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APRILE
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Perché le malattie respiratorie
sono sottodiagnosticate

S. Harari

REVIEW ARTICLE

GLOBAL HEALTH

Measuring the Global Burden of Disease

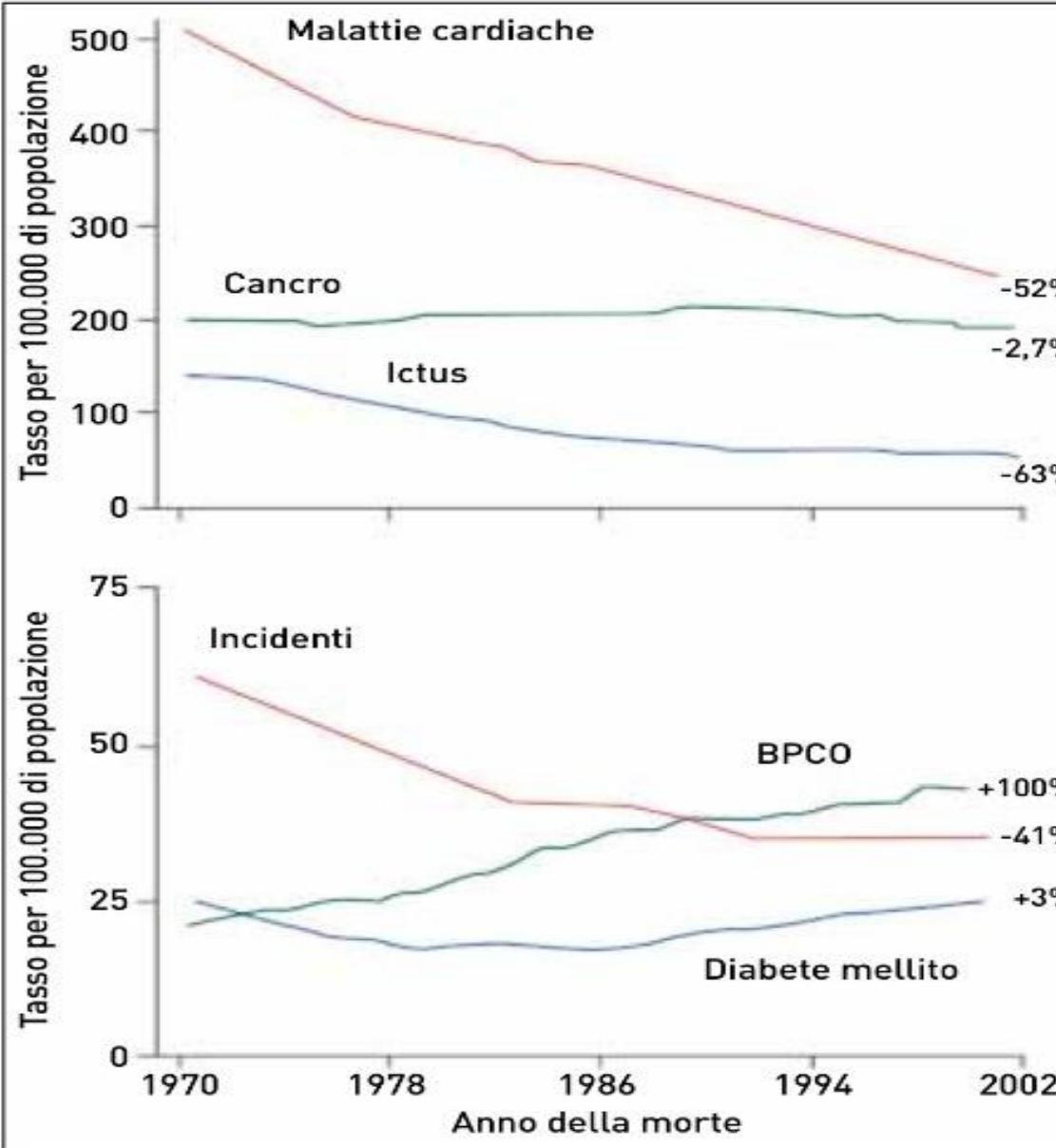
Christopher J.L. Murray, M.D., D.Phil., and Alan D. Lopez, Ph.D.

