

Asthma in Underserved Populations

World Allergy Congress

Cancun, 05 Dec 2011

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Um mundo onde
todos respirem
livremente



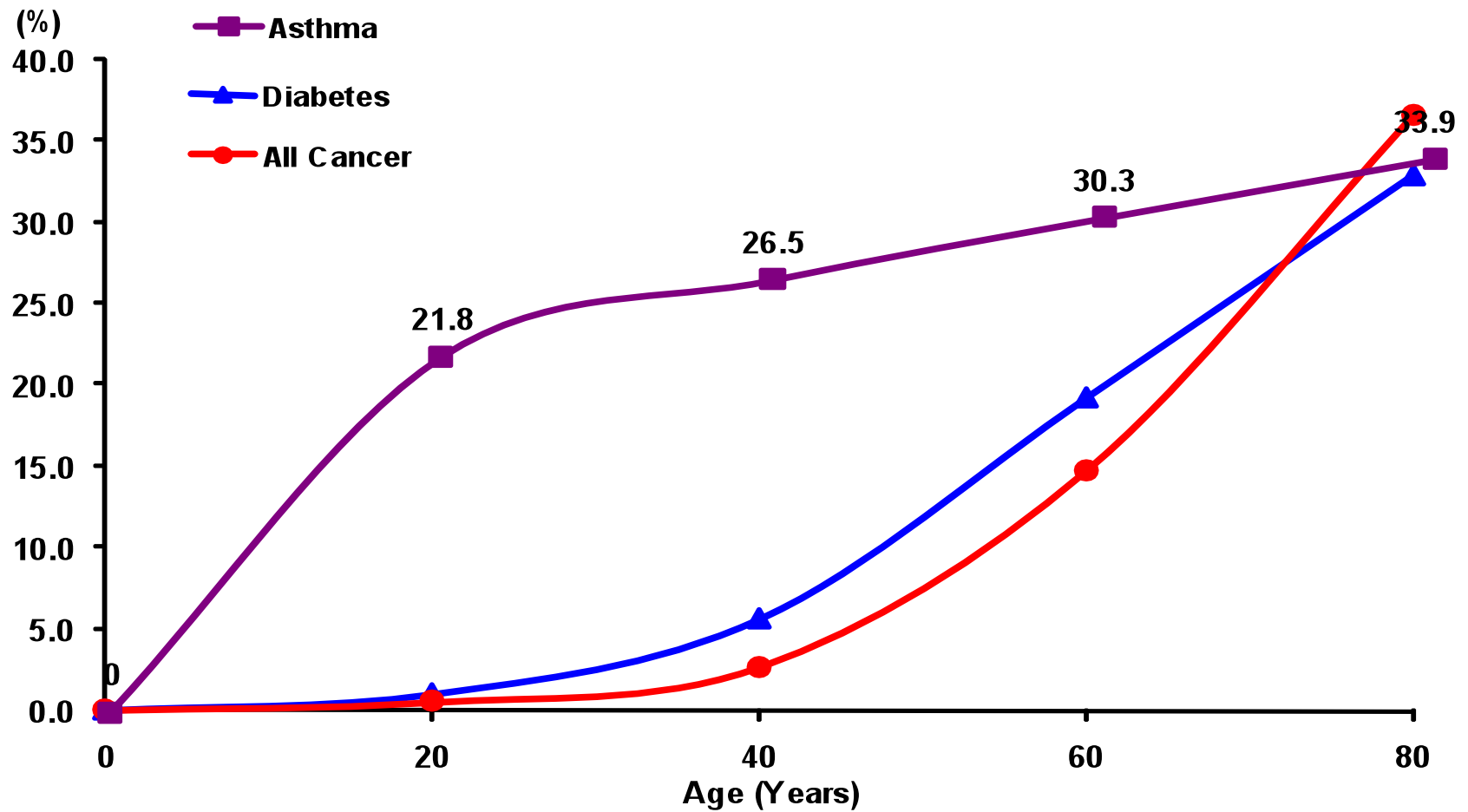
Overcrowded underprivileged neighborhood of low-income families in Salvador, Bahia – Brazil.

“Minority” household located 500m from the underprivileged neighborhood.



*Cruz, Bateman and Bousquet.
ERJ 2010; 35:239-42.*

Lifetime risk of asthma in Ontario



To et al. AJRCCM 2010; 181:337-343.

Asthma Control in Underserved Populations

- Estimated 250,000 premature death due to asthma every year, often related to lack of access to good practices
- Nonatopic asthma in poor urban children is common and has been associated with unhygienic living environments
- Asthma can be controlled in underprivileged communities – the example of Finland can be reproduced elsewhere



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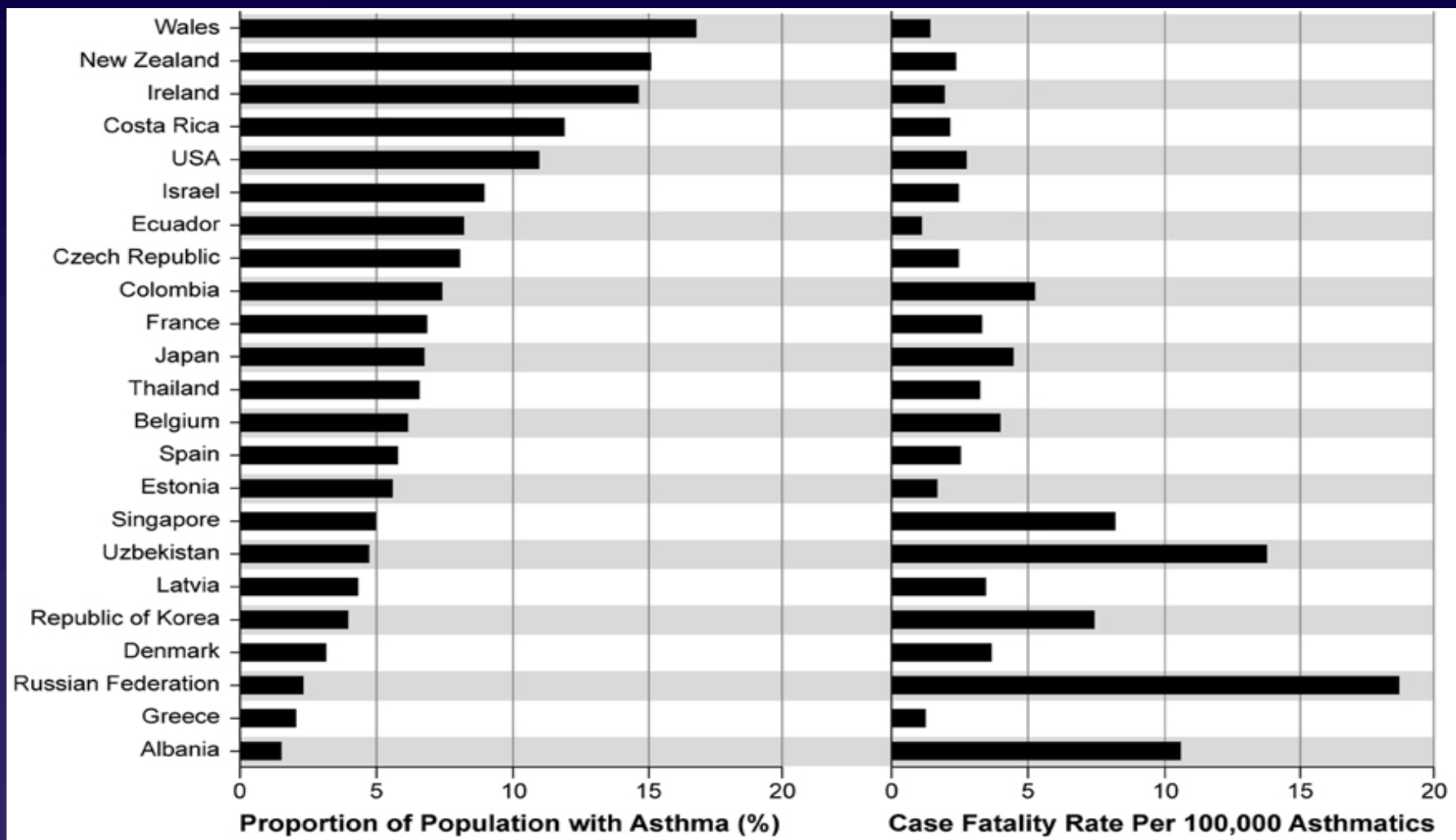


