



Rural Asthma selected slides

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Issues to address

- Rural asthma (and allergy)
 - Is the farming environment really protective?
 - Versus urban asthma (and allergy) throughout the world

Overview of rural area studies in Europe

author	country	atopy	hay fever	asthma
Braun-Fahrlander 1999	Switzerland,Austria	↓	↓	n.s.
Riedler 2001	Switzerland, Germany, Austria	↓	↓	↓
Alfven 2006	Switzerland, Germany, Sweden	↓	↓	
Von Ehrenstein	Germany	↓	↓	↓
Riedler 2000	Austria	↓	↓	↓
Leynart 2000	France	↓	↓	
Braback 2004	Sweden		↓	↓ (born after 1970)
Klintberg 2001	Sweden	↓	↓	↓
Omland 1999	Denmark			n.s.
Portengen 2002	Denmark	↓	↓	↓
Remes 2003	Finland	↓		
Kilpelainen 2002	Finland		↓	↓
Klipelainen 2003	Finland	↓		↓
Perkins 2006	GB	↓	↓	↓

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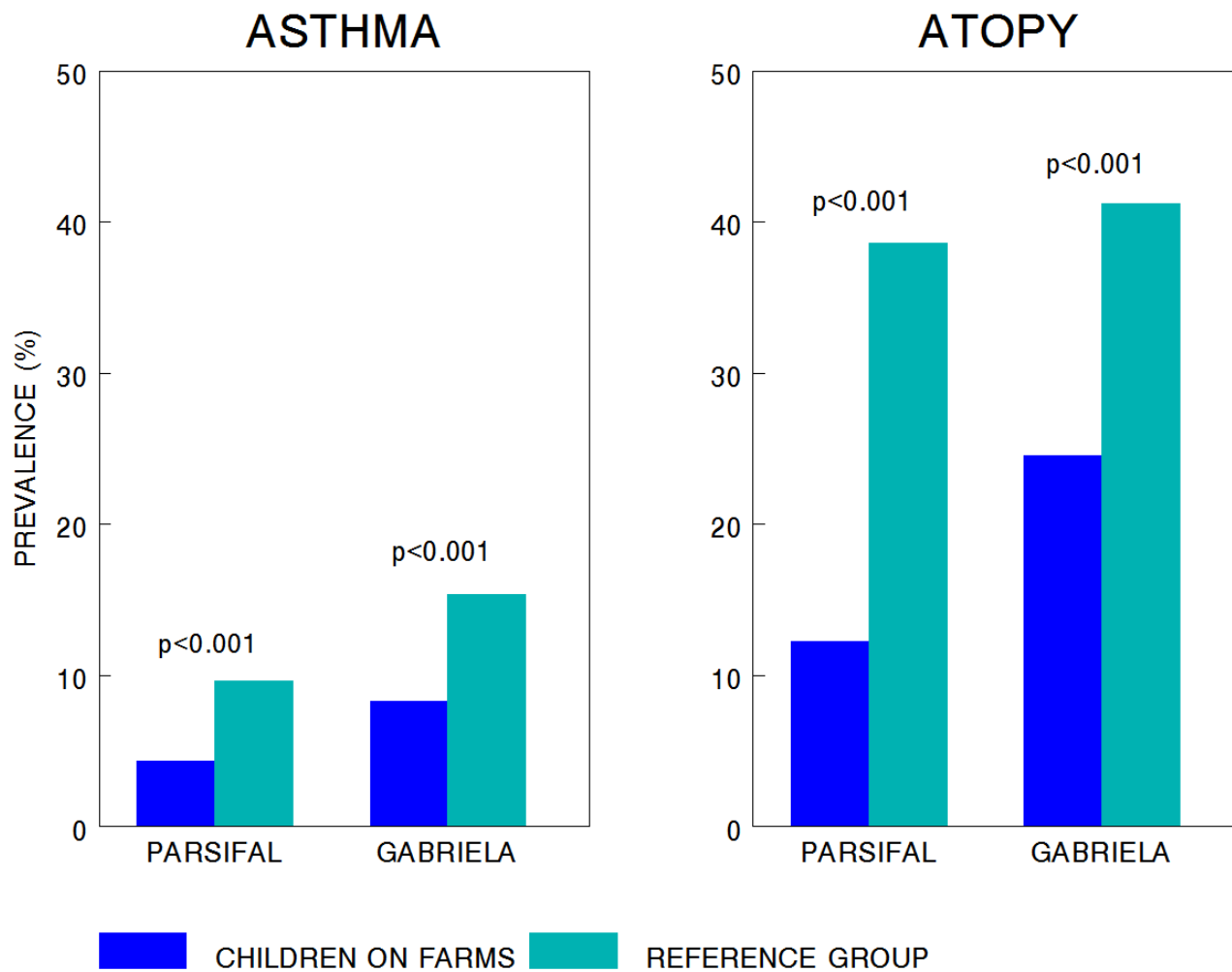
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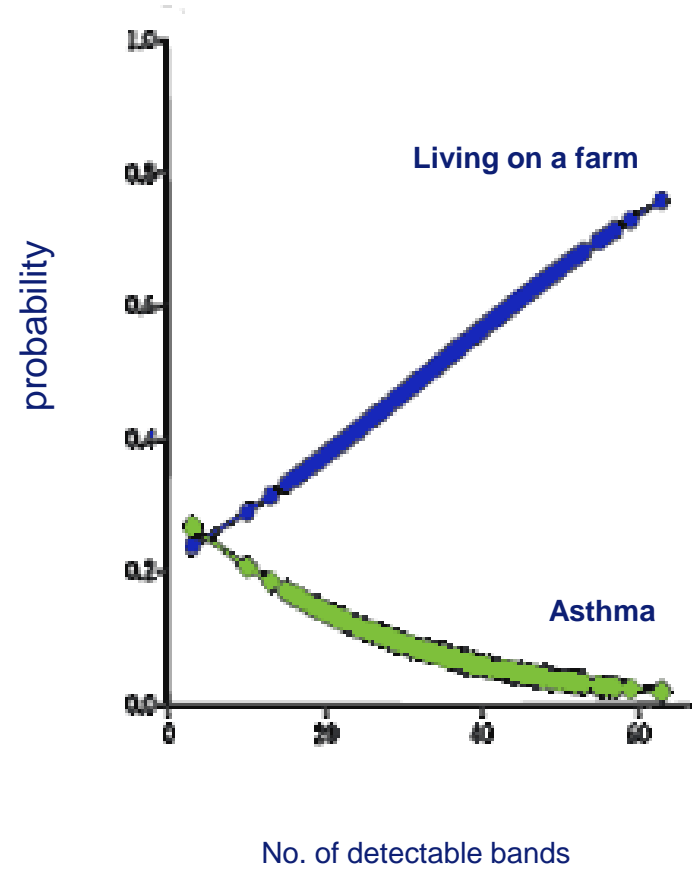
Exposure to Environmental Microorganisms
 and Childhood Asthma

Markus J. Ege, M.D., Melanie Mayer, Ph.D., Anne-Cécile Normand, Ph.D., Jon Genuneit, M.D.,
 William O.C.M. Cookson, M.D., D.Phil., Charlotte Braun-Fahrländer, M.D., Dick Heederik, Ph.D.,
 Renaud Piarroux, M.D., Ph.D., and Erika von Mutius, M.D., for the GABRIELA Transregio 22 Study Group

