

Come la ricerca negli ultimi 5 anni ha modificato la mia pratica clinica in pneumologia

Diego Peroni

Clinica Pediatrica di Verona



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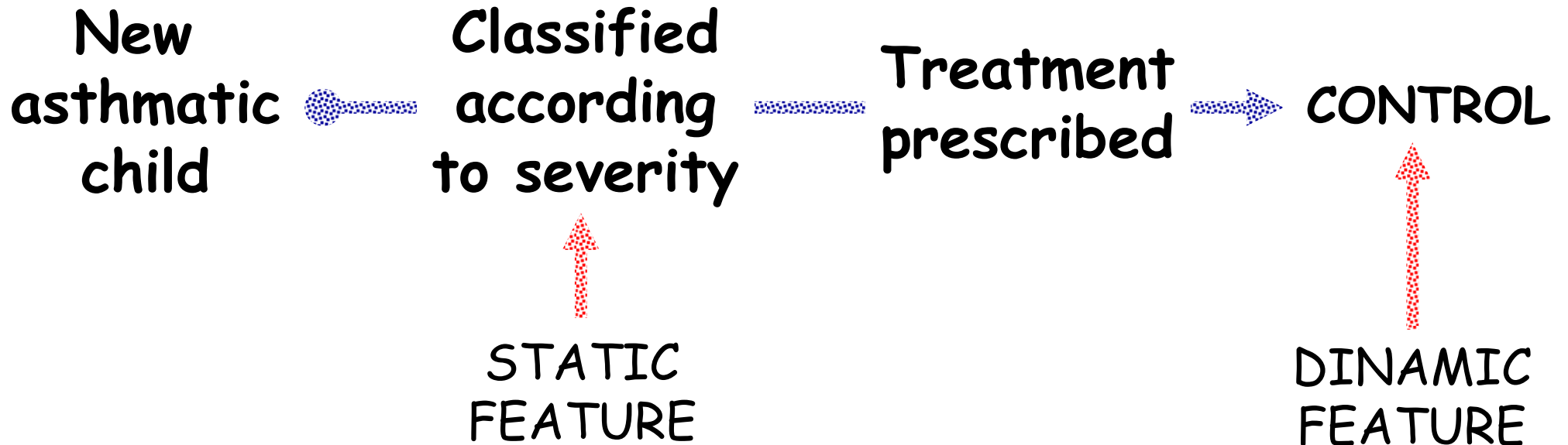
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- ✓ **Control vs Severity**
- ✓ L.F. variation as a measure of control
- ✓ LTRA alternative to ICS for mild asthma
- ✓ At which dose of ICS a second controller?
- ✓ Children \leq 5 yrs of age
- ✓ Conclusions

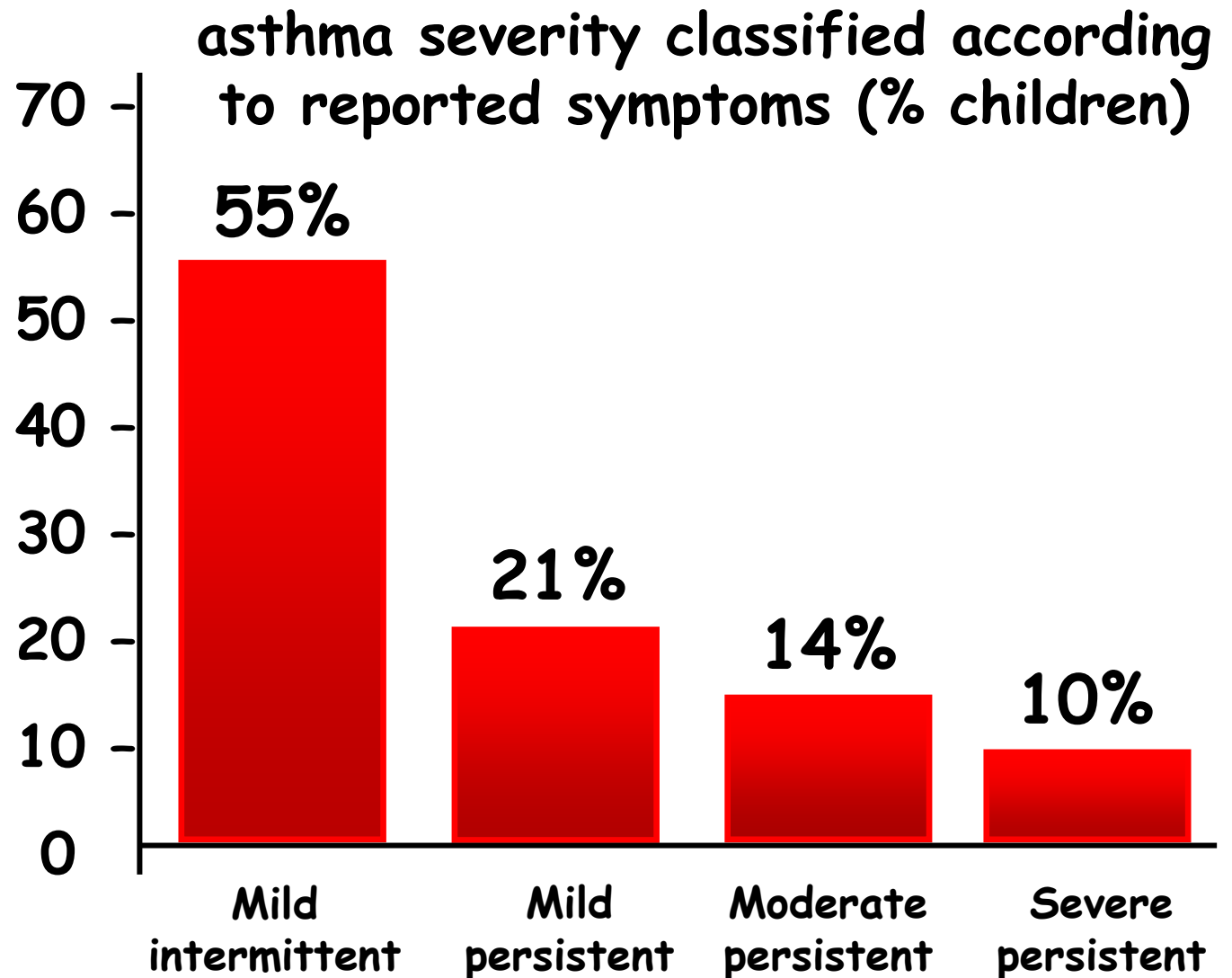


DIFFERENTIATION BETWEEN SEVERITY AND CONTROL



NATIONAL ASTHMA EDUCATION AND PREVENTION PROGRAM SEVERITY CLASSIFICATION AS A MEASURE OF DISEASE BURDEN IN CHILDREN WITH ACUTE ASTHMA *Kwok Pediatrics 2006; 117:571*

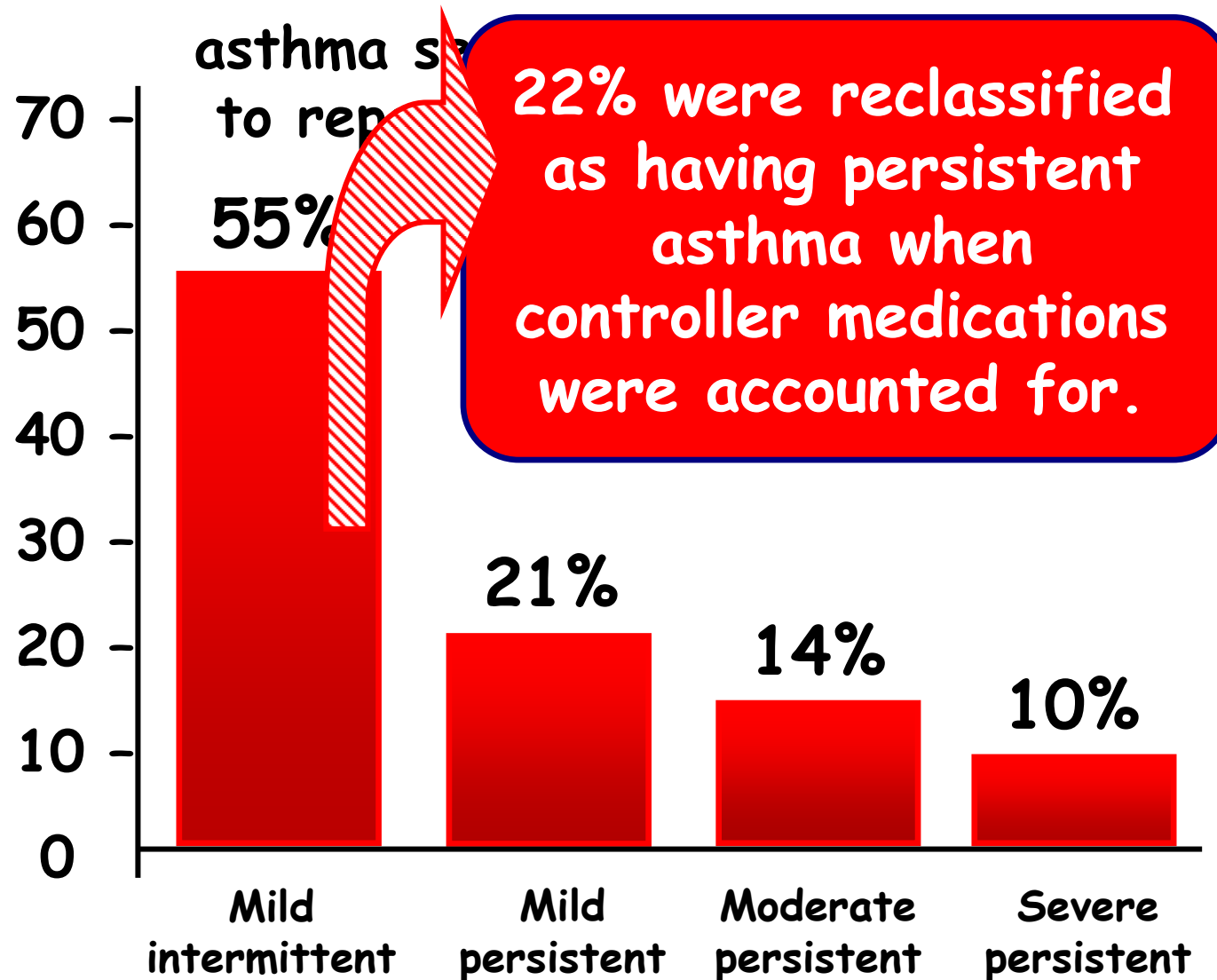
- ✓ Cross-sectional study;
- ✓ 750 children < 18 years of age with asthma;
- ✓ ED visit for acute asthma exacerbation.



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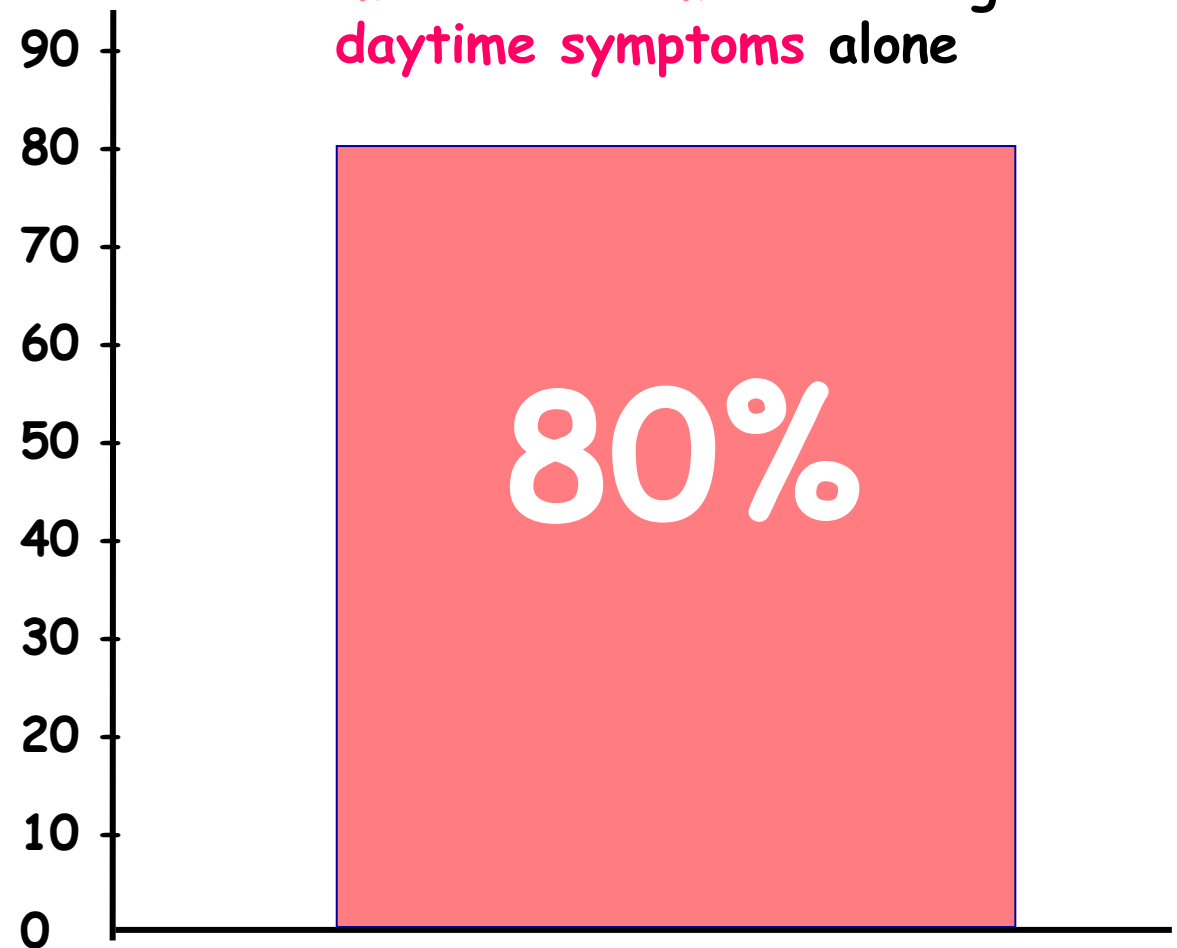


THE INFLUENCE OF VARIATION IN TYPE AND PATTERN OF SYMPTOMS ON ASSESSMENT IN PEDIATRIC ASTHMA

Fuhlbrigge Pediatrics 2006;118:619

- ✓ A telephone-based survey was conducted in children (4-18 years) with current asthma ;
- ✓ 801 interviews were completed by parents of children aged 4 to 15 years and by children themselves aged 16 to 18 years.

% children classified as having **mild intermittent asthma** according to **daytime symptoms alone**

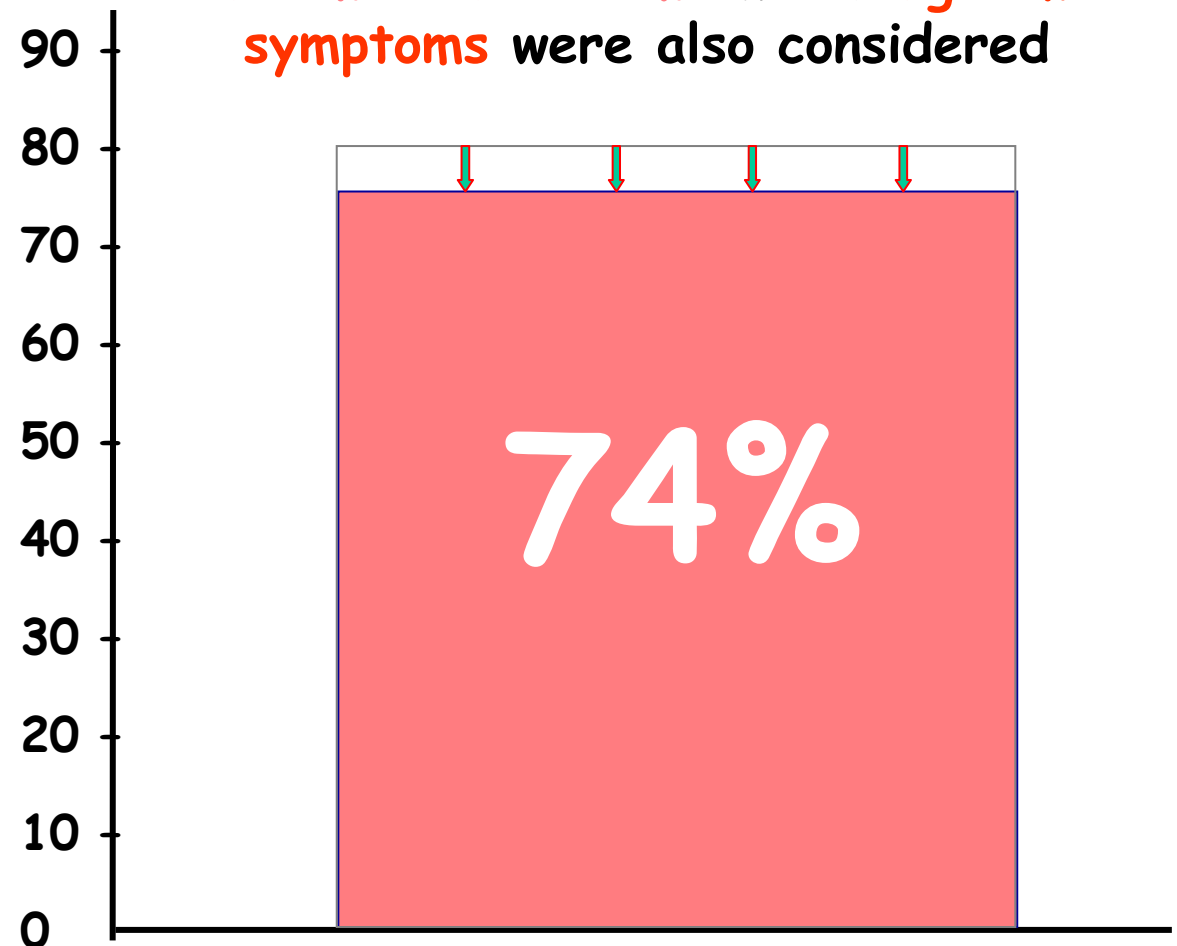


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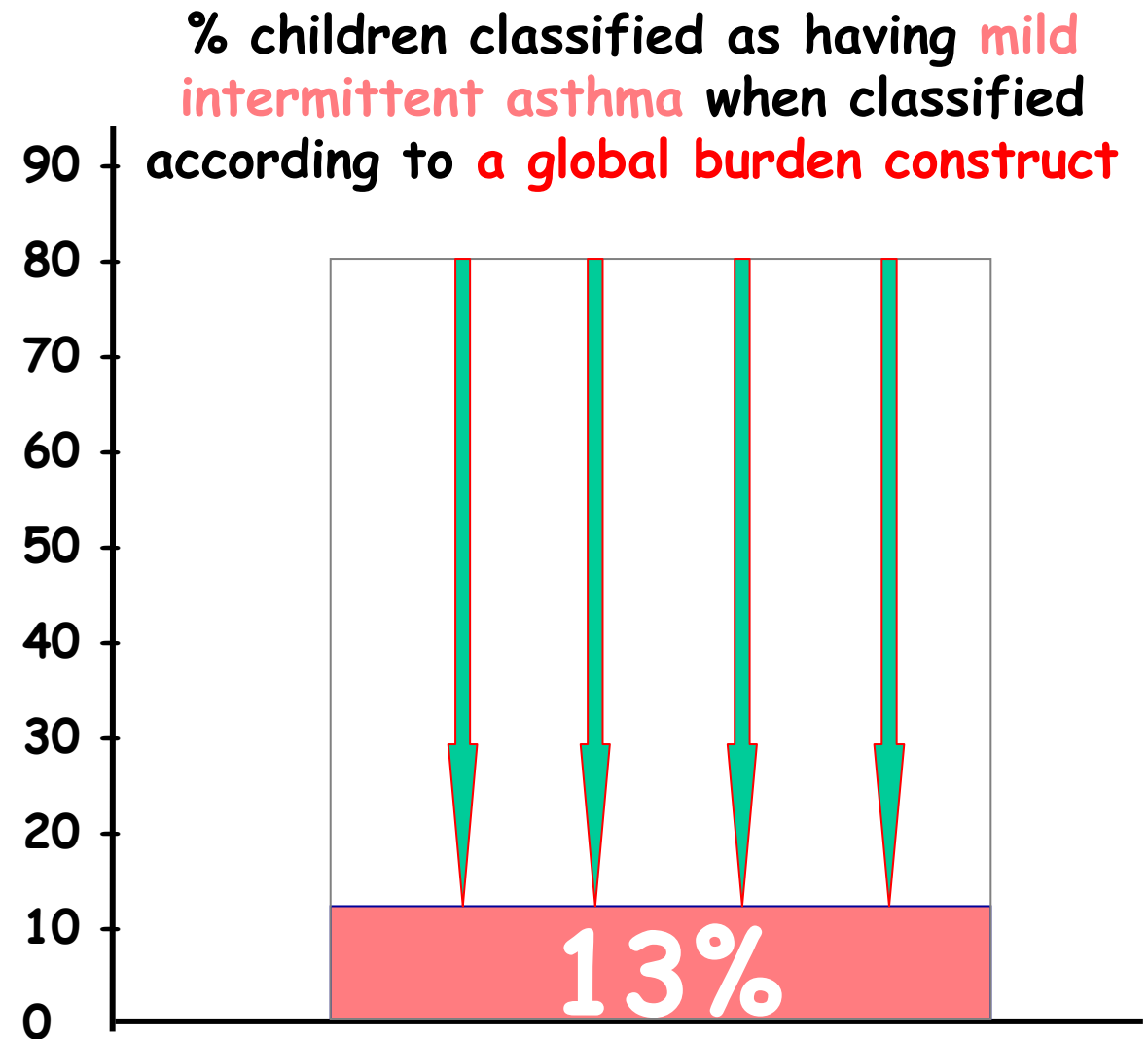
% children classified as having mild intermittent asthma when nighttime symptoms were also considered