Table 1. Top 10 Causes of Death, Years of Life Lost from Premature Death, Years Lived with Disability, and Disability-Adjusted Life-Years (DALYs) in the United States, 2010.

Cause of Death	Deaths (N=2664)		Years of Life Lost (N=45,145)		Years Lived with Disability (N=36,689)		DALYs (N=81,835)	
	Rank	No. (%) <i>in thousands</i>	Rank	No. (%) <i>in thousands</i>	Rank	No. (%) <i>in thousands</i>	Rank	No. (%) <i>in thousands</i>
Ischemic heart disease	1	563 (21.1)	1	7165 (15.9)	16	685 (1.9)	1	7850 (9.6)
Chronic obstructive pulmonary disease	5	154 (5.8)	4	1913 (4.2)	6	1745 (4.8)	2	3659 (4.5)
Lower respiratory tract infections	7	85 (3.2)	11	1032 (2.3)	62	61 (0.2)	20	1093 (1.3)
Asthma	61	4 (0.2)	57	100 (0.2)	10	932 (2.5)	24	1032 (1.3)
Other cardiovascular and circulatory diseases	10	57 (2.1)	17	765 (1.7)	34	213 (0.6)	26	979 (1.2)

DALYs: disability adjusted life years

N Engl J Med 2013;369:448-57.



BPCO causa importante e crescente di morbilità e di mortalità in tutto il mondo

nel 2004 4° causa di morte

nel 2030 3°causa di morte e 5° causa di disabilità

da Roadmap Respiratoria Europea 2012

Figura 2. Andamento del tasso di mortalità dovuta a varie patologie negli ultimi 30 anni. Riprodotta con il permesso dell'editore [6].



Projected proportion of deaths due to leading respiratory causes. COPD: chronic obstructive pulmonary disease. Source: World Health Organization World Health Statistics 2011.

Percentage of deaths worldwide	2008	2015	2030
Lower respiratory infections	6.1	5.5	4.2
COPD	5.8	6.6	8.6
Trachea/bronchus/lung cancer	2.4	2.8	3.4
Tuberculosis	2.4	1.6	3.4
Percentage of deaths in WHO European region	2008	2015	2030
Lower respiratory infections	2.3	2.2	1.9
COPD	2.5	2.7	3.2
Trachea/bronchus/lung cancer	3.9	3.9	4.1
Tuberculosis	0.8	0.7	0.4



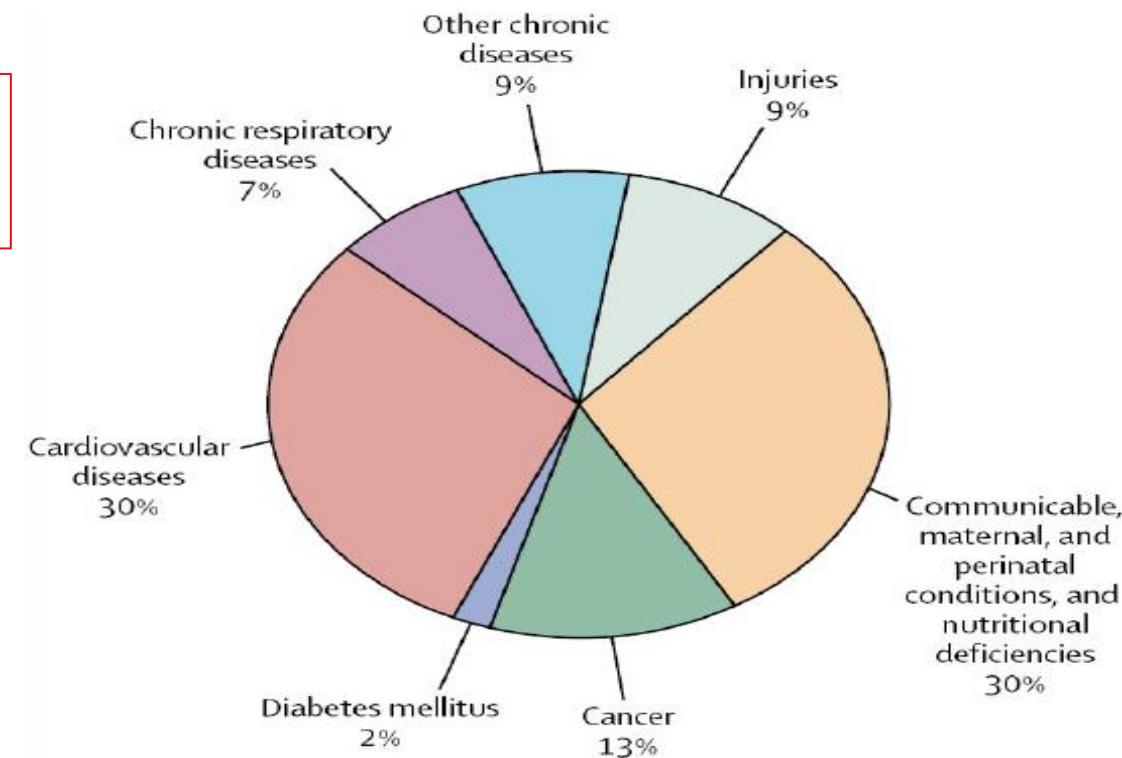
Projected DALYs lost due to leading respiratory causes

