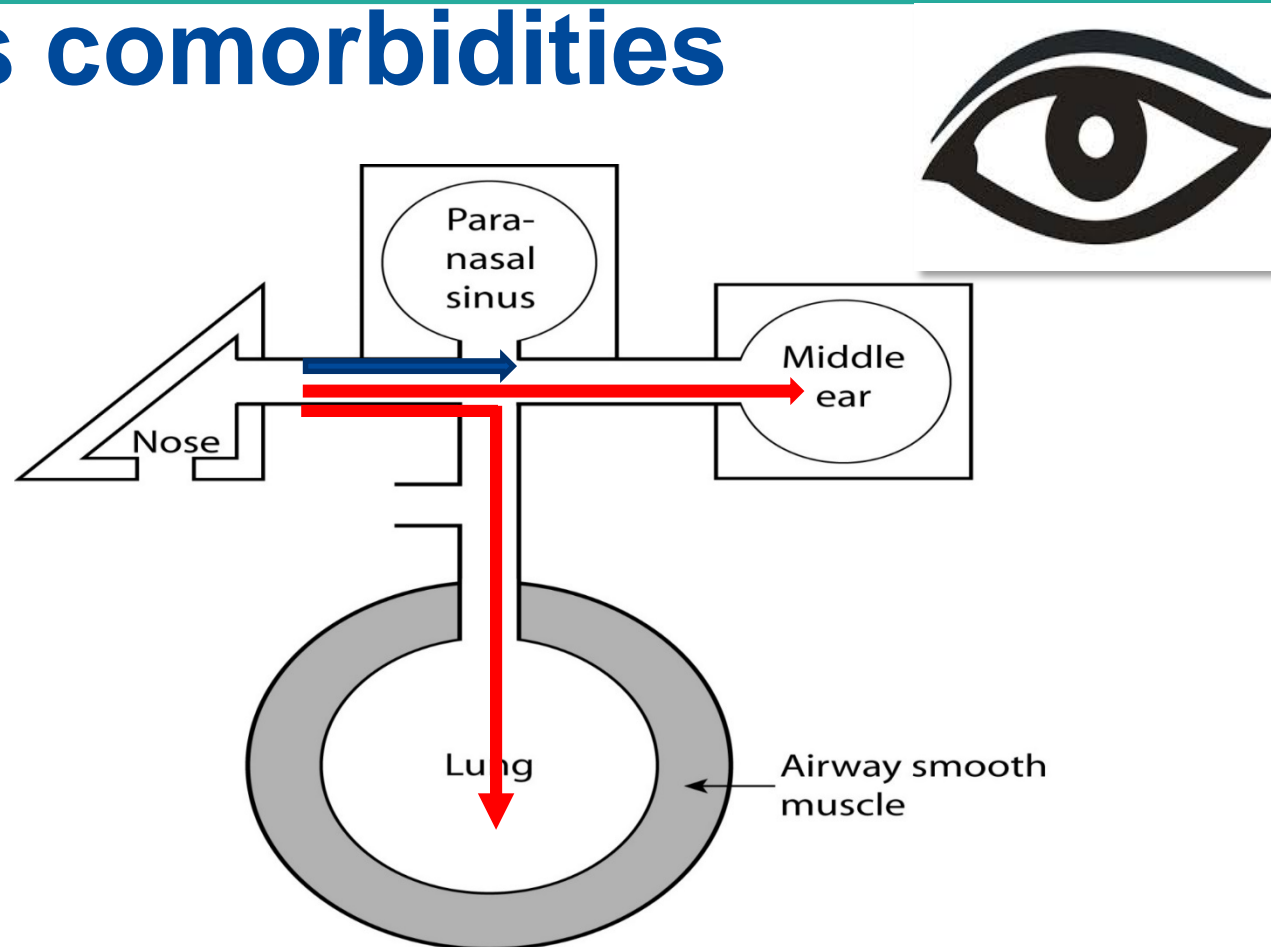
Temperature	Pollutant	OR (95% CI) ^b
≥23°C (n = 1,222 d)	PM ₁₀	1.09 (1.07–1.10)*
	SO ₂	1.05 (1.04–1.07)*
	NO ₂	1.16 (1.14–1.17)*
	CO	1.20 (1.18–1.22)*
	O ₃	1.06 (1.05–1.08)*
<23°C (n = 969 d)	PM ₁₀	1.05 (1.04–1.06)*
	SO ₂	0.93 (0.91–0.94)*
	NO ₂	1.10 (1.09–1.12)*
	CO	1.03 (1.02–1.05)*
	O ₃	1.23 (1.20–1.26)*

^aCalculated for interquartile range increase of PM₁₀ (26.81 µg/m³), SO₂ (2.14 ppb), NO₂ (8.49 ppb), CO (0.29 ppm), and O₃ (12.5 ppb).