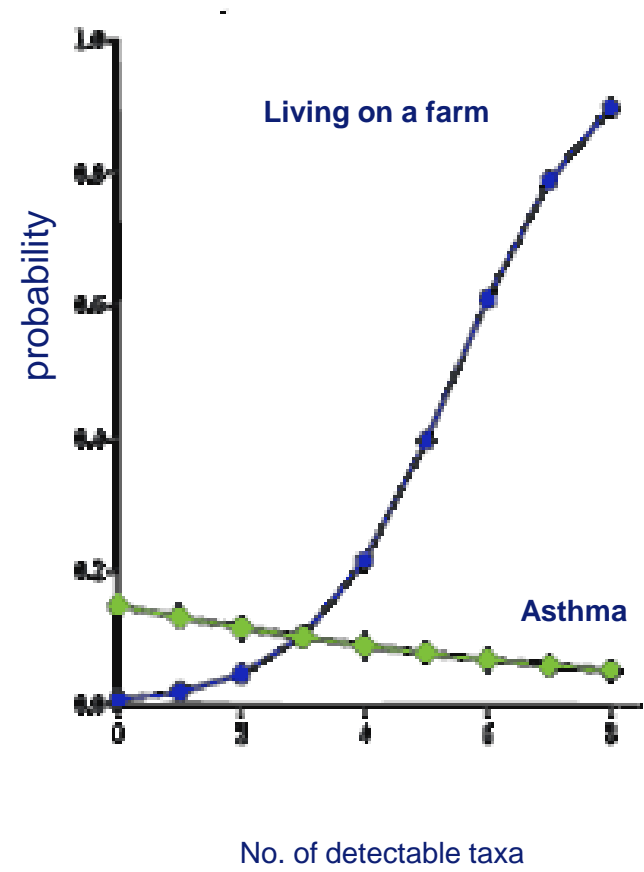
Characteristic	PARSIFAL	GABRIELA
Total n/sample	6843/489	9668/444
Origin	Bavaria (S-Germany)	Austria, Bavaria, Switzerland
Children on farm	52 %	16 %
Prevalence of asthma	8 %	11 %
Analysis	SSCP targetting of bacterial DNA	Culture, microscopy, Gram's staining



Bacteria – PARSIFAL



Fungi - GABRIELA



The protective effect of farm milk consumption on childhood asthma and atopy: The GABRIELA study

- GABRIELA study
- 7606 serum samples
- 800 cow's milk samples

Association between milk characteristics and disease	aOR (95% CI)		
	Asthma	Current asthma	Atopy
Raw milk	0.58 (0.34-0.99)	0.45 (0.22-0.93)	ns
BSA high levels	0.53 (0.30-0.97)	0.45 (0.21-0.98)	ns
α -Lactalbumin	0.71 (0.52-0.97)	0.67 (0.47-0.97)	ns
β -Lactalbumin	0.62 (0.39-0.97)	ns	ns

