Rakamlarla çocuklarda ağır astım: Ne kadar sık? Ne kadar sorun?

Dr. Arzu Bakırtaş

Çocuk Allerji BD

Sunum Planı

- Ağır astım tanımı
- Çocuklarda ağır astım sıklığı
- Çocuklarda ağır astımın sorunları
  - Semptom yükü /Acil ve Hastane yatışları
  - Psikolojik yük
  - Fizik aktivite
  - Hayat kalitesi
  - Ekonomik yük
  - Doğal seyirde erişkinin de sorunu olur mu?

Ağır astım tanımı

World Health Organization

ERS EUROPEAN RESPIRATORY SOCIETY

World Health Organization

1. Tedavi edilmemiş ağır astım
2. Tedavisi zor ağır astım
3. **Tedaviye dirençli ağır astım**

World Health Organization

Tedaviye dirençli ağır astım

- Tavsiye edilen en üst tedaviye rağmen kontrol alına alınamayan ağır astım ‘Refrakter astım’ veya ‘Kortikosteroidlere dirençli astım’
- Ancak tavsiye edilen en üst basamak tedavisiyle kontrol altına alınabilen astım

TABLE 3 Definition of severe asthma for patients aged ⩾6 years

Asthma which requires treatment with guidelines suggested medications for GINA steps 4–5 asthma (high dose ICS[#] and LABA or leukotriene modifier/theophylline) for the previous year or systemic CS for ⩾50% of the previous year to prevent it from becoming "uncontrolled" or which remains "uncontrolled" despite this therapy

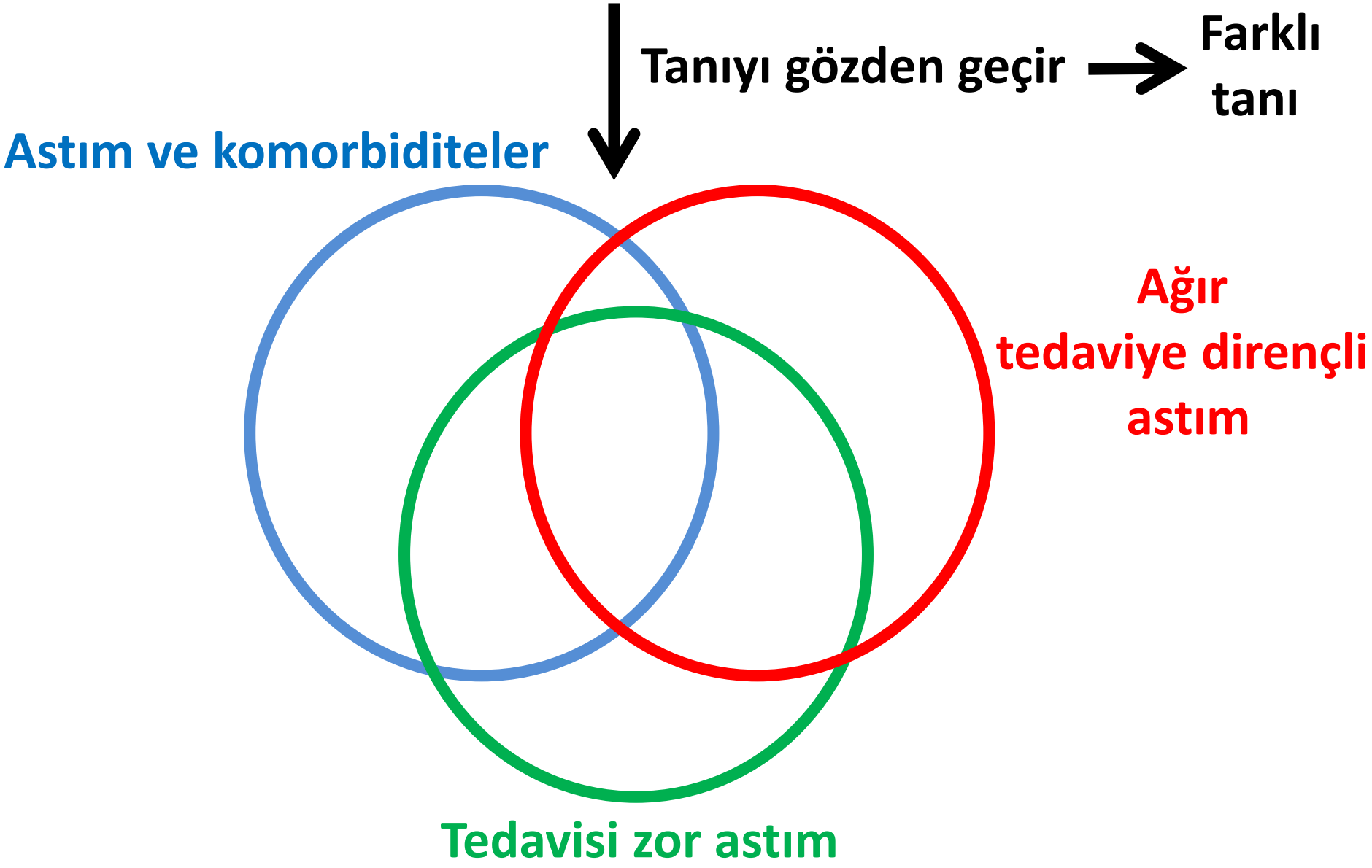
Uncontrolled asthma defined as at least one of the following:

1) Poor symptom control: ACQ consistently >1.5, ACT <20 (or "not well controlled" by NAEPP/GINA guidelines)
2) Frequent severe exacerbations: two or more bursts of systemic CS (>3 days each) in the previous year
3) Serious exacerbations: at least one hospitalisation, ICU stay or mechanical ventilation in the previous year
4) Airflow limitation: after appropriate bronchodilator withhold FEV_1 <80% predicted (in the face of reduced FEV_1/FVC defined as less than the lower limit of normal)

Controlled asthma that worsens on tapering of these high doses of ICS or systemic CS (or additional biologics)