^bAdjusted for temperature and humidity.

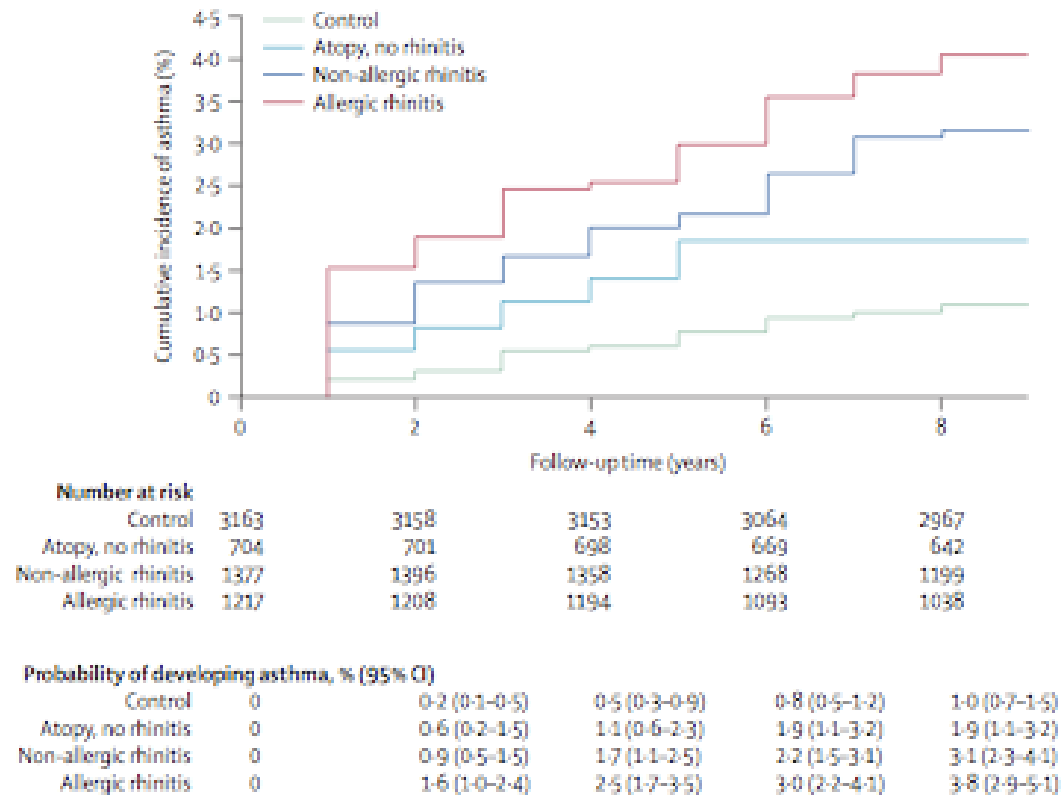
*p < .05.

Rhinitis comorbidities



Rhinitis –allergic and non- allergic precedes asthma

Cumulative incidence rate of asthma





And the impact of that co-morbidity?

