Latest advances in the management of childhood allergic rhinitis

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Disclosures

• None
Objectives

- Discussion of Hong Kong study on prevalence and risk factors in children and adolescents
- Discuss the management of primarily allergic rhinitis
- Discuss the challenges regarding the management of allergic rhinitis
Introduction

- 8 year old presents with a history of nasal congestion on most days of the year. Worse in winter

- Sniffing and runny nose.

- An episode of wheeziness and difficulty breathing a few years ago
Diagnosis

Patient Presents with symptoms of Rhinitis

- History
- Physical Examination
Allergic Rhinitis
Allergic Rhinitis in Children

• Allergic diseases are common amongst children

• Significant impact of allergic rhinitis on the quality of life in Children
  – Sleep quality
  – Cognitive function
  – School performance

• Common cause of school absence
Allergic Rhinitis and Co-morbid Airway Disease

- Asthma
- Upper Respiratory tract infection
- Otitis Media with Effusion
- Nasal polyposis
- Sinusitis
Allergic rhinitis and Quality of life with SF-36 survey

Allergic Rhinitis and Quality of Life

Allergic Rhinitis and work productivity/school attendance

Study on Allergic Rhinitis in Children in Hong Kong
Allergic rhinitis data from Children in China

• Sparse data in China regarding allergic rhinitis in Children

• Last analysis a prevalence of rhinitis symptoms in the last 12 months was 35.1% noted in Hong Kong in 2001
  – Based on ISAAC Survey
  – Age group 6 – 8 year olds
Methods

• Study design
  – Stratified, clustered cross sectional survey of children aged between 8 – 17 years old in Hong Kong
  – January to July 2011
  – 13 schools selected
Methods

Hong Kong Special Administrative Region of the People's Republic of China
Administrative Map

New Territories:
1. Islands District
2. Kwai Tsing District
3. North District
4. Sai Kung District
5. Sha Tin District
6. Tai Po District
7. Tsuen Wan District
8. Tuen Mun District
9. Yuen Long District

Kowloon:
10. Kowloon City District
11. Kwun Tong District
12. Sham Shui Po District
13. Wong Tai Sin District
14. Yau Tsim Mong District

Hong Kong Island:
15. Central & Western District
16. Eastern District
17. Southern District
18. Wan Chai District

Faculty of Medicine
The Chinese University of Hong Kong
Methods

• Chinese version of The International Study of Asthma and Allergies in Childhood (ISAAC) survey was used

• Univariate analysis with Chi-Square for categorical data

• Binary logistic regression for multivariate analysis
Results

- Questionnaires distributed to 7223 children
  - 6421 questionnaires returned
  - 88.9% completion rate

- Further 28 (0.4%) children excluded as did not complete information regarding rhinitis symptoms in the last 12 months
Results - Prevalence

Rhinitis Symptoms in last 12 Months

- Yes: 57%
- No: 44%
Results - Prevalence

Doctor Diagnosis of Allergic Rhinitis

- Yes: 24%
- No: 76%
Results - Prevalence

Conjunctivitis symptoms in last 12 months

- Yes: 62%
- No: 38%
Results – Associated allergic diseases

Asthma diagnosis

- No: 91.47%
- Yes: 8.34%
- Missing: 0.19%

Eczema diagnosis

- No: 87.68%
- Yes: 12.04%
- Missing: 0.25%
Results – Associated allergic diseases

- Reactive airway disease
  - Yes: 22.57%
  - No: 77.43%
Results – Disease severity

AR symptoms duration > 4 days and weeks

- Yes: 32%
- No: 68%
Results – Quality of life

AR and daily life

- 52% Not affected
- 33% Mildly affected
- 12% Moderately affected
- 3% Severely affected
- 1% Missing

52% Not affected
33% Mildly affected
12% Moderately affected
3% Severely affected
1% Missing
Results – Quality of Sleep

- Not affected: 45%
- Mildly affected: 13%
- Moderately affected: 38%
- Severely affected: 1%
- Missing: 3%