En üst basamak astım tedavisine yanıt vermeyen ağır solunum yakınmaları

Tanıyı gözden geçir → Farklı tanı

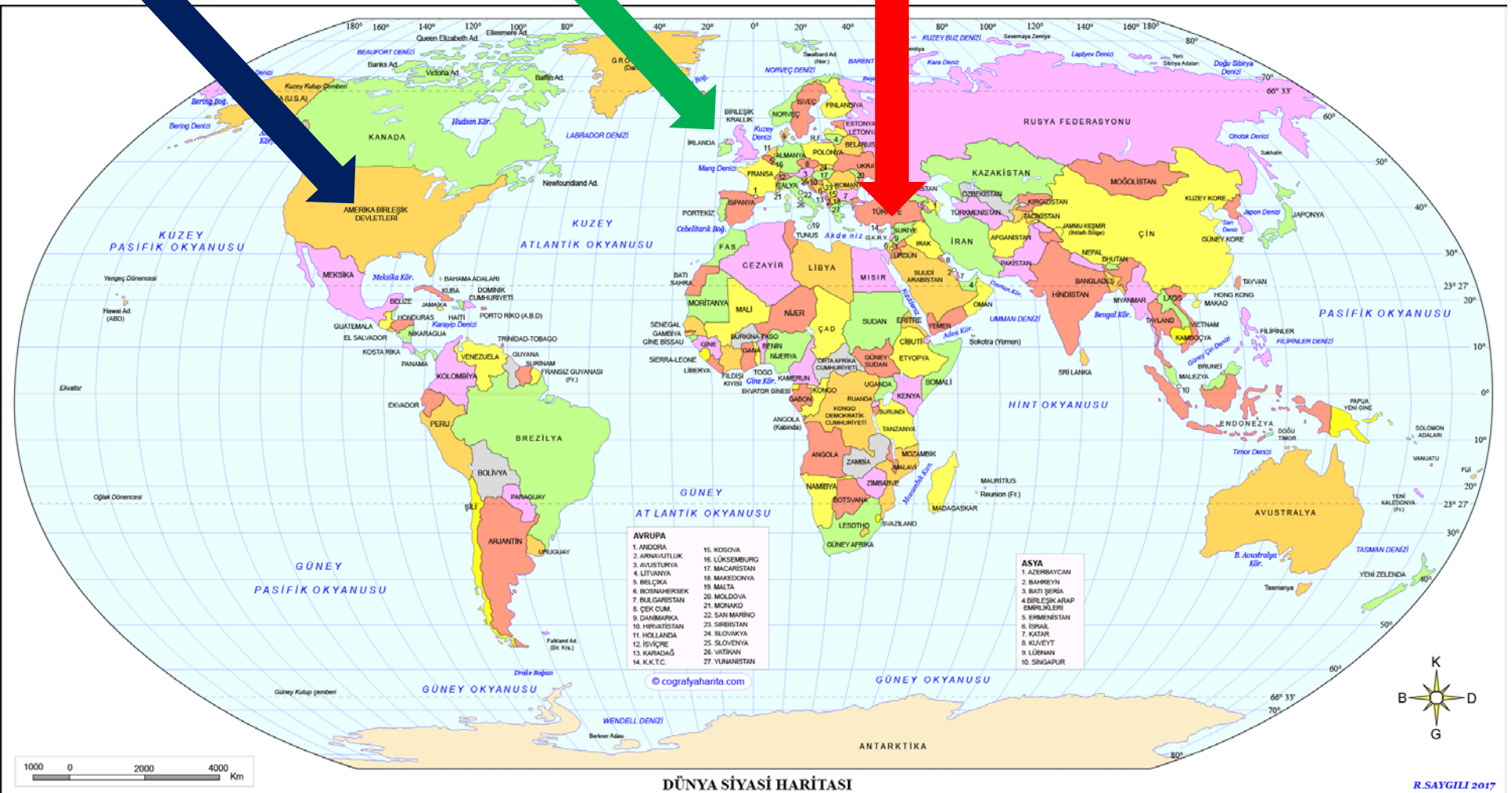


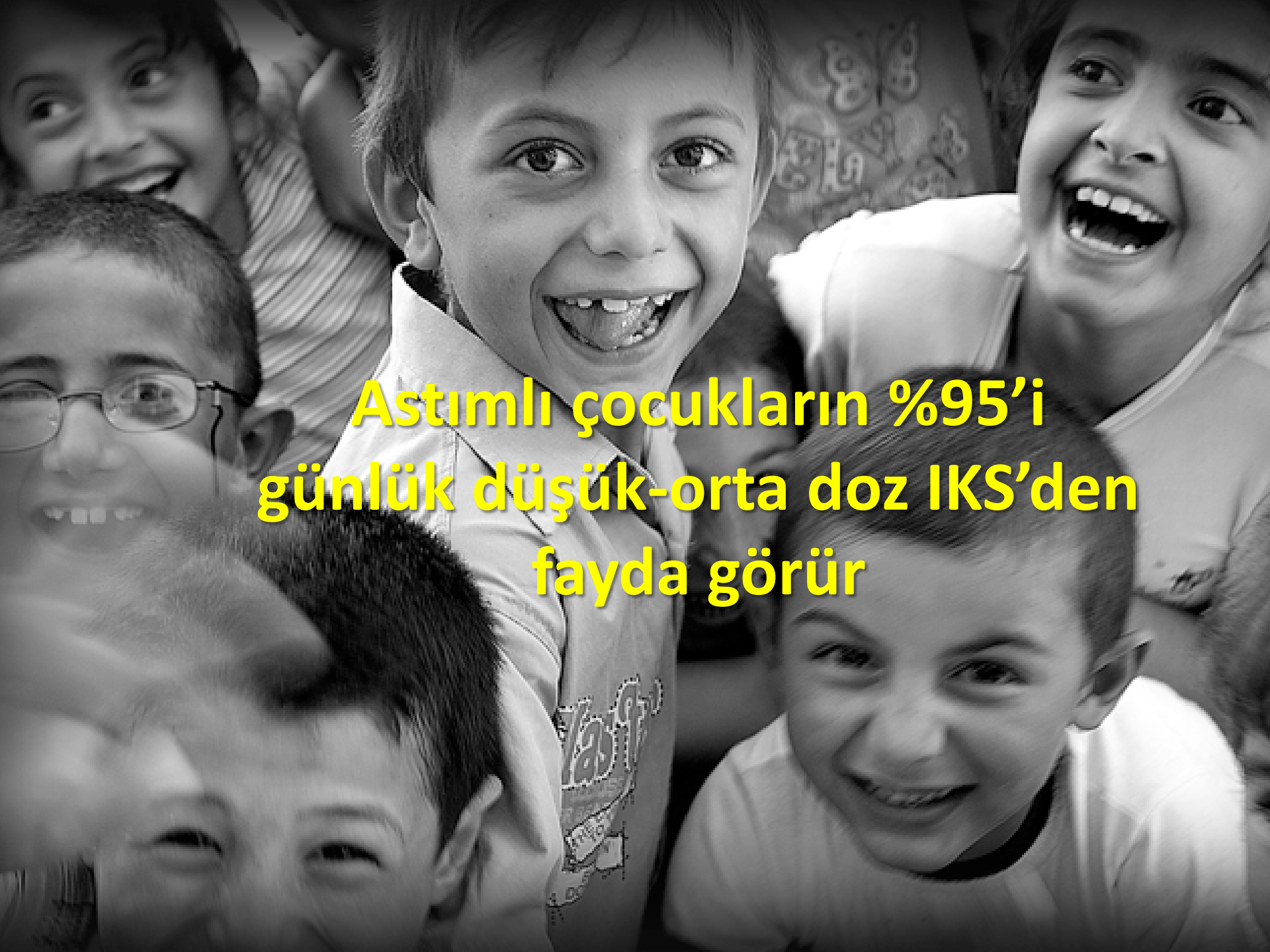
Çocuklarda astım sıklığı

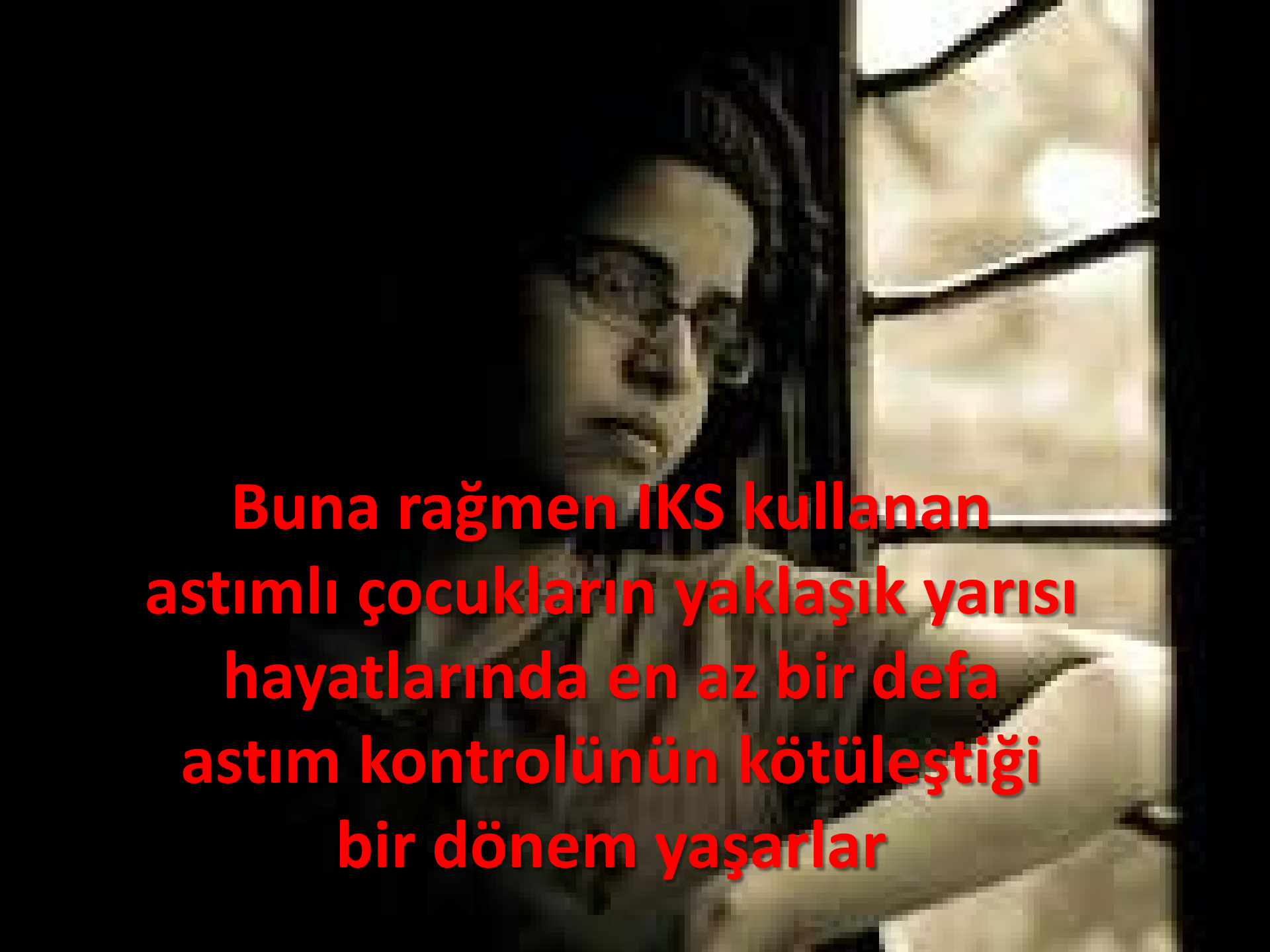
%8.6

%20

%13.3

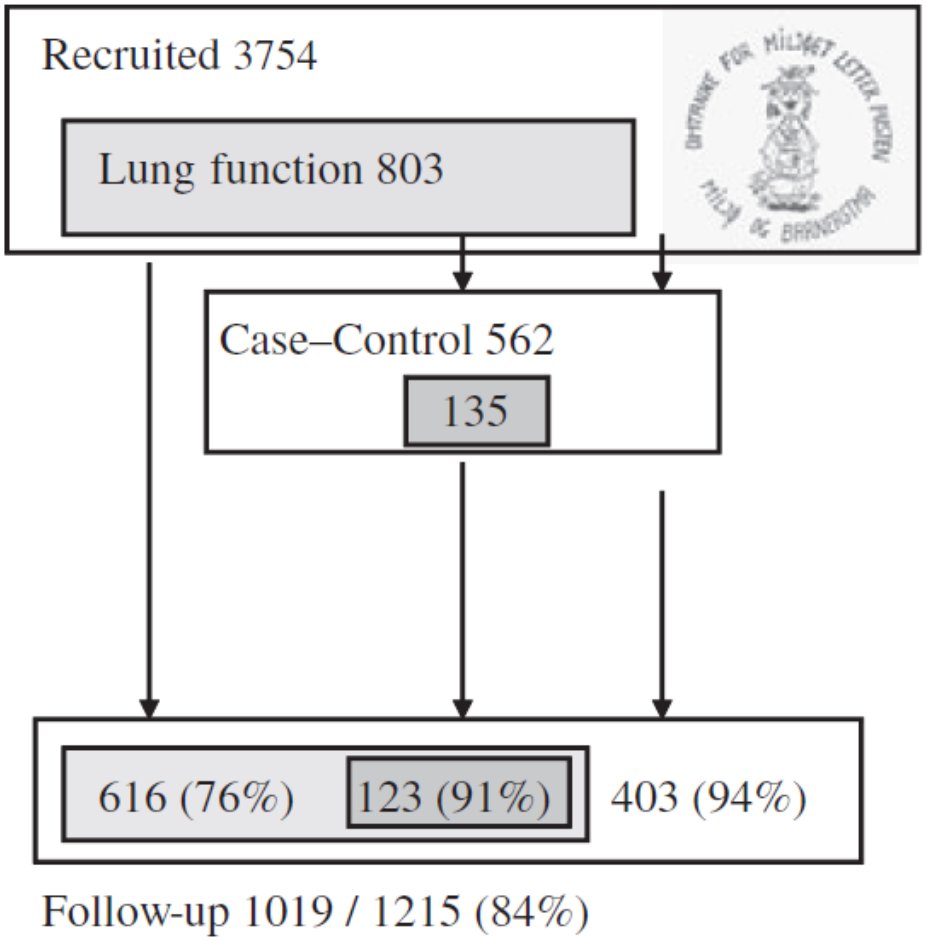



Astımlı çocukların %95'i
günlük düşük-orta doz IKS'den
fayda görür


Buna rağmen IKS kullanan
astımlı çocukların yaklaşık yarısı
hayatlarında en az bir defa
astım kontrolünün kötüleştiği
bir dönem yaşarlar

Çocuklarda ağır astım: Ne kadar sık?

Çevre ve Çocuklarda Astım 'ECA' Kohortu



Lang A, Allergy 2008

ECA Kohortu

10 yaş
n: 616

10 yaş
n: 67
Aktif astım
(%10.8)

10 yaş
n: 3
Ağır astım
(%0.5)

Lang A, Allergy 2008

ECA Kohortu

Astımlı çocukların ne kadarı ağır astım?

10 yaş
Astım
n:67

10 yaş
Ağır astım
n:3

%4.5

Lang A, Allergy 2008

Doğumdan itibaren kohort çalışma

BAMSE Kohortu

Yenidoğan
n:4089

12 yaş
Astım
n:329
(%11)

12 yaş
n:3015

12 yaş
Ağır astım
n:7
(%0.23)

Nordlund B, Respir Med 2014

BAMSE Kohortu

Astımlı çocukların ne kadarı ağır astım?

12 yaş
Astım
n:329

12 yaş
Ağır astım
n:7

%2.1

Çocuklarda ağır astım: Ne kadar sorun?

Ağır Astım Araştırma Çalışması ‘SARP’

- 6-17 yaş arası ağır astımlı çocuklar
- N: 300
- 2001-2011 yılları arası (10 yıl)

HHS Public Access

Author manuscript

J Allergy Clin Immunol Pract. Author manuscript; available in PMC 2017 January 01.

Published in final edited form as:

J Allergy Clin Immunol Pract. 2016 ; 4(1): 11–19. doi:10.1016/j.jaip.2015.10.008.

Severe Asthma in Children: Lessons Learned and Future Directions

Anne M. Fitzpatrick, Ph.D.[1,2]

[1]Emory University Department of Pediatrics, Atlanta, Georgia

[2]Children’s Healthcare of Atlanta Center for Cystic Fibrosis and Airways Disease Research