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DEVELOPMENT AND CROSS-SECTIONAL VALIDATION OF THE CHILDHOOD ASTHMA CONTROL TEST

Liu JACI 2007; 119: 817

- ✓ A 21 item questionnaire was administered to 343 patients with asthma and their caregivers
- ✓ 7 items were selected from regression analyses to comprise the C-ACT



**A score of 19
indicated inadequately
controlled asthma
(specificity 74%,
sensitivity 68%)**

Childhood Asthma Control Test

Liu JACI 2007;119:817

Have your child complete these questions.

1. How is your asthma today?

SCORE

 0 Very bad	 1 Bad	 2 Good	 3 Very good	<input type="checkbox"/>
---	--	---	--	--------------------------

2. How much of a problem is your asthma when you run, exercise or play sports?

 0 It's a big problem, I can't do what I want to do.	 1 It's a problem and I don't like it.	 2 It's a little problem but it's okay.	 3 It's not a problem.	<input type="checkbox"/>
--	--	---	--	--------------------------

3. Do you cough because of your asthma?

 0 Yes, all of the time.	 1 Yes, most of the time.	 2 Yes, some of the time.	 3 No, none of the time.	<input type="checkbox"/>
---	--	--	---	--------------------------

4. Do you wake up during the night because of your asthma?

 0 Yes, all of the time.	 1 Yes, most of the time.	 2 Yes, some of the time.	 3 No, none of the time.	<input type="checkbox"/>
--	---	---	--	--------------------------

Maximum score = 12

Childhood Asthma Control Test

Liu JACI 2007;119:817

Please complete the following questions on your own

5. During the last 4 weeks, how many days did your child have any daytime asthma symptoms?

daytime asthma

5 Not at all	4 1-3 days	3 4-10 days	2 11-18 days	1 19-24 days	0 Everyday	<input type="checkbox"/>
------------------------	----------------------	-----------------------	------------------------	------------------------	----------------------	--------------------------

6. During the last 4 weeks, how many days did your child wheeze during the day because of asthma?

Wheezing during the day

5 Not at all	4 1-3 days	3 4-10 days	2 11-18 days	1 19-24 days	0 Everyday	<input type="checkbox"/>
------------------------	----------------------	-----------------------	------------------------	------------------------	----------------------	--------------------------

7. During the last 4 weeks, how many days did your child wake up during the night because of asthma?

Wake up during the night

5 Not at all	4 1-3 days	3 4-10 days	2 11-18 days	1 19-24 days	0 Everyday	<input type="checkbox"/>
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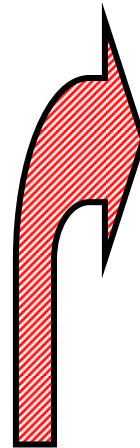
TOTAL

Maximum score = 15

CHILDHOOD ASTHMA CONTROL TEST IN ASTHMATIC CHILDREN WITH DYSFUNCTIONAL BREATHING

Peroni JACI , 121; 266, 2008.

- ✓ 8 -year-old boy with mild-to-moderate persistent asthma.
- ✓ Fluticasone propionate (100 µg twice daily).



1. Worsening asthma symptoms.
2. Albuterol several times a day.
3. cACT = 5

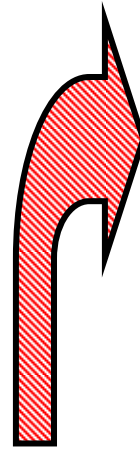


50/100 µg of salmeterol/fluticasone twice daily and 5 mg of montelukast once daily.

CHILDHOOD ASTHMA CONTROL TEST IN ASTHMATIC CHILDREN WITH DYSFUNCTIONAL BREATHING

Peroni JACI, 121; 266, 2008.

- ✓ 11-year-old girl with mild-to-moderate asthma.
- ✓ Fluticasone propionate (100 µg twice daily).



1. Asthma deterioration with exercise-induced symptoms and the need for several daily doses of albuterol.

2. cACT = 15



50/100 µg of salmeterol/fluticasone twice daily and 5 mg of montelukast once daily.

CHILDHOOD ASTHMA CONTROL TEST IN ASTHMATIC CHILDREN WITH DYSFUNCTIONAL BREATHING

Peroni JACI, 121; 266, 2008.

- A. Both patients were unresponsive to additional therapy.
- B. In both patients lung function was normal with minimal reversibility.
- C. FeNO was 14 ppb in the boy and 16 ppb in the girl.

CHILDHOOD ASTHMA CONTROL TEST IN ASTHMATIC CHILDREN WITH DYSFUNCTIONAL BREATHING

Peroni JACI, 121; 266, 2008.

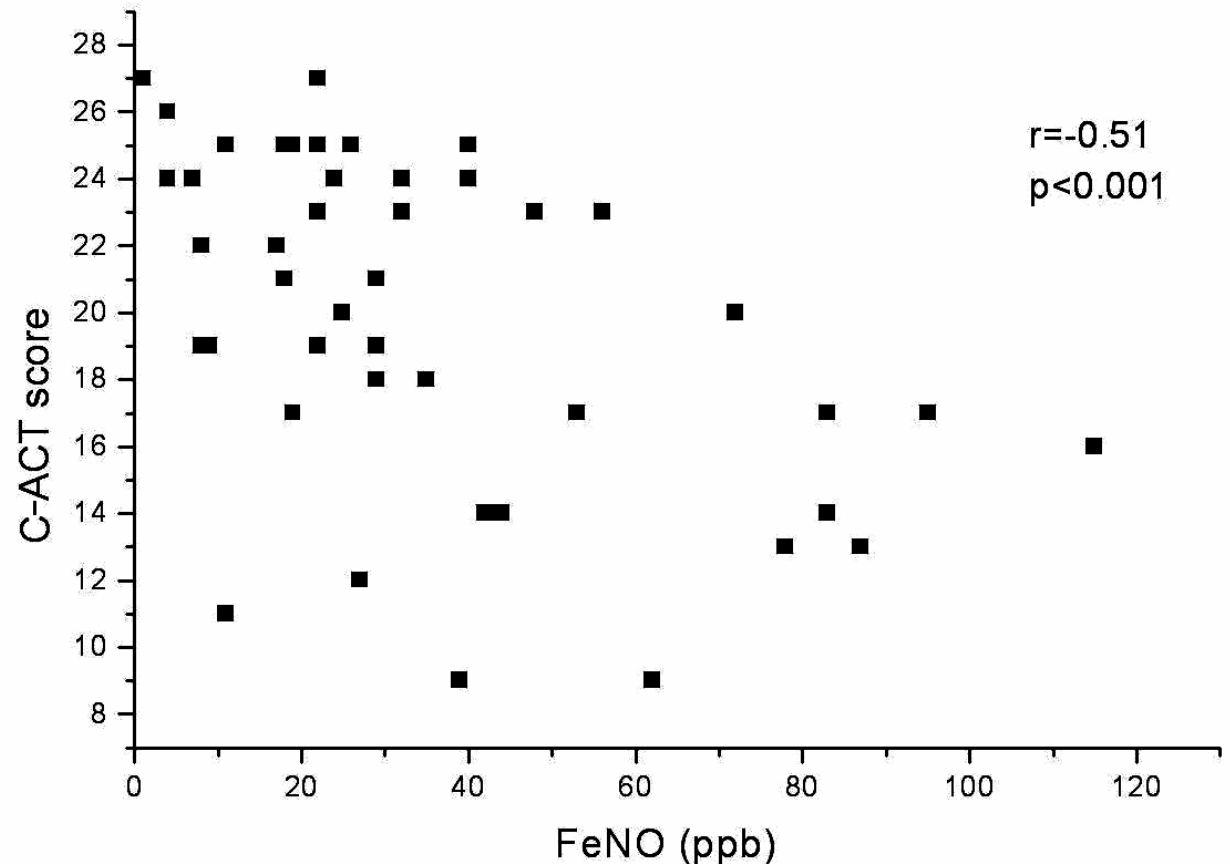
Clinical characteristics of both patients:

- ✓ Frequent sighing
- ✓ Disturbing fight back with friends and teachers
- ✓ Dysfunctional breathing during exercise
- ✓ Nijmegen questionnaire score $\left\{ \begin{array}{l} 25 \text{ in the boy} \\ 23 \text{ in the girl} \end{array} \right.$

Childhood Asthma Control test and airway inflammation in newly diagnosed and in known asthmatics *Piacentini submitted*

- ✓ 200 asthmatic ch.
- ✓ 47 new diagnosed (ND)
- ✓ 157 on regular follow-up (RFU)

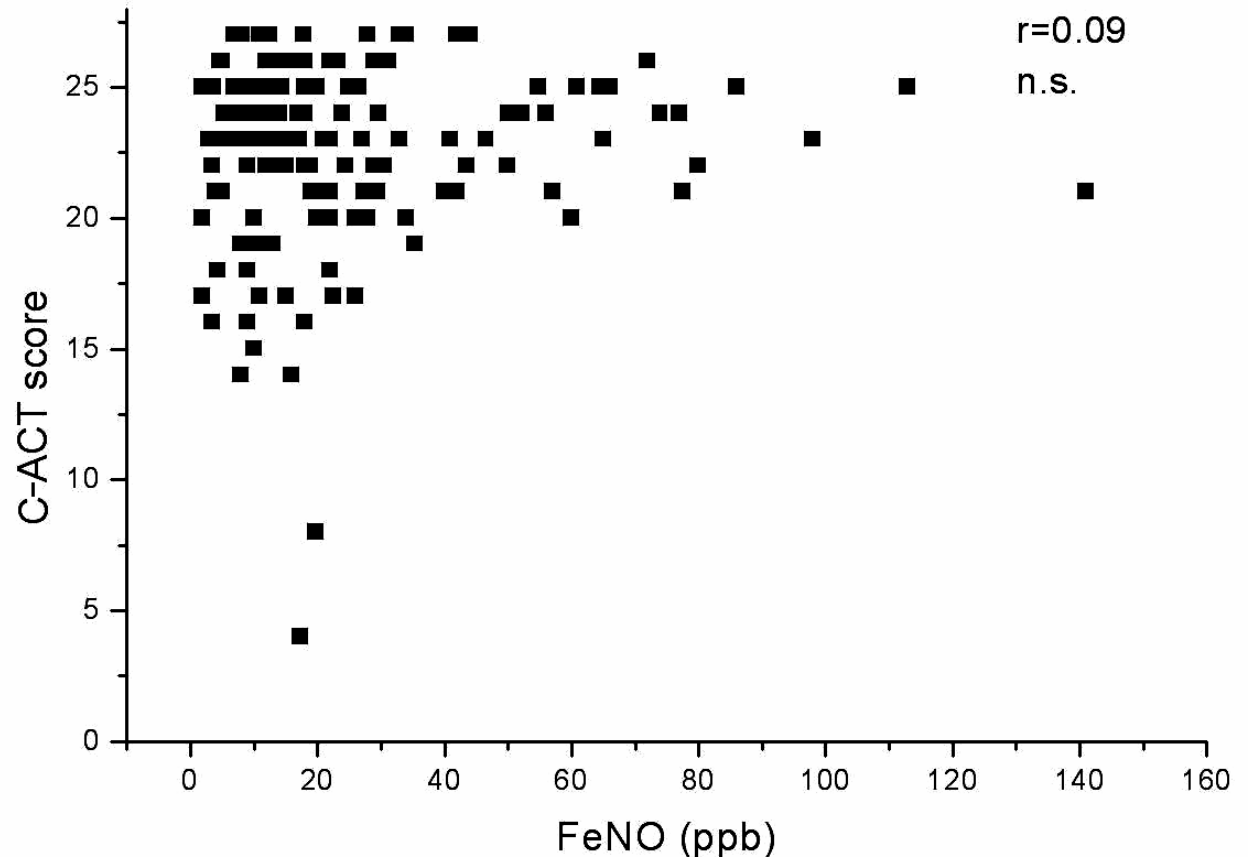
Correlation between cACT and FeNO in ND



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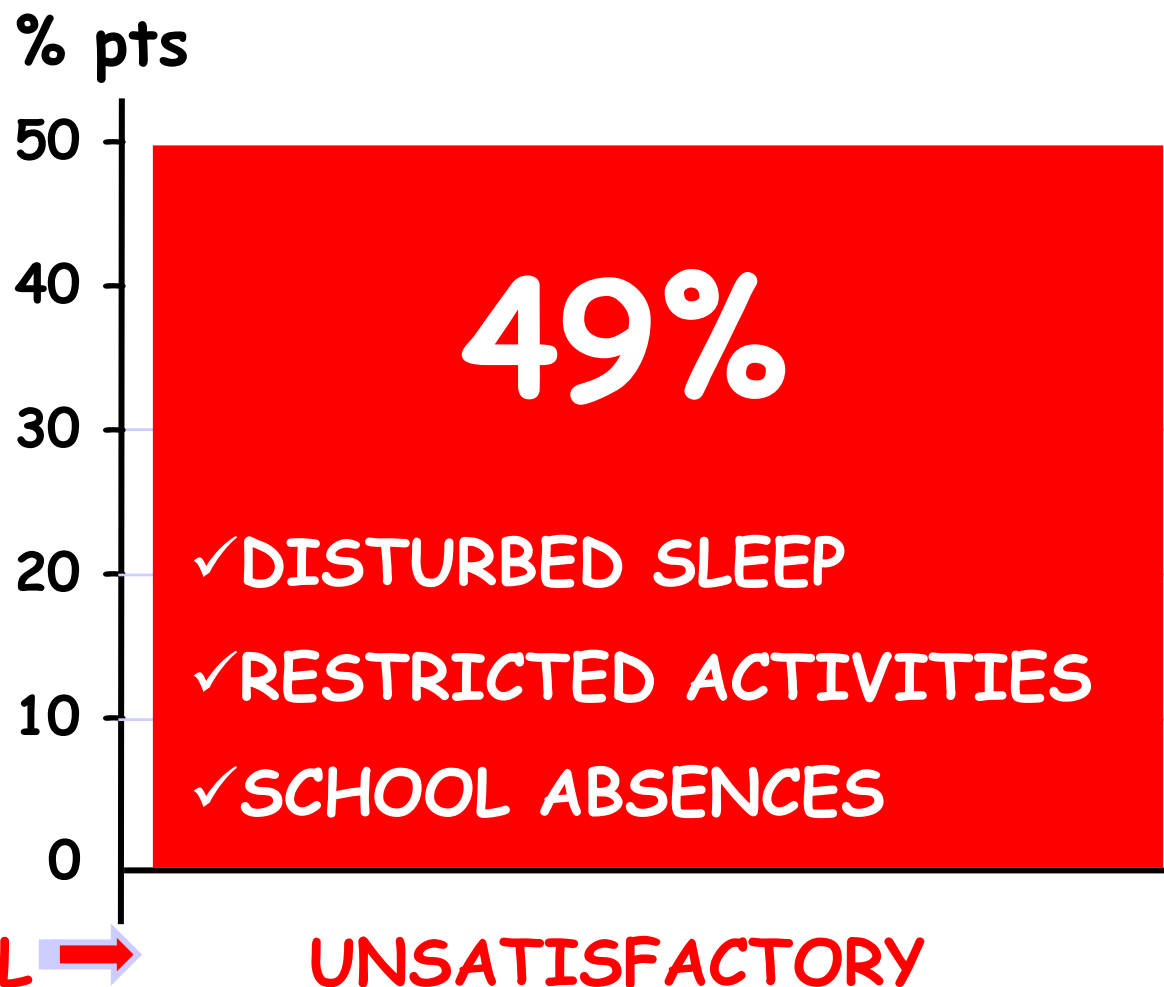
Correlation between cACT and FeNO in RFU



AGE-RELATED DIFFERENCE IN PERCEIVED ASTHMA CONTROL IN CHILDHOOD: GUIDELINES AND REALITY. *Kuehni ERJ 2002;20:880*

- ✓ Questionnaire to all members of the major Swiss parent organization for childhood asthma.
- ✓ 85%=response rate
- ✓ 572 children aged 4-16 yrs

ASTHMA CONTROL →

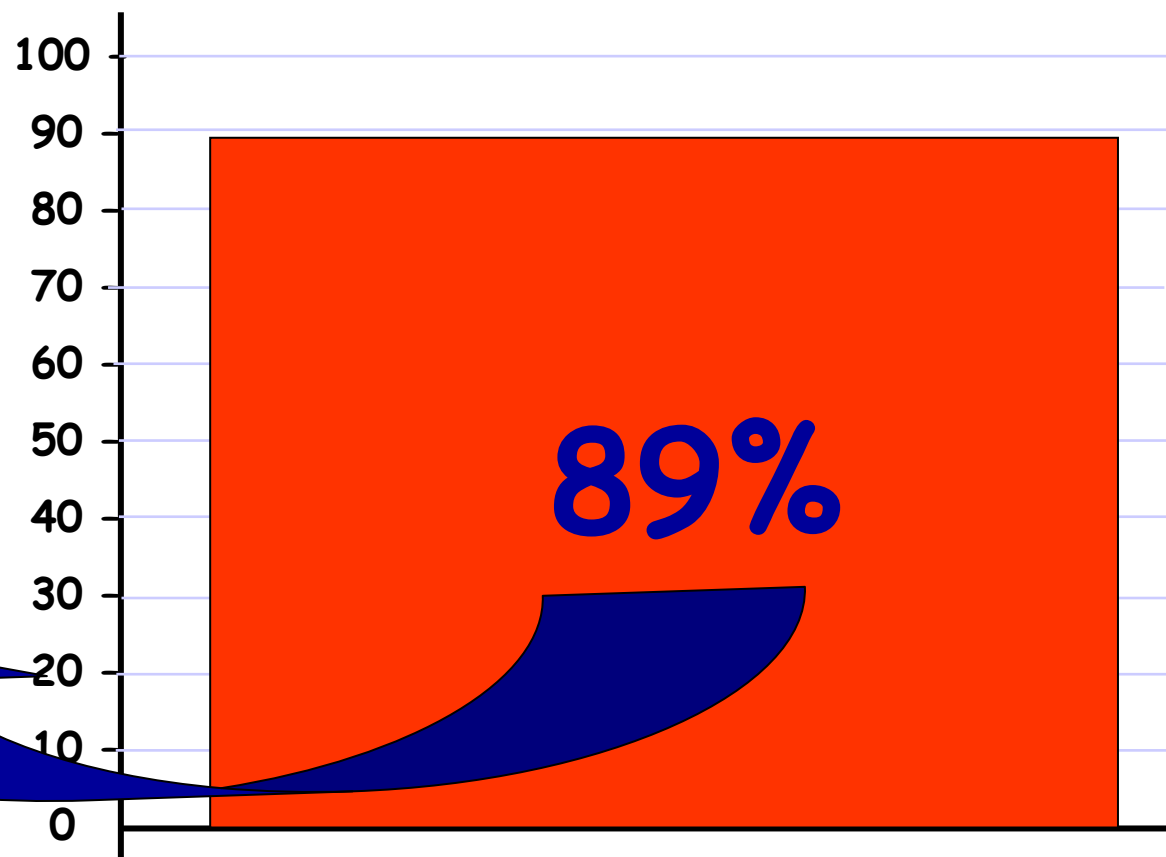


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EVEN IN CHILDREN WITH POOR ASTHMA CONTROL

PARENTAL EXPECTATIONS OF ASTHMA CONTROL ARE LOWER THAN THOSE OUTLINED IN GUIDELINES

% PARENTS SATISFIED WITH THE RESULTS OF TREATMENT



LEVELS OF ASTHMA CONTROL IN THE GINA REVISION (2006)

Characteristic	Controlled	Partly controlled (any measure present in any week)	Uncontrolled
Daytime symptoms	None (or minimal)	More than once	More than once
Limitations of activities	None	More than once	More than once
Nocturnal symptoms/awakening	None	More than once	More than once
Need for relieve/rescue treatment	None (or minimal)	More than once	More than once
Lung function (PEF or FEV ₁)	Normal or near-normal	More than once	More than once
Exacerbation	None	More than once	More than once

- "controlled asthma":
- Overtreatment?
- Is it really asthma?
- Consider stepping down?