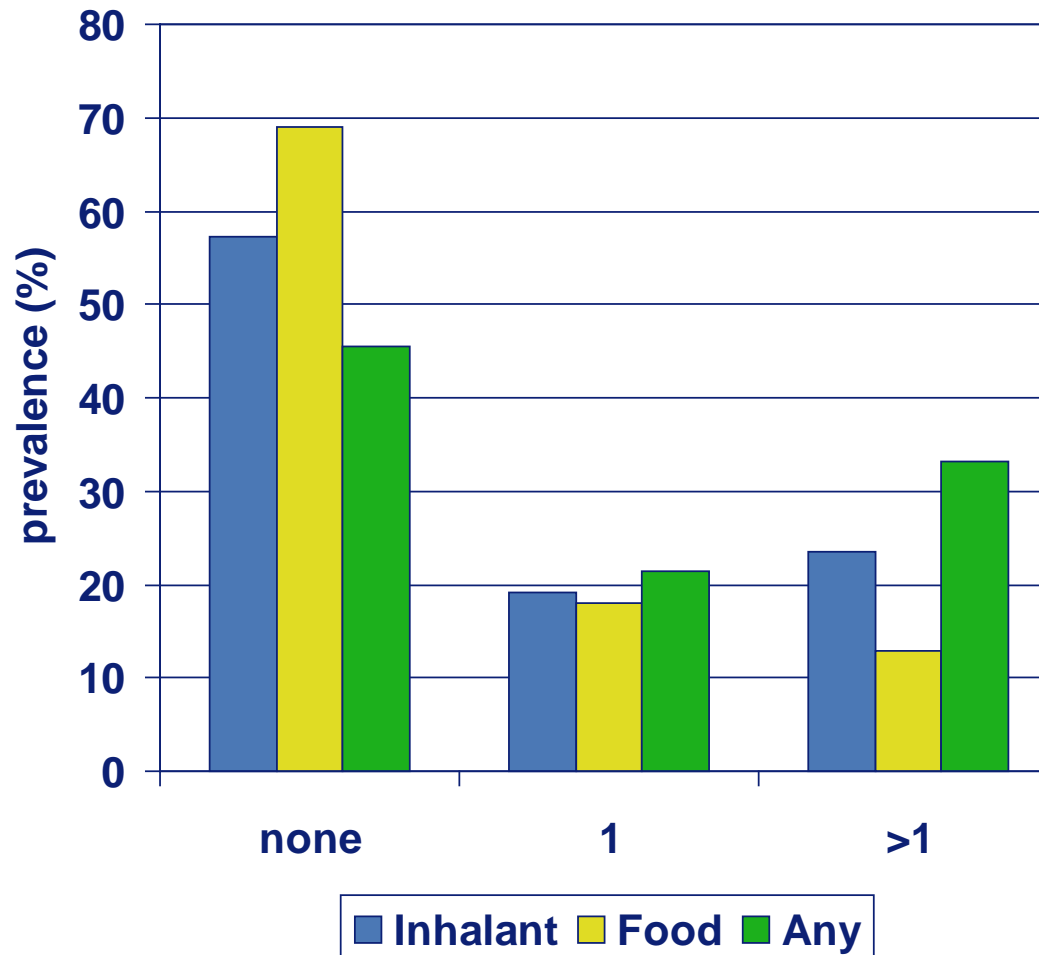
No association with heating status, fat content, total viable bacteria, TGF- β 2 and total IgG