Uncontrolled rhinitis negatively impacts asthma control to the same degree as smoking

Multiple logistic regression: predicting poor control (ACQ score >1.25)

Variable		OR	95% CI	P-value
Rhinitis	Compared with no rhinitis:			
	Significant rhinitis	4.62	3.71–5.77	<0.001
	Mild rhinitis	2.09	1.72–2.54	<0.001
Smoking	Compared with never smoking:			
	Current smoker	4.33	3.58–5.23	<0.001
	Ex smoker	1.59	1.36–1.87	<0.001
Adherence	Compared to high adherers:			
	Low adherers	1.35	1.18–1.55	0.001

Based on a survey of 4,429 patients prescribed ICS in 83 UK general practices

Gaining control of AR in asthma patients with an AR co-morbidity is essential

Implications of comorbid rhinitis: paediatric asthma – Brazil

- Children and adolescents with acute asthma on ICS therapy (n=126)
- - Allergic rhinitis prevalence: 74.6% (95%CI 65.9–81.7)
 - Allergic rhinitis combined with asthma severity represented the greatest risk factor for use of emergency care

Factors	Crude OR (95%CI)	Adjusted OR (95%CI)
Severe persistent asthma	2.17 (1.03-4.54)	2.09 (1.05-4.44)
Presence of allergic rhinitis	2.76 (1.09-7.02)	2.98 (1.10-8.06)

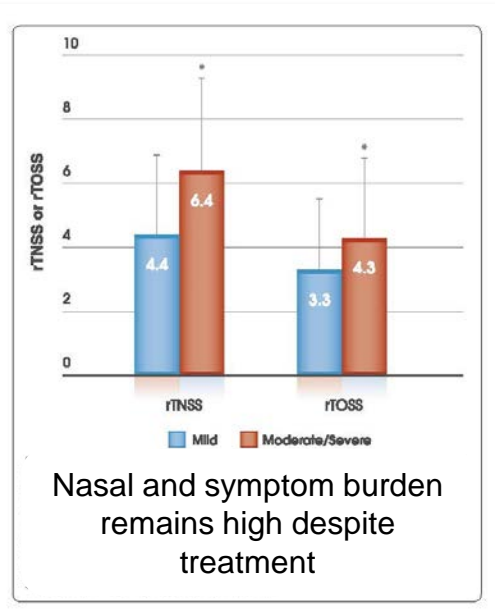
95%CI = 95% confidence interval; OR = odds ratio.

Symptomatic coverage of AR treatments

Symptom					First line therapy		
	Nasal Anticholinergic	Decongestant	Mast cell stabilizer	Leukotriene Antagonist	Oral antihistamine	Intranasal antihistamine	Intranasal corticosteroid
Nasal congestion	-	+	+/-	+/-	+/-	+	++
Nasal pruritis	-	-	+	+/-	+	++	+
Rhinorrhoea	+	-	+	+	+	+	++
Sneezing	-	-	+	+	+	++	++
Ocular itching	-	-	-	+/-	+	++	+
Ocular watering	-	-	-	+/-	+	++	+
Ocular redness	-	-	-	+/-	+	++	+

No single medication class provides optimal relief from all symptoms

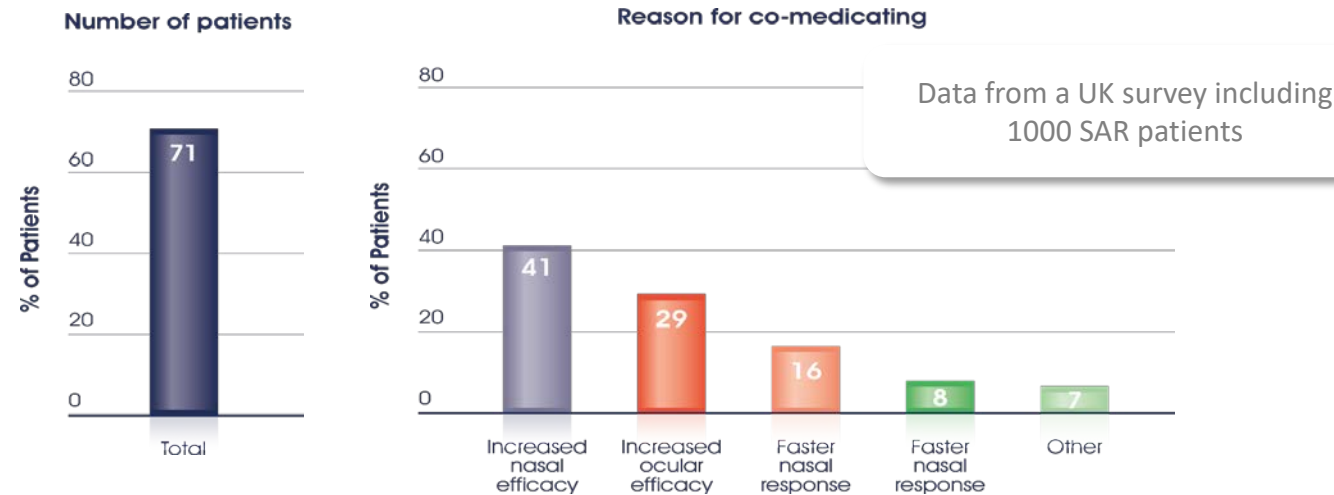
1. Symptom burden is high for allergic rhinitis; even when treated