AR and Sleep
Results - Discomfort

AR and discomfort

- Not affected: 30%
- Mildly affected: 17%
- Moderately affected: 5%
- Severely affected: 48%
- Missing: 1%
Results – AR symptoms by month

AR Symptoms by month

Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec

0.00% | 10.00% | 20.00% | 30.00% | 40.00% | 50.00% | 60.00% | 70.00% | 80.00% | 90.00% | 100.00%
Results – AR and AQHI by month

AR and AQHI in HK

- Percent
- AQHI Mean
## Results – Rhinitis symptoms univariate

<table>
<thead>
<tr>
<th>Variable</th>
<th>Rhinitis Symptoms in the past 12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
</tr>
<tr>
<td>Gender (Male/Female)</td>
<td>0.94</td>
</tr>
<tr>
<td>Race (Chinese/Non Chinese)</td>
<td>0.67</td>
</tr>
<tr>
<td>Breastfeeding</td>
<td>1.03</td>
</tr>
<tr>
<td>Smoker at home</td>
<td>1.06</td>
</tr>
<tr>
<td>Ceiling or wall mould</td>
<td>1.44</td>
</tr>
<tr>
<td>Asthma Diagnosis</td>
<td>2.64</td>
</tr>
<tr>
<td>Bronchitis Diagnosis</td>
<td>3.44</td>
</tr>
<tr>
<td>Eczema Diagnosis</td>
<td>1.91</td>
</tr>
<tr>
<td>Food Allergy Diagnosis</td>
<td>1.97</td>
</tr>
<tr>
<td>Familial allergy</td>
<td>2.33</td>
</tr>
<tr>
<td>Any Pets</td>
<td>1.19</td>
</tr>
<tr>
<td>Obesity</td>
<td>0.92</td>
</tr>
<tr>
<td>Sibling ≥2</td>
<td>0.81</td>
</tr>
</tbody>
</table>
## Results – Rhinitis symptoms multivariate analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Rhinitis Symptoms in the past 12 months</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>OR</td>
</tr>
<tr>
<td>Gender (Male/Female)</td>
<td></td>
<td>0.92</td>
</tr>
<tr>
<td>Age group</td>
<td></td>
<td>1.07</td>
</tr>
<tr>
<td>Smoker at home</td>
<td></td>
<td>1.08</td>
</tr>
<tr>
<td>Ceiling or wall mould</td>
<td></td>
<td>1.35</td>
</tr>
<tr>
<td>Asthma Diagnosis</td>
<td></td>
<td>1.90</td>
</tr>
<tr>
<td>Bronchitis Diagnosis</td>
<td></td>
<td>2.97</td>
</tr>
<tr>
<td>Eczema Diagnosis</td>
<td></td>
<td>1.45</td>
</tr>
<tr>
<td>Food Allergy Diagnosis</td>
<td></td>
<td>1.72</td>
</tr>
<tr>
<td>Familial allergy</td>
<td></td>
<td>2.04</td>
</tr>
<tr>
<td>Any Pets</td>
<td></td>
<td>1.17</td>
</tr>
<tr>
<td>Siblings ≥2</td>
<td></td>
<td>0.80</td>
</tr>
</tbody>
</table>

### Interaction terms

<table>
<thead>
<tr>
<th>Interaction terms</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma*bronchitis diagnosis</td>
<td>0.45</td>
</tr>
<tr>
<td>Eczema*food allergy diagnosis</td>
<td>0.46</td>
</tr>
</tbody>
</table>
Discussion of results

• Previous prevalence in HK based on ISAAC survey in 2001 of 35.1% and now 57% based on question of rhinitis in the last 12 months

• Rhinitis is a common symptom

• Most patients with AR:
  – Have intermittent symptoms
  – Have mod-severe
Discussion of results

• The One – Airway concept is important:
  - 8.34% had a diagnosis of asthma
  - 18.8% had a diagnosis of reactive airway disease
  - 12.0% had a diagnosis of eczema
  - 9.3% had a diagnosis of food allergies

  - Significant association with these factors and allergic rhinitis on multivariate analysis
Discussion of results