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PEAK FLOW MONITORING FOR GUIDED SELF-MANAGEMENT IN CHILDHOOD ASTHMA

Wensley AJRCCM 2004; 170: 606


- ✓ 90 children
- ✓ PEF plus symptom-based management or symptom-based management alone for 12 week
- ✓ Thresholds for action based on PEF were 70% of best (for increasing inhaled steroids) and 50% of best (for commencing prednisolone)



1. There were no differences between groups (PEF + symptoms or symptoms alone) in:
 - mean symptom score
 - lung function,
 - quality of life
 - use of health services

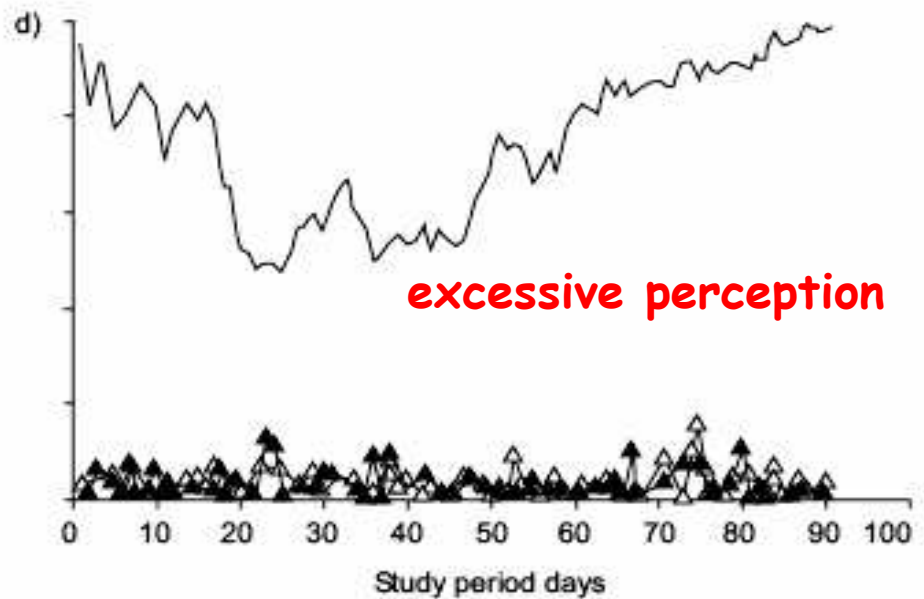
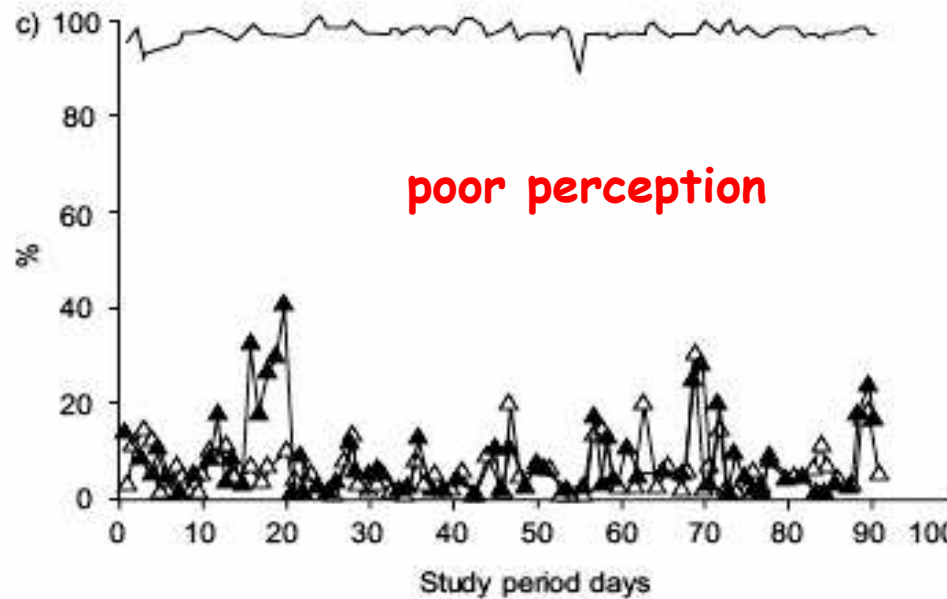
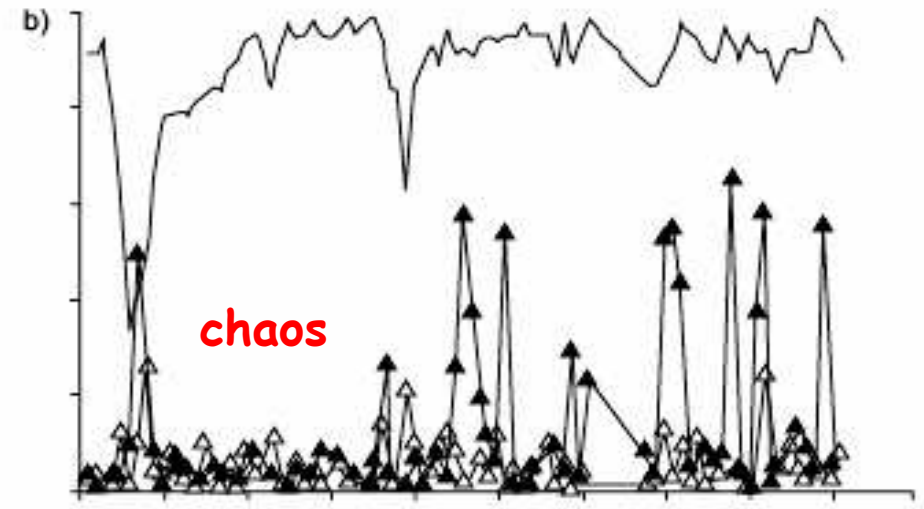
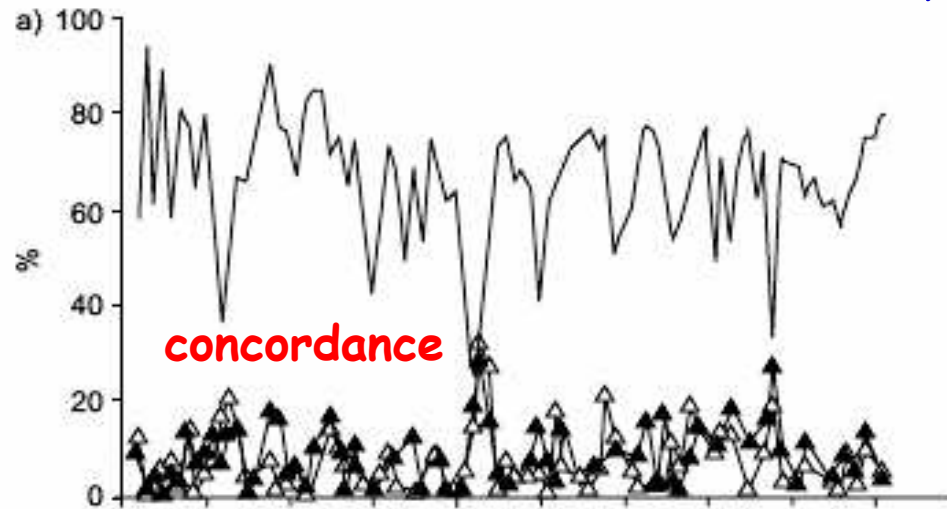
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- 
2. During acute episodes, children responded to changes in symptoms by increasing their ICS at a **PEF > 70%** of best so that overall **PEF did not contribute** to this important self-management decision.
 3. Knowledge of PEF did not enhance self-management **even during acute exacerbations.**

SAMPLES OF INDIVIDUAL MONITORING DATA

Brouwer Eur Respir J 2006; 28: 1131

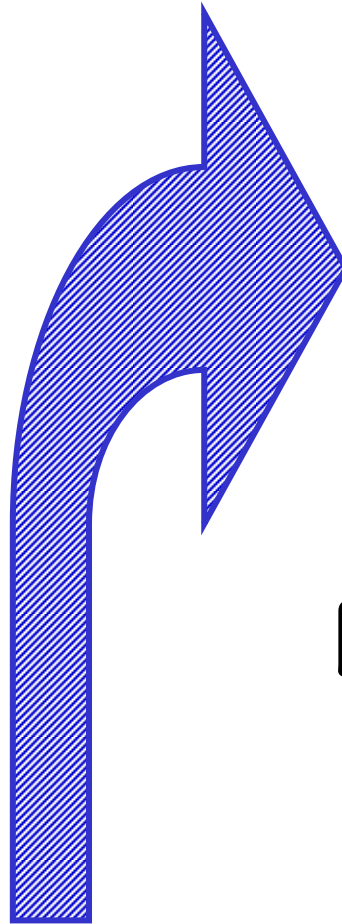


— asthma severity score; \triangle : PEF variation; \blacktriangle : FEV₁ variation

SPIROMETRY IN 3-TO-5-YEAR-OLD CHILDREN

Based on the recognition that children in this age group can perform complete expirations in less than 1 sec.

Eigen AJRCCM 2001;163:619
Nystad Thorax 2002;57:1021
Aurora AJRCCM 2004;169:1152
Crenesse Ped. Pulmon. 2001;32:56
Neve Ped. Pulmon. 2006;41:735
Pesant Ped. Pulmon. 2007;42:263



The potential importance of $FEV_{0.5}$ and $FEV_{0.75}$ have to be underlined !!!!!

THE MEASUREMENT OF AIRWAYS RESISTANCE USING THE INTERRUPTER TECHNIQUE (RINT)

Child Paediatr. Resp. Rev. 2005;6:273



Child performing MicroRint measurements

Facemask and mouthpiece and nose-clip used to obtain MicroRint measurements

As nasal resistance contributes significantly to total airways resistance, nose breathing should be avoided. This may be achieved using either a mouthpiece and nose clip or a mask with integral mouthpiece.



PULMONARY FUNCTION TESTS IN PRESCHOOL

CHILDREN *Beydon AJRCCM 2003;168:640*

A 35% decrease
in $RINT_{exp}$
expressed as the
percentage of
predicted values
had a likelihood
ratio of 3 for
separating
asthmatics from
controls

RESISTANCE kPa/L·second
INCREASE POST SALBUTAMOL

1.2%

±15.2

-18.6%

±13.6

$p < 0.001$

CONTROLS

ASTHMATICS

Monitoring of Lung Function

PERSONAL PRACTICE

Usefulness of monitoring lung function in asthma

P L P Brand, R J Roorda

Arch Dis Child 2003;88:1021-1025

“There is good evidence that routine home monitoring of lung function in asthmatic children is not justified and not useful”

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LTRA: alternative for ICS?

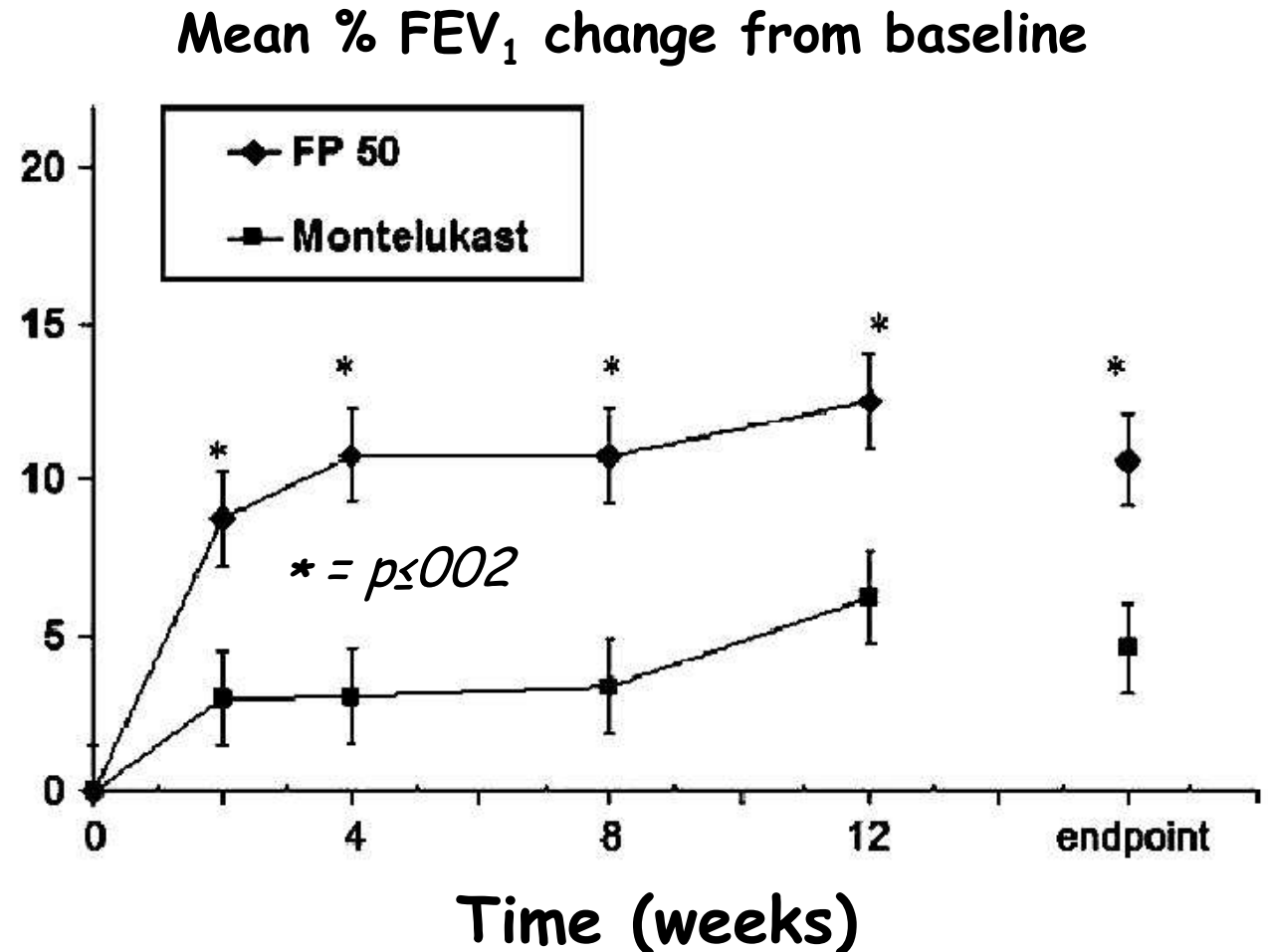
Step 1	Step 2	Step 3	Step 4	Step 5
Asthma education Environmental control				
As needed rapid-acting β_2 -agonist	As needed rapid-acting β_2 -agonist			
Controller options	Select one	Select one	Add one or more	Add one or both
	Low-dose inhaled ICS*	Low-dose ICS plus long-acting β_2 -agonist	Medium-or high-dose ICS plus long-acting β_2 -agonist	Oral glucocorticosteroid (lowest dose)
	Leukotriene modifier \ddot{U}	Medium-or high-dose ICS	Leukotriene modifier	Anti-IgE treatment
		Low-dose ICS plus leukotriene modifier	Sustained release theophylline	
		Low-dose ICS plus sustained release theophylline		

Alternative controller medications include leukotriene modifiers¹²¹⁻¹²³ (Evidence A), appropriate particularly for patients who are unable or unwilling to use inhaled glucocorticosteroids, or who experience intolerable side effects such as persistent hoarseness from inhaled glucocorticosteroid treatment and those with concomitant allergic rhinitis^{124,125} (Evidence C).