- 1000 patients with SAR from the UK
- Moderate severe disease
 - 96.2% treated
 - 70.5% on multiple therapy
- Most patients remained symptomatic
 - Significant nasal and ocular symptoms remaining

2. Most patients use multiple therapies in an effort to control their symptoms...

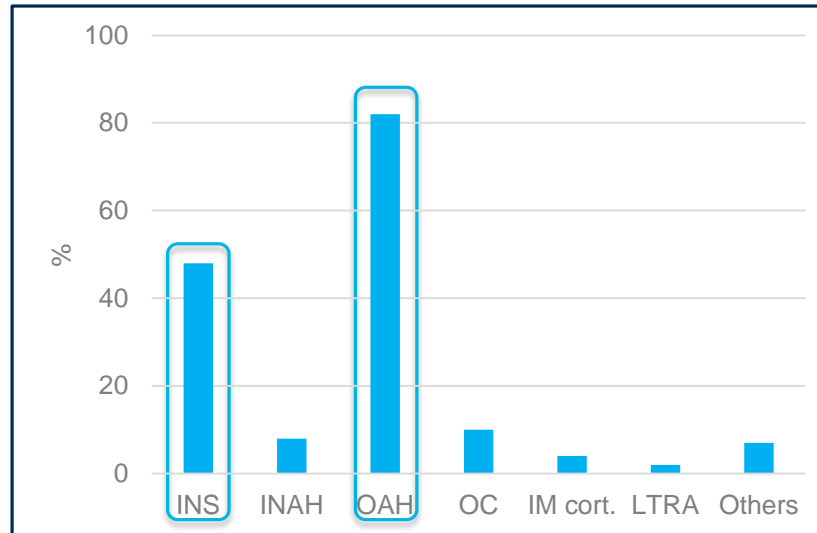
% moderate/severe patients on ≥ 2 AR medications



The need for faster and more effective treatment was the primary reason for co-medication

...but and are dissatisfied with therapy

- N=21 Allergy centres in Italy
(n=301 patients with AR and/or asthma)



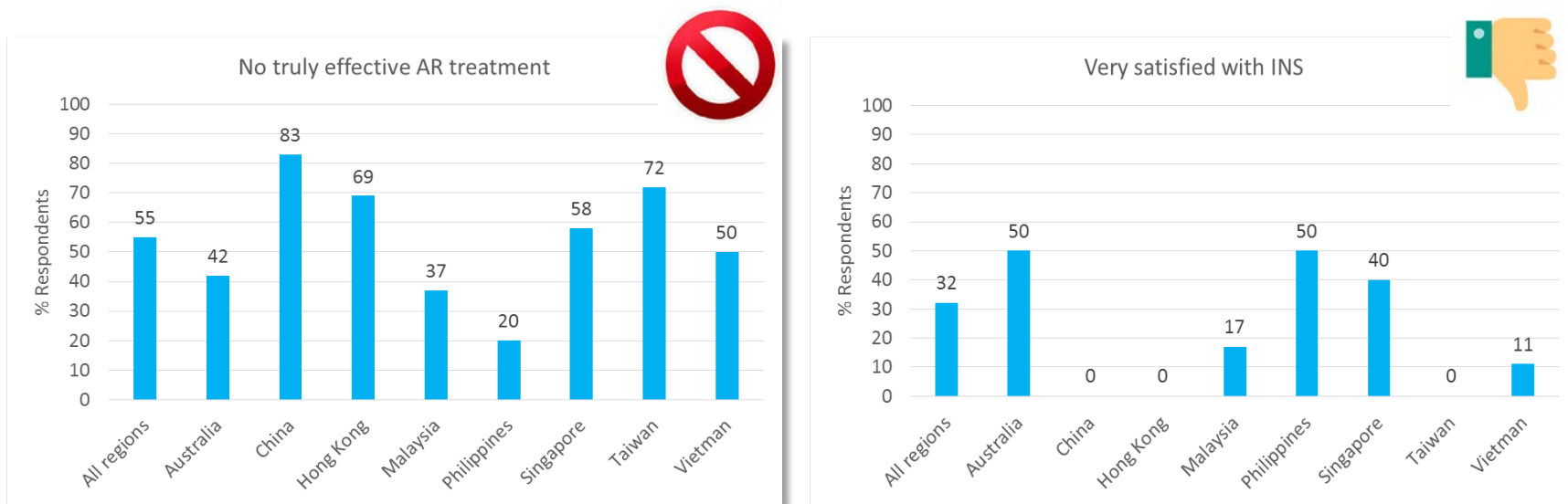
Factors associated with AR therapy dissatisfaction