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Asthma Prevalence and Mortality



Source: Masoli M et al. Allergy 2004

Asthma Severity in the Community

Population based study of 1445 children of 5 to 12 years old in Salvador, Brazil.
Prevalence of wheezing in the last 12 months = 28,8% (417/1445).

Intermittent asthma	36% (143/397)
Mild persitent	40% (160/397)
Moderate persitent	13% (51/397)
Severe persistent	11% (43/397)



Simões et al. SCAALA Study Group. J Pediatría 2010; 86:417-23.

Use of medications for asthma among children in Salvador (last 12 months)

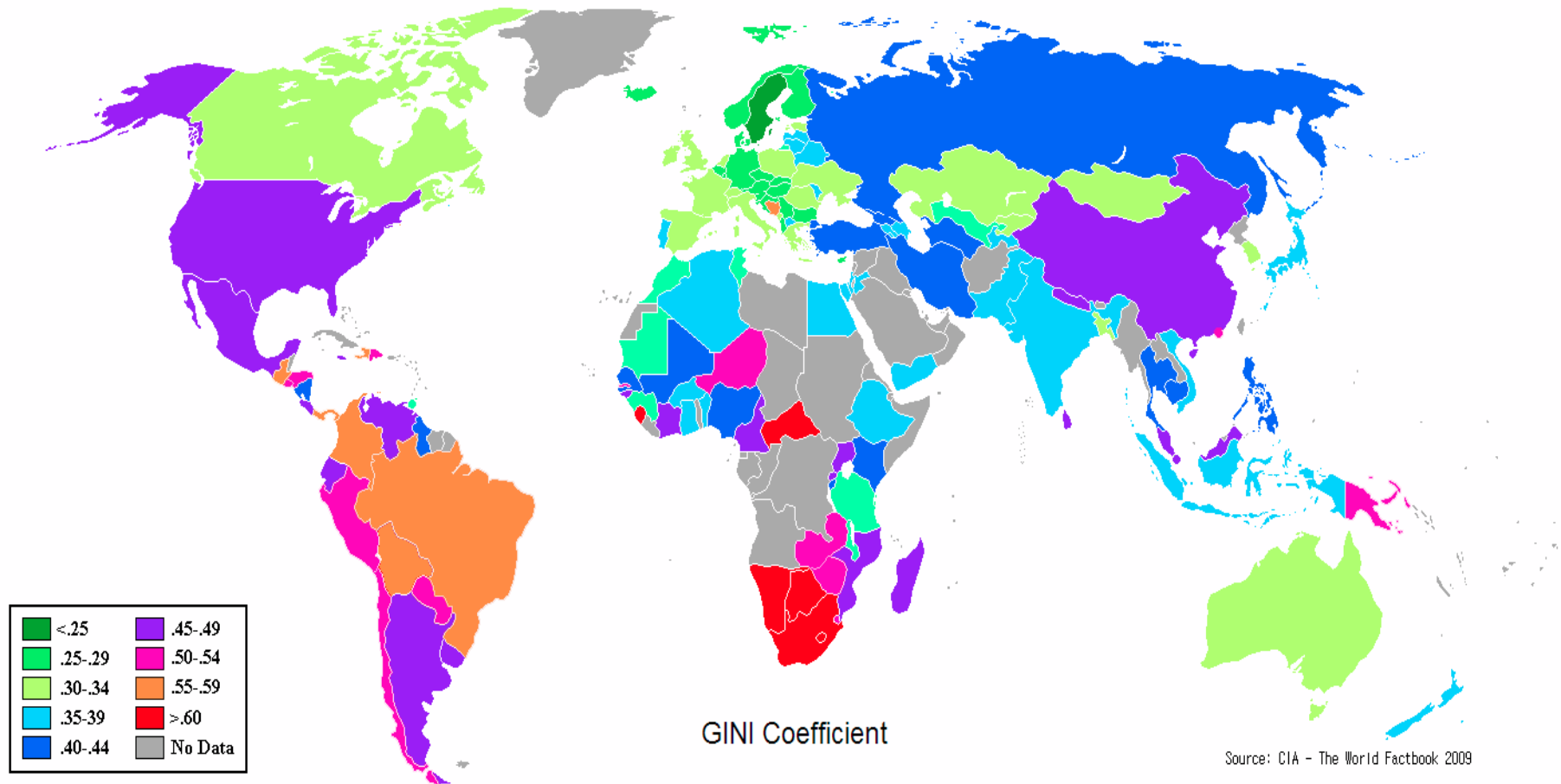
	Children with asthma (n=312)	Children with no asthma (n=1382)
beta-agonists, oral	19,9%	6,7%
beta-agonists in nebulizations	6,1%	1,8%
Short-acting bronchodilators (pMDI)	5,7%	2,2%
Systemic corticosteroids	5,0%	1,5%
Inhaled corticosteroids	0%	0,01%

Age: 4 to 11 years old – study conducted in 2006.