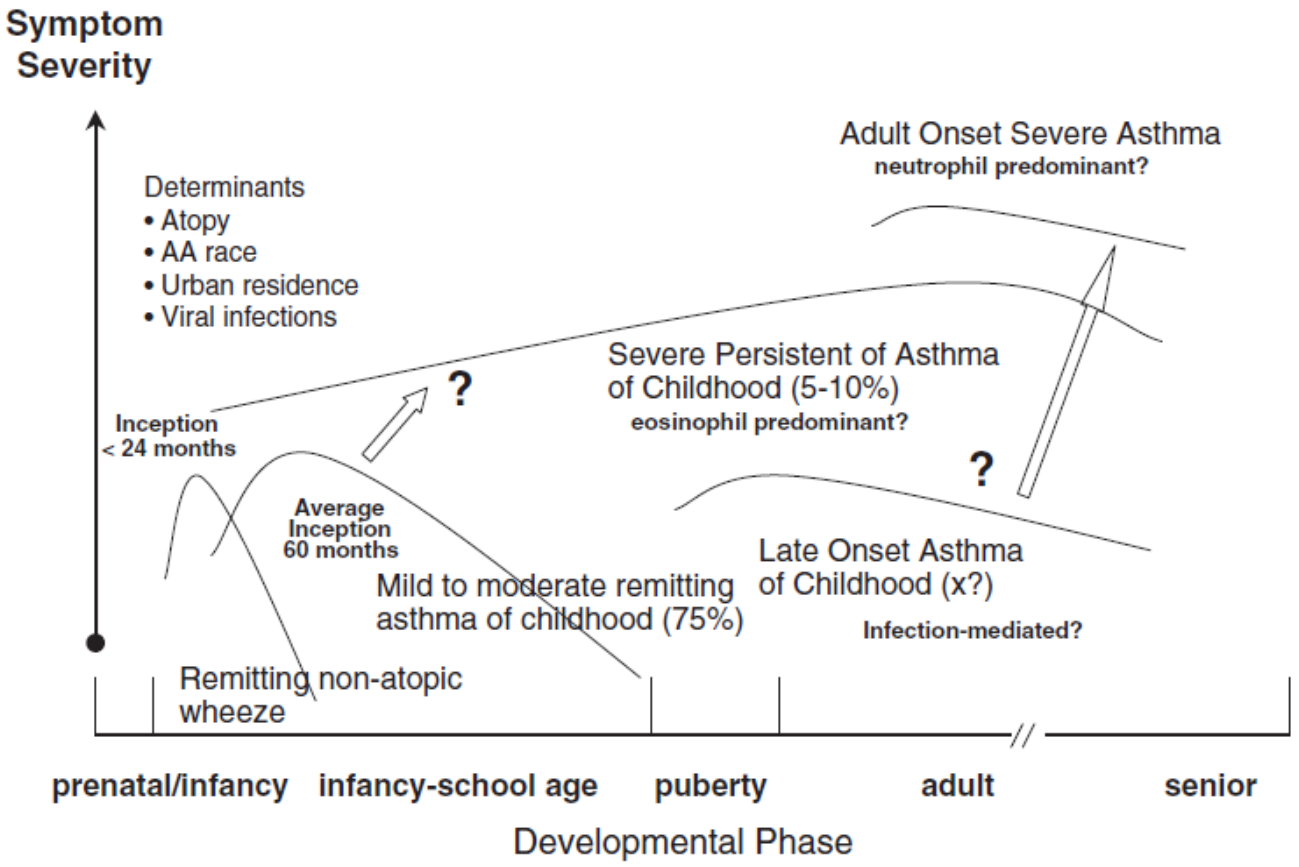
SARP Ağır Astım Kriterleri

TABLE 1. THE SEVERE ASTHMA RESEARCH PROGRAM DEFINITION OF SEVERE ASTHMA, ADAPTED FROM THE AMERICAN THORACIC SOCIETY WORKSHOP ON REFRACTORY ASTHMA[16]

Major criteria for severe asthma (must have at least 1 to achieve asthma control):
Treatment with high-dose inhaled corticosteroids
Treatment with continuous oral corticosteroids (at least 50% of the year)
Minor criteria for severe asthma (must have at least 2):
Treatment with additional controller medications to maintain asthma control
Daily use of short-acting bronchodilators (5 of 7 days)
Persistent airflow obstruction, with baseline FEV_1 <80% predicted
One or more urgent care visits for asthma in the previous year
Three or more oral corticosteroid bursts in the previous year
A history of prompt deterioration in asthma symptoms with a reduction in the dose of inhaled corticosteroids or oral corticosteroids
A near-fatal asthma event requiring intubation in the past

Fitzpatrick AM, Pediatr Allergy Immunol Pulmonol 2010

Ağır Astım Araştırma Çalışması 'SARP'



Fitzpatrick AM, Pediatr Allergy Immunol Pulmonol 2010

SARP

	Age 6–11 years		
	Mild-to-moderate asthma, n = 45	*Severe asthma, n = 48*	*P value*
Male	25 (56)	22 (45)	0.233
Caucasian	23 (51)	12 (25)	0.039
Emergency room visit[a]	20 (46)	37 (78)	0.002
Hospitalization[a]	7 (16)	31 (65)	<0.001
History of intubation	0	11 (23)	0.031
Daily oral corticosteroids	0	4 (8)	0.067
Daily short-acting bronchodilator use	8 (18)	29 (60)	<0.001
Number of aero-allergen skin prick responses (out of 12)	1.5 (0–9)	3 (0–10)	0.086
Serum immunoglobulin E (kU/L)[b]	196 (2–3,484)	335 (9–3,511)	0.007
Blood eosinophils (%)[b]	4.2 (0.4–13.2)	4.2 (0.2–23.8)	0.389
Exhaled nitric oxide (ppb, offline)[b]	7.1 (2.2–28.3)	13.6 (4.2–45.8)	0.004
Baseline FEV_1 (%)	98 (78–142)	87 (57–123)	0.002
Maximum FEV_1 (%)	105 (89–158)	101 (65–142)	0.005

Fitzpatrick AM, Pediatr Allergy Immunol Pulmonol 2010

SARP

	Age 12–17 years		
	Mild-to-moderate asthma, n = *30*	*Severe asthma*, n = *30*	P *value*
Male	17 (59)	19 (61)	0.521
Caucasian	17 (59)	6 (19)	0.008
Emergency room visit[a]	5 (17)	25 (81)	<0.001
Hospitalization[a]	1 (3.4)	20 (65)	<0.001
History of intubation	0	9 (29)	0.001
Daily oral corticosteroids	0	6 (19)	0.015
Daily short-acting bronchodilator use	7 (24)	20 (65)	0.002
Number of aero-allergen skin prick responses (out of 12)	1 (0–8)	4 (0–10)	<0.001
Serum immunoglobulin E (kU/L)[b]	117 (7–1,724)	571 (4–5,458)	0.006
Blood eosinophils (%)[b]	3.0 (0.3–13.0)	5.1 (0.2–23.6)	0.273
Exhaled nitric oxide (ppb, offline)[b]	7.6 (2.7–27.9)	11.4 (5.4–30.0)	0.016
Baseline FEV_1 (%)	95 (70–129)	71 (37–105)	<0.001
Maximum FEV_1 (%)	99 (78–137)	90 (50–115)	0.002

Fitzpatrick AM, Pediatr Allergy Immunol Pulmonol 2010

Ağır Astım Araştırma Çalışması 'SARP'

Feature	Severe asthma, 6–11 years N = 68	Severe asthma, 12–17 years N = 73
Sex		
Males	34 (50)	44 (60)
Females	34 (50)	29 (40)
Race		
White	14 (21)	14 (19)
Black	47 (69)	49 (67)
Other	7 (10)	10 (14)
Age of asthma onset	1 (1, 2)	1 (1, 3)
Co-morbid conditions		
Obesity	18 (27)	18 (25)
Pneumonia	44 (66)	48 (67)
Sinusitis	25 (37)	38 (53)
Gastroesophageal reflux	24 (36)	37 (51)
Second-hand tobacco smoke exposure	9 (13)	23 (32)
Healthcare utilization (previous year)		
Emergency department visit	53 (78)	56 (77)
Hospitalization	43 (63)	34 (47)
Intubation for asthma-related respiratory failure (ever)	20 (29)	26 (36)
Daily asthma symptoms (past 3 months)	40 (60)	47 (65)

Fitzpatrick AM, JACI Pract 2016

Classifying Asthma Severity in Children

Mismatch Between Symptoms, Medication Use, and Lung Function

Leonard B. Bacharier, Robert C. Strunk, David Mauger, Deborah White, Robert F. Lemanske, Jr., and Christine A. Sorkness

5-18 yaş arası

n:219 çocuk ve adölesan

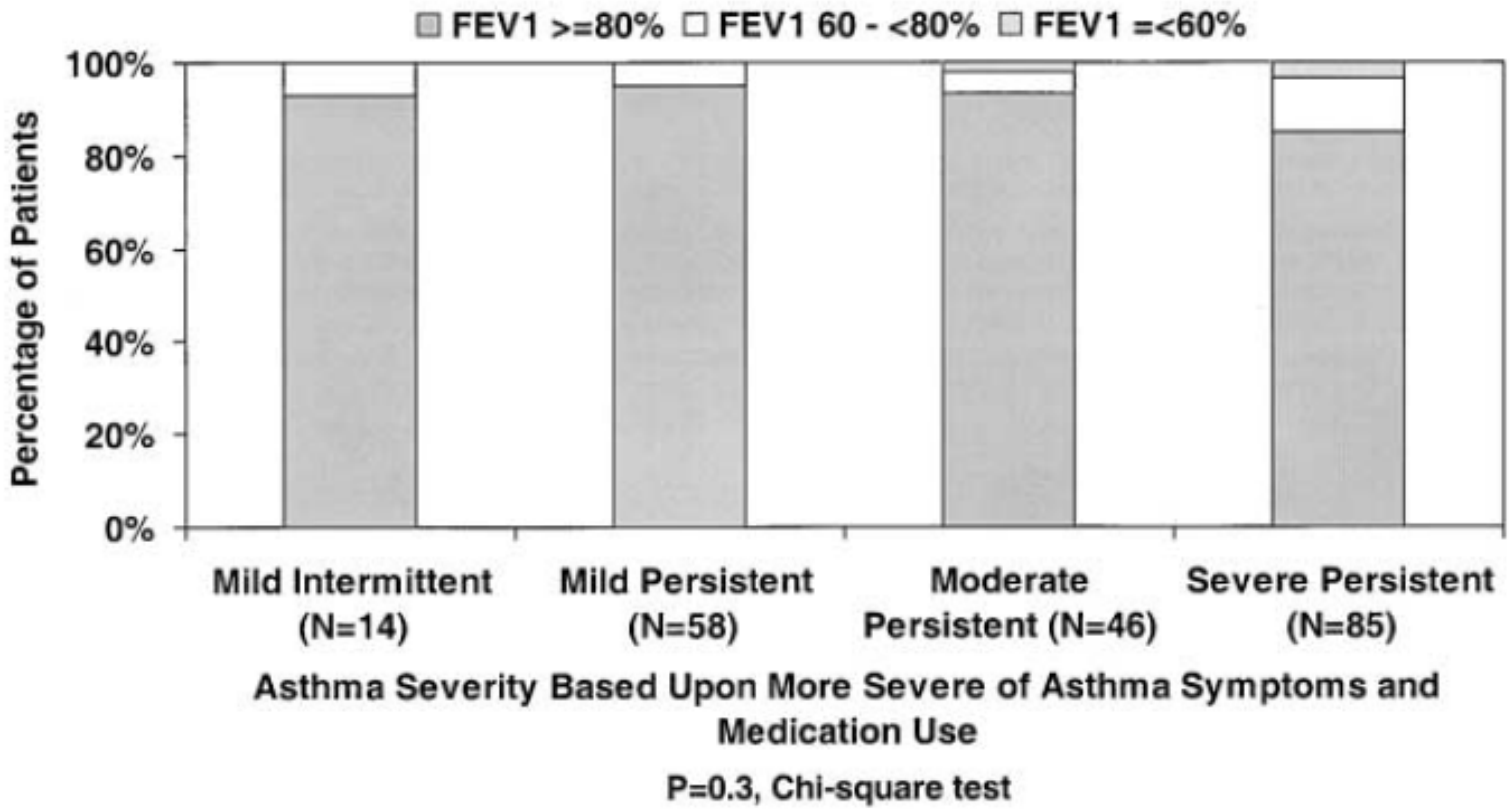
TABLE 1. CRITERIA FOR CLASSIFICATION OF ASTHMA SEVERITY

Severity	Daytime Symptoms	Nighttime Symptoms	Exertional Symptoms
Mild intermittent	⩽ 2 days/wk	⩽ 2 nights/mo	⩽ 2 times/mo
Mild persistent	3–6 days/wk	3–4 nights/mo	3–4 times/mo
Moderate peristent	Daily	5–9 nights/mo	5–9 times/mo
Severe persistent	Continuously	⩾ 10 nights/mo	⩾ 10 times/mo