COMPARATIVE EFFICACY AND SAFETY OF LOW-DOSE FLUTICASONE PROPIONATE AND MONTELUKAST IN CHILDREN WITH PERSISTENT ASTHMA

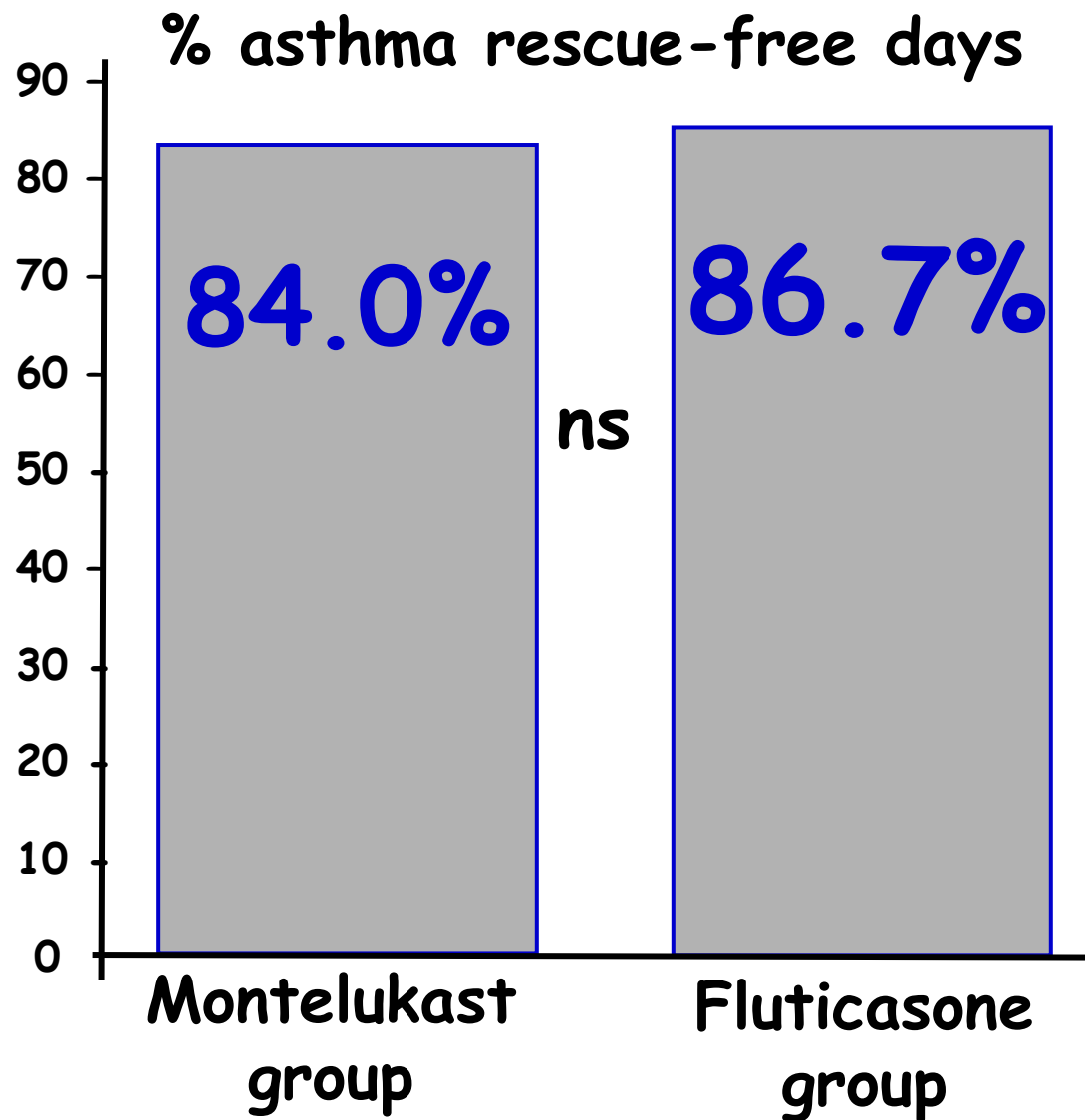
Ostrom J Pediatr 2005; 147: 213

- ✓ 342 ch (6-12 yrs) with persistent asthma
- ✓ FP 50 μg \times 2 vs M 5 mg OD for 12 weeks
- ✓ Double-blind



MONTELUKAST, COMPARED WITH FLUTICASONE, FOR CONTROL OF ASTHMA AMONG 6 TO 14 YEAR OLD PATIENTS WITH MILD ASTHMA: THE MOSAIC STUDY *Garcia Garcia Pediatrics 2005; 116: 360*

- ✓ 12 month noninferiority trial
- ✓ Montelukast (5 mg) (n= 495) vs fluticasone (100 mcg bid) (n= 499)
- ✓ Patients 6-14 years with mild persistent asthma



LTRA: alternative for ICS?

GSK study: Ostrom Pediatrics 2005

MSD study Garcia Pediatrics 2005

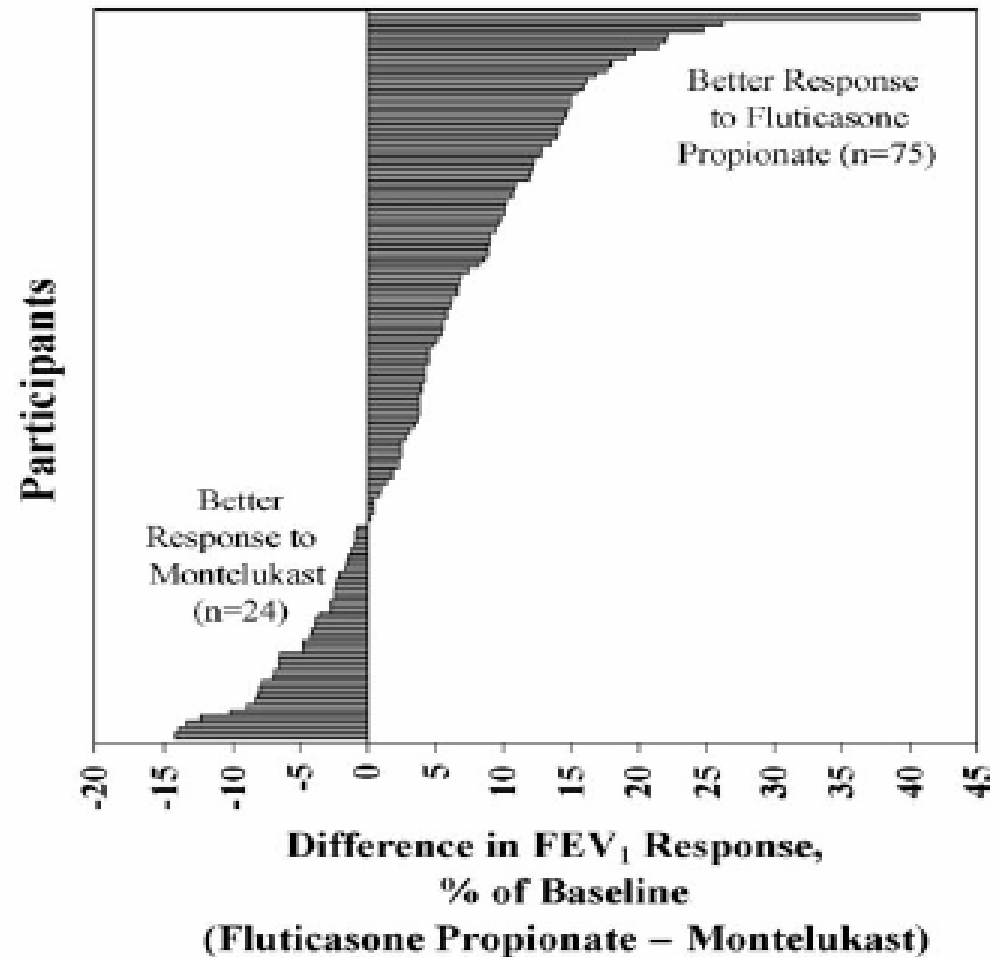
%symptom free days	M	FP
GSK study	31.3	37.7
MSD study	84.0	86.7
Improvement in FEV₁		
GSK study	4.6	10.6
MSD study	0.6	2.7
Lung function at inclusion (FEV₁% pred)		
GSK study (60-85% pred)	76.4	75.4
MSD study (>80% pred)	86.8	87.7

CHARACTERIZATION OF WITHIN-SUBJECT RESPONSES TO FLUTICASONE AND MONTELUKAST IN CHILDHOOD ASTHMA

Szelter JACI 2005; 115: 233

- ✓ 144 ch. 6 to 17 yrs
- ✓ Mild-to-moderate persistent asthma ($FEV_1 \geq 70\%$)
- ✓ 2 crossover sequences, including 8 weeks of fluticasone propionate (FP) (100 ug twice daily by Diskus), and 8 weeks of montelukast (M) (5-10 mg nightly depending on age)
- ✓ Defining response as improvement in FEV_1 of 7.5% or greater

Primary end point: improvement in FEV_1
improvement in $FEV_1 > 7.5\%$ = "responder"

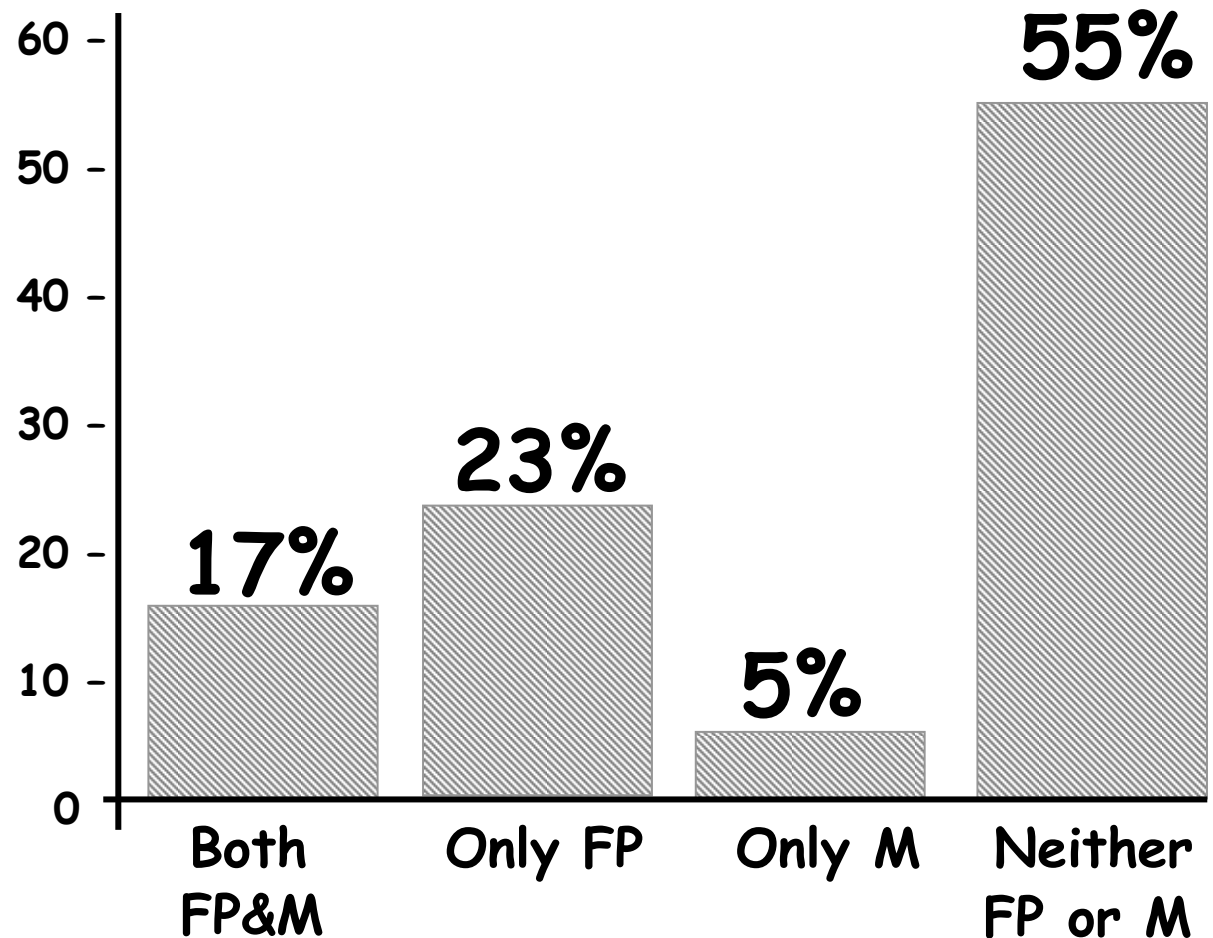


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% children with a (+) response i.e. improvement in $FEV_1 \geq 7.5\%$



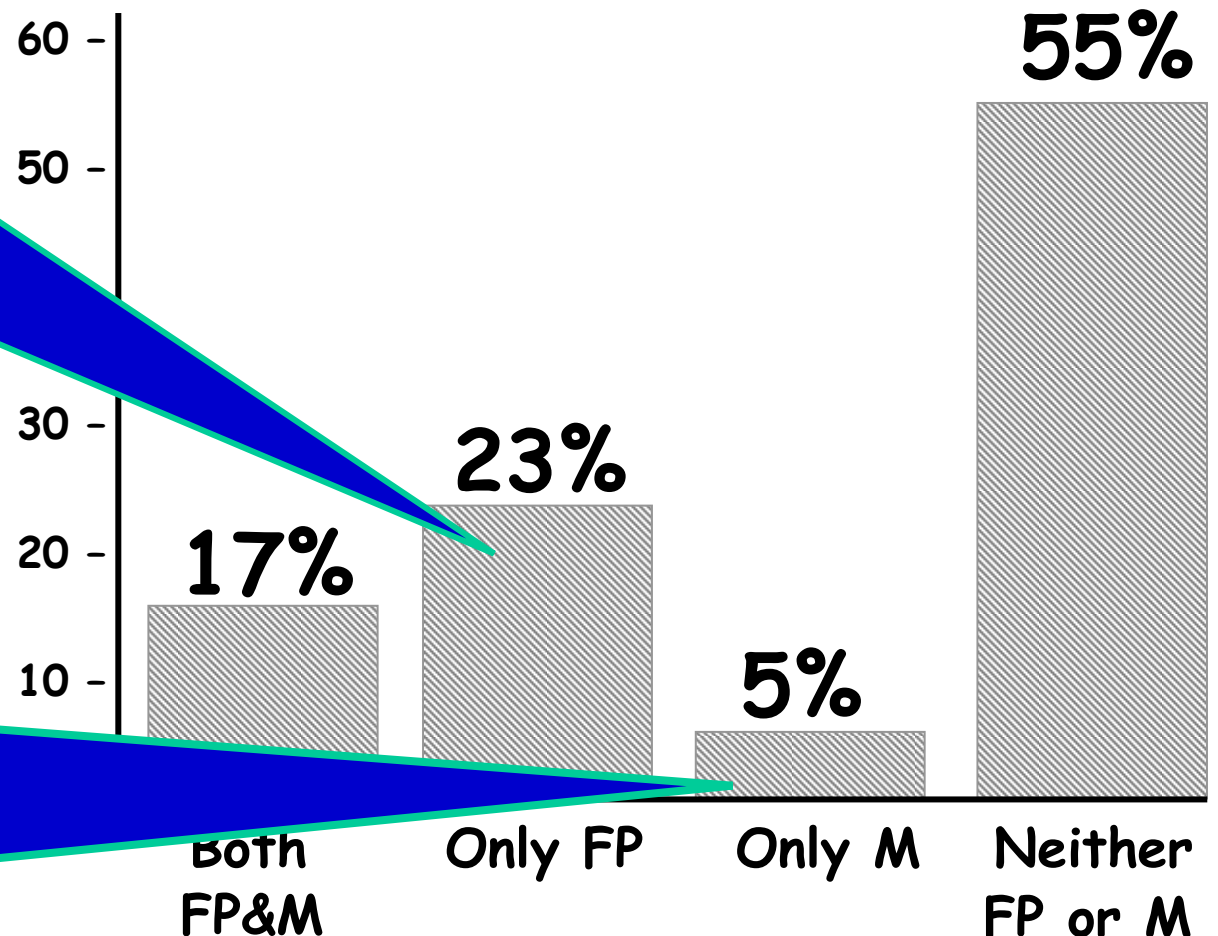
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% children with a (+) response i.e. improvement in $FEV_1 \geq 7.5\%$

Higher
FeNO,
Eosinophils, ECP
IgE,
lower PC_{20}

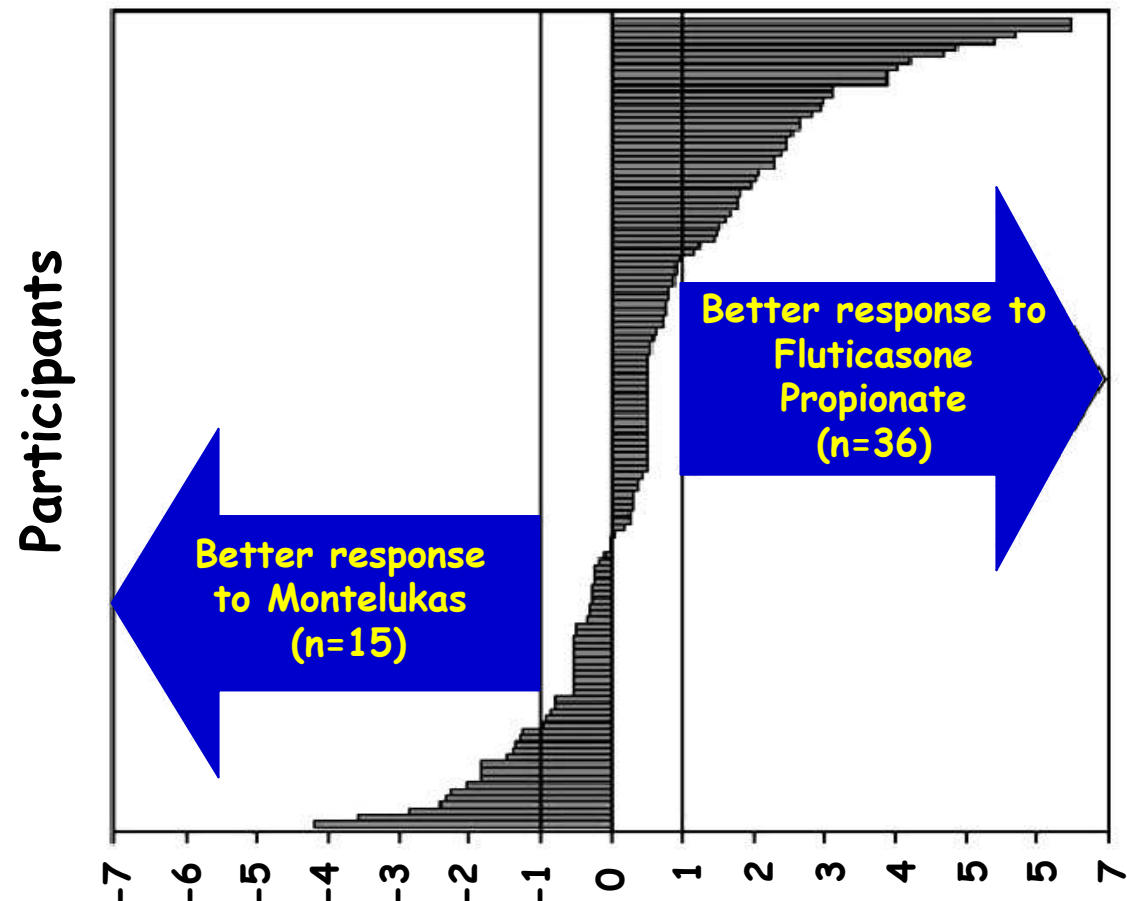
* Younger age,
* Shorter
duration of
disease



RESPONSE PROFILES TO FLUTICASONE AND MONTELUKAST IN MILD-TO MODERATE PERSISTENT CHILDHOOD ASTHMA

Zeiger JACI 2006; 117: 45

- ✓ Fluticasone propionate (100 µg twice daily) and montelukast (5-10 mg nightly, age dependent)
- ✓ Children 6 to 17 years with mild-to-moderate persistent asthma
- ✓ 16 week crossover



Difference in asthma-control days per week response
Fluticasone Propionate-Montelukast
Each *line* designates a single participant

LTRA: alternative for ICS?