• Family history of allergic disease are important

• Number of siblings is associated with reduced risk of allergic rhinitis

• No association with obesity found
Limitations

• Despite use of the ISAAC survey
  – Different age groups from previous study
  – Survey in Children is notoriously difficult
  – No objective allergy testing performed
  – Cross sectional survey
Conclusions

• Reason for increasing prevalence is unclear

• Further studies needed to see if this is attributed to change in outdoor environmental pollutants or indoor pollutants
Allergic Rhinitis Management
Allergic Rhinitis

Intermittent
Symptoms
<4 days per week
or <4 consecutive weeks

Persistent
Symptoms
>4 days per week
and >4 consecutive weeks

Mild
all of the following:
1) Normal sleep
2) No impairment of daily activities
3) No impairment of work/school
4) Symptoms present but not troublesome

Moderate – Severe
one or more of:
1) Disturbed sleep
2) Impairment of daily activities
3) Impairment of work/school
4) Troublesome Symptoms

ARIA Guidelines: Recommendations for Management of Allergic Rhinitis

ARIA = Allergic Rhinitis and its Impact on Asthma.

ARIA 2010 Guidelines: Recommendations for Management of Allergic Rhinitis

Diagnosis of allergic rhinitis

Intermittent symptoms

Mild
Not in preferred order oral H1-blocker or intranasal H1-blocker and/or decongestant or LTRA*

Moderate-severe
Not in preferred order oral H1-blocker or intranasal H1-blocker and/or decongestant or intranasal CS or LTRA* (or Cromone)

In persistent rhinitis review the patient after 2-4 wks
If failure: step-up if improved; continue for 1 month

Persistent symptoms

Moderate-severe
In preferred order Intranasal CS H2-blocker or LTRA*

Review the patient after 2-4 wks

Improved
Step-down and continue treatment for >1 month

Add or increase intranasal CS dose
Rhinorhein add ipratropium

Failure
Review diagnosis, review compliance, query infections or other causes
Blockage add decongestant or oral CS (short term)
Failure referral to specialist

Check for asthma especially in patients with severe and/or persistent rhinitis

Allergen and irritant avoidance may be appropriate

If conjunctivitis
Add oral H1-blocker or introcular H1-blocker or introcular cromone (or saline)

Consider specific immunotherapy

Bousquet et al. ARIA. J Allergy Clin Immunol 2012
Clinical Efficacy of Various Treatments for Allergic Rhinitis: ARIA Guidelines

“Corticosteroids are the most effective pharmacological treatment for allergic rhinitis”
“Intranasal agents are recommended first-line therapy when nasal congestion is a major symptom of allergic rhinitis”

<table>
<thead>
<tr>
<th></th>
<th>Congestion</th>
<th>Rhinorrhoea</th>
<th>Itching/Sneezing</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intranasal steroids</td>
<td>+++</td>
<td>+++</td>
<td>+++/++++</td>
<td>12-48h</td>
</tr>
<tr>
<td>Oral antihistamines</td>
<td>+</td>
<td>++</td>
<td>++++/++</td>
<td>12-24h</td>
</tr>
<tr>
<td>Oral decongestants</td>
<td>+</td>
<td>-</td>
<td>-/-</td>
<td>3-6h</td>
</tr>
<tr>
<td>Intranasal cromones</td>
<td>+</td>
<td>+</td>
<td>+/-</td>
<td>2-6h</td>
</tr>
<tr>
<td>Anticholinergics</td>
<td>-</td>
<td>++</td>
<td>-/-</td>
<td>4-12h</td>
</tr>
<tr>
<td>Antileukotrienes</td>
<td>++</td>
<td>+</td>
<td>-/-</td>
<td>Not reported</td>
</tr>
</tbody>
</table>

### Table 6. Effects of Medication Class on Nasal Symptoms for Seasonal Allergic Rhinitis Based on Systematic Review of the Literature