Percentage of DALYs worldwide	2008	2015	2030
Lower respiratory infections	5.4	4.6	3.2
COPD	2.3	2.7	3.8
Trachea/bronchus/lung cancer	0.9	1.0	1.4
Tuberculosis	2.0	1.6	1.1
Percentage of DALYs in WHO European region	2008	2015	2030
Lower respiratory infections	1.5	1.3	1.0
COPD	2.0	2.0	2.2
Trachea/bronchus/lung cancer	2.2	2.2	2.6
Tuberculosis	1.2	1.1	0.6

Mortality in the world

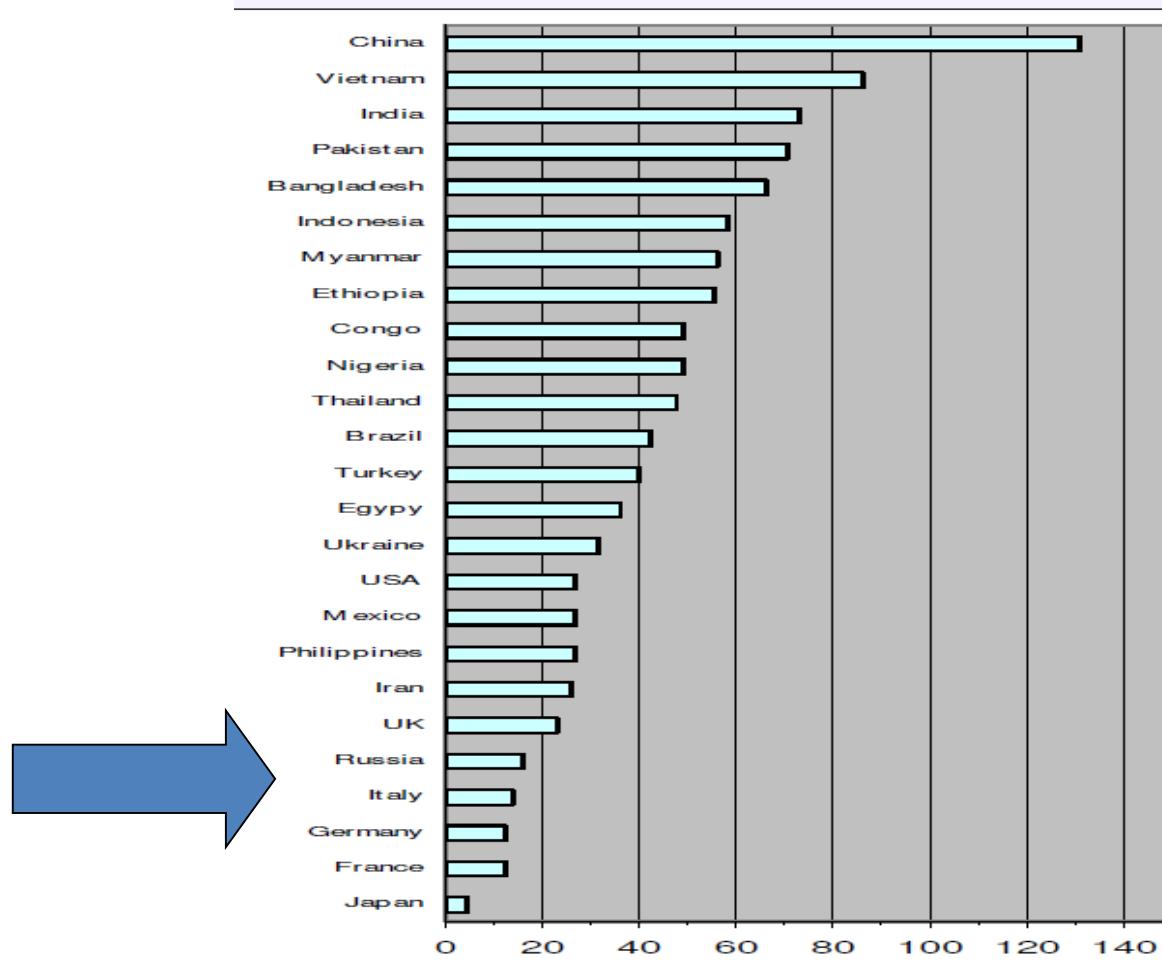
Total deaths: 58 millions

7%



Strong et coll., Lancet 2005

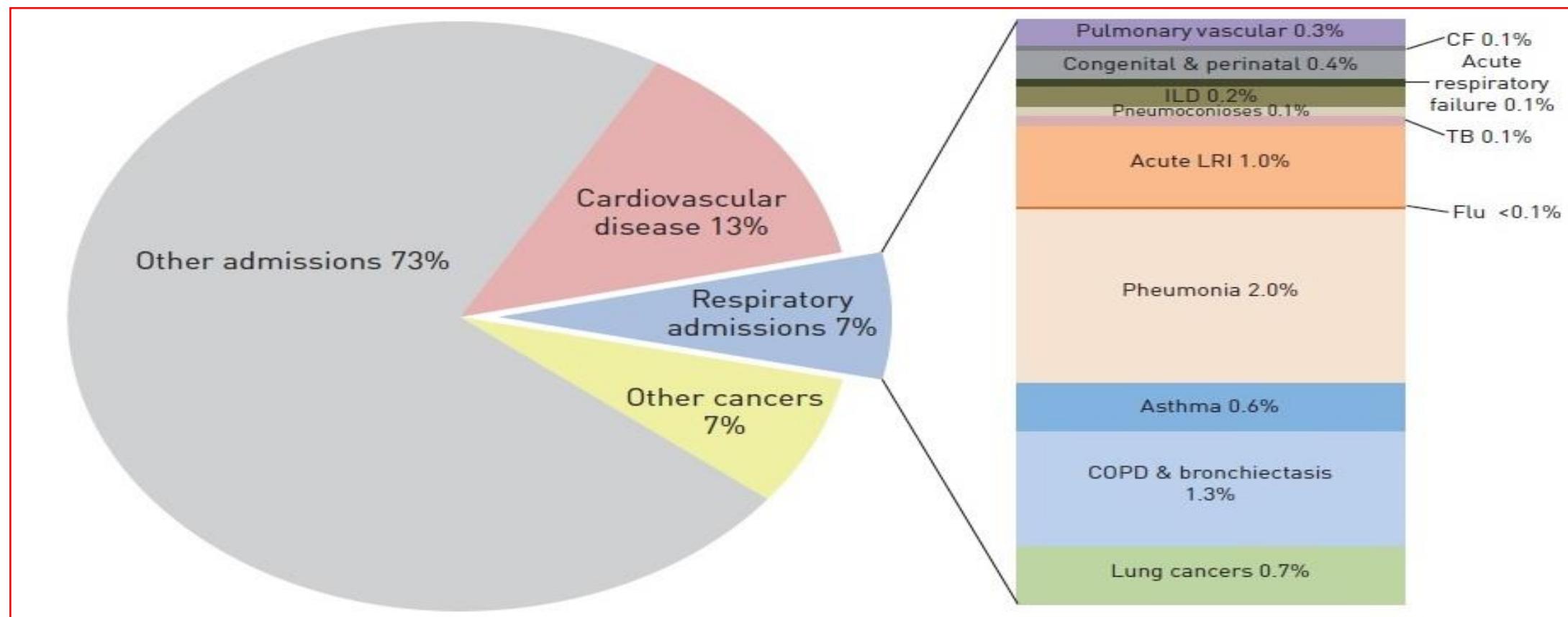
Age-adjusted death/100.000



Mannino et coll., Lancet 2007



Percentage of hospital admission in selected european union countries, by respiratory conditions