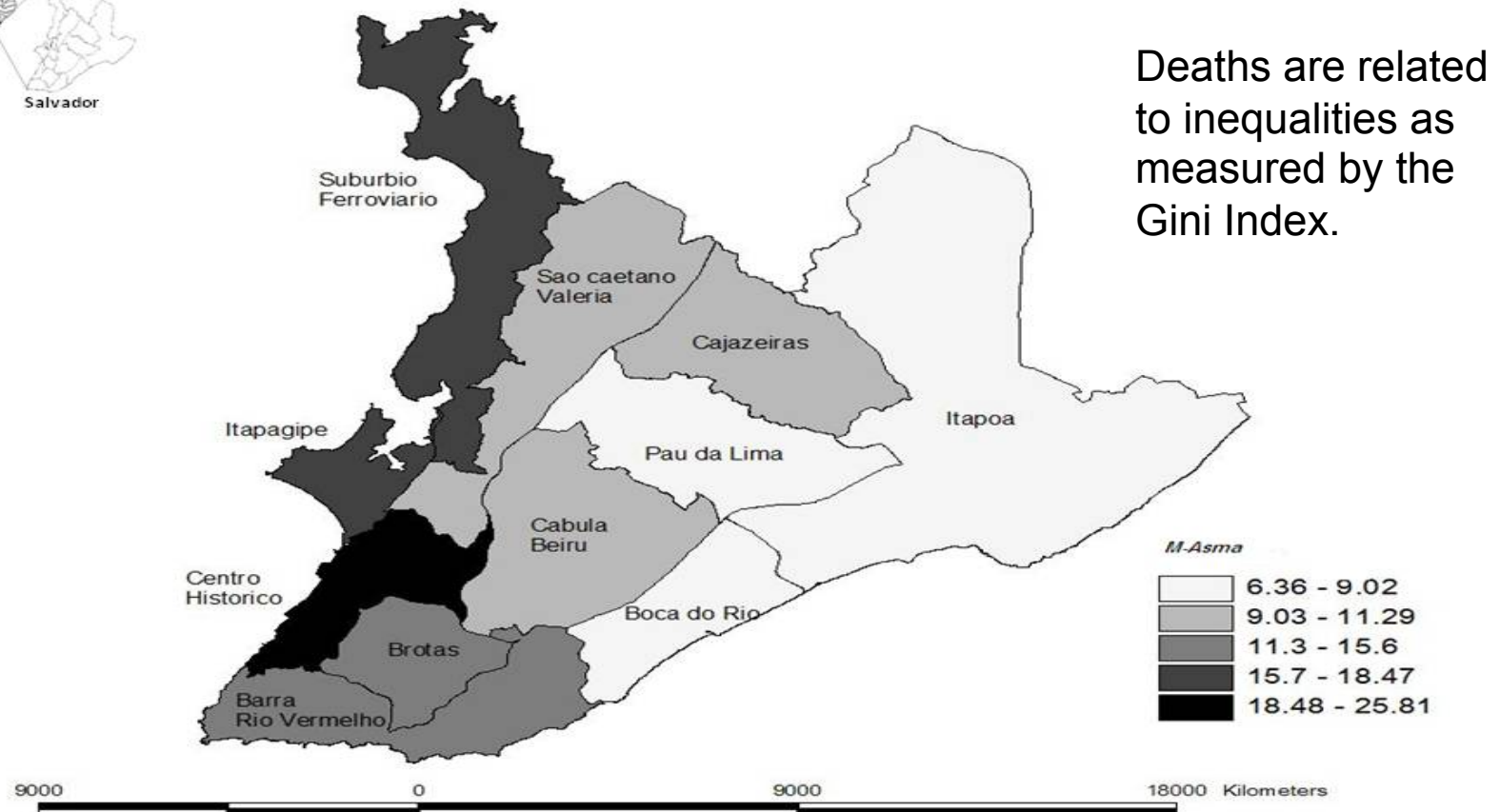
Deaths Attributed to Asthma in Brazil

- 23.758 deaths in Brasil between 1998 and 2006
- Average of 1,516/100.000 inhabitants/year, “stable”
- Decreasing: Southeast – 8,8%; **South – 24%**; Center-west – 26%
- Increasing: North + 5,3%; **Northeast + 31,3%**

The World Map of Disparities

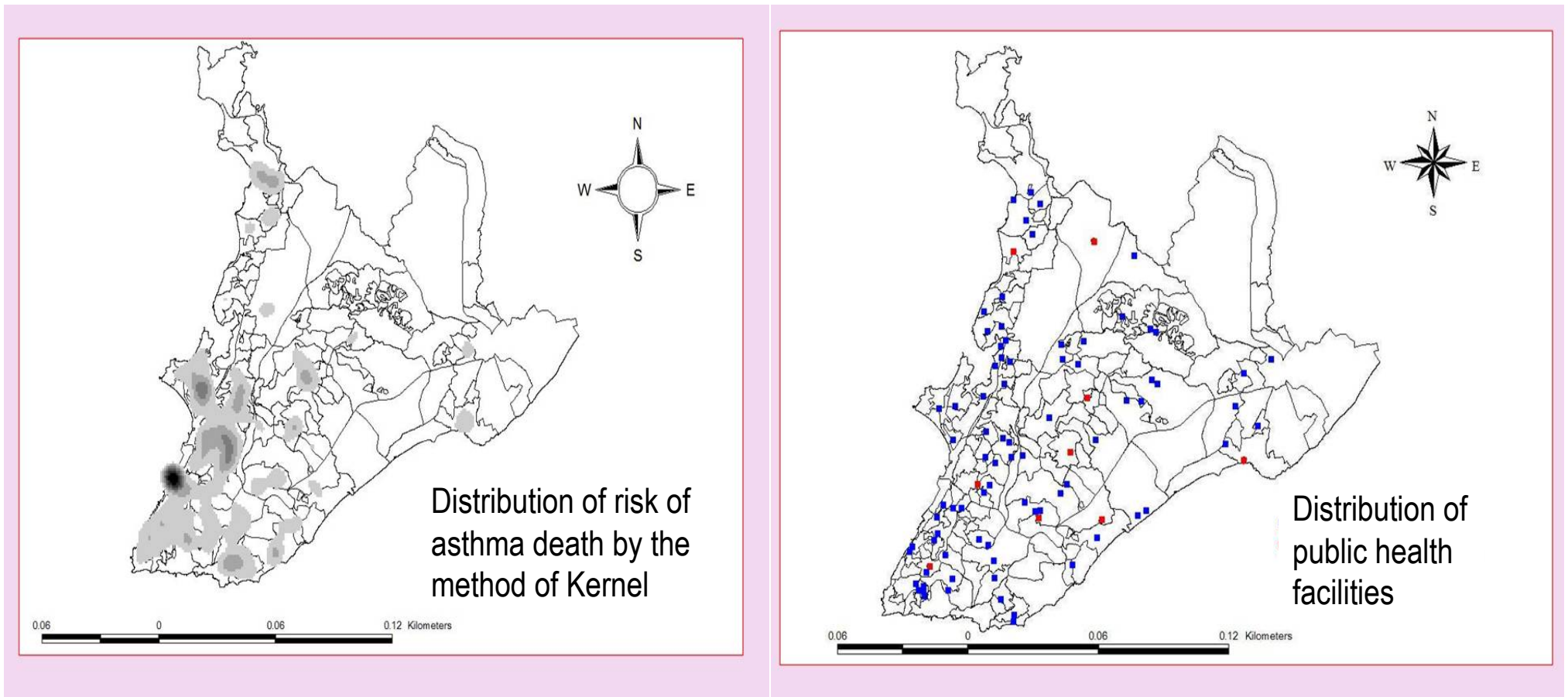


Areas of Greater Concentration of 409 Deaths due to Asthma in Salvador, Brazil (2000-2009)



Souza-Machado et al. World Allergy Congress (abstract), 2011.