- ✓ ICS more effective than montelukast for children with persistent asthma
- ✓ both in clinical trials and in real life
- ✓ read trial methods, draw your own conclusions

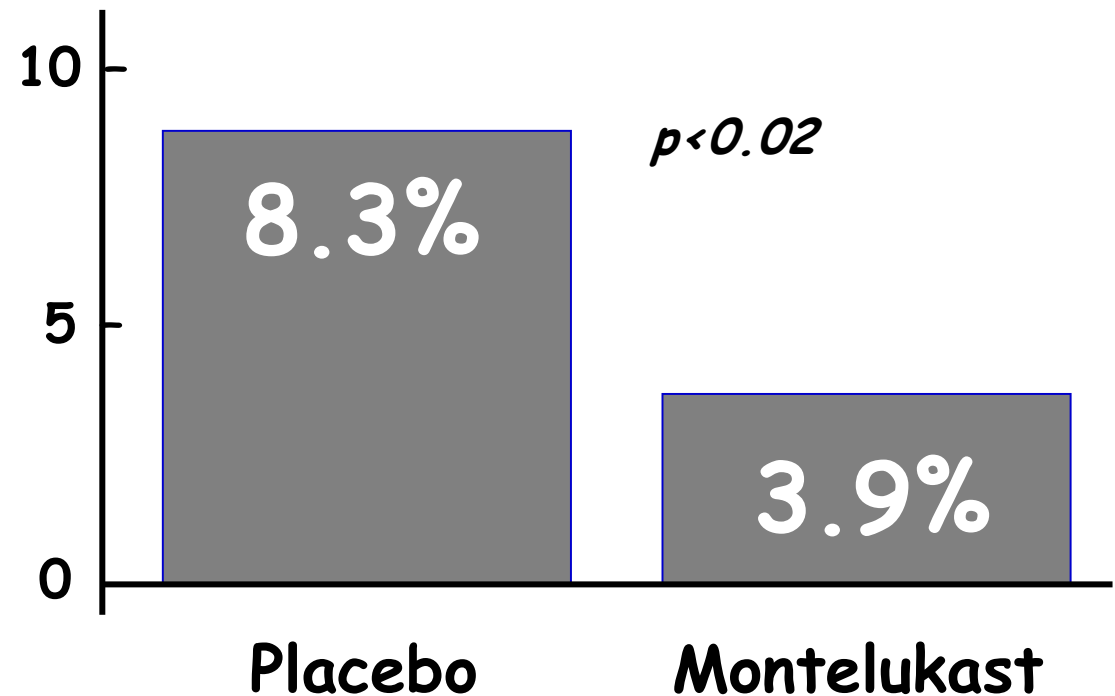
**First choice maintenance treatment for
childhood asthma:
Inhaled Corticosteroids**

ATTENUATION OF THE SEPTEMBER EPIDEMIC OF ASTHMA EXACERBATIONS IN CHILDREN: A RANDOMIZED, CONTROLLED TRIAL OF MONTELUKAST ADDED TO USUAL THERAPY

Johnston Pediatrics 2007; 120: e702

- ✓ 194 asthmatic children
- ✓ 2 to 14 years
- ✓ Montelukast or placebo in addition to usual asthma therapy between September 1 and October 15, 2005.

% days with worse asthma symptoms

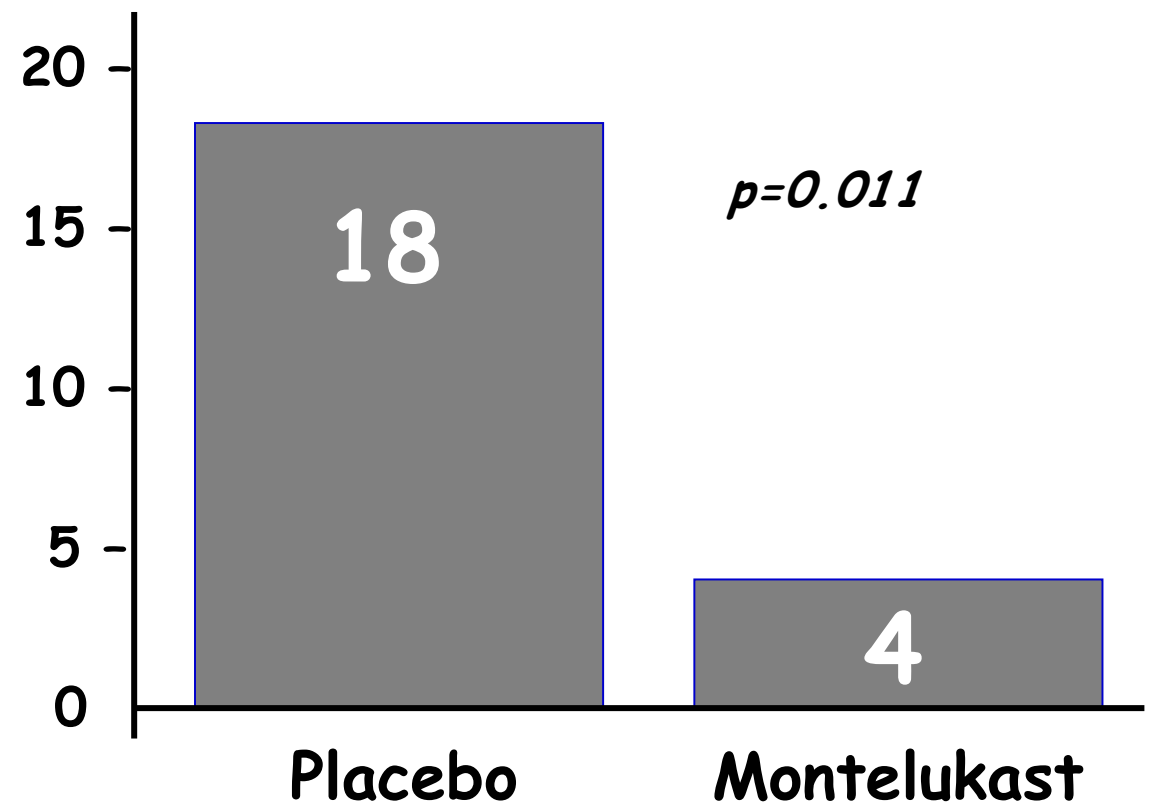


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N° of unscheduled asthma visits

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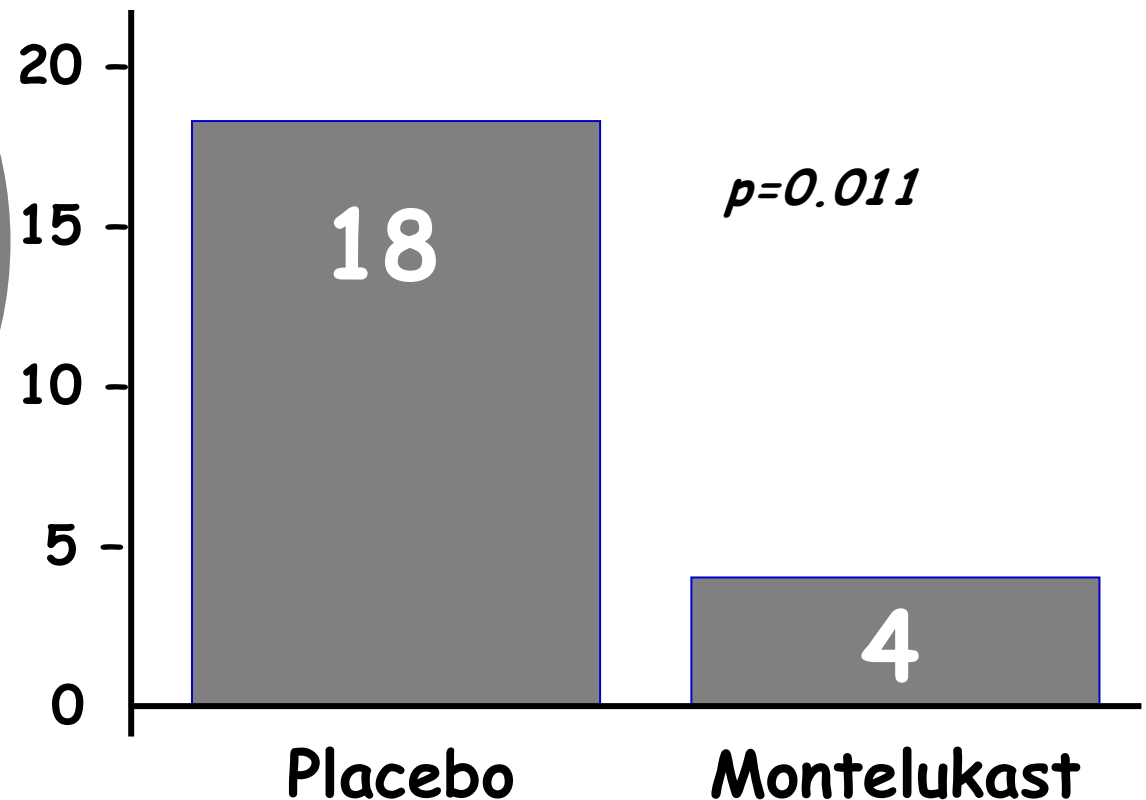


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Journal of Pediatrics 2007; 120: e702

The benefit of montelukast was seen both in those using and not using regular inhaled corticosteroids and among those reporting and not reporting colds during the trial.

N° of unscheduled asthma visits



ATTENUATION OF THE SEPTEMBER EPIDEMIC OF ASTHMA
EXACERBATIONS IN CHILDREN: A RANDOMIZED, CONTROLLED
TRIAL OF MONTELUKAST ADDED TO USUAL THERAPY

Johnston Pediatrics 2007; 120: e702

- ✓ More than 90% of the children had a prescription for ICS but < 50% of these children reported the use of these medications (low compliance with MDI),
- ✓ The short-term addition of montelukast to usual asthma therapy for a limited time of 6 weeks after school return could substantially reduce asthma morbidity and Health Service utilization.

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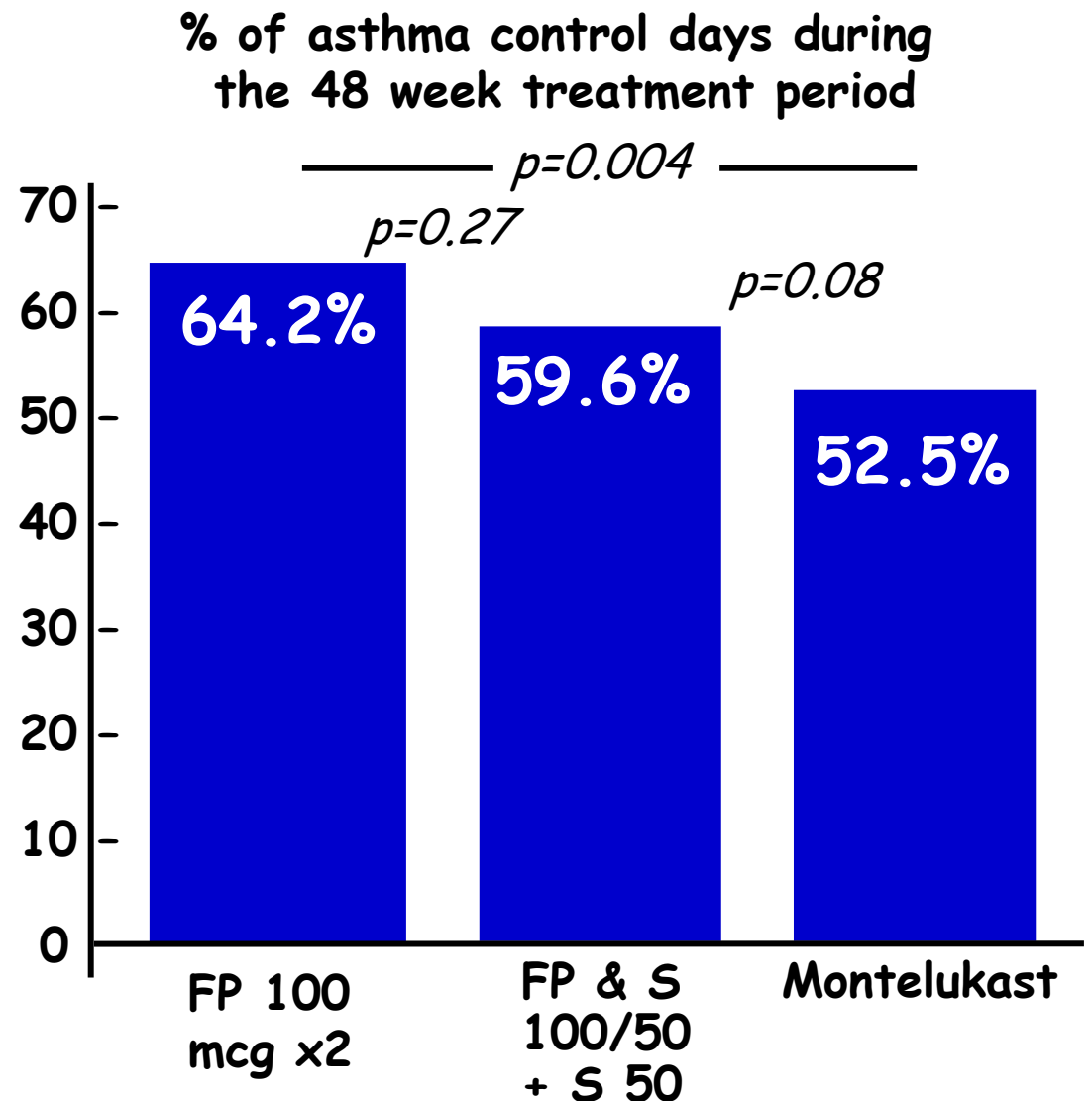
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LONG-TERM COMPARISON OF 3 CONTROLLER REGIMENS FOR MILD-MODERATE PERSISTENT CHILDHOOD ASTHMA: THE PEDIATRIC ASTHMA CONTROLLER TRIAL *Sorkness JACI 2007;119:64*

- ✓ 285 children with mild-moderate persistent asthma
- ✓ $FEV_1 \geq 80\%$ predicted and methacholine $FEV_1 PC_{20} \leq 12.5$ mg/mL
- ✓ Randomized to 1 of 3 double-blind 48-week treatments:
fluticasone 100 µg twice daily,
fluticasone 100 µg/salmeterol 50 µg in the morning and salmeterol 50 µg in the evening (PACT combination),
and montelukast 5 mg monotherapy in the evening



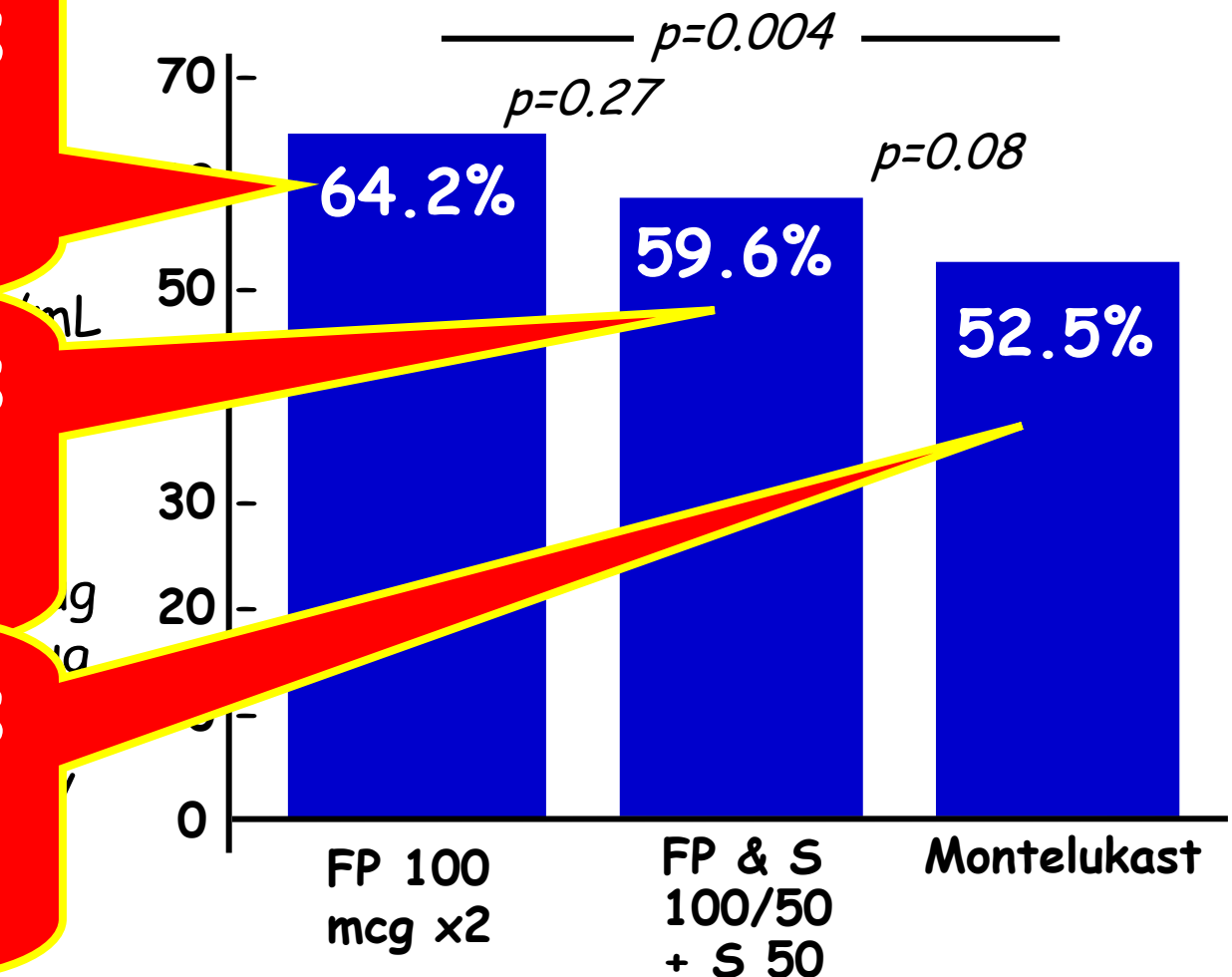
LONG-TERM COMPARISON OF 3 CONTROLLER REGIMENS FOR MILD-MODERATE PERSISTENT CHILDHOOD ASTHMA: THE PEDIATRIC ASTHMA CONTROLLER TRIAL *Sorkness JACI 2007;119:64*