Admission rate in hospital



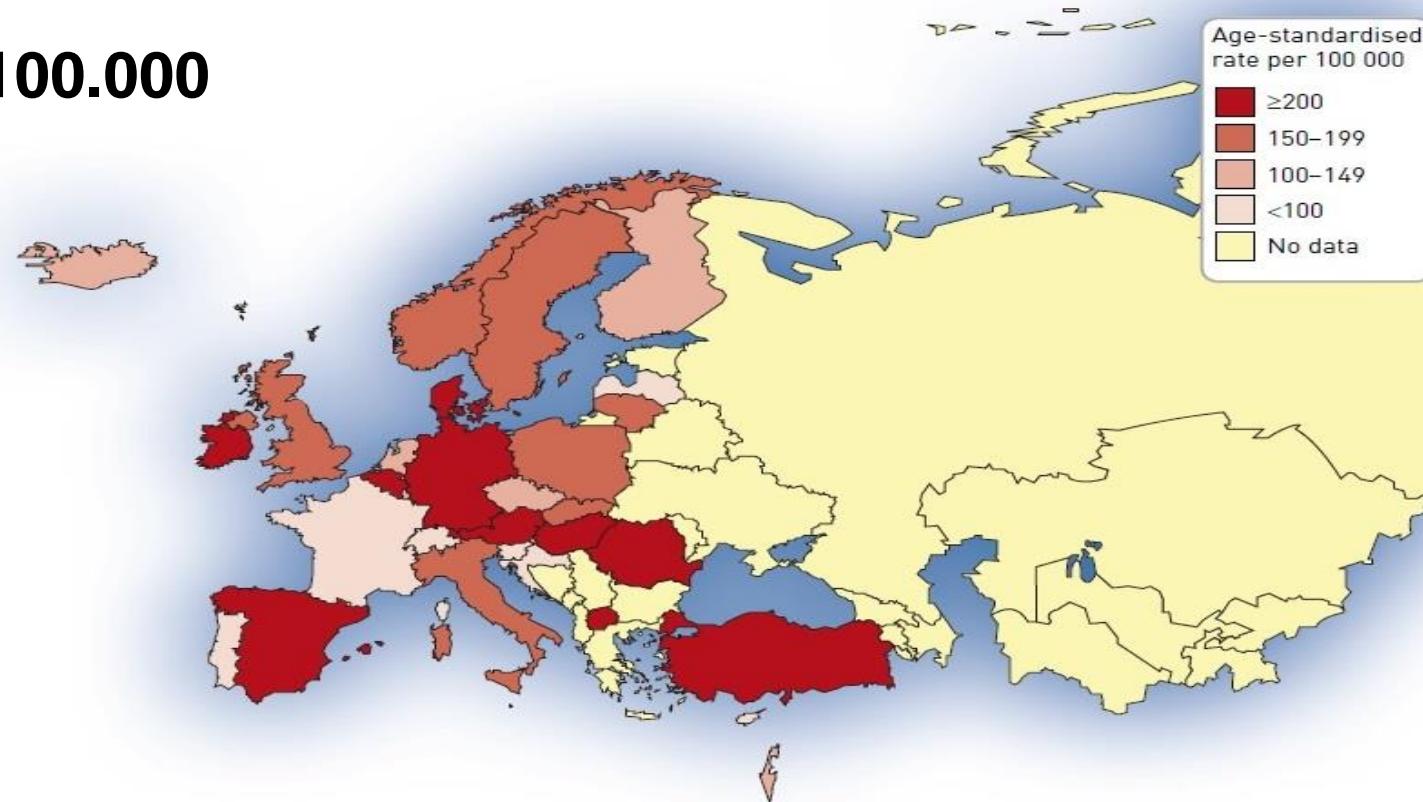
EUROPEAN LUNG *white book*

- The average age-standardised admission rate for COPD is about 200 / 100 000 people per year



HOSPITAL ADMISSION RATE FOR CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)

150 / 100.000



Data from World Health Organization Hospital Morbidity Database, October 2011 update, and Eurostat, March 2012 update.