- **Rhinitis severity** (OR: 1.39; $p < 0.05$)
- **Co-morbidity** (OR: 2.39; $p < 0.05$)
- **Anti-histamine use** (OR 2.53; $p < 0.05$)

Ciprandi et al, Curr Med Res Opin, 2011

AR: allergic rhinitis; M/S: moderate/severe; OR: odds ratio; INS: intranasal corticosteroid; INAH: intranasal anti-histamine; OC: oral corticosteroid; IM cort.: intramuscular corticosteroid; LTRA: leukotriene receptor antagonist

Perception and satisfaction with AR treatments



- Overall 55% belief there is no truly effective AR treatment (some regional variation)
- Satisfaction with INS is low – 0% to 50% are v. satisfied

What do Allergic Rhinitis patients want?

Introduction to the world of Discrete Choice Experiments

- Discrete choice experiments are based on the premise that any good or service can be described by its characteristics (or ***attributes***)
- Secondly, the extent to which an individual values a good or service can be described in terms of the ***levels*** of these characteristics
- The technique involves presenting individuals with choices of scenarios described in terms of attributes and associated levels
- Participants are asked to choose their preferred scenario

What do Allergic Rhinitis patients want?

We asked them using a Discrete Choice Experiment (DCE)

- Patients were presented with 7 product characteristics:
 1. Maximum symptom relief (mild, moderate, complete)
 2. Time to maximum relief (3, 7, 14 days)
 3. Time to first dose benefit (0.5, 3, 8 hours)
 4. Risk of side effects (2%, 5%, 10%)
 5. Administration method (tablet, nasal spray, both)
 6. Frequency of medication (once, twice, three times/day)
 7. Monthly out-of-pocket cost (£15, £30, £45). Patients were asked to imagine that they paid the full cost of this prescription medication
- Patients were presented with 19 pairs of 'potential Allergic Rhinitis products' (based on the above characteristics) and asked to choose between them


An Example Choice Set

Patients were presented with 19 of these and asked to pick 'A' or 'B'

	LEVELS	
Attribute	Treatment A	Treatment B
Maximum treatment symptom relief	Complete relief	Mild improvement
Time to achieve maximum treatment symptom relief	7 days	14 days
Time to feel a benefit after first dose	3 hours	8 hours
Side effects	10 in 100	2 in 100
Administration method	Tablet	Nasal spray
Frequency of medication	Twice a day	Three times a day
Cost per month	£15	£30
<u>Which treatment do you prefer?</u>	A. <input type="checkbox"/>	B. <input type="checkbox"/>

What AR patients want

DCE results: moderate to severe SAR patients



I want a treatment for my allergic rhinitis which works quickly and provides complete symptom relief

Results from a survey conducted in the UK including 746 SAR patients

Attribute	Odds Ratio	P Value	WTP
Treatment relief: <i>complete vs. mild</i>	6.63	<0.01	£43.81
Treatment relief: <i>moderate vs. mild</i>	2.31	<0.01	£19.37
Time to maximum relief: <i>per day</i>	0.97	<0.01	-£0.62
Time to first dose benefit: <i>per hour</i>	0.96	<0.01	-£0.98
Side effects: <i>per 1%</i>	0.98	<0.01	-£0.40
Administration: <i>tablets vs. nasal spray</i>	1.08	0.04	£1.80
Administration: <i>tablets & nasal spray vs. nasal spray</i>	1.07	<0.01	£1.64
Frequency of medication: <i>times /day</i>	0.87	<0.01	-£3.18
Cost: <i>£1 / month increase</i>	0.96	<0.01	