Areas of Greater Risk of 409 Deaths due to Asthma in Salvador, Brazil (2000-2009)

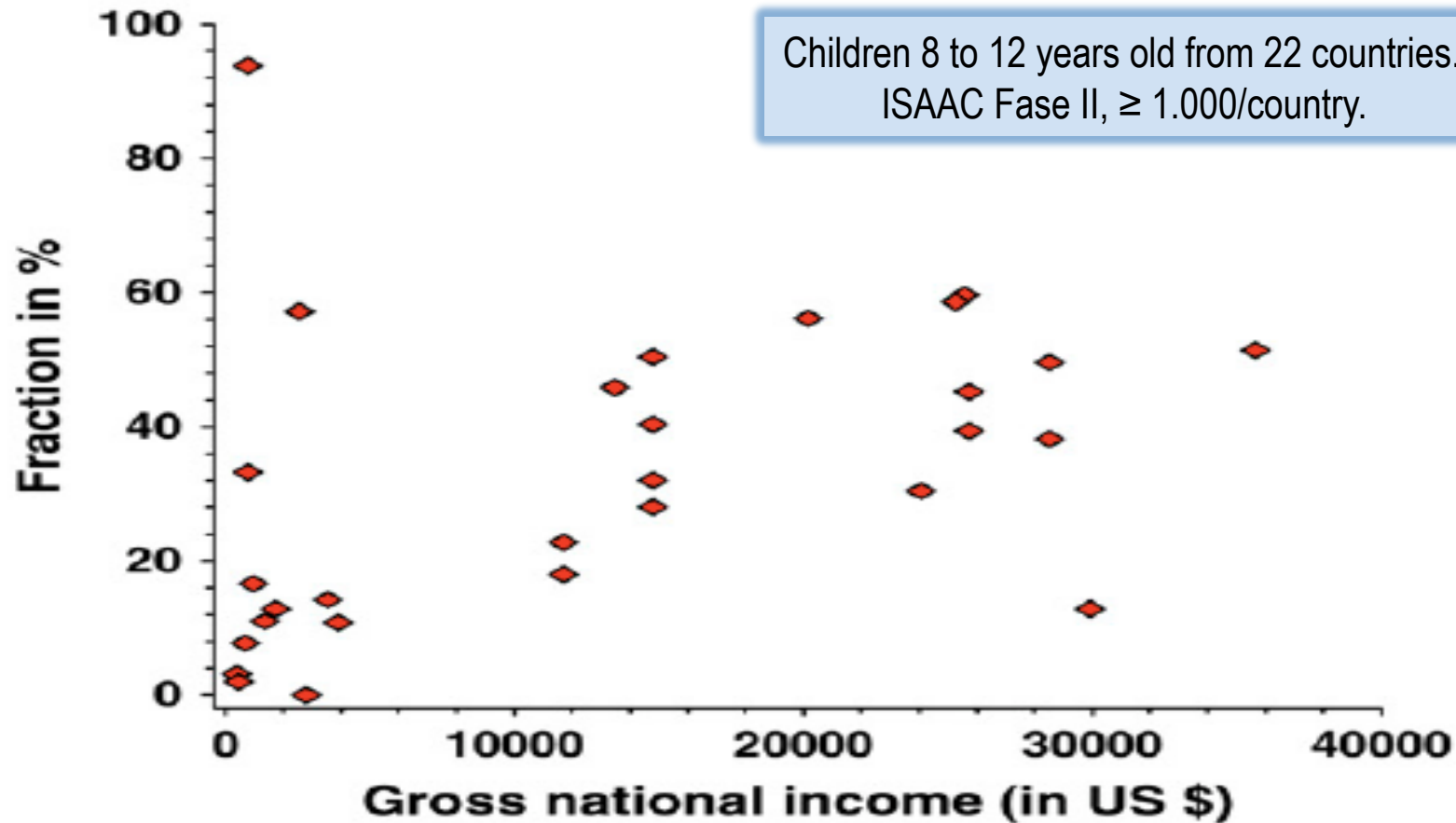


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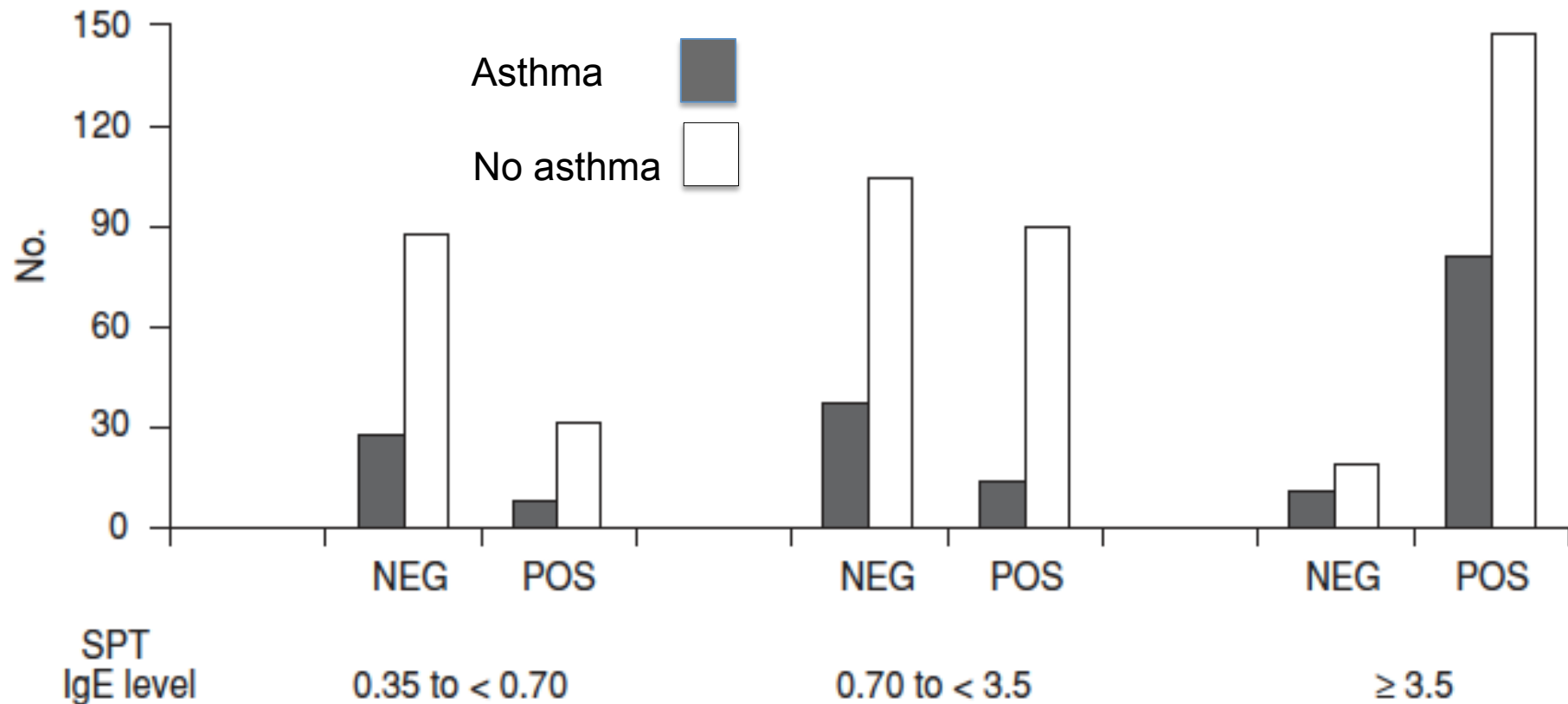
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Proportion of Wheezing Attributable to Atopy in Children