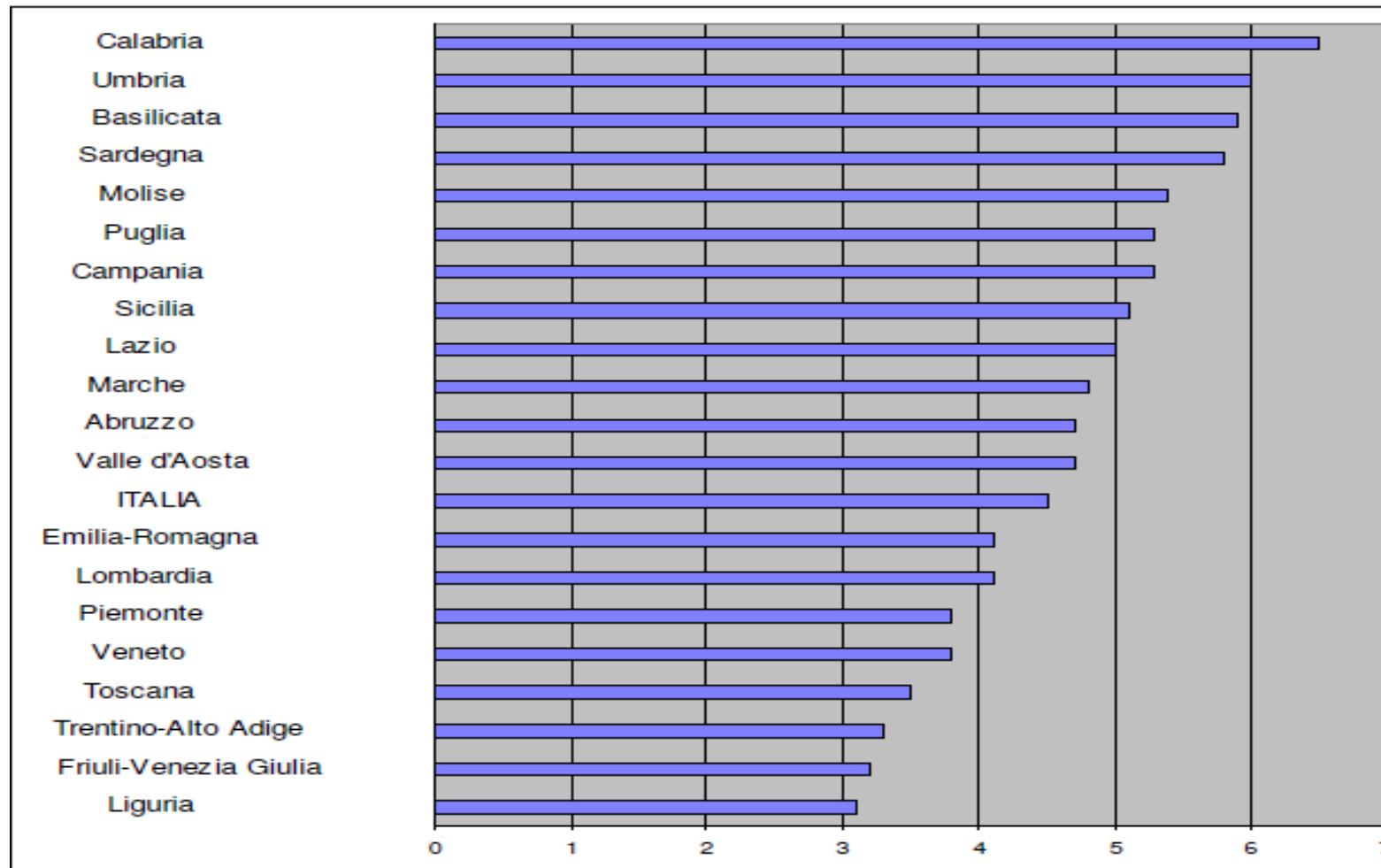
Prevalence in Italy

dati Osmed 2009 :5% della popolazione



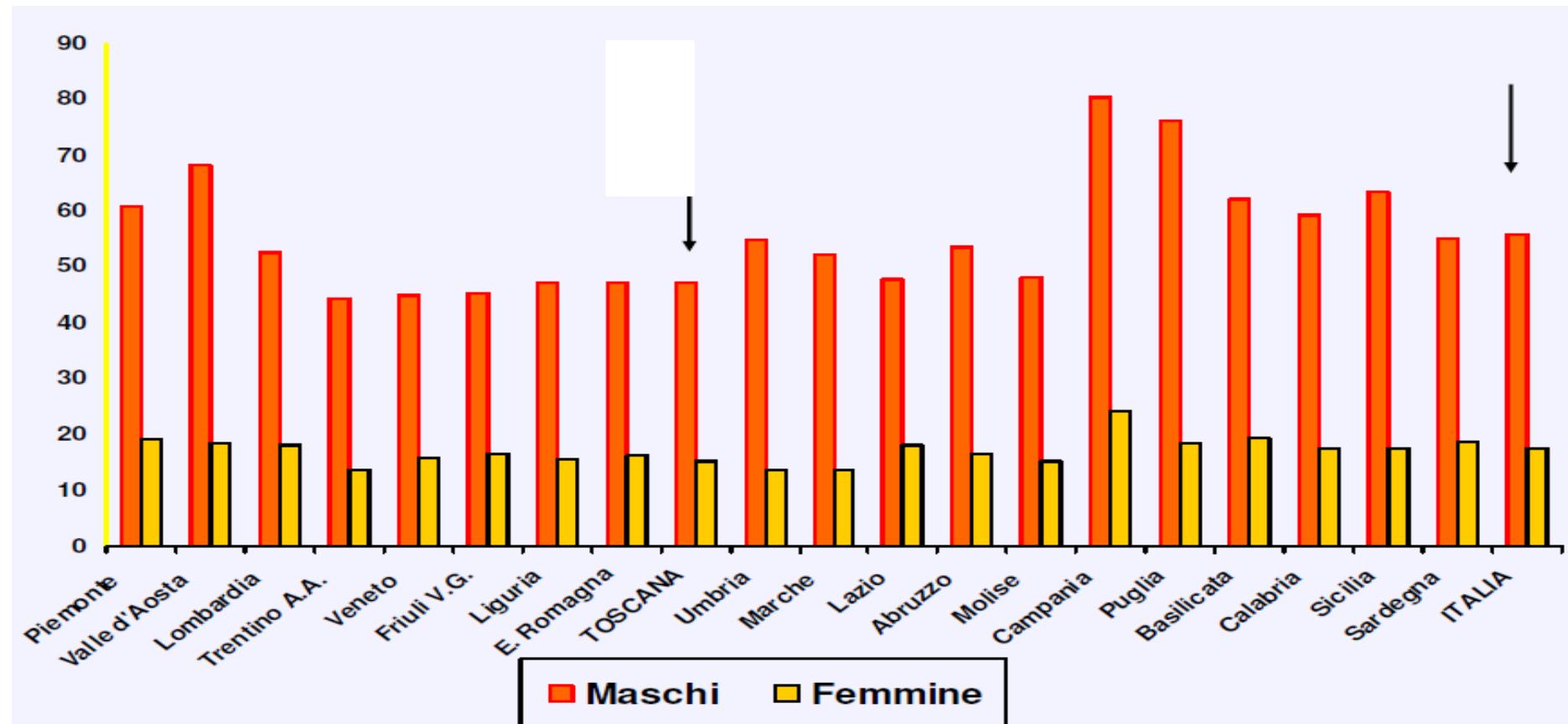
dati ISTAT 2010; 4,5% della popolazione
La BPCO è al 6°posto fra le malattie croniche
(pari a 2.600.000 cittadini italiani)

Prevalence in Italy



ISTAT - Eurisko 2004-2005

Italia :percentuale di mortalità per BPCO rispetto a tutte le patologie respiratorie nelle varie regioni