TABLE 2. DISTRIBUTION OF PATIENTS BY LEVEL OF SEVERITY

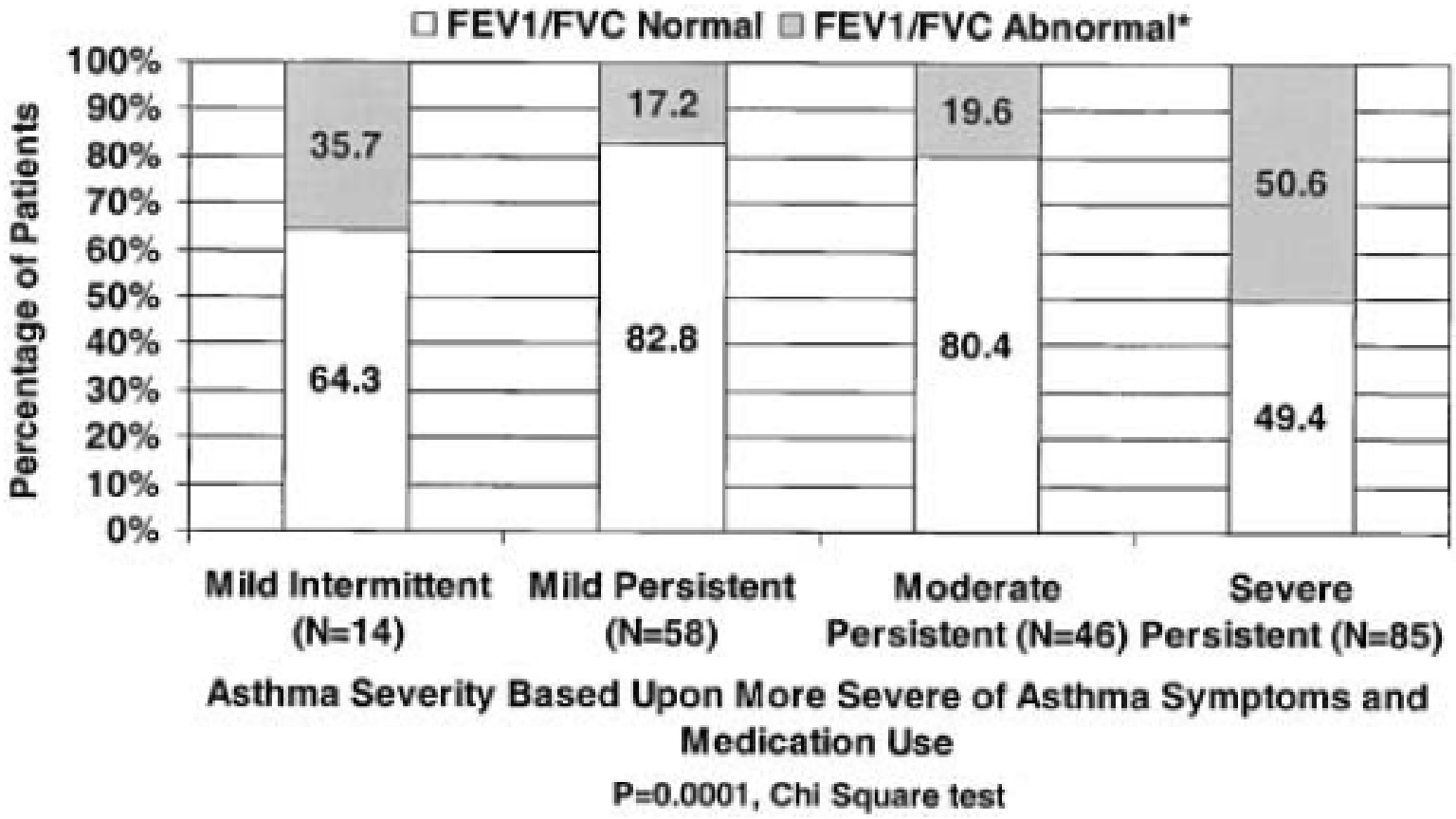
	Severity based on the following:		
	Symptoms (%)	Medications (%)	More Severe of Symptoms or Medications (%)
Mild intermittent	39.3	18.0	6.9
Mild persistent	28.8	26.7	27.9
Moderate persistent	15.1	20.4	22.4
Severe persistent	16.9	35.0	42.9

Ağır Astımlı çocuklarda SFT: FEV1 ataklar dışı normaldir



Bacharier L, AJRCCM 2004

Ağır Astımlı çocuklarda SFT: FEV1/FVC düşüktür



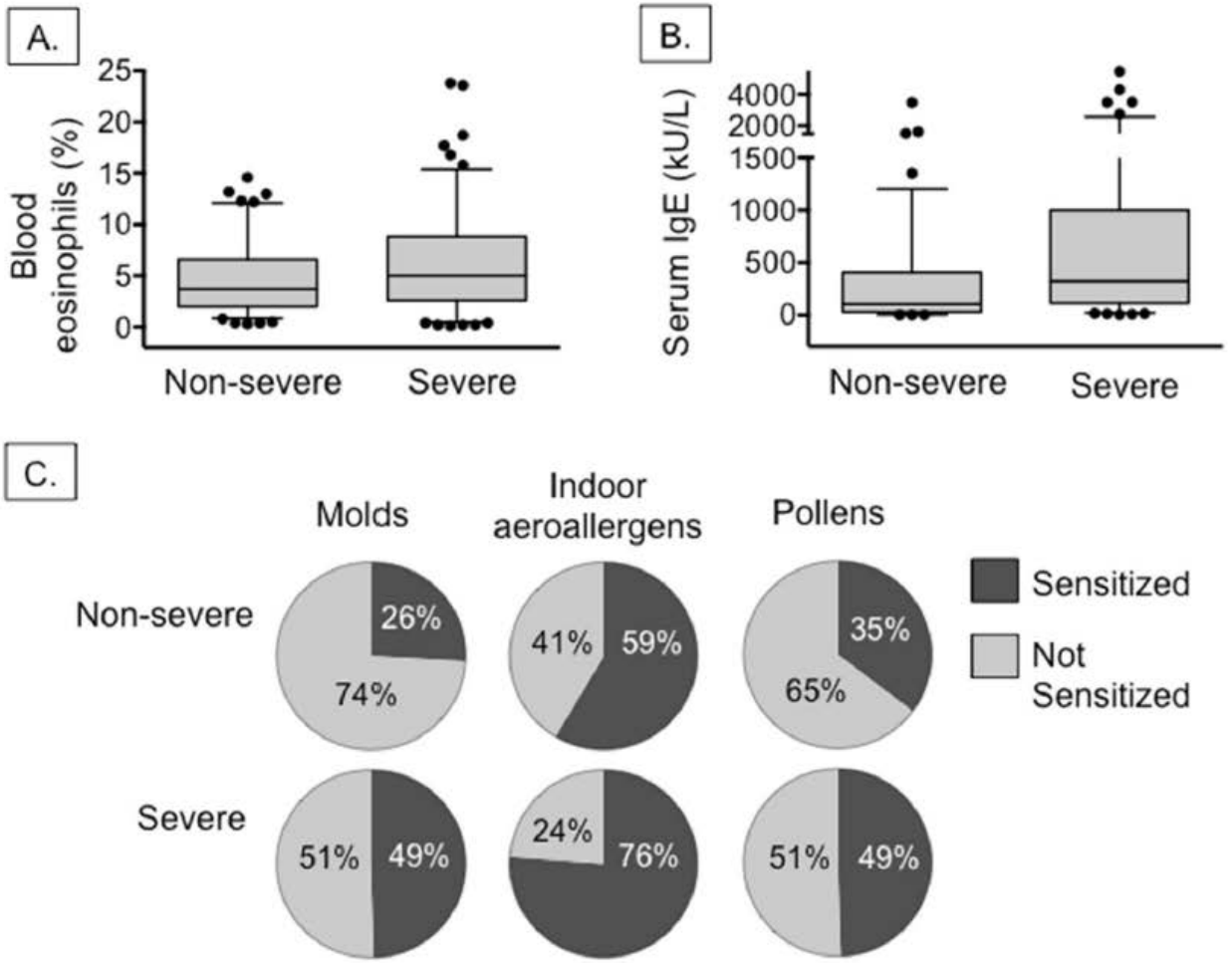
Bacharier L, AJRCCM 2004

SARP: RV/TLC artmıştır

		Prebronchodilator		
	Withhold†	Severe (n = 39)	Mild-to-moderate (n = 36)	*P*
TLC	Yes	97 ± 12	100 ± 17	.397
RV	Yes	121 ± 37	96 ± 32	.028
RV:TLC	Yes	.26 ± .08	.21 ± .06	.041

Fitzpatrick AM, JACI 2006

SARP



Fitzpatrick AM, JACI Pract 2016

Çocuklarda ağır astımın psikolojik sorunları

Çocuklarda persistan hışıltı varlığında içe dönük davranış paterni artar

TABLE 4 Adjusted Associations of Allergic Disease Predictors and Elevated Anxiety, Depressive, and Internalizing Disorder BASC-2 Scores at Age 7 Years

Predictor Variables	Elevated Internalizing Symptoms T Score[a] ($n = 73$)		Elevated Anxiety T Score[b] ($n = 83$)		Elevated Depression T Score[c] ($n = 59$)	
	OR	95% CI	OR	95% CI	OR	95% CI
Rhinitis[d] ($n = 203$)						
Allergic SPT+ ($n = 119$)	3.2#	1.8–5.8	2.0*	1.2–3.6	3.2#	1.7–6.5
Persistent wheezing[d] ($n = 52$)						
Allergic SPT+ ($n = 29$)	2.7*	1.2–6.3	—[e]	—[e]	2.3	0.9–5.8

Nanda MK, Pediatrics 2016

Ağır astım adölesanda depresyon (1.7 kat), panik atak (1.9 kat) ve anksiyetiyi (1.6 kat) artırır

Goodwin RD, Psychol Med 2004

Astımlı çocukları olan ebeveynlerde depresyon ve anksiyete artar

Systematic Review and Meta-Analysis of Anxious and Depressive Symptoms in Caregivers of Children With Asthma

Gemma Easter, PhD Candidate, Louise Sharpe, PhD, and Caroline J. Hunt, PhD

School of Psychology, The University of Sydney

Çocuklarda ağır astımda fizik aktivite sorunu

Montella *et al. Italian Journal of Pediatrics* (2016) 42:9
DOI 10.1186/s13052-016-0217-z

Italian Journal of Pediatrics

RESEARCH Open Access

Severe asthma features in children: a case–control online survey

Silvia Montella[1], Eugenio Baraldi[2], Salvatore Cazzato[3], Raffaele Aralla[4], Mariangela Berardi[2], Luigia Maria Brunetti[5], Fabio Cardinale[6], Renato Cutrera[7], Fernando Maria de Benedictis[8], Emanuela di Palmo[3], Sabrina Di Pillo[9], Grazia Fenu[10], Stefania La Grutta[11,12], Enrico Lombardi[10], Giorgio Piacentini[13], Francesca Santamaria[1], Nicola Ullmann[7], Franca Rusconi[14*] and the Italian Pediatric Severe Asthma Network (IPSAN) on behalf of the Italian Society of Pediatric Respiratory Diseases (SIMRI)

Table 3 Characteristics associated with severe asthma at logistic regression analysis in 41 patients with SA compared to 78 NSPA children

	OR	95 % CI	*p*
Lifetime atopic sensitization to cow's milk proteins/egg/peanuts	4.73	1.21–18.53	0.03
Lifetime hospital admission for asthma	3.71	1.11–12.33	0.03
Emergency-department visit for asthma during the past year	11.98	2.70–53.11	0.001
Nocturnal symptoms between exacerbations	1.16	0.34–3.97	0.8
Asthmatic symptoms triggered by physical activity	12.78	2.66–61.40	0.001
At least one smoking parent	1.54	0.45–5.25	0.5

OR odds ratio; *CI* confidence interval
Adjustments were made for all the listed factors and for age, gender, and center