Proportion of asthma attributable to atopy in a sample of children in Salvador = 24,5%



Prevalence of Wheezing and GNI - WHS

	Low GNI [#]	Middle GNI [†]	High GNI ⁺
Overall	13.3 (12.3–14.4)	7.6 (6.7–8.5)	13.0 (12.3–13.7)
Female	12.5 (11.1–13.9)	7.1 (6.7–8.7)	13.0 (12.1–14.0)
Male	14.1 (12.8–15.4)	7.4 (6.0–8.7)	12.9 (12.0–13.7)
Current smoker	18.0 (16.1–19.8)	7.3 (5.5–9.1)	13.1 (11.5–14.6)
Non-smoker	10.7 (9.4–12.0)	7.7 (6.7–8.6)	12.1 (10.3–13.8)
Mostly urban	9.9 (9.0–10.8)	18.0 (17.2–18.8)	13.2 (12.5–13.9)
Mostly rural	13.3 (12.3–14.4)	4.6 (3.5–5.7)	10.8 (7.8–13.8)
Low Gini	13.1 (12.1–14.2)	14.7 (13.8–15.8)	13.5 (12.7–14.3)
High Gini	23.5 (22.3–24.7)	6.8 (5.9–7.8)	8.9 (8.1–9.7)

Poverty, lack of hygiene, infections and wheezing in a population based sample in Salvador

SCAALA Project Cohort in Salvador, Brazil



- 1445 children, 4 to 12 years old
- Atopy if IgEs $\geq 0,70$ KU/l
- Wheezing in nonatopic children associated with poverty and lack of hygiene

Barreto et al. Respiratory Research 2011; 11:167.

The Effect of Multiple Infections on the Risk of Atopy

SCAALA Project Cohort in Salvador, Brazil



- 1128 children, 4 to 11 years old
- Atopy if IgEs $\geq 0,70$ KU/l
- Indicators of 8 different common infections evaluated
- Children with >3 infection markers had a lower risk of atopy

Alcantara-Neves et al. JACI 2011 (Epub ahead of print).

Obesity and wheezing among a population based sample of children in Salvador

SCAALA Project Cohort in Salvador, Brazil

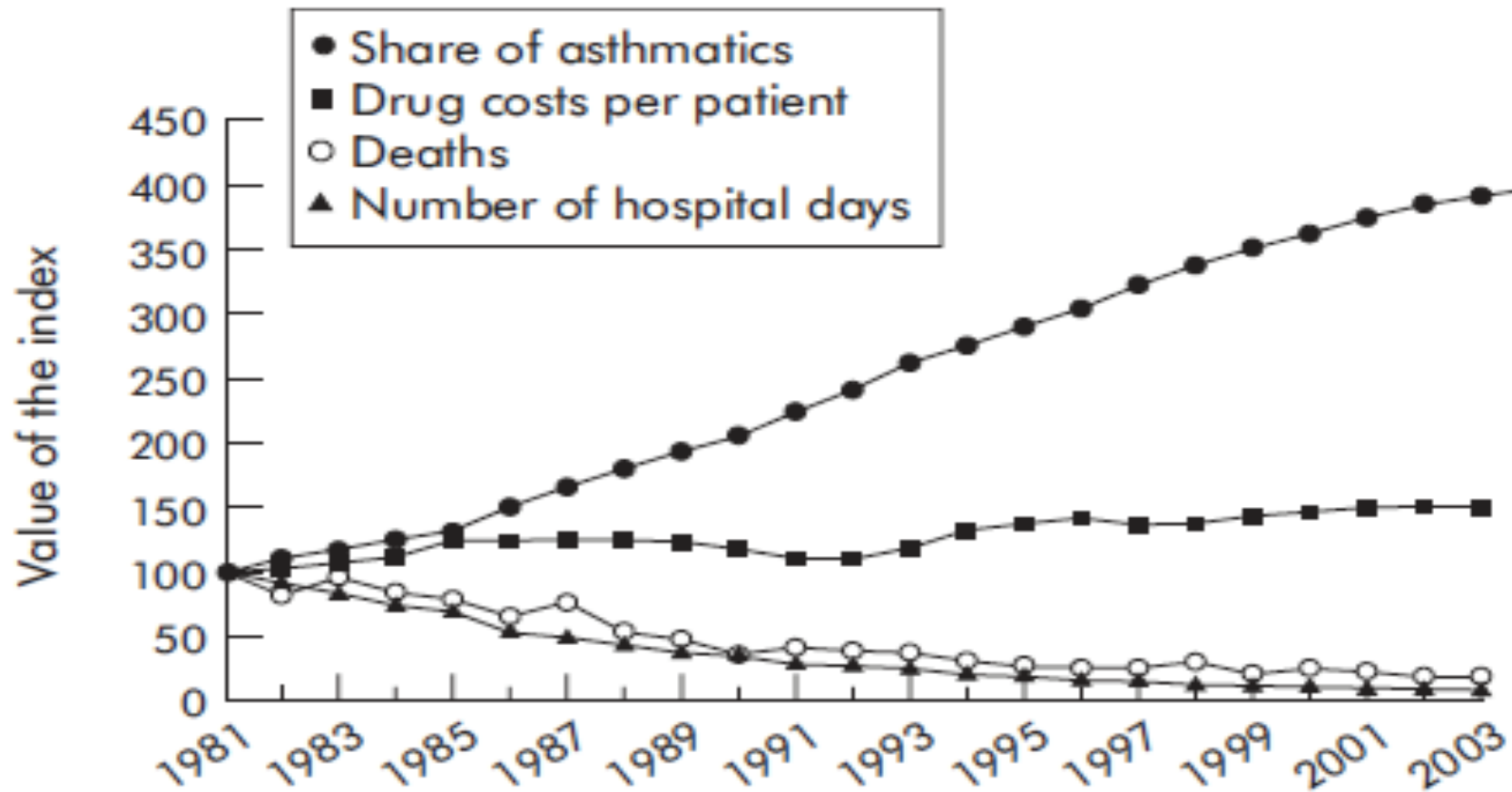


- Population based sample of 1129 children 4 to 12 years
- Asthma and wheezing 34% mor frequent in those with overweight