✓
✓
✓
35.8% of days uncontrolled

40.4% of days uncontrolled

47.5% of days uncontrolled

% of asthma control days during the 48 week treatment period



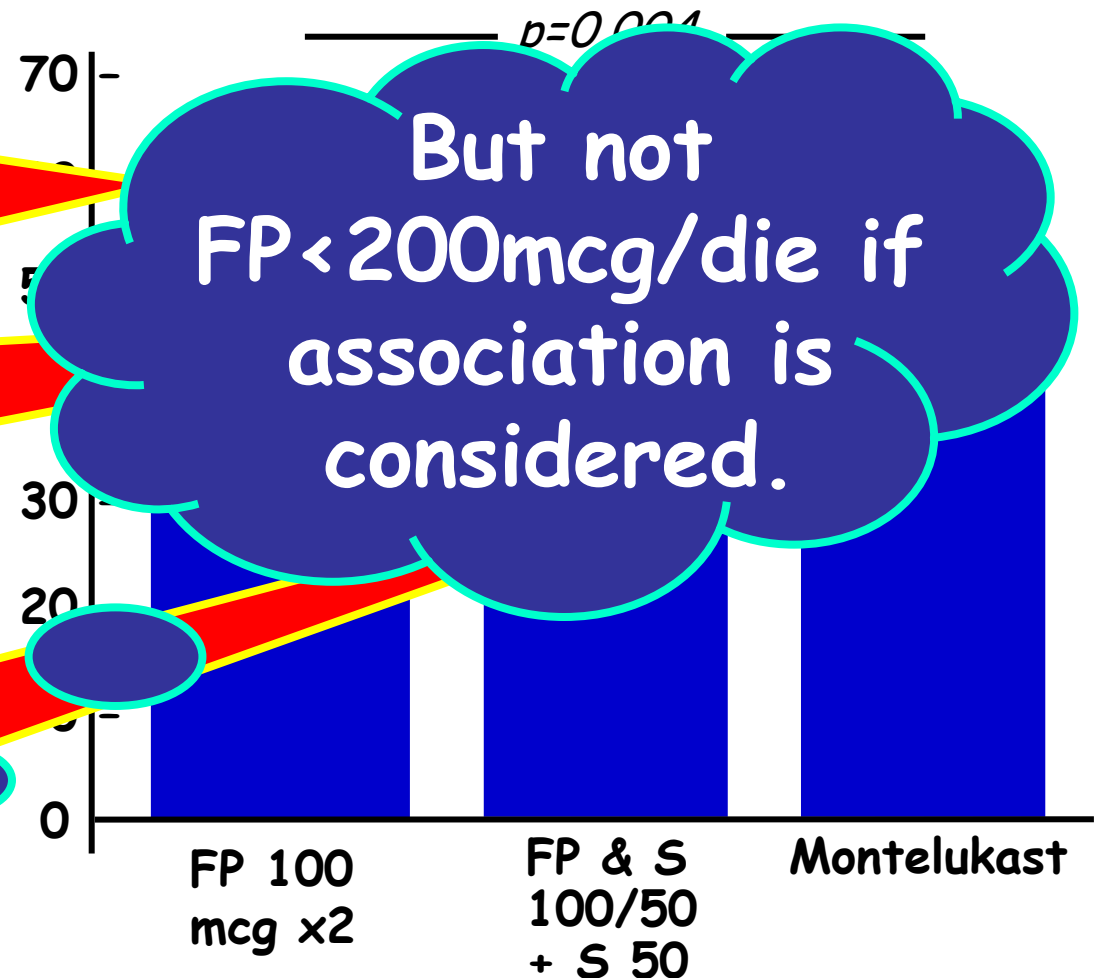
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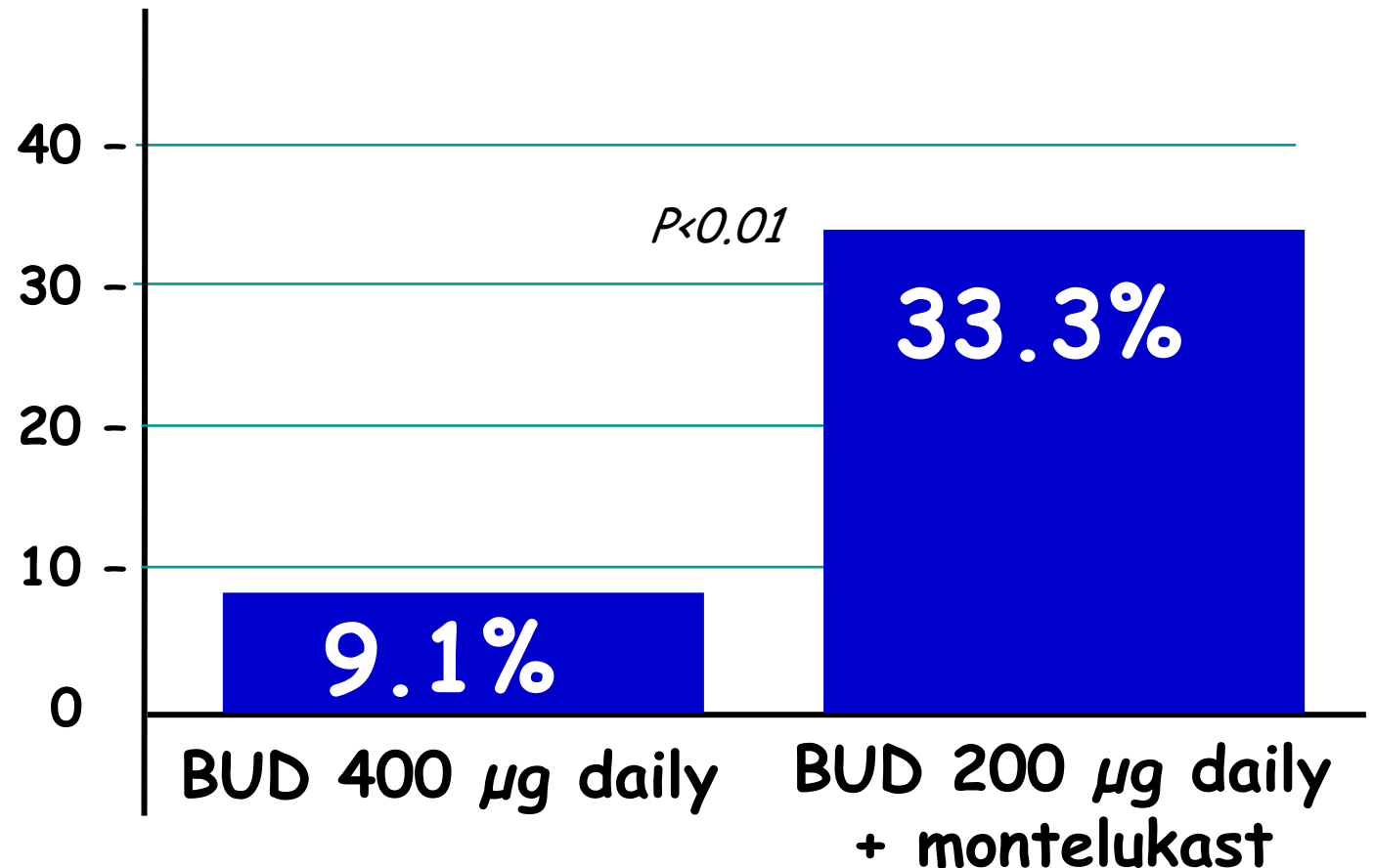
**TREATMENT WITH 400 μ g OF INHALED BUDESONIDE
VS 200 μ g OF INHALED BUDESONIDE AND
ORAL MONTELUKAST IN CHILDREN WITH MODERATE
PERSISTENT ASTHMA: RANDOMIZED CONTROLLED TRIAL.**

Jat Ann Allergy Asthma Immunol. 2006; 97: 397

% CHILDREN WITH EXACERBATIONS

✓ 71 children
with moderate
persistent
asthma

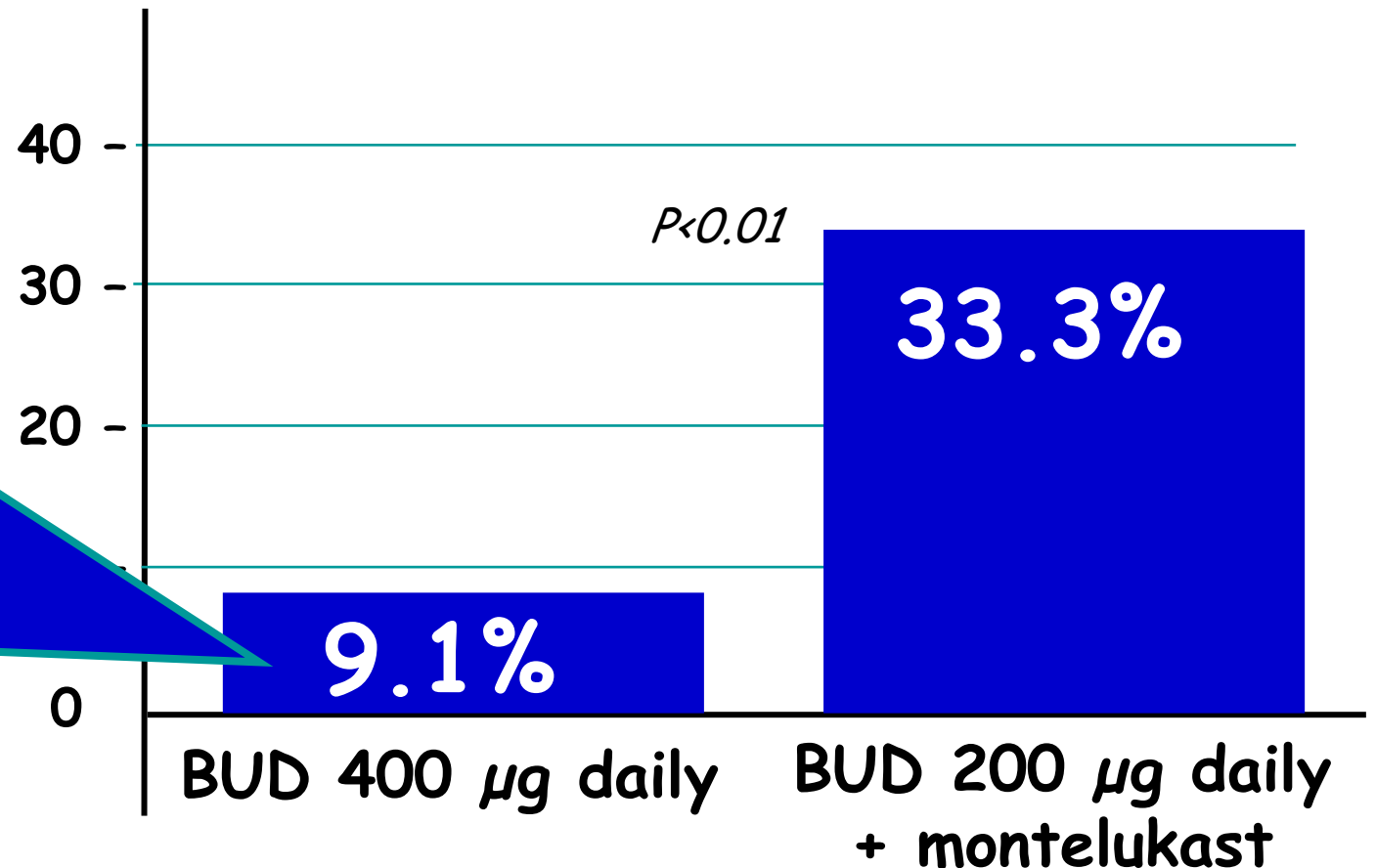
✓ 12 weeks



TREATMENT WITH 400 μ g OF INHALED BUDESONIDE
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% CHILDREN WITH EXACERBATIONS

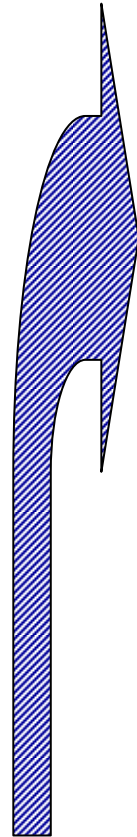


Better results
are expected
with the
combination of
BUD 400 μ g daily
plus
MONTELUKAST

Systematic review of the dose-response relation of inhaled fluticasone propionate

Masoli Arch Dis Child 2004;89:902

- ✓ 7 studies
- ✓ 1733 asthmatic children
- ✓ FP for at least 4 weeks
- ✓ Lung function, beta2-agonists use, nocturnal awakenings, exacerbations



The dose-response curve for each efficacy outcome measure suggested that the response began to plateau between **100** and **200** $\mu\text{g}/\text{day}$

Come la ricerca negli ultimi 5 anni ha modificato la mia pratica clinica in pneumologia

Diego Peroni
Clinica Pediatrica di Verona

- ✓ Control vs Severity
- ✓ L.F. variation as a measure of control
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A CLINICAL INDEX TO DEFINE ASTHMA RISK

Major



CRITERIA



Minor

- 1) Parental asthma
- 2) Atopic Dermatitis

3) Atopy

At least one

- 1) Allergic rhinitis
- 2) Wheezing apart from cold
- 3) Eosinophilia ($\geq 4\%$)

Two

Or

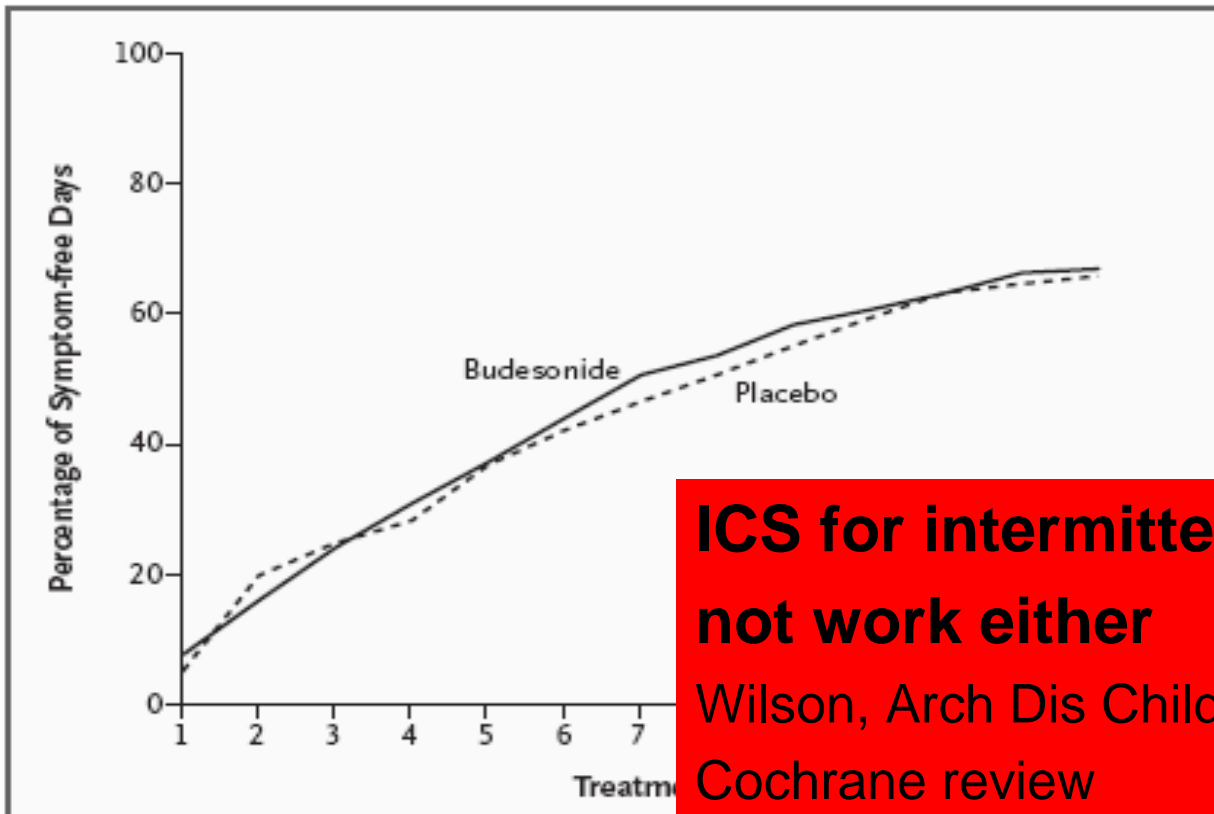


- early wheezing \rightarrow 59 % Risk of asthma
- frequent early wheezing \rightarrow 76 % development

ICS effective in episodic viral wheeze?

411 children < 1 yr of age to receive BUD or placebo

for 2 wks, when
child was wheezing
for 3 days



Intermittent ICS does not work

ICS for intermittent asthma does not work either

Wilson, Arch Dis Child 1995

Cochrane review

N Engl J Med

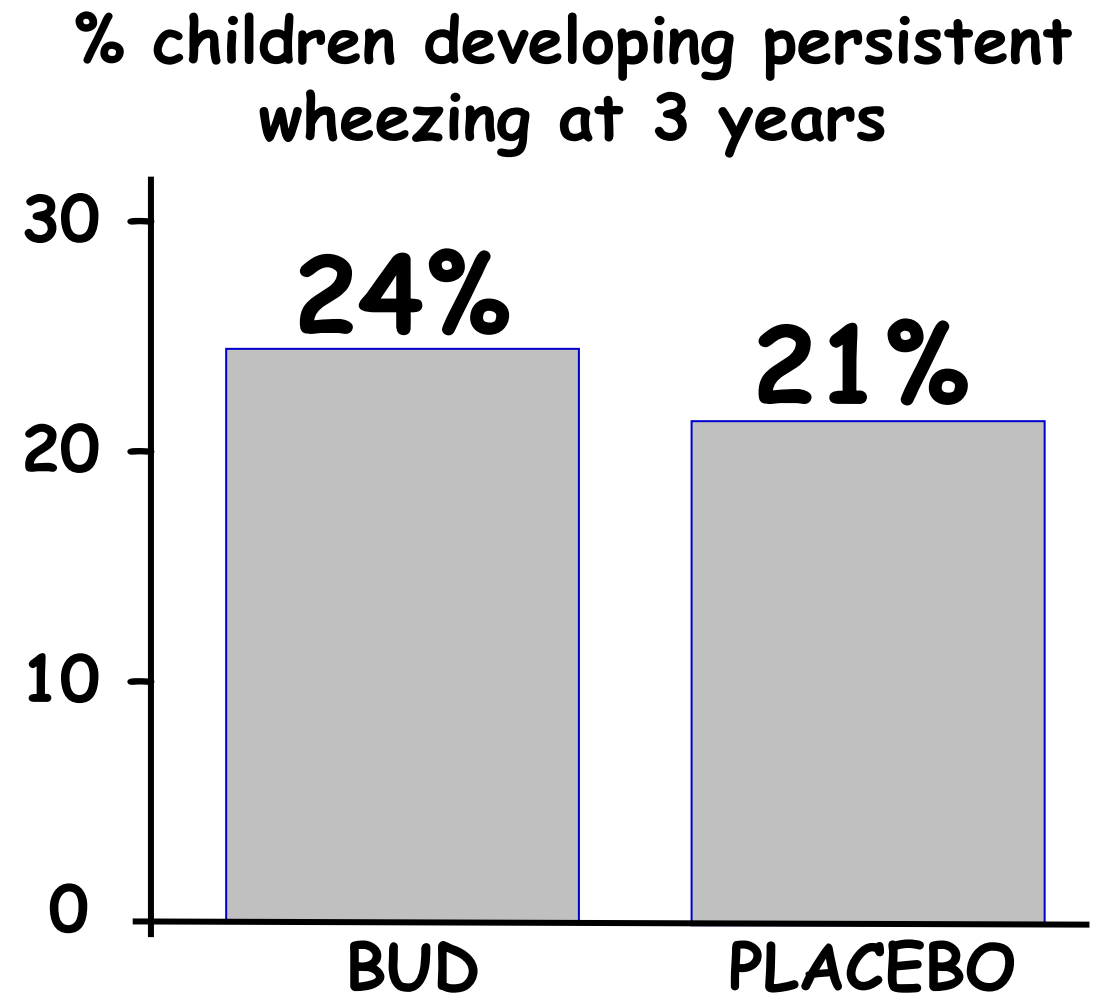
2006;354: 1998-2005

Figure 3. Percentage of Symptom-free Days during the Two-Week Treatment Periods for All 294 Children Who Received at Least One Study Treatment.