Montella S, Italian J Pediatrics 2016

Çocuklarda ağır astımda hayat kalitesi

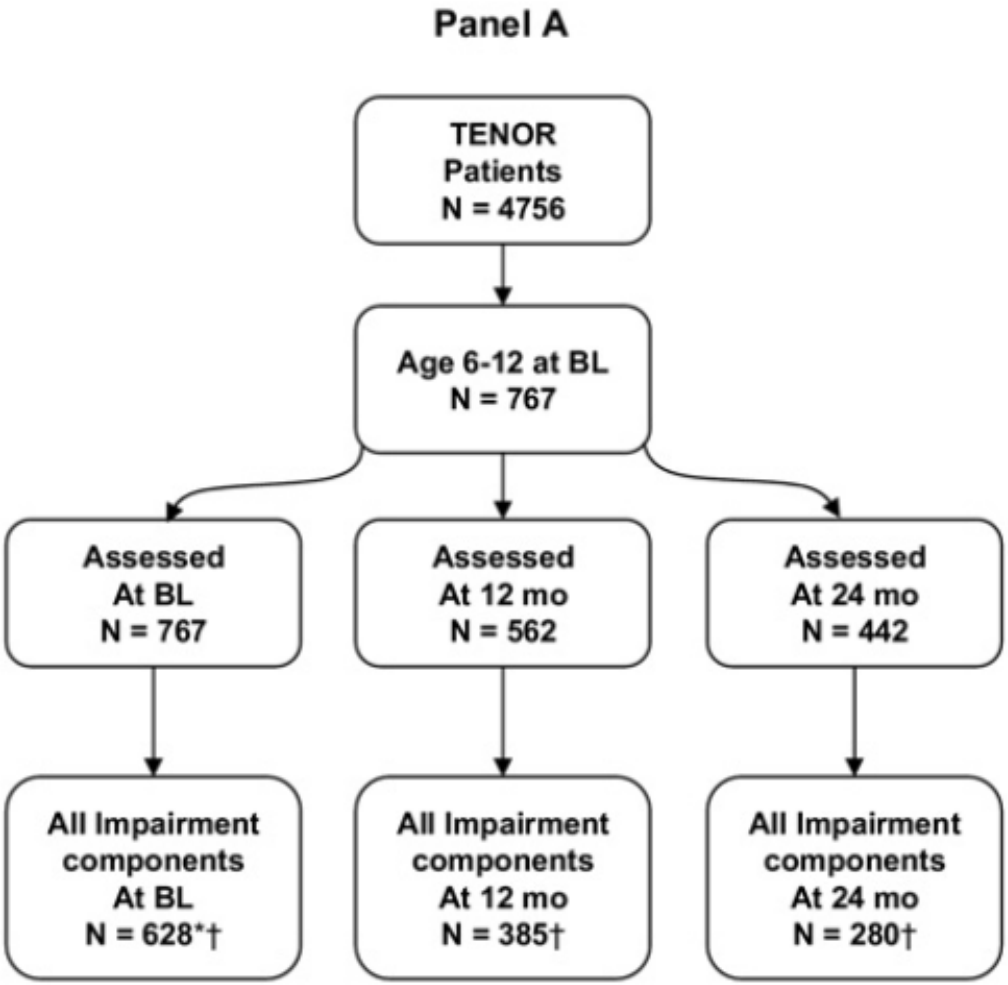
Table 4 Quality-of-life and wellbeing scores in children with severe asthma (SA) and non-severe persistent asthma (NSPA)

	SA ($n = 41$)	NSPA ($n = 78$)	p
HR-QoL scores			
Physical activity limitation domain	5.8 (2.0–7.0)	6.4 (3.4–7.0)	0.01
Symptom domain	5.9 (1.8–7.0)	6.5 (3.5–7.0)	0.01
Emotional function domain	6.4 (2.1–7.0)	6.9 (2.9–7.0)	0.02
Total score	5.9 (2.3–7.0)	6.6 (3.7–7.0)	0.005

Montella S, Italian J Pediatrics 2016

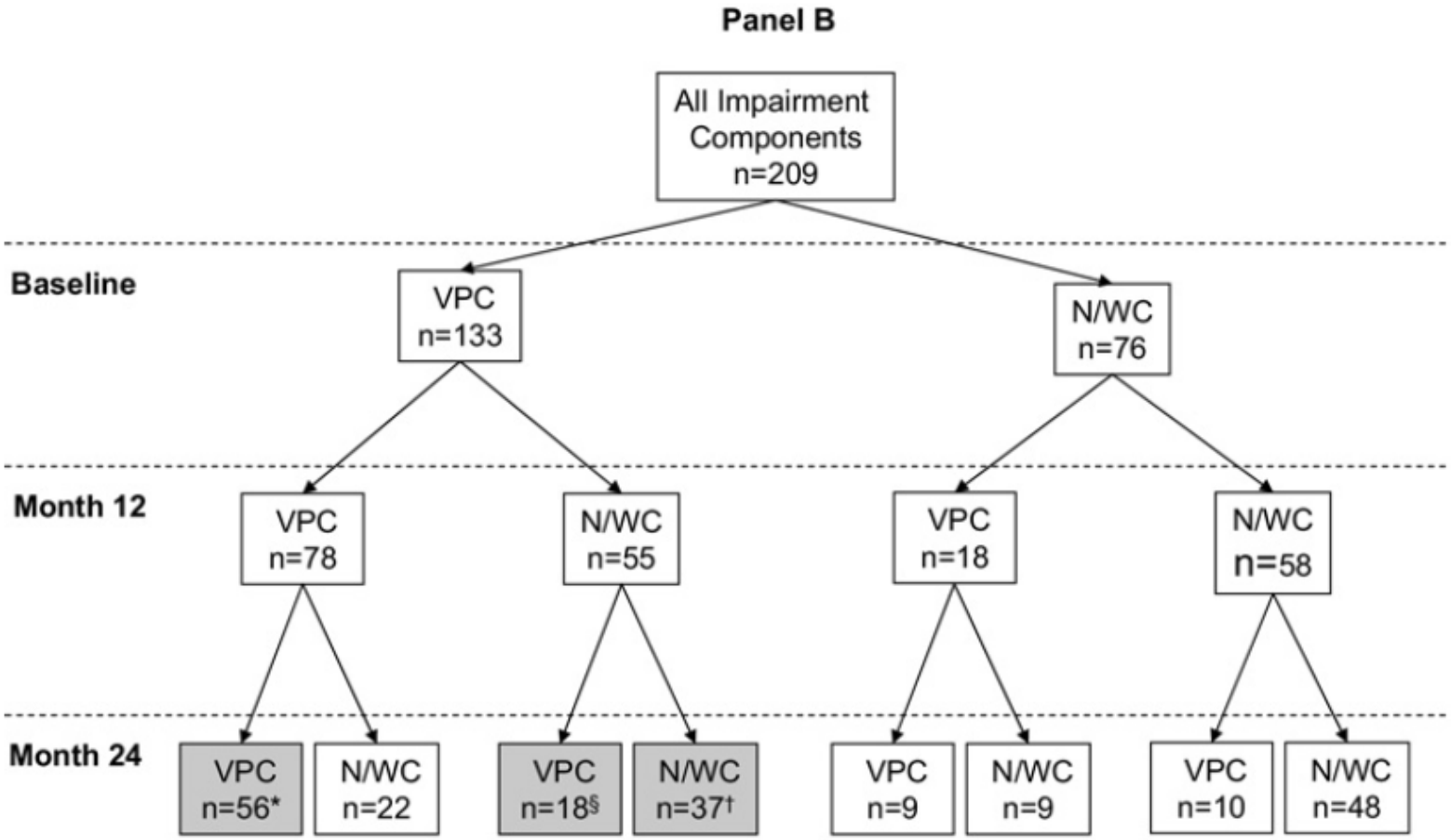
Çocuklarda ağır astımın maliyeti

TENOR Çalışması



Szefler SJ, Ann Allergy Asthma Immunol 2011

TENOR Çalışması:



Szefler SJ, Ann Allergy Asthma Immunol 2011

Astımlı çocuklarda kontrole göre yıllık ortalama maliyet

İyi kontrollü astım

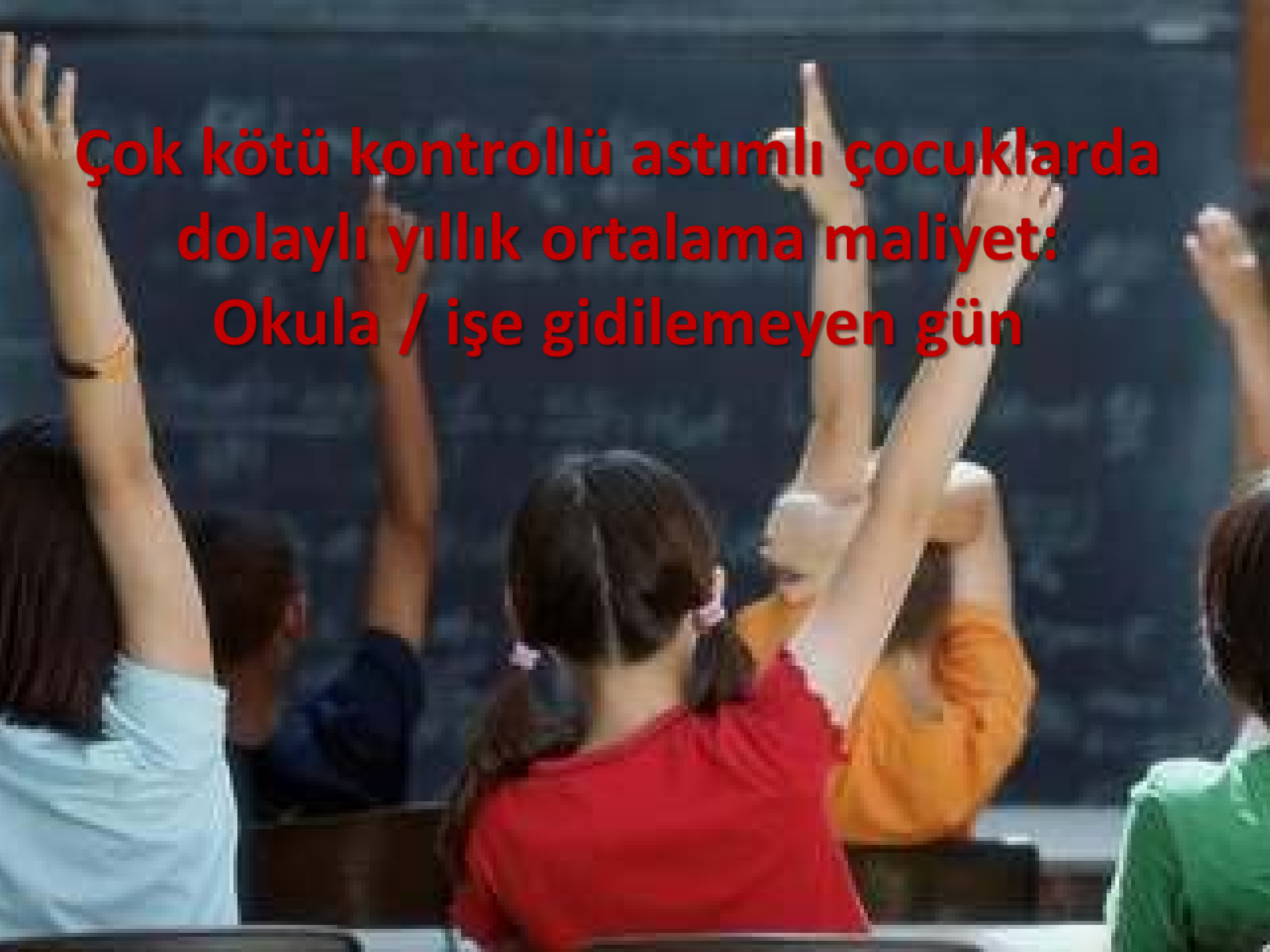
3.766 $

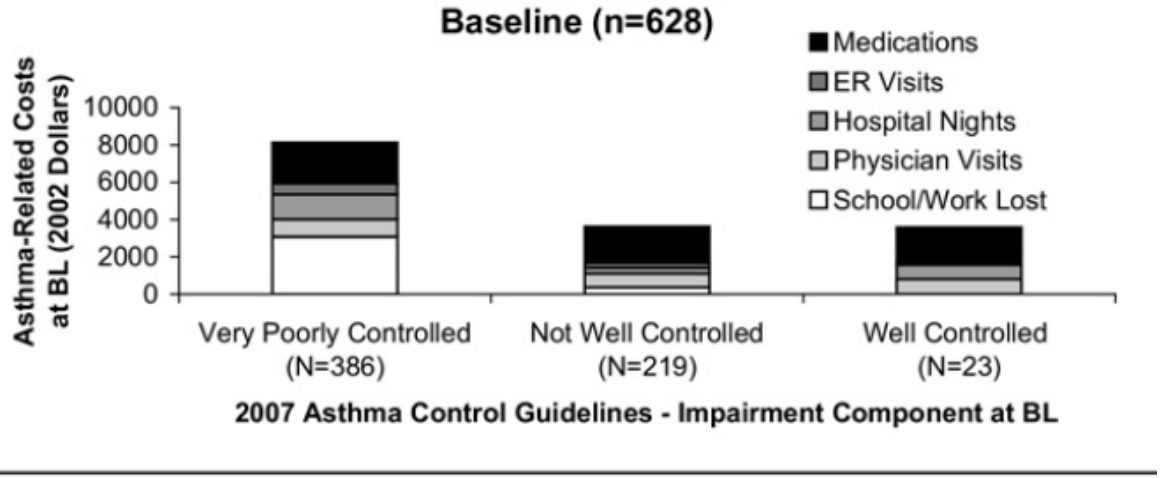
Çok kötü kontrollü astım

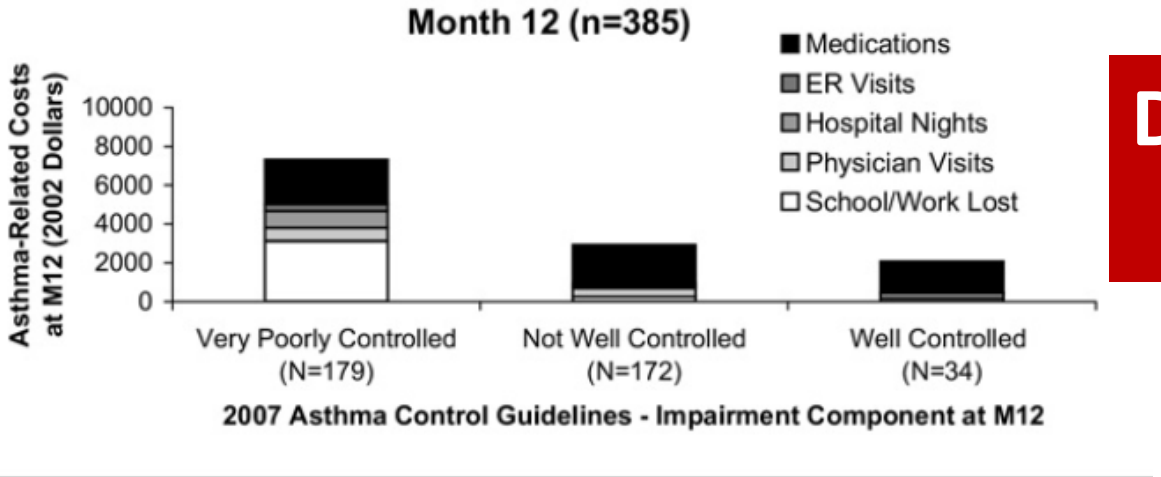
7.864 $

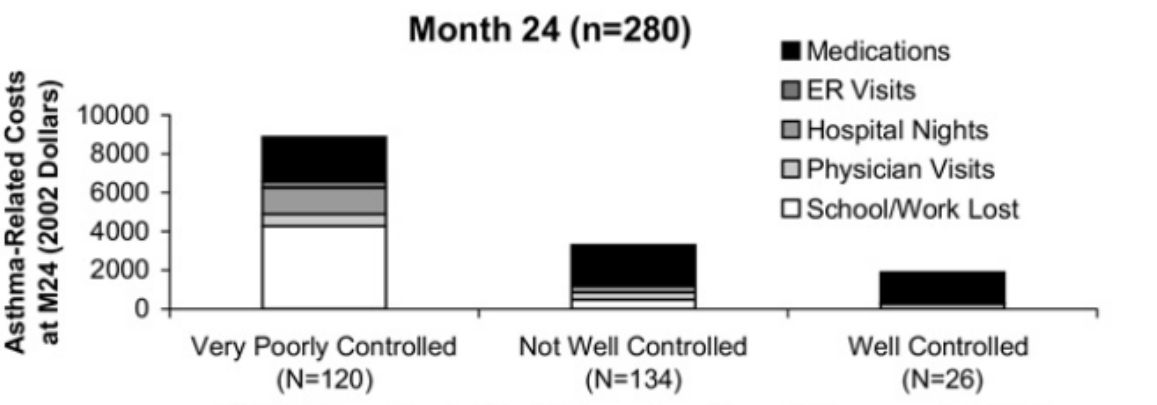
>X2

Szefler SJ, Ann Allergy Asthma Immunol 2011

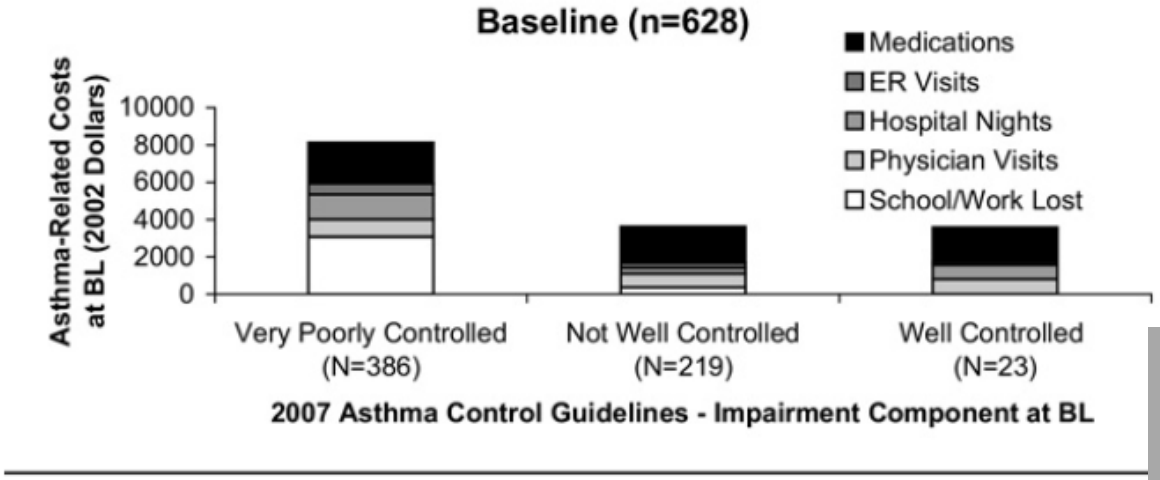

Çok kötü kontrollü astımlı çocuklarda
dolaylı yıllık ortalama maliyet:
Okula / işe gidilemeyen gün