Asthma Control in Underprivileged Communities

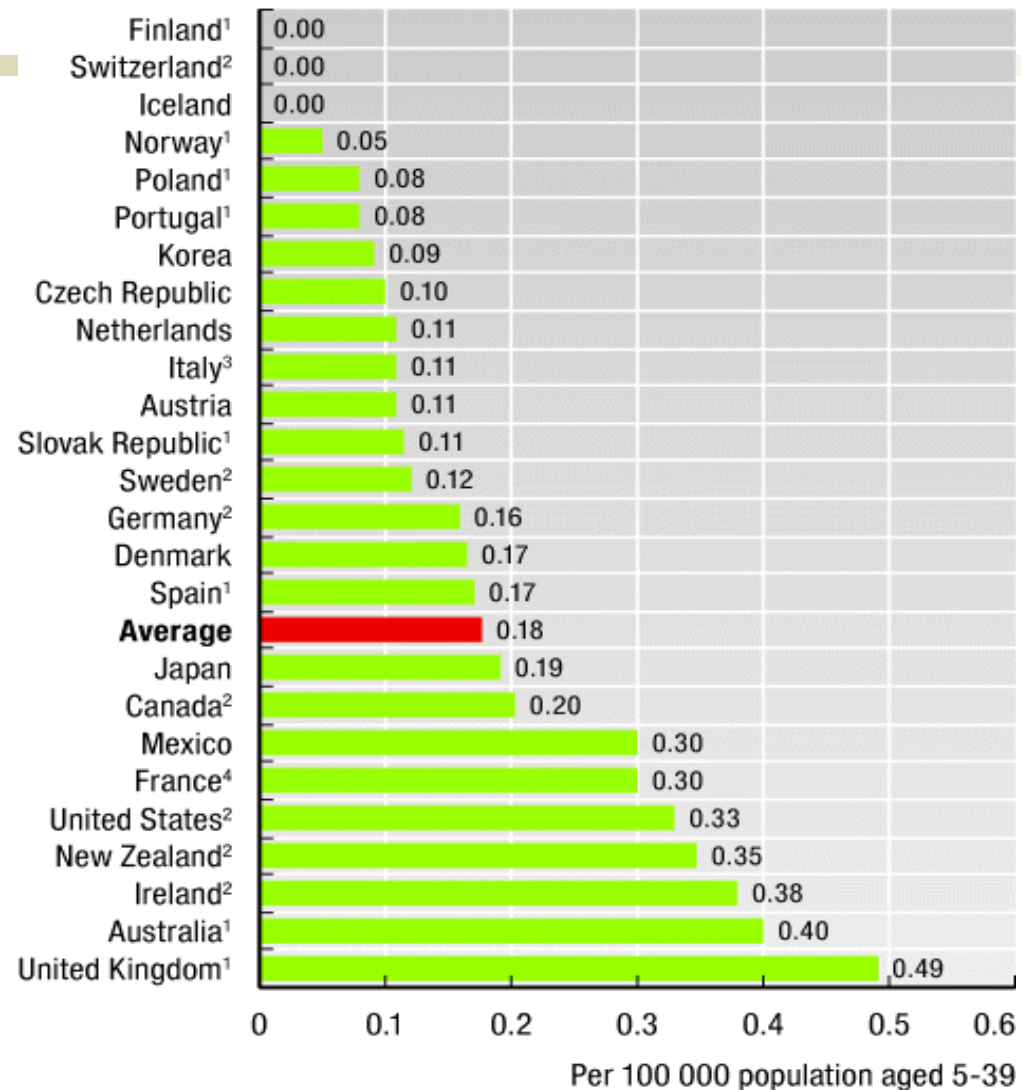
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Asthma in Finland



Haahtela et al. Thorax 2006.

Health at a Glance 2007: OECD Indicators:
Asthma mortality rates, per 100 000 population aged 5-39, 2005