<table>
<thead>
<tr>
<th>Medication Class</th>
<th>Sneezing</th>
<th>Itching</th>
<th>Congestion</th>
<th>Rhinorrhea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral antihistamines</td>
<td>?</td>
<td>+++a</td>
<td>+</td>
<td>++++</td>
</tr>
<tr>
<td>Intranasal antihistamines</td>
<td>++</td>
<td>++</td>
<td></td>
<td>+</td>
</tr>
<tr>
<td>Intranasal steroids</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
</tr>
<tr>
<td>Leukotriene receptor antagonists</td>
<td>?</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Cromolyn sodium</td>
<td>?</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
</tbody>
</table>

Symbols: ++++, substantial benefit (≥20% difference from placebo); ++, modest benefit (≥10% to 19% difference from placebo); +, Little benefit (≥5% to 10% difference from placebo); +/-, no benefit (<5% difference from placebo); ?, insufficient data.

*a On the basis of 3 studies; all other data from 5 studies or more.

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**Intranasal steroids most effective in SAR but oral antihistamines may be equally effective in PAR**

## Antihistamines

- **First Generation**
  - Chlorpheniramine
  - Diphenhydramine
  - Pheniramine
  - Promethazine

- **Second Generation**
  - Cetirizine
  - Desloratadine
  - Fexofenadine
  - Levocetirizine

- **Nasal**
  - Azelastine
  - Levocabastine
  - Olopatadine
  - Loratadine
  - Rupatadine

- No superiority of non-sedating antihistamines over each other.
Intranasal Steroids: Systemic Bioavailability

*1% intranasal bioavailability plus 43% systemic bioavailability from swallowed portion of intranasal administration.

# Clinical Considerations for intranasal steroids

<table>
<thead>
<tr>
<th>Indication</th>
<th>Mometasone Furoate</th>
<th>Fluticasone Furoate</th>
<th>Budesonide</th>
<th>Beclomethasone Diproponate</th>
<th>Fluticasone Propionate</th>
</tr>
</thead>
</table>
| **Treatment of Seasonal or Perennial Allergic Rhinitis**                   | 2-11 years old: 1 spray / nostril QID  
> 12 years old: 2 sprays / nostril QID | > 2 years old: QID         | > 6 years old: BID / TDS / QID | 4-11 years old:  
1 spray/nostril QID  
> 12 years old:  
2 sprays / nostril QID |
| **Treatment of Seasonal Allergic Rhinitis**                               | 2-11 years old: 1 spray / nostril QID  
> 12 years old: 2 sprays / nostril QID | > 6 years old: BID / TDS / QID | 4-11 years old:  
1 spray/nostril QID  
> 12 years old:  
2 sprays / nostril QID |
| **Adjunctive Treatment of Antibiotics for Acute Episodes of Sinusitis**    | > 12 years old: 2 sprays / nostril BID |                        |                  |                             |
| **Treatment of Nasal Polyposis**                                           | > 18 years old: 2 sprays / nostril QID | > 6 years old: BID   |                  |                             |
| **Treatment of Acute Rhinosinusitis**                                      | > 12 years old: 2 sprays / nostril BID |                        |                  |                             |
| **Proven Relief on Nasal & Ocular Symptoms**                              | ✓                        | ✓                   | ✓                | ✓                           | ✓                      |
| **Onset of Action**                                                       | ≤ 5 hours                | 8 hours             | ≤ 12 hours       | 3 to 7 hours                | 12 hours              |
# Clinical Considerations: Intranasal Steroids