INTERMITTENT INHALED CORTICOSTEROIDS IN INFANTS WITH EPISODIC WHEEZING (PAC study)

Bisgaard NEJM 2006; 354: 1998

- ✓ A cohort of infants whose mothers had asthma
- ✓ 411 infants enrolled at one month of age, and randomly assigned to treatment when they had a first episode of wheezing
- ✓ Budesonide 400 µg per day, or placebo by MDI and a spacer for two weeks after the third day of symptoms
- ✓ End of the trial, when the children were three years of age

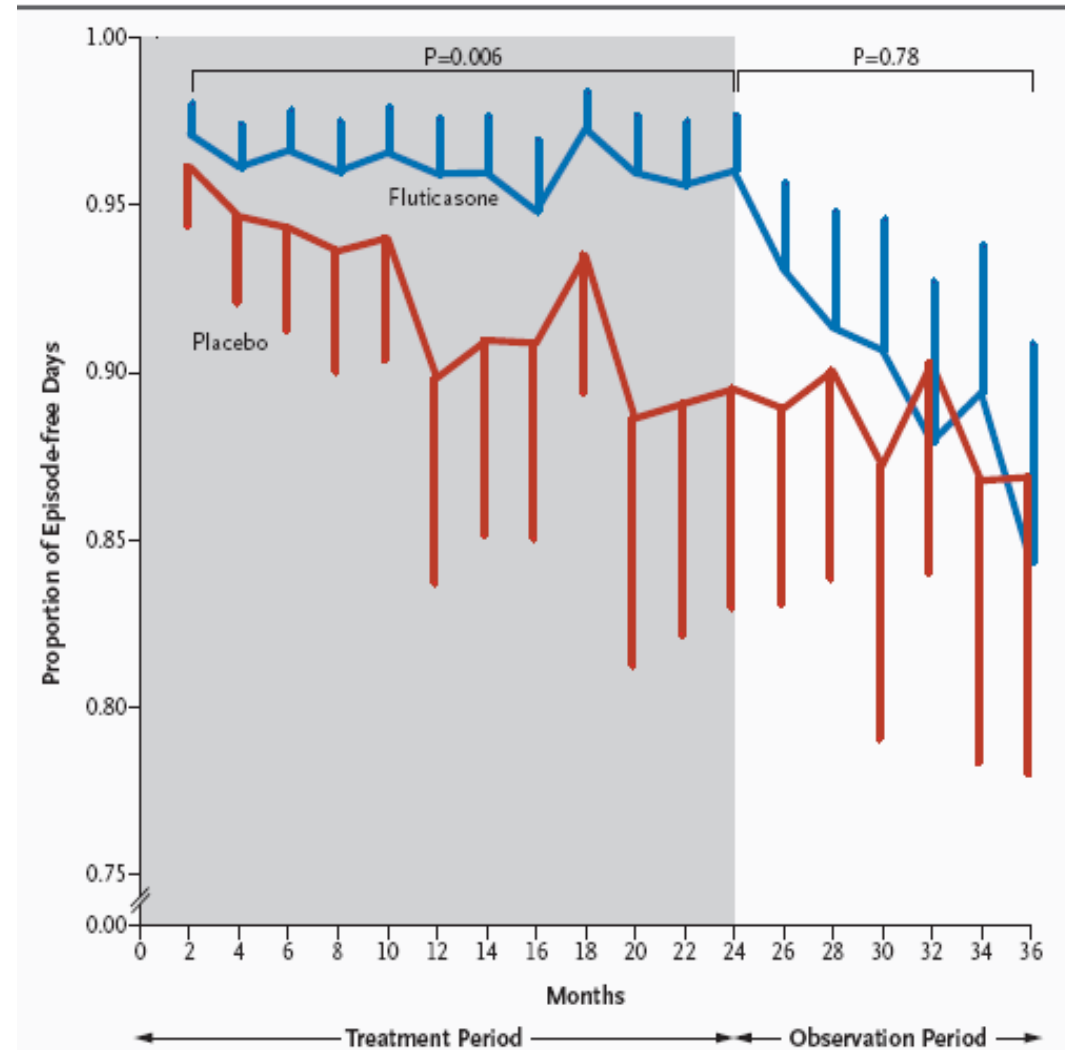


LONG-TERM INHALED CORTICOSTEROIDS IN PRESCHOOL CHILDREN AT HIGH RISK FOR ASTHMA (PEAK Study)

Guilbert NEJM 2006; 354: 1985

Bimonthly proportion of episode-free days during the two year treatment period and the observation period.

- ✓ 285 ch. 2-3 yrs old with (+) Asthma Predictive Index
- ✓ Fluticasone Prop. 100 µg x 2 or placebo for 2 years
- ✓ 1 year follow-up without medication

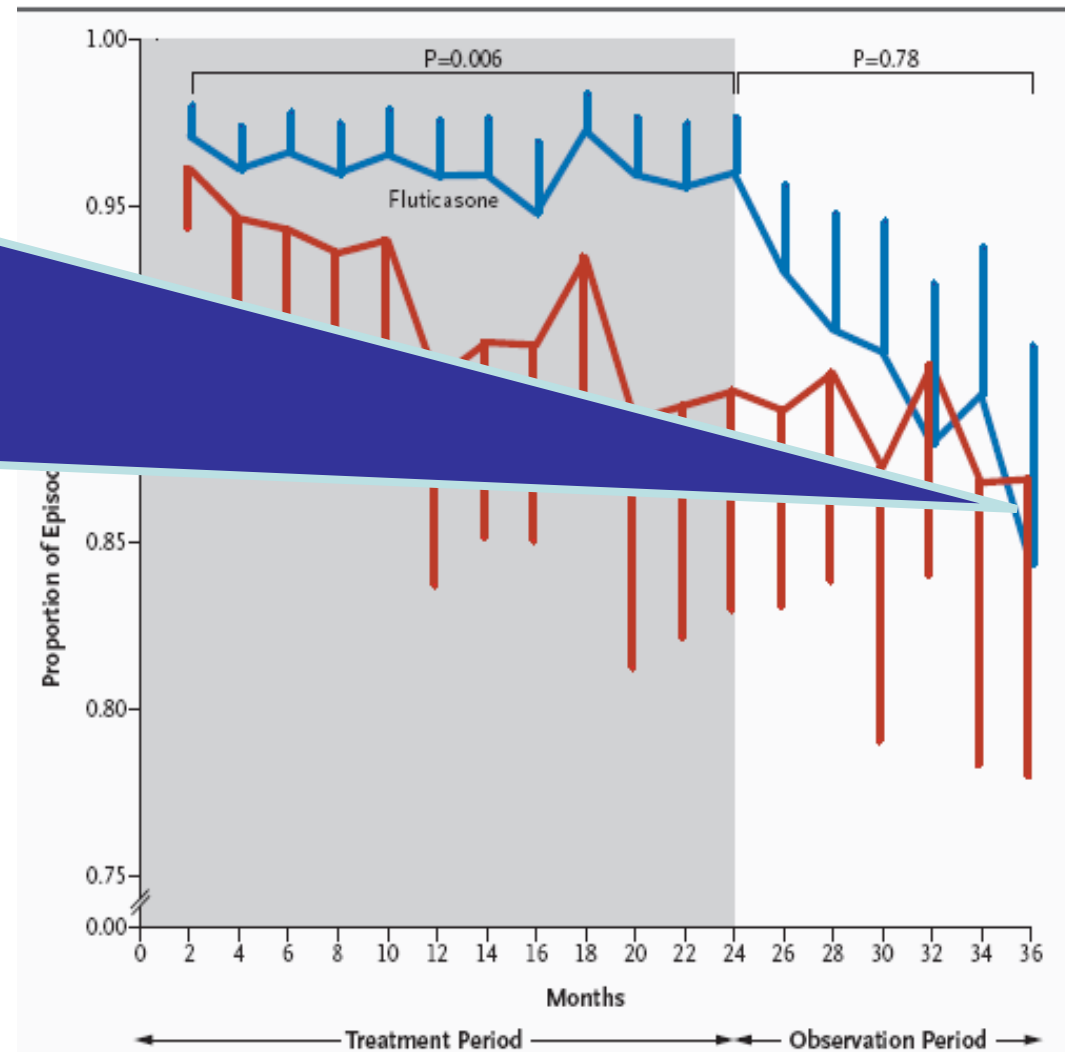


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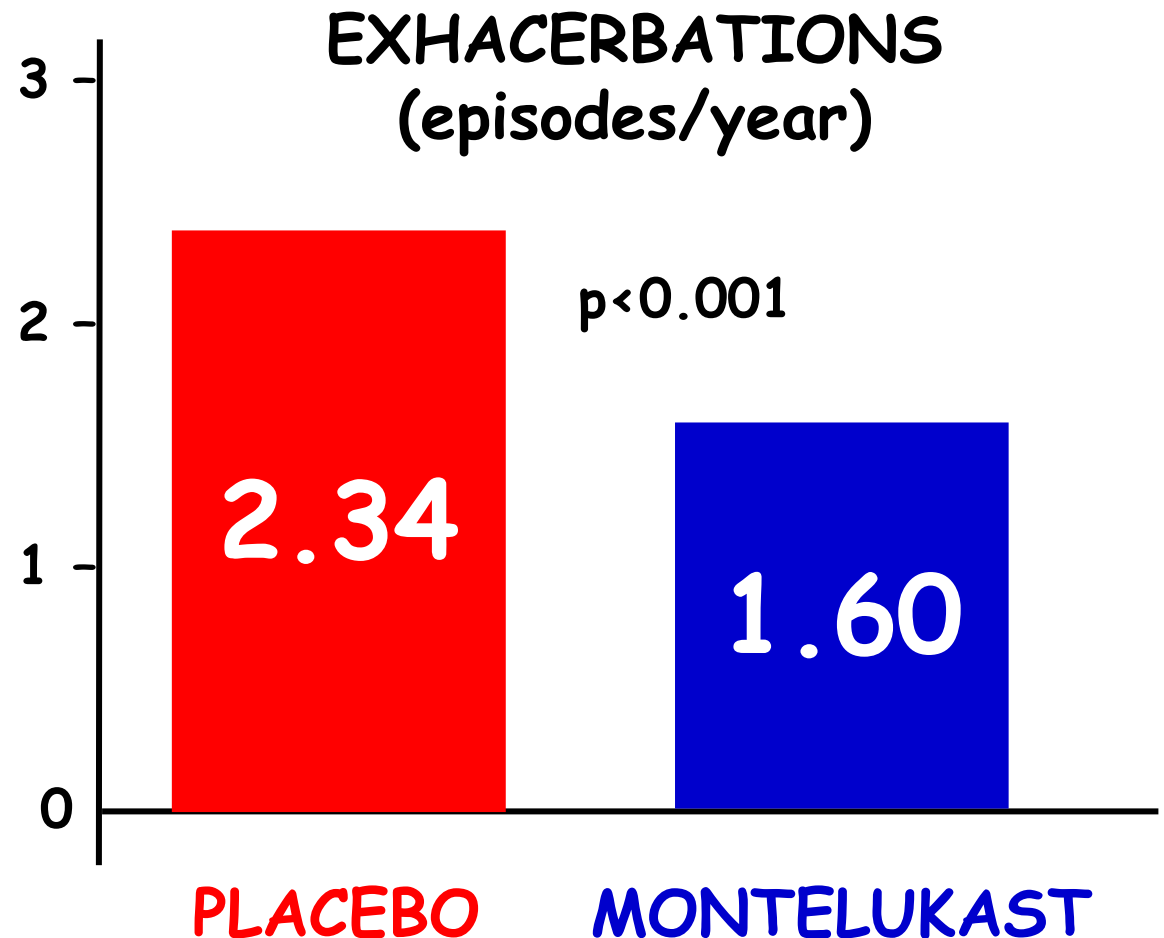
Bimonthly proportion of episode-free days during the two year treatment period and the observation period.

These findings do not provide support for a subsequent disease-modifying effect of inhaled corticosteroids after the treatment is discontinued.



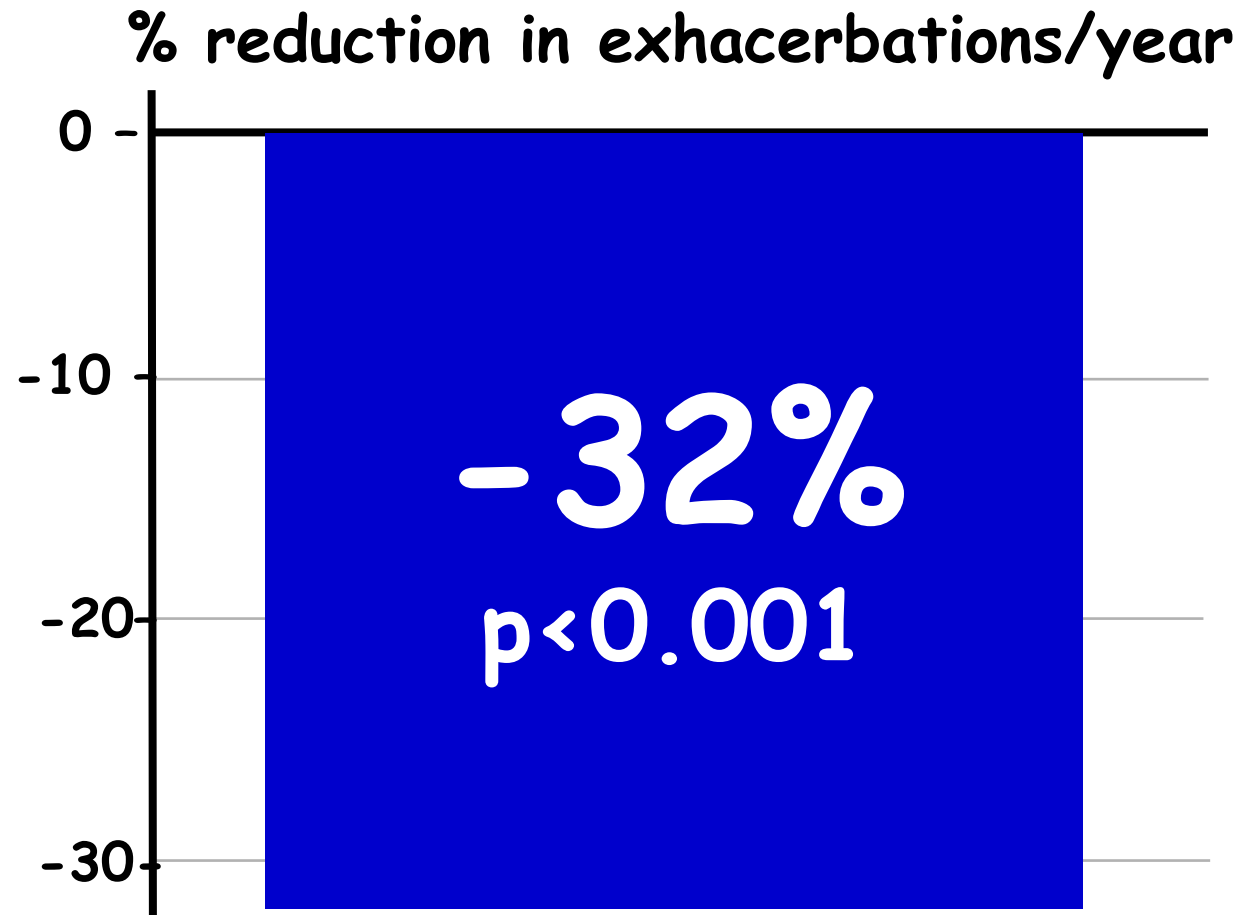
Montelukast reduces asthma exacerbations in 2 to 5 year old children with intermittent asthma (PREVIA Study). *Bisgaard ARCCM 2005;171:315*

- ✓ 549 (2-5 yrs) ch. with a history of episodic wheezing;
- ✓ Montelukast 4-5 mg for 48 weeks; or placebo;
- ✓ Rates of exacerbations.

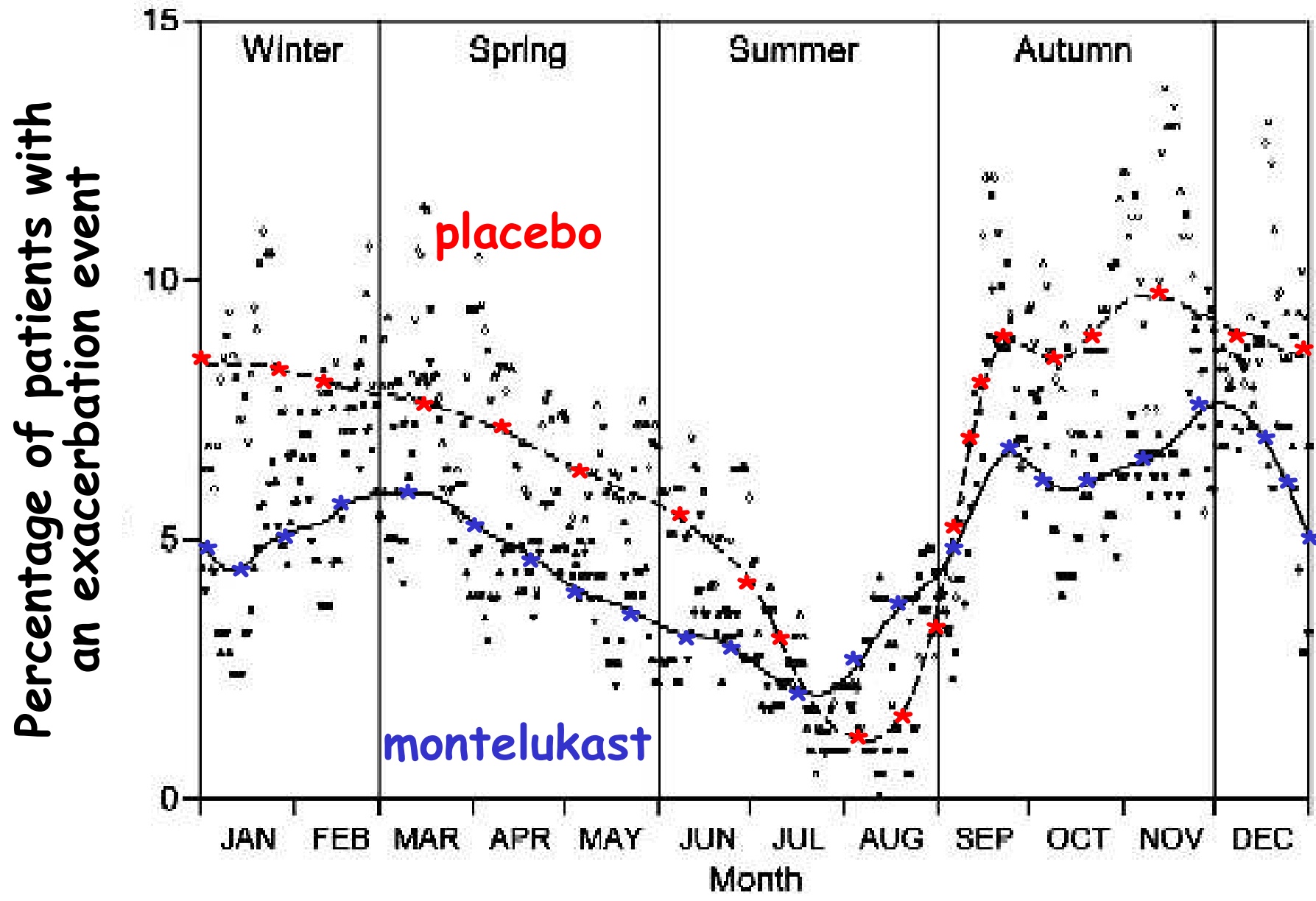


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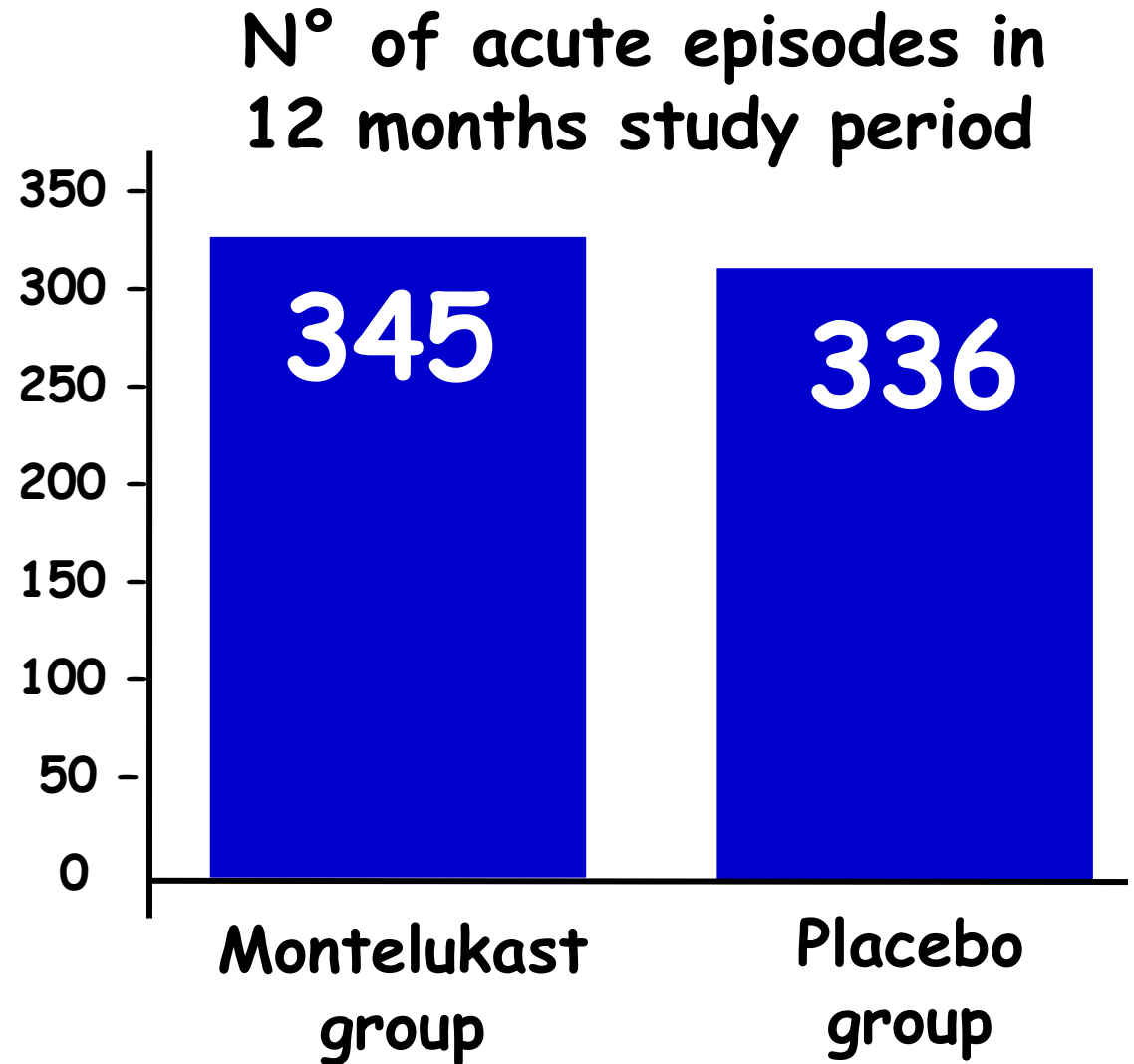
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SHORT COURSE MONTELUKAST FOR INTERMITTENT ASTHMA IN CHILDREN