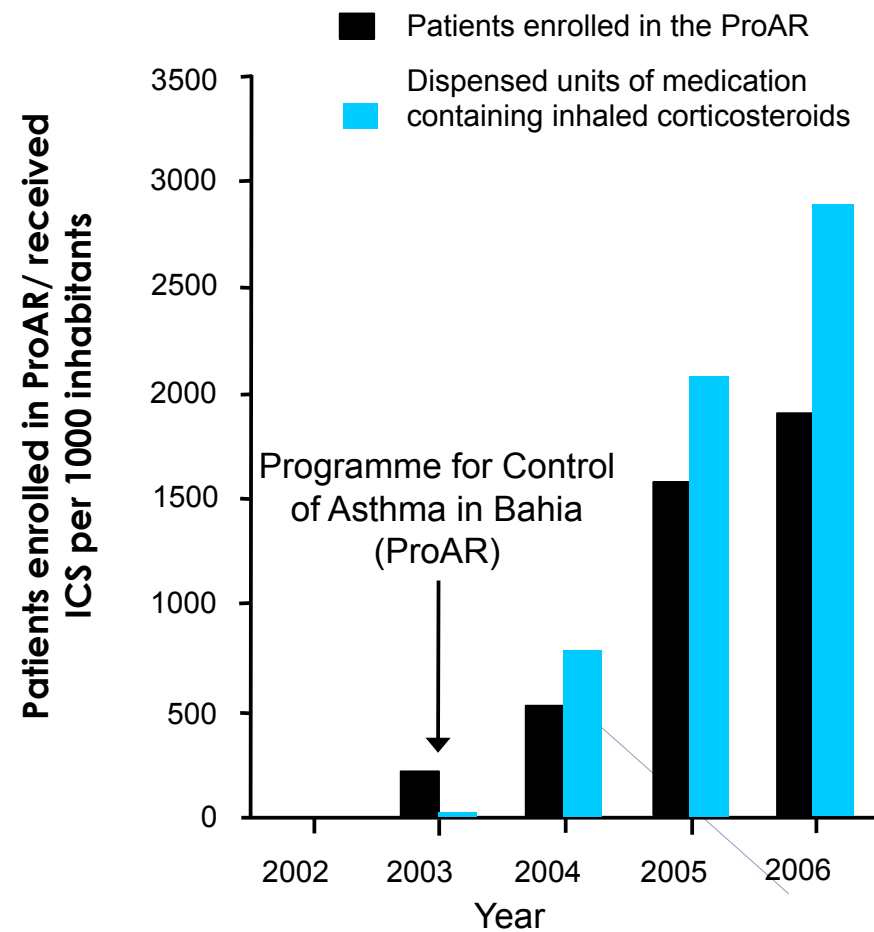
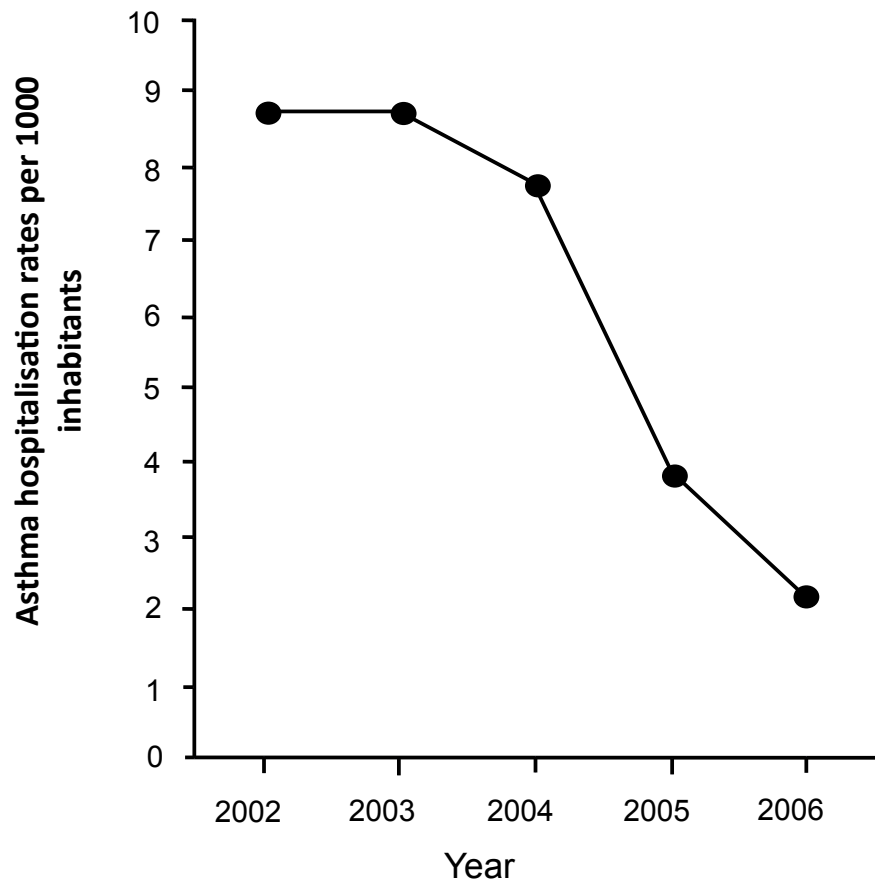
ASTHMA CONTROL CHALLENGE

Cut hospitalizations 50% by 2015!

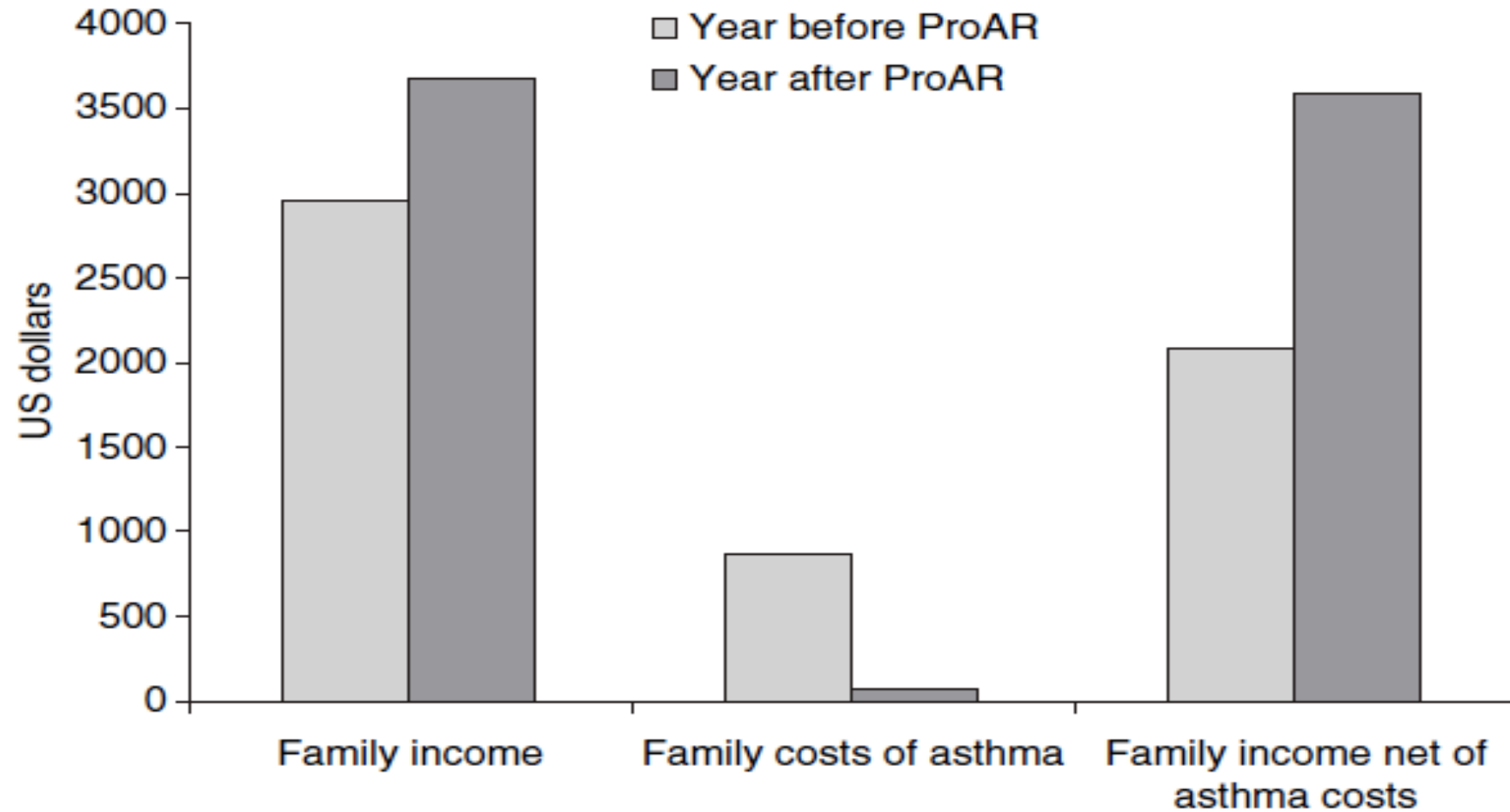


GINA challenges health care providers worldwide to cut asthma-related hospitalizations in half over the next 5 years