<table>
<thead>
<tr>
<th></th>
<th>Mometasone Furoate</th>
<th>Fluticasone Furoate</th>
<th>Budesonide</th>
<th>Beclomethasone Dipropionate</th>
<th>Fluticasone Propionate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Systemic Bioavailability</strong></td>
<td>≤0.1%</td>
<td>0.5%</td>
<td>33%</td>
<td>44%</td>
<td>≤ 2%</td>
</tr>
<tr>
<td><strong>Epistaxis</strong></td>
<td>Comparable to Placebo</td>
<td>20% vs 8% with placebo</td>
<td>×</td>
<td>×</td>
<td></td>
</tr>
<tr>
<td><strong>Nasal ulceration</strong></td>
<td>×</td>
<td>1.4% vs 0.4% with placebo</td>
<td>×</td>
<td>×</td>
<td>Usually reported when there has been previous Nasal surgery</td>
</tr>
<tr>
<td><strong>Fungal infection</strong></td>
<td>×</td>
<td>✓</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td><strong>Suppression of HPA axis</strong></td>
<td>No effect</td>
<td>Cannot be ruled out esp. in pediatric patients</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Evidence of no growth retardation on children</strong></td>
<td>✓</td>
<td>No published Clinical Data</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Long term study to show no nasal atrophy</strong></td>
<td>✓</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Intranasal Steroids are Considered the most effective drugs for both symptoms and inflammation, but........
Physician Concerns
## Survey of compliance with recommendations in Mexico

### Table 3 Percentage of the surveyed physicians answering in line with the ARIA México 2014 recommendations/suggestions on the 2nd part of the treatment of allergic rhinitis: glucocorticosteroids (ARIA Guideline, Block 4)

| Clinical questions Block 4: Treatment of Allergic rhinitis without asthma: glucocorticosteroids | ARIA México 2014# | % of physicians with the 'correct' answer## |
|---|---|---|---|---|---|---|
| | **Allergists** | **ENTs** | **Pulm** | **Peds** | **GPs** |
| 19. Should intranasal glucocorticosteroids be used for treatment of AR? | R: Yes (adult) | 97 | 97 | 96 | 91 | 83*** |
| | S: Yes (child) | | | | | |
| 20. Should intranasal gluco-corticosteroids (GCS) versus oral H1-antiH be used in patients with AR? | S: inGCS | 73 | 61 | 88 | 76 | 53*** |
| 21. Should intranasal GCS versus intranasal H1-antiH be used in patients with AR? | R: inGCS | 92 | 88 | 92 | 90 | 66*** |
| 22. Should intranasal GCS versus oral leukotriene receptor antagonists be used for treatment of AR? | R: inGCS | 90 | 82 | 84 | 75*** | 70*** |
| 23. Should oral GCS be used for treatment of AR in patients not responding to other therapy? | S: yes, short | 87 | 87 | 73* | 72** | 72** |
| 24. Should intramuscular GCS be used for treatment of AR? | R: no | 88 | 60*** | 88 | 95 | 88 |

# ARIA México recommendation (R) or suggestion (S).
## % of physicians per specialty answering as suggested/recommended by ARIA México 2014 [6].
* = p < 0.05, ** = p < 0.01 and *** = p < 0.001 statistically significant difference with the opinion of the allergists.

Linnemann et al. World Allergy Organization Journal. 2015 8(18)
Suggests need to re-inforce, educate physicians regarding safety and efficacy of intranasal steroids in allergic rhinitis
Patient Compliance
Dissatisfaction with medication and reasons requesting a change in medication prescription

Concern of effectiveness over time

Effectiveness of INS over 24 hours

Effectiveness of all nasal sprays over time

Compliance based on Overall Nasal Spray Evaluation Questionnaire (ONSEQ)

Fig 3. Percentage of patients reporting that they would "definitely comply" with each treatment.

Taking into consideration patient preference as an important factor in treatment compliance

Consider trying different suitable intranasal steroids to suit the preferences
OTHER NOVEL DEVELOPMENTS
More Innovative ways of improving compliance with - telemonitoring

Fig. 3. Estimated frequency (normal approximation) of daily consumption of mometasone in 63 children with hay fever, by allocation to AllergyMonitor or to usual care.

Pizzuli et al. Clinical & Experimental Allergy. 2014. 44: 1246-54

Fig. 4. Disease knowledge at baseline and at the end of the study period among children using the informatics platform AllergyMonitor (n = 31) and controls (n = 32). McNemar’s test is used to compare difference of frequency in AllergyMonitor group between T0 and T2.
More Innovative ways of improving compliance with - SMS

Fig. 2. Primary outcomes in the two randomization groups: a self-reported adherence rate (OR = 3.85, 95% CI: 1.18–12.61, p = 0.02), b attendance rate (OR = 3.85, 95% CI: 1.18–12.61, p = 0.02), and c typical reasons for non-adherence (OR = 6.85, 95% CI: 1.63–28.91, p = 0.009).