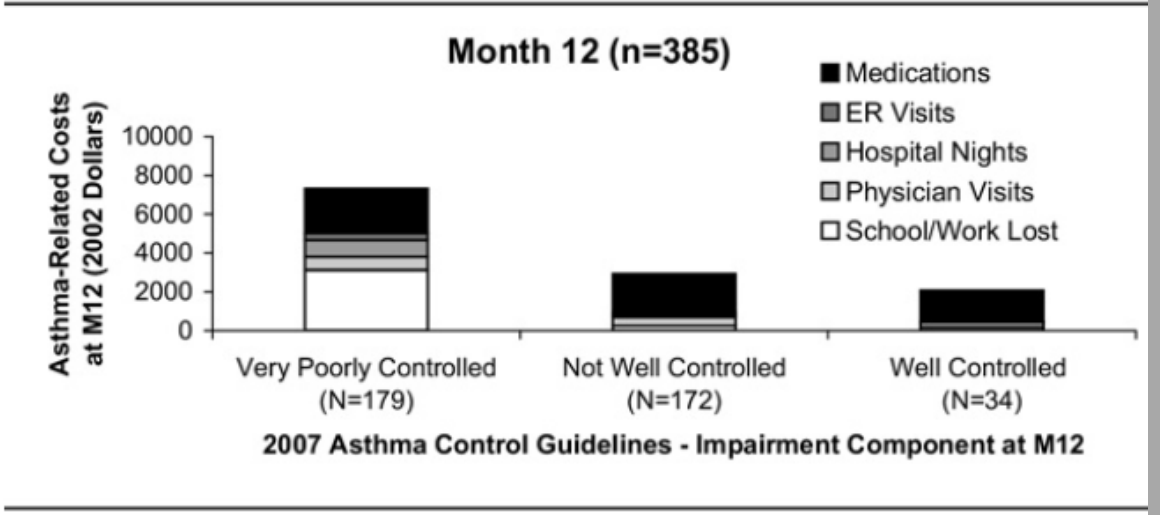


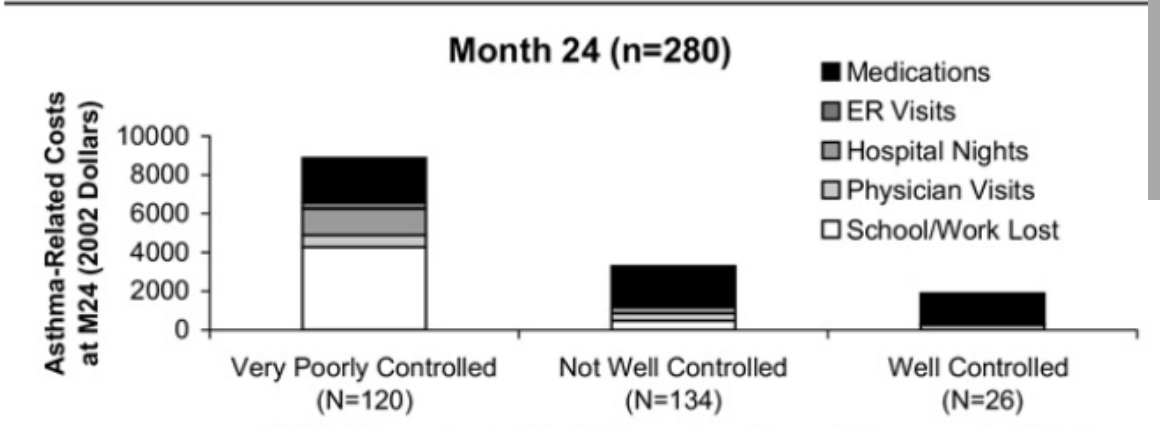




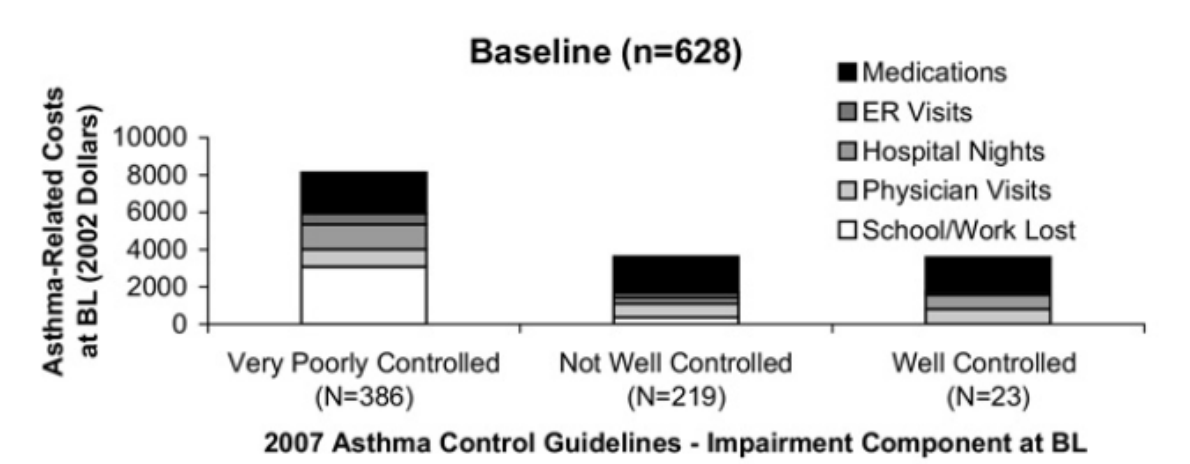
Doğrudan maliyet 2-3 kat artmıştır

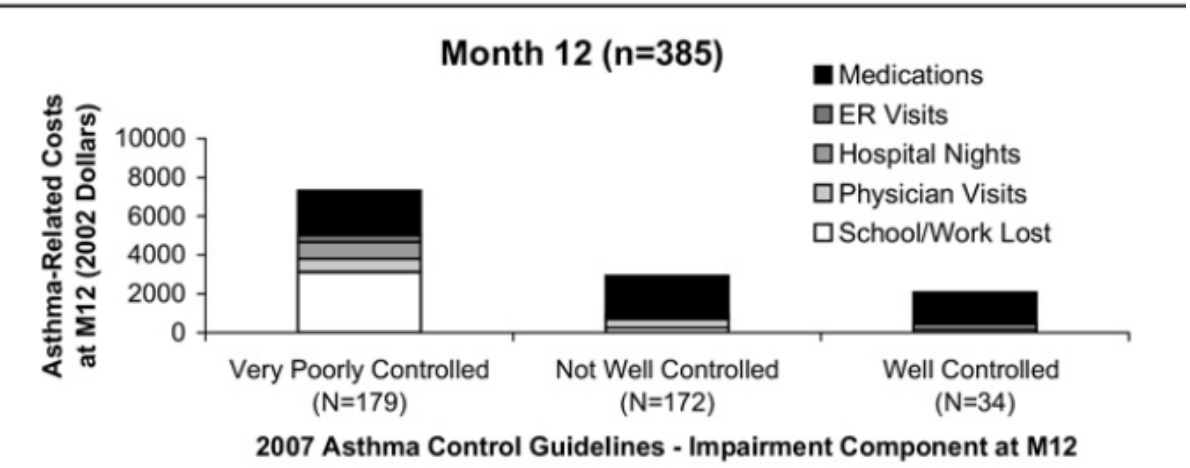


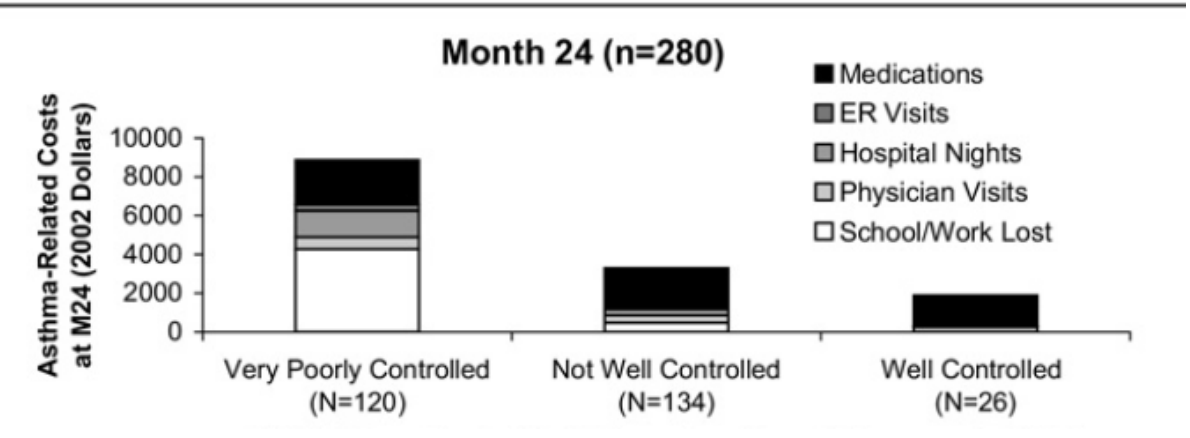




Çok kötü kontrollü astımlı çocuklarda toplam maliyetin yarısı okul / iş günü kaybı İle ilişkili (Dolaylı maliyet)







Okul / iş günü kaybıyla ilgili maliyet, 7-8 kat fazladır

Çocuklarda ağır astım erişkin yaşta da sorun yaratır mı?

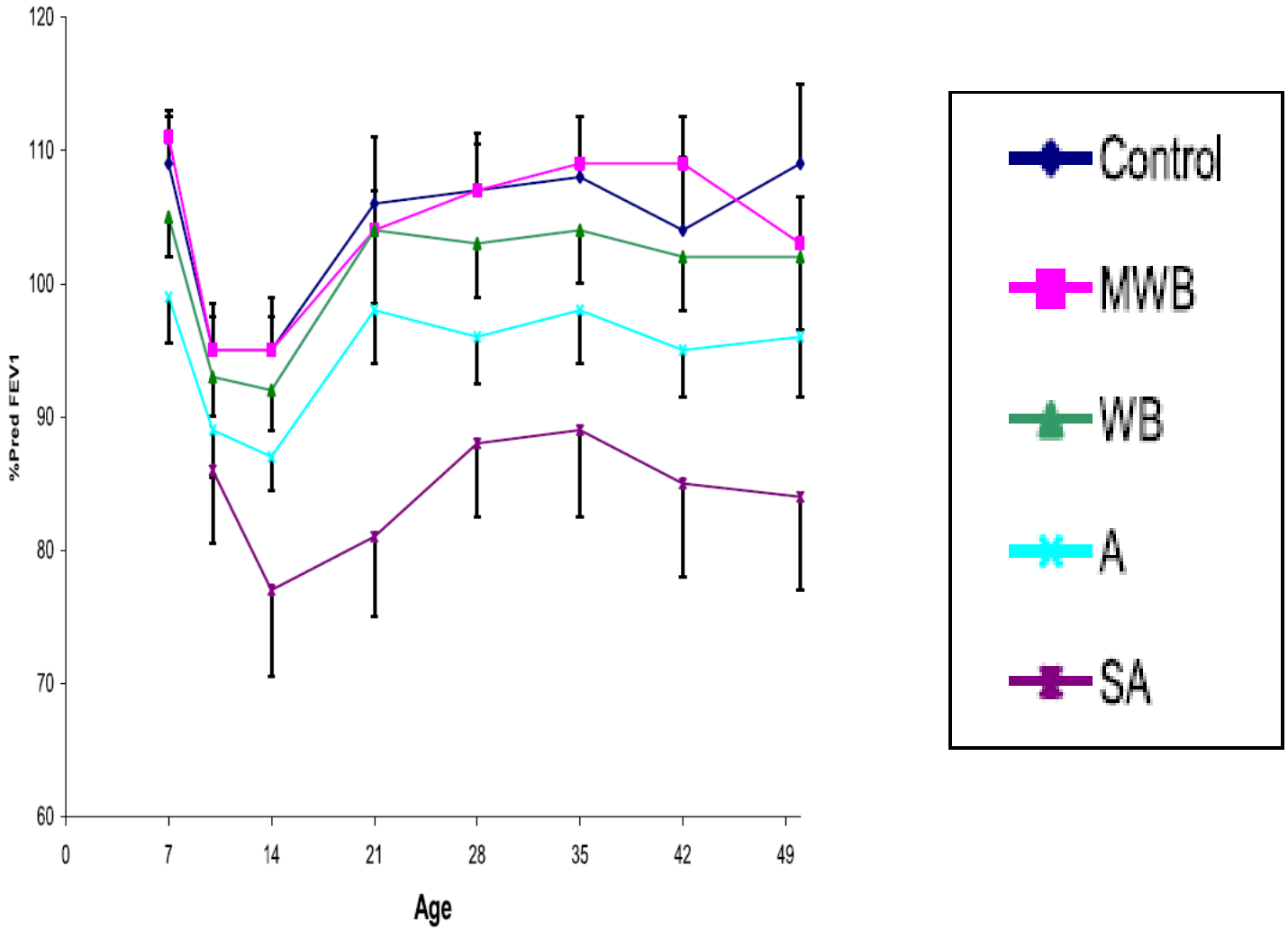
MELBOURNE Çalışması

TABLE I. Distribution of subjects at recruitment and at age 50 years*

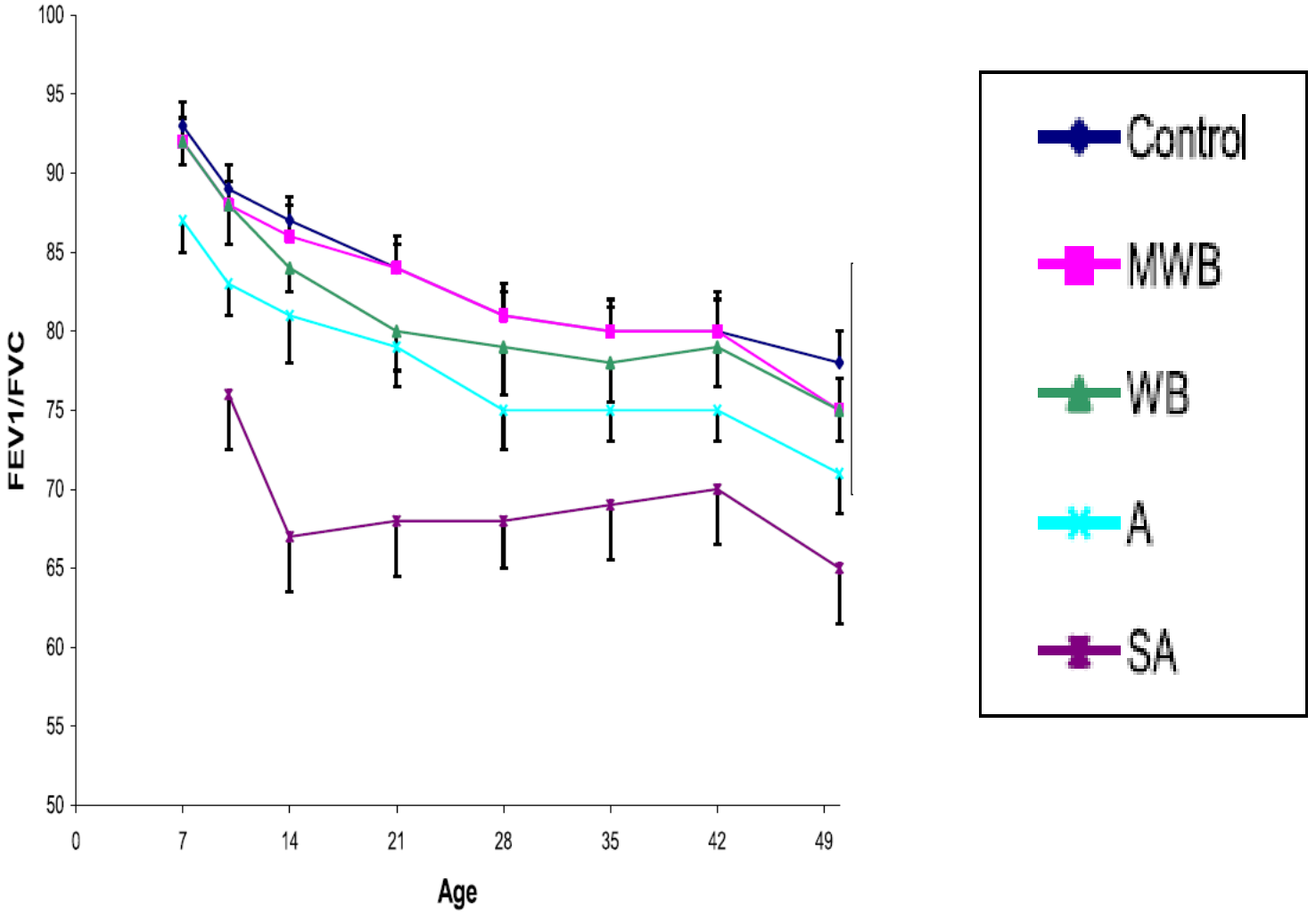
		Age 50 y		
	Recruitment, n = 479	Deceased, n = 21	Followed-up, n = 346 (76%)	Lung function test performed, n = 197 (43%)
Control, no. (%)	105	5	77 (77)	48 (48)
Mild wheezy bronchitis, no. (%)	74	3	50 (70)	23 (32)
Wheezy bronchitis, no. (%)	104	6	78 (80)	43 (44)
Asthma, no. (%)	113	2	81 (73)	49 (44)
Severe asthma, no. (%)	83	5	60 (77)	34 (44)
Male subjects, %	61	81	60	63

7yaş ----- 50 yaş

Çocuklarda ağır astım SF gelişimini (FEV1) etkiler



Çocuklarda ağır astım hayat boyu SF kısıtlılığına (düşük FEV1/FVC) neden olur



Çocuklukta ağır astımı olanın erişkin yaşta da astımı devam eder mi?