Rural asthma and allergy

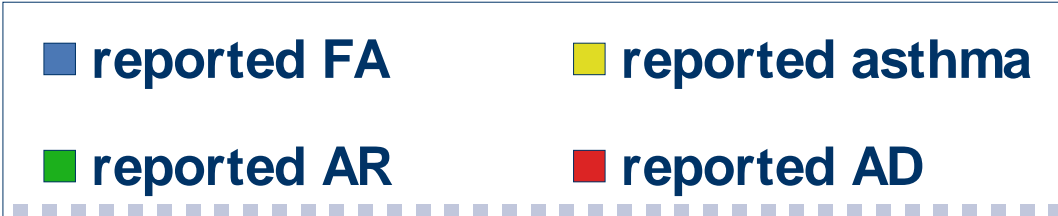
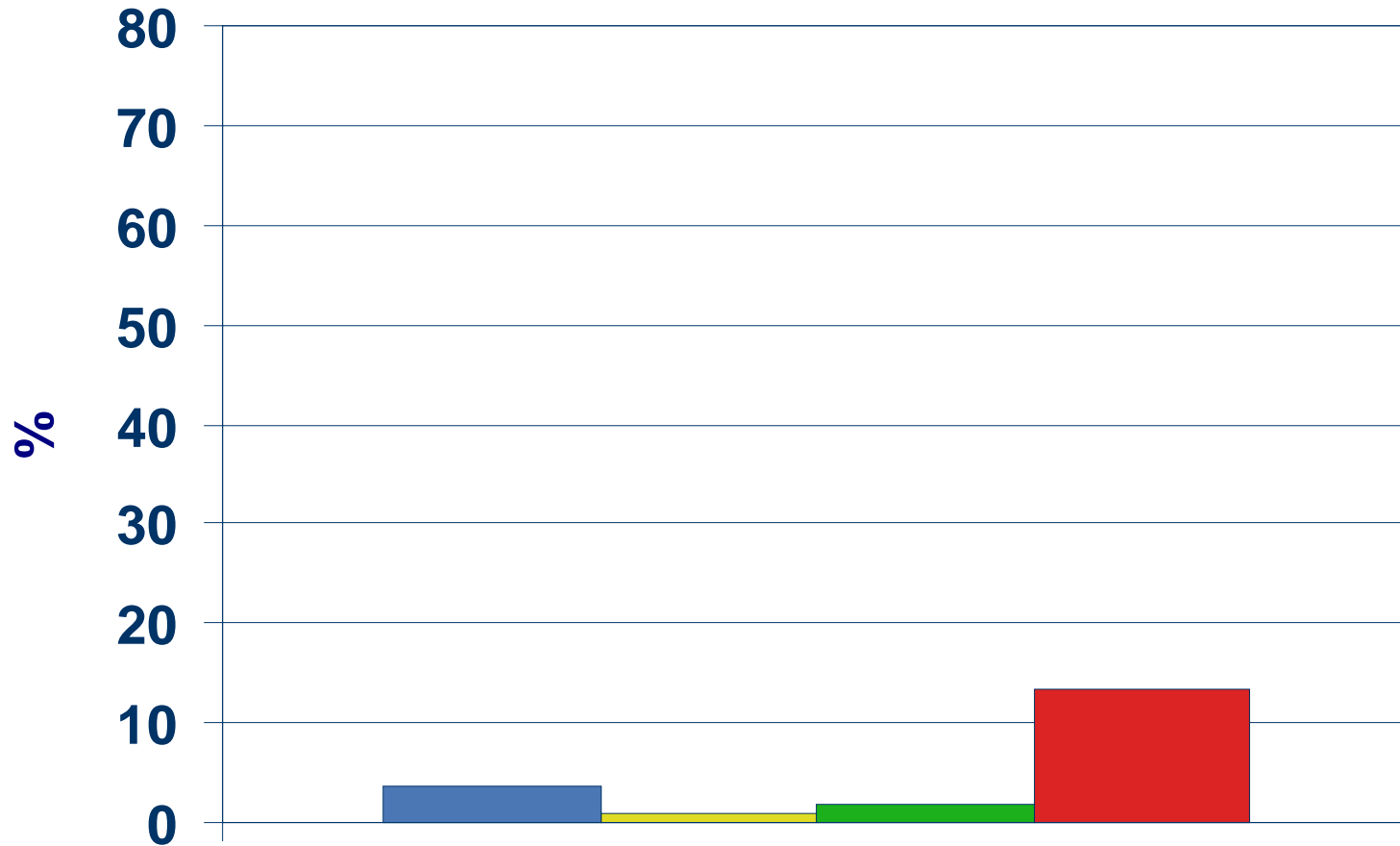
Outside Europe