Wang et al. Int Arch Allergy Immunol. 2014. 163:51-8
Using Mobile Apps – MASK Rhinitis

Table 2: Impairment in users of the full data set (N = 2710)

<table>
<thead>
<tr>
<th>Group</th>
<th>Rhinorrhea</th>
<th>Any other symptom</th>
<th>N</th>
<th>Troublesome symptoms</th>
<th>Impairment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Work or school</td>
</tr>
<tr>
<td>1</td>
<td>No</td>
<td>No</td>
<td>283</td>
<td>20 (7%)</td>
<td>5 (2%)</td>
</tr>
<tr>
<td>1†</td>
<td>No</td>
<td>Yes</td>
<td>39</td>
<td>23 (59%)</td>
<td>6 (15%)</td>
</tr>
<tr>
<td>2</td>
<td>No</td>
<td>Yes</td>
<td>614</td>
<td>467 (76%)</td>
<td>118 (19%)</td>
</tr>
<tr>
<td>3</td>
<td>Yes</td>
<td>None</td>
<td>87</td>
<td>23 (26%)</td>
<td>8 (9%)</td>
</tr>
<tr>
<td>4</td>
<td>Yes</td>
<td>1 or 2</td>
<td>366</td>
<td>258 (70%)*</td>
<td>68 (19%)*</td>
</tr>
<tr>
<td>5</td>
<td>Yes</td>
<td>3, 4 or 5</td>
<td>870</td>
<td>728 (84%)**</td>
<td>256 (29%)**</td>
</tr>
<tr>
<td>6</td>
<td>Yes</td>
<td>All (5)</td>
<td>451</td>
<td>396 (88%)</td>
<td>220 (49%)**</td>
</tr>
</tbody>
</table>

Chi-square test: P < 0.01 group 4 vs 3*; group 5 vs 4**; group 6 vs 5***.
†Subjects who answered "no rhinitis" Q1.

MASK – Rhinitis (MACVIA-ARIA Sentinel NetworK for Allergic Rhinitis) App

Immunotherapy

- Subcutaneous immunotherapy:
  - Weekly injection with increasing concentrations of allergen to maintenance dose then monthly injections
  - Maintenance for several years
  - Proven efficacy in controlling allergic rhinitis, asthma and conjunctivitis
  - Effect persists
Immunotherapy

- Sublingual immunotherapy:
  - No direct comparison with subcutaneous therapy
  - Indirect comparison subcutaneous more effective for symptom relief
  - Less reports of anaphylaxis
  - Less adherence to therapy for recommended duration than with subcutaneous therapy
Combination of Intranasal Fluticasone propionate and Intranasal Azelastine

Comparison of Intranasal Fluticasone Furoate and Intranasal Levocabastine

Fig. 2. Adjusted mean total nasal symptom score (95% CI) over time by treatment on day 8. FF: fluticasone furoate; Levo: levocabastine; FDC: fixed-dose combination.

Murdoch et al. Clinical & Experimental Allergy. 2015. 1346-55
Future Directions
Antihistamines against H3 - receptor

- Leads to an increase in norepinephrine
- Might have an advantageous decongestant effect
- Clinical trials ongoing but limited data
- Possibility of increased side effects – insomnia, headache
Immunotherapy

• Omalizumab
  – Combination with SCIT had improved safety profile and better efficacy in symptom control
  – Meta-analysis showed symptoms improvement in poorly controlled AR

• Recombinant allergens and synthetic peptide immunoregulatory epitopes (SPIREs)
  – Cat allergy symptoms significantly improved
  – Evaluating in house dust mite
Other areas of development

• Defining the appropriate use, timing of and duration of immunotherapy

• For example the Preventive Allergy Treatment Study
  – Showed preventive effect of immunotherapy for new allergies or asthma in children with allergic rhinitis but not asthma
Thank you!