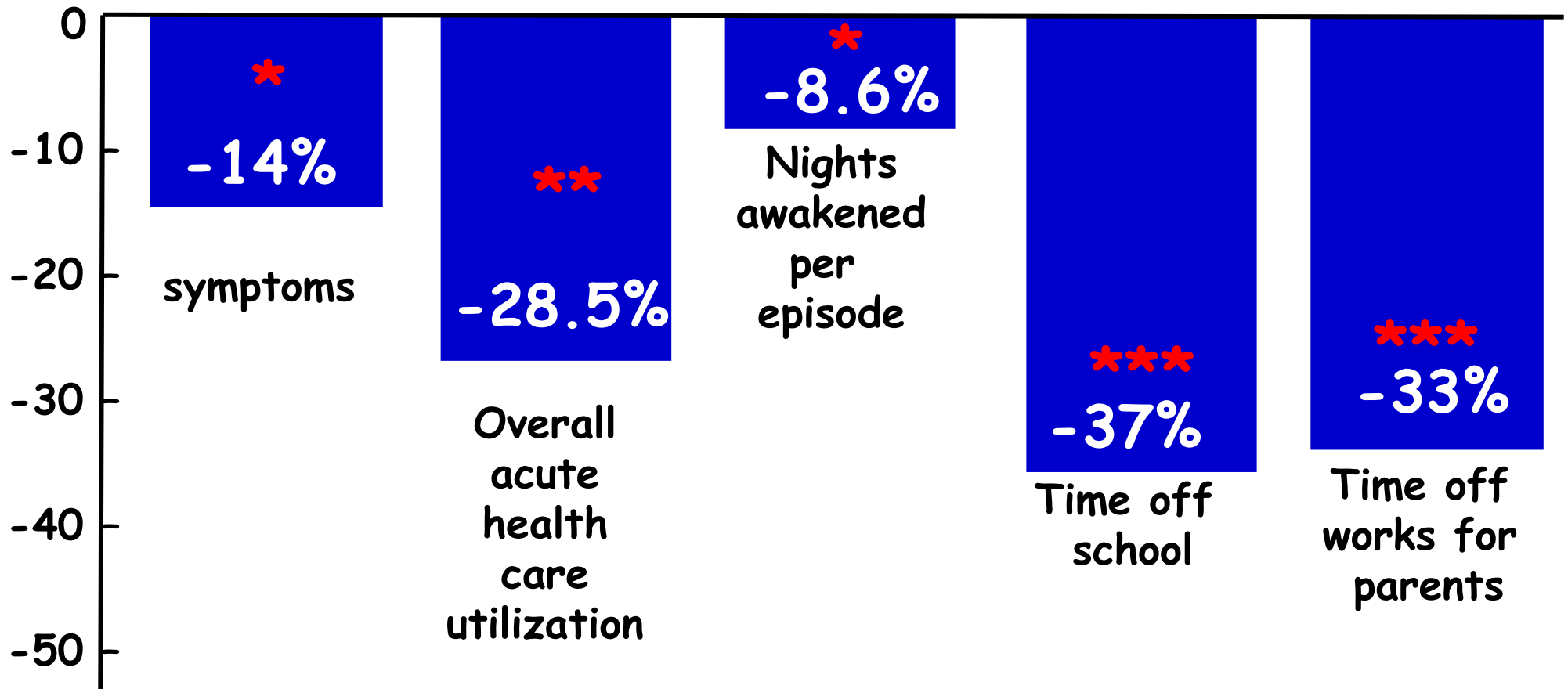
Robertson AJRCCM 2007; 175:323

- ✓ 220 ch (2-14 yrs) with intermittent asthma
- ✓ Short course of Montelukast (4 mg or 5 mg) introduced at the onset of an acute asthma episode and continued for a minimum of 7 days or until symptoms had resolved for 48 hours
- ✓ Follow-up 12 months



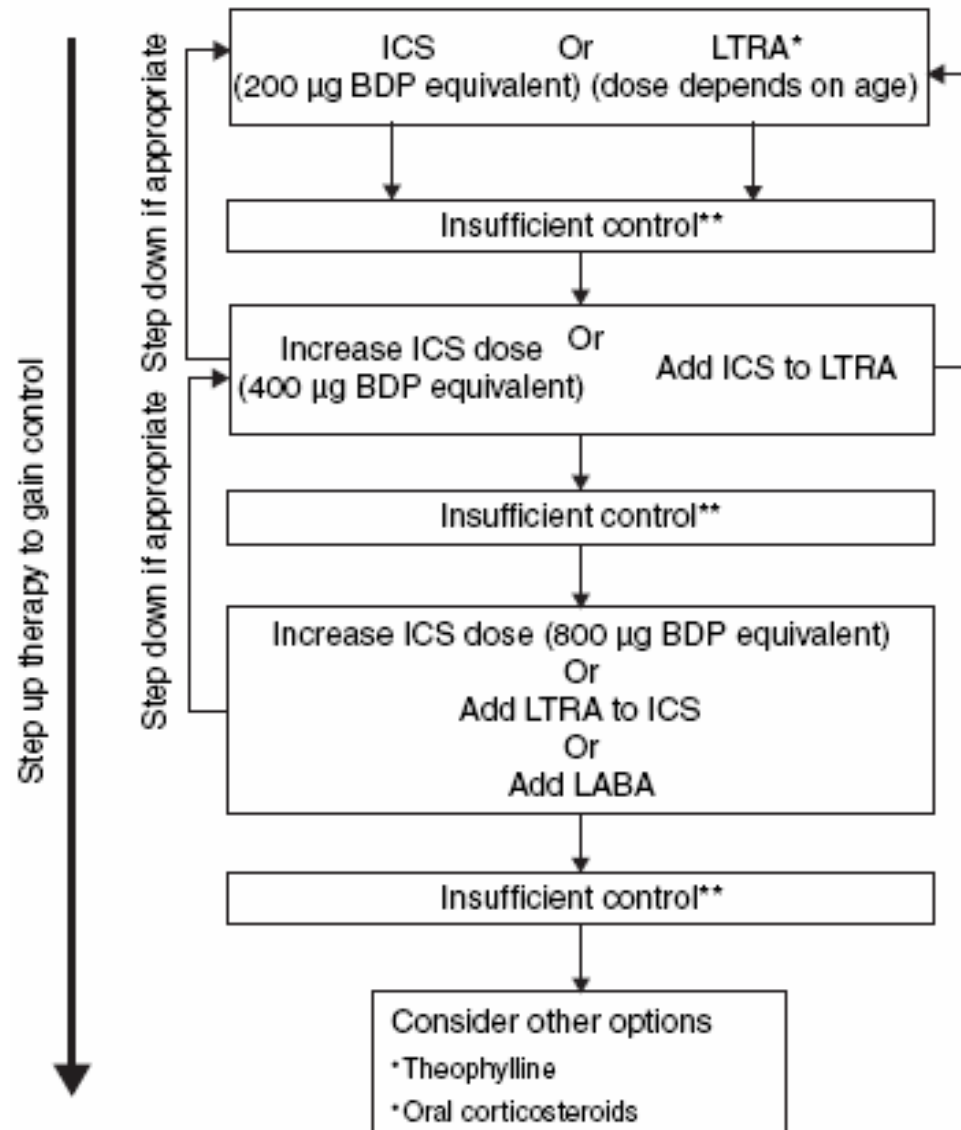
SHORT COURSE MONTELUKAST FOR INTERMITTENT ASTHMA IN CHILDREN *Robertson AJRCCM 2007; 175:323*

In Montelukast treated group compared to placebo



* p<0.05 ** p<0.01 *** p<0.0001

Diagnosis and treatment of asthma in childhood: a PRACTALL consensus report. *Bacharier Allergy 2008; 63:5*



* LTRA may be particularly useful if the patient has concomitant rhinitis

** Check compliance, allergen avoidance and re-evaluate diagnosis

*** Check compliance and consider referring to specialist

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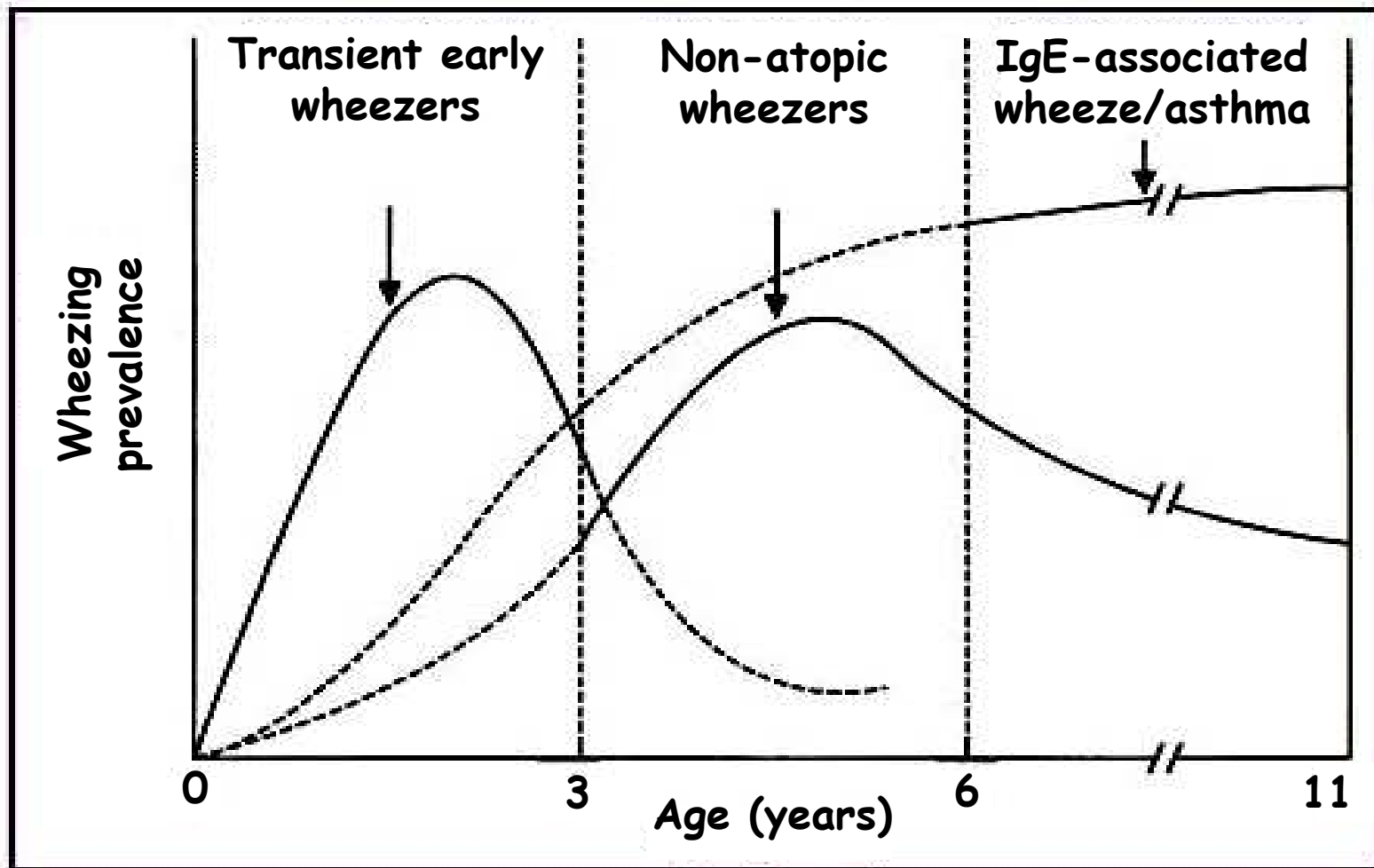
Clinica Pediatrica di Verona

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HYPOTHETICAL YEARLY PEAK PREVALENCE OF WHEEZING ACCORDING TO PHENOTYPE IN CHILDHOOD

Martinez F., Pediatrics 2002; 109: 362



Diagnosis and treatment of asthma in childhood: a PRACTALL consensus report. *Bacharier Allergy 2008; 63:5*

Different patterns of recurrent wheeze in children

1. Transient wheezing
2. Nonatopic wheezing
3. Persistent asthma

Martinez F
NEJM 1995

Bacharier L
JACI 2007

4. **Severe intermittent wheezing.** Infrequent acute wheezing episodes associated with the following:
 - Minimal morbidity outside of time of respiratory tract illness
 - Atopic characteristics, including eczema, allergic sensitization and peripheral blood eosinophilia

Diagnosis and treatment of asthma in childhood: a PRACTALL consensus report. *Bacharier Allergy 2008; 63:5*

Different patterns of recurrent wheeze in children

1. Transient

Martinez F
JAMA 1995

2. M

3.

Bacharier L
JACI 2007

However, patterns can only be discriminated retrospectively and are not suitable for use when treating the child

4. Frequent acute wheezing

showing:

• Minimal history of respiratory tract illness

tract illness

• Atopic characteristics, including eczema, allergic sensitization and peripheral blood eosinophilia

Diagnosis and treatment of asthma in childhood: a PRACTALL consensus report. *Bacharier Allergy 2008; 63:5*

Different patterns of recurrent wheeze in children

1. Transient

2. M

3.

4.

• Min

tract illness

• Atopic characteristics, including eczema, allergic sensitization and peripheral blood eosinophilia

However, patterns only be discriminated retrospectively

not suitable for treating the

• Overlap between groups is considerable

• Age limits applied are arbitrary

Definition, assessment and treatment of wheezing disorders in preschool children - an evidence based approach. ERS Task force 2008

DEFINITIONS OF DURATION OF WHEEZE OVER TIME

Transient wheeze = symptoms which commenced before the age of three years and (retrospectively) are found to have disappeared by age of six years. Transient wheeze may be episodic or continuous.

Persistent wheeze = symptoms (retrospectively) which are found to have continued until the age of six years or older. Persistent wheeze may be episodic or continuous.

Late onset wheeze = symptoms which start after age of three years. Late onset wheeze may be episodic or continuous.

Definition, assessment and treatment of wheezing disorders in preschool children - an evidence based approach. ERS Task force 2008

DEFINITIONS OF TEMPORAL PATTERN OF WHEEZE

Episodic (viral) wheeze = wheezing at discrete time periods, often in association with clinical evidence of a viral cold, with absence of wheeze between episodes

Multiple trigger wheeze = wheezing which has discrete exacerbations, but there are also symptoms between episodes

Definition, assessment and treatment of wheezing disorders in preschool children - an evidence based approach. ERS Task force 2008

Episodic (viral) wheeze

- Child being well in between episodes
- Rhinovirus, RSV, coronavirus, metapneumovirus
- Severity: age, lung function, atopy, prematurity, exposure to tobacco smoke
- Declines over time to disappear by the age of 6 yrs

Definition, assessment and treatment of wheezing disorders in preschool children - an evidence based approach. ERS Task force 2008

Multiple trigger wheeze

- Wheezing which has discrete exacerbations, but there are also symptoms between episodes
- Persistent wheeze ? (the term is confusing because describe the long-term temporal outcome of wheeze)
- Triggers: allergen exposure, tobacco smoke exposure, crying, laughter or exercise

Diagnosis and treatment of asthma in childhood: a PRACTALL consensus report. **ICS**

A first-line treatment for persistent asthma.

- Reduces the frequency and severity of exacerbations
- Should be introduced as initial maintenance treatment when the patient has inadequate asthma control
- Atopy and poor lung function predict a favorable response to ICS
- If control is inadequate reasons should be identified
- The effect of ICS in older children begins to disappear as soon as treatment is discontinued
- New evidence does not support a disease-modifying role after cessation of treatment with ICS in preschool children

Bacharier Allergy 2008; 63:5

Diagnosis and treatment of asthma in childhood: a PRACTALL consensus report. **Montelukast**

An alternative first-line treatment for persistent asthma.

- Evidence supports use of oral montelukast as an initial controller therapy for mild asthma in children, as it provides bronchoprotection, and reduces airway inflammation
- Younger age (<10 years) and high levels of urinary leukotrienes predict a favorable response to LTRA.
- A therapy for patients who cannot or will not use ICS.
- Useful also as add-on therapy to ICS as their mechanisms of action are different and complementary.
- Suggested as treatment for viral-induced wheeze and to reduce the frequency of exacerbations in young children aged 2-5 years.
- Benefit has been shown in children as young as 6 months of age

Bacharier Allergy 2008; 63:5

The GINA guidelines 2008 revision: What's new for paediatricians?

- ✓ Focus on control, not severity
- ✓ The "control" concept requires further work, especially in children
- ✓ Drug therapy: ICS first choice
- ✓ No evidence for ICS/2^o controller combination if the dose of ICS is inadequate.
- ✓ LTRA for episodic viral wheeze
- ✓ Monitor patient, not lung function
- ✓ Education & partnership
- ✓ Asthma *can* be controlled!