Rural asthma and atopy in China

number of positive SPT



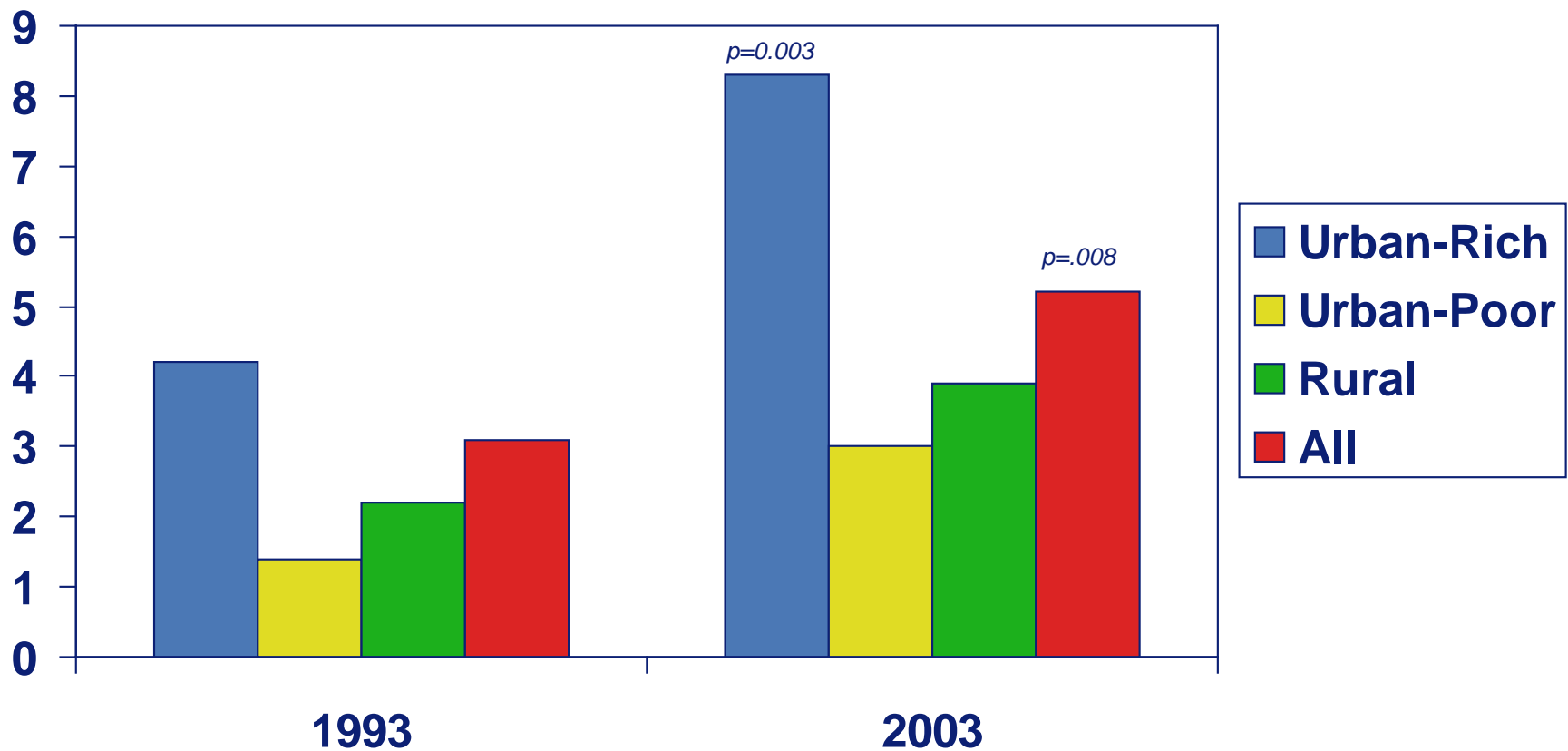
Rural asthma and atopy in China



Exercise-Induced Bronchospasm and Atopy in Ghana: Two Surveys Ten Years Apart

Emmanuel O. D. Addo-Yobo¹, Ashley Woodcock², Adorkor Allotey¹, Benjamin Baffoe-Bonnie¹, David Strachan³, Adnan Custovic^{2*}