Willing to pay £43.81 for complete relief vs mild relief

£0.62 less for day to max symptom relief

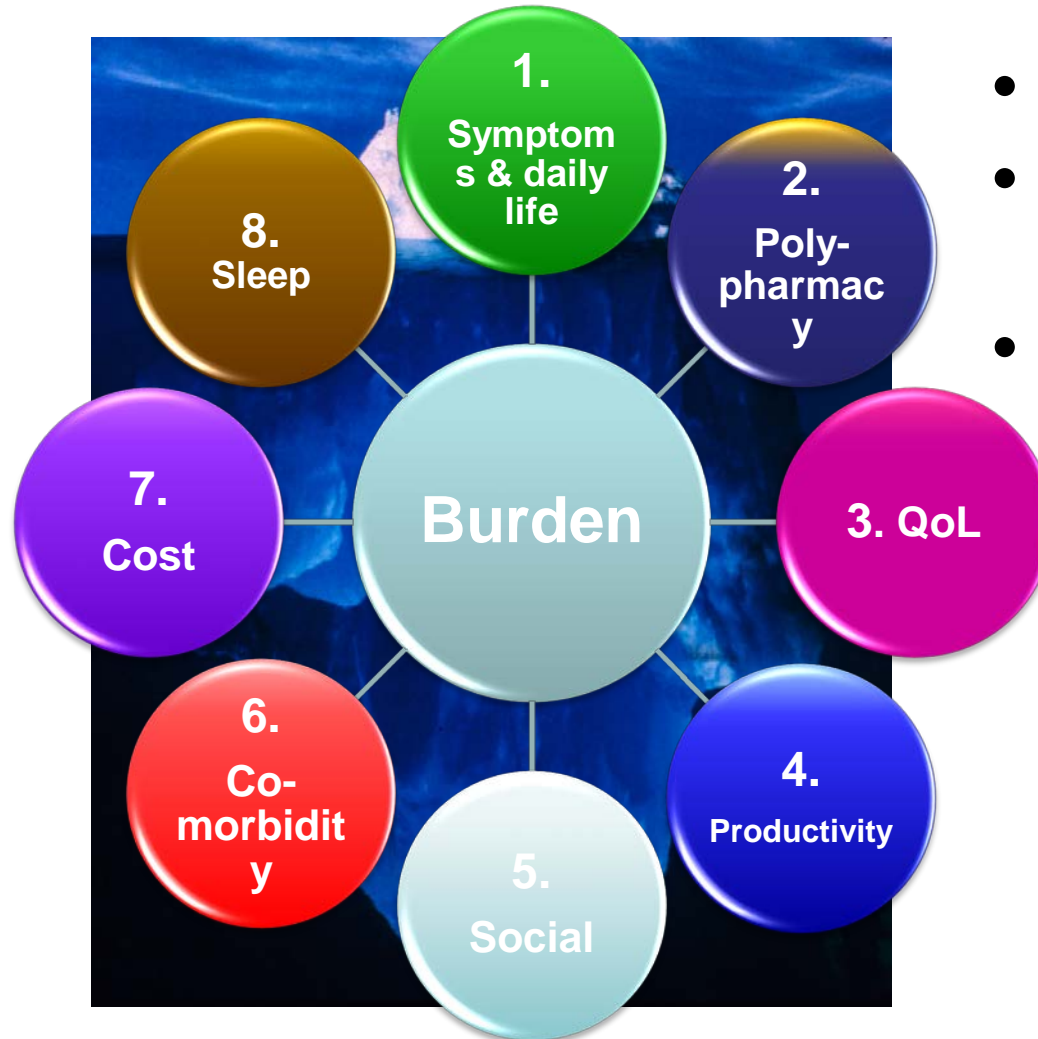
£0.98 less for each hour slower to onset

Key Message



- Rhinitis is common
- affects the nose & its connections
- reduces work/school ability and QOL
- worsens asthma
- deserves effective and safe treatment

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