Çocuklarda ağır astım, 50 yaşında aktif astımı öngörür

TABLE II. Childhood predictors of "current asthma" at age 50 years

	Unadjusted		Adjusted	
	OR (95% CI)	*P* value	OR (95% CI)	*P* value
Recruitment group	<0.001		0.001	
Controls	Reference		Reference	
Mild wheezy bronchitis	1.3 (0.5-3.6)		1.2 (0.4-3.2)	
Wheezy bronchitis	1.5 (0.6-3.6)		1.4 (0.5-3.5)	
Asthma	2.7 (1.1-6.6)		2.0 (0.7-5.5)	
Severe asthma	17.5 (5.8-52.9)		11.9 (3.4-41.8)	
Females	1.3 (0.8-2.1)	.348	2.0 (1.1-3.6)	.017
Childhood hay fever	3.8 (2.2-6.6)	<.001	2.0 (1.0-4.0)	.038
Childhood eczema	1.9 (1.2-3.2)	.01	1.0 (0.5-1.8)	.932
Childhood skin prick test positivity	2.8 (1.7-4.6)	<.001	1.3 (0.6-2.5)	.486
Childhood BMI category*		.229		.225
Normal weight	Reference		Reference	
Overweight	0.6 (0.3-1.3)		0.6 (0.3-1.4)	

Çocuklarda ağır astım, erişkin KOAH gelişimi için çok önemli bir risk faktörüdür

Table 3 The childhood predictors of adult COPD

	OR (95% CI) (univariate)	OR (95% CI) (multivariate)
Severe asthma	37.1 (4.6 to 301)	31.9 (3.4 to 269)
Asthma	9.1 (1.1 to 76.4)	9.6 (1.0 to 77)
Wheezy bronchitis	3.5 (0.4 to 35.2)	
Mild wheezy bronchitis	2.1 (0.1 to 35.8)	
Male sex	2.4 (0.9 to 6.3)	
Ever smoker	1.0 (0.5 to 2.3)	
Current smoker	1.1 (0.5 to 2.4)	
Childhood hay fever	1.0 (0.3 to 3.8)	

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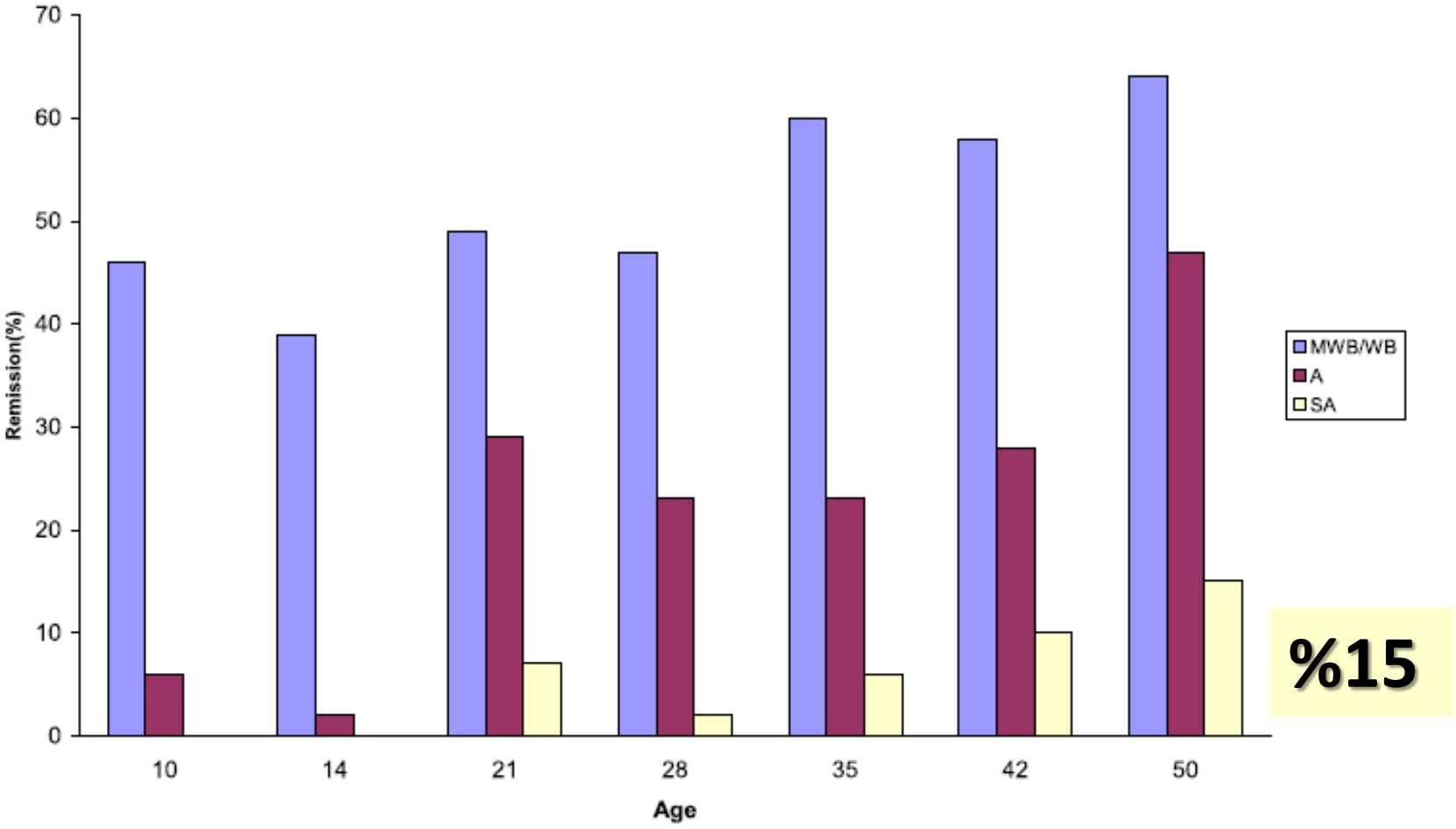
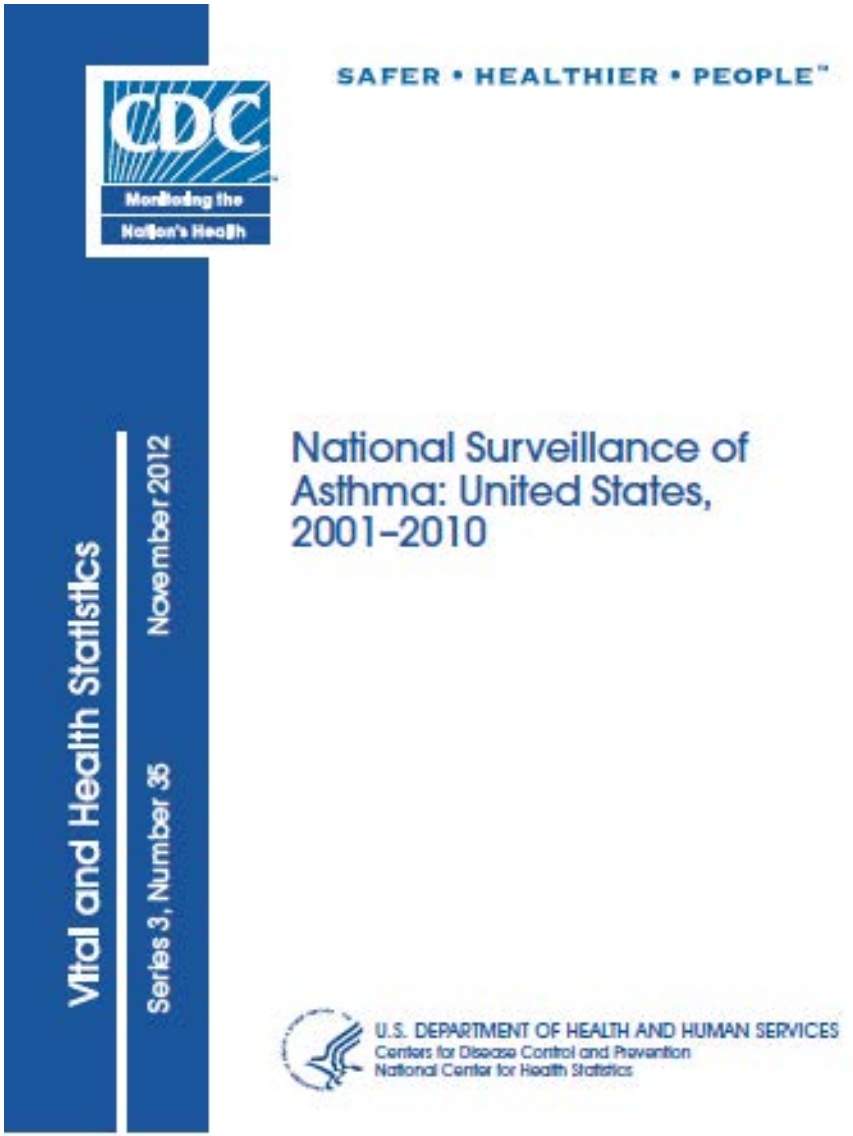
Çocuklarda ağır astımın erişkin yaşta remisyonu mümkün mü?

MELBOURNE Çalışması: Çocuklarda ağır astımda remisyon azdır

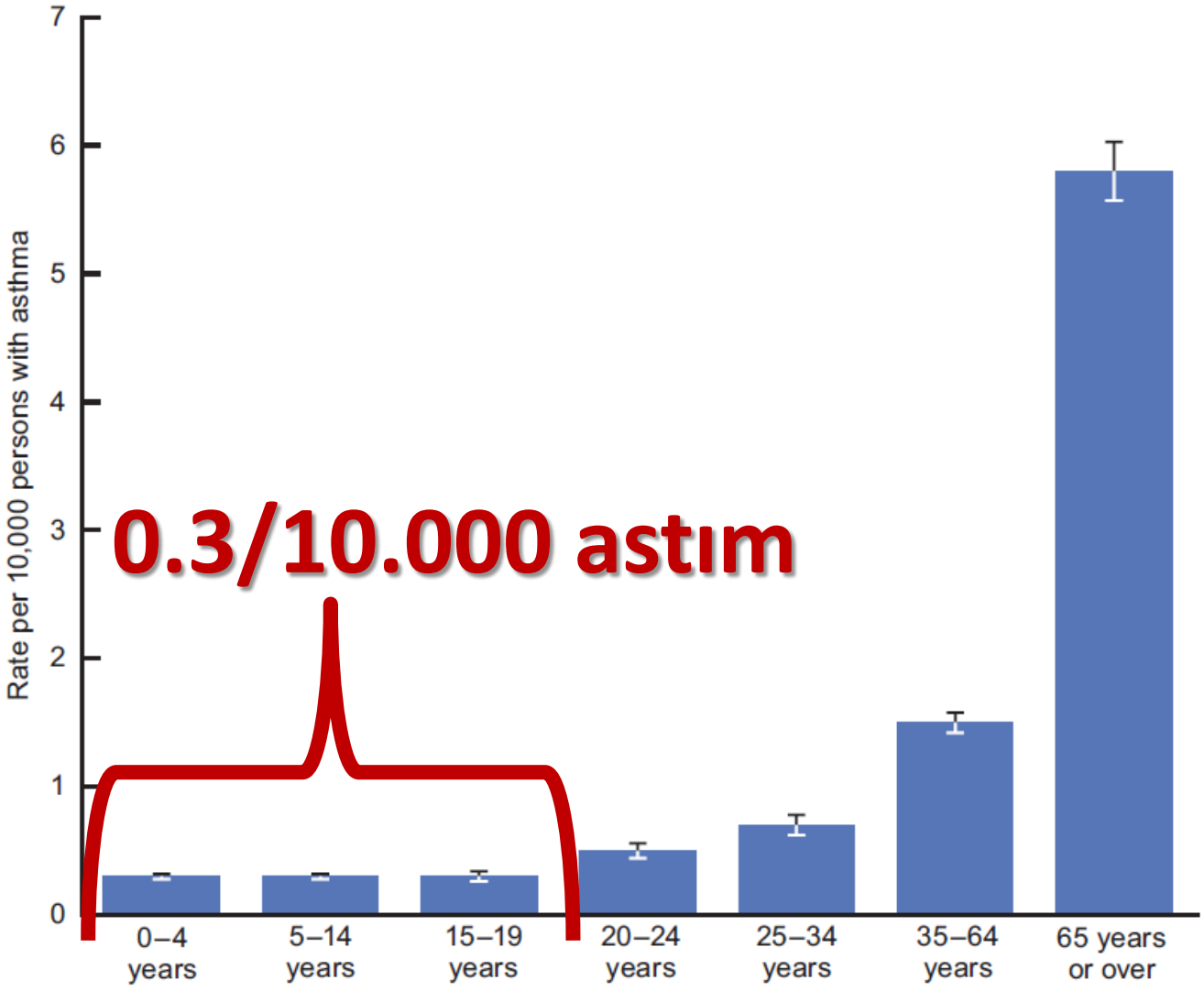


%15

Çocuklarda astım nedeniyle ölüm oranı



Çocuklarda astım nedeniyle ölüm oranı



SONUÇ

- Çocuklarda ağır astım az
- Yakınmalar ve sağlık hizmetlerini kullanımları sık
- Fiziksel, duygusal ve psikolojik açıdan etkileri çocuk ve ebeveyni için önemli
- Ekonomik yükü fazla
- Çocukların ağır astımı erişkin yaşta da sorun