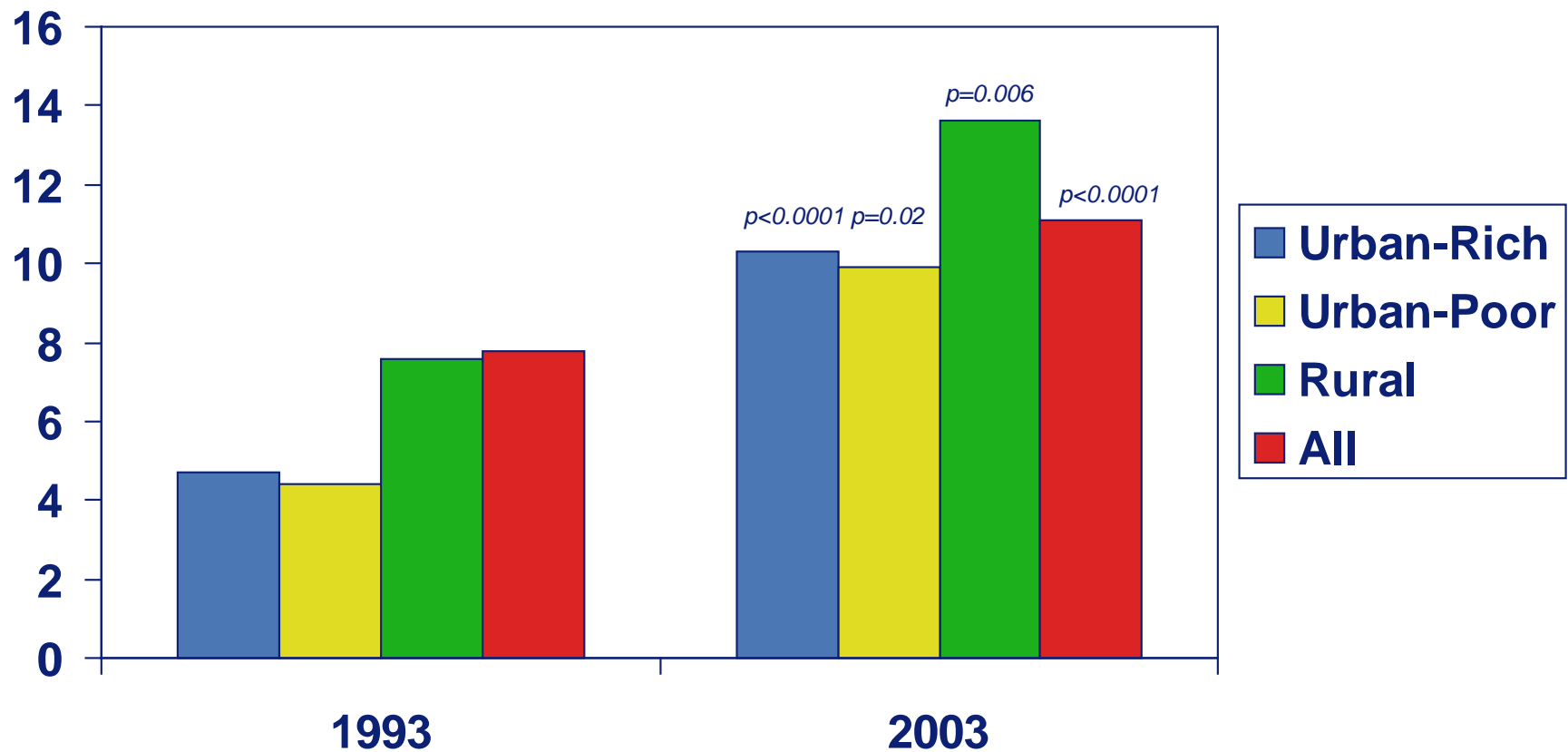
prevalence (%) in EIB



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prevalence (%) in atopy



Effect of urbanisation on asthma, allergy and airways inflammation in a developing country setting

	Urban (Lima)	Rural (Tumbes)	P-value
Lifetime wheezing	22 %	10 %	p < 0.001
Current asthma symptoms	12 %	3 %	p < 0.001
Physician diagnosed asthma	13%	2%	p < 0.001
Current rhinitis	23 %	12 %	p < 0.001
Eczema	12 %	0.4 %	p < 0.001
Atopy	56 %	38 %	p < 0.001
History of cigarette smoking	7.4 %	1.3 %	p < 0.001
Mean indoor PM	31 $\mu\text{g}/\text{m}^3$	13 $\mu\text{g}/\text{m}^3$	p < 0.001

Conclusions

- Protective farming effect observed throughout Europe
- Important role for microbial agents
- Differential environmental effect on asthma and atopy
- May partly explain urban-rural differences throughout the world
- Differences between countries