Reduction in asthma hospitalisations in Salvador, Brazil

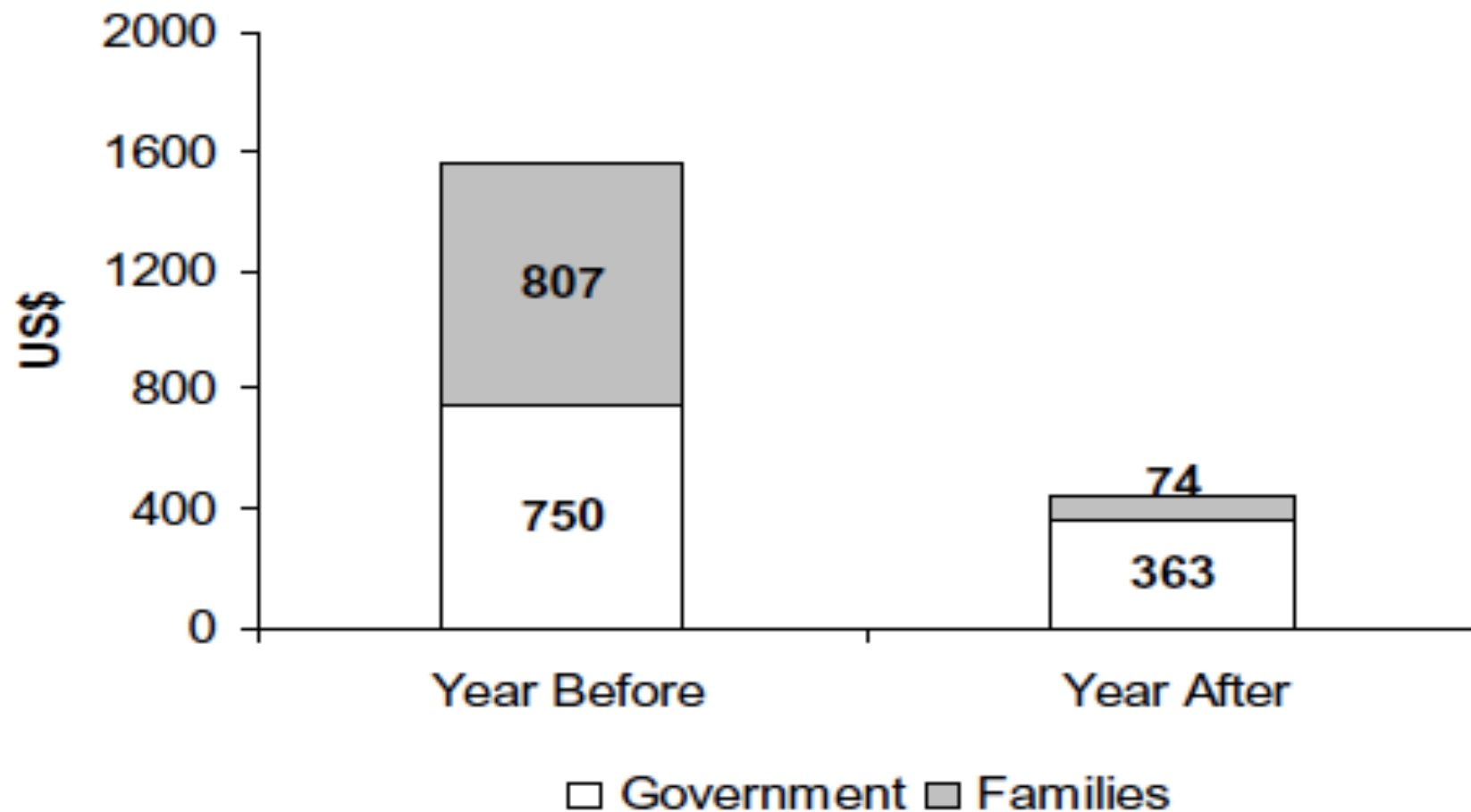


Costs of Severe Asthma in Salvador, Brazil



Franco et al. Allergy 2009.

Costs of Severe Asthma in Salvador, Brazil



Franco et al. BMC Public Health 2007.

Cost-effectiveness analysis of ProAR

Table 4: Cost-effectiveness incremental analysis of the strategies for treatment of 64 severe asthma patients

Strategies	Costs (US\$)	Hospitalizations	Health Result (C-D)	Incremental Cost (US\$) (B-A)	Cost-effectiveness incremental (F/E)
<u>Intervention 1</u> The usual treatment of severe asthma offered by the public health system with medication for exacerbations	173,440 (A)	85 (C)			
<u>Intervention 2</u> Treatment of severe asthma offered by ProAR with inhaled corticosteroid + long acting bronchodilator	56,256 (B)	1 (D)	84 (E)	-117,184 (F)	-1,395

Main result: there was an economy of US\$ 1,395 per hospitalization avoided.

The effectiveness of the intervention was measured as "hospitalization avoided" by the programme and the costs are including the families and governments costs.

What is ProAR?

- Program for Control of Asthma in Bahia
- Public health intervention including a multiprofessional team approach to severe asthma
- Free combination therapy
- Building capacity of PHC and policy makers
- Research funding from FAPESB, CNPq, Wellcome Trust
- Partnership between the University and the municipal, state and federal PH authorities



Asthma Care in Resource-Poor Settings

Mario Sánchez-Borges, MD, Arnaldo Capriles-Hulett, MD, and Fernan Caballero-Fonseca, MD

- Asthma prevalence in developing countries may be higher than in the developed world
 - Lack of access to proper care and medication
 - Poor compliance
- There is an urgent need for the implementation of better strategies for asthma control among the underserved populations

Asthma Control in Underserved Populations

- Raise recognition and advocate, persist, insist, resist ...
- Make the access to the programme easy and clear
- Work with public health authorities and facilities but build a partnership of asthma fighters to develop an action plan and try other sources of funding, including research grants
- Lead a multidisciplinary team, educate, assess the impact of the intervention

Asthma Control in Underserved Populations

- Asthma is often neglected in low- and middle-income countries, therefore raising recognition and advocacy for action are crucial
- It is possible to reduce morbidity related to asthma with strategies that are feasible and cost-effective in low-income settings, which may result in remarkable savings
- Interventions for asthma control must combine reference centres, for the severe cases and capacity building, with integrated action in primary/secondary care providing access to essential medication

Deaths due to asthma, NEVER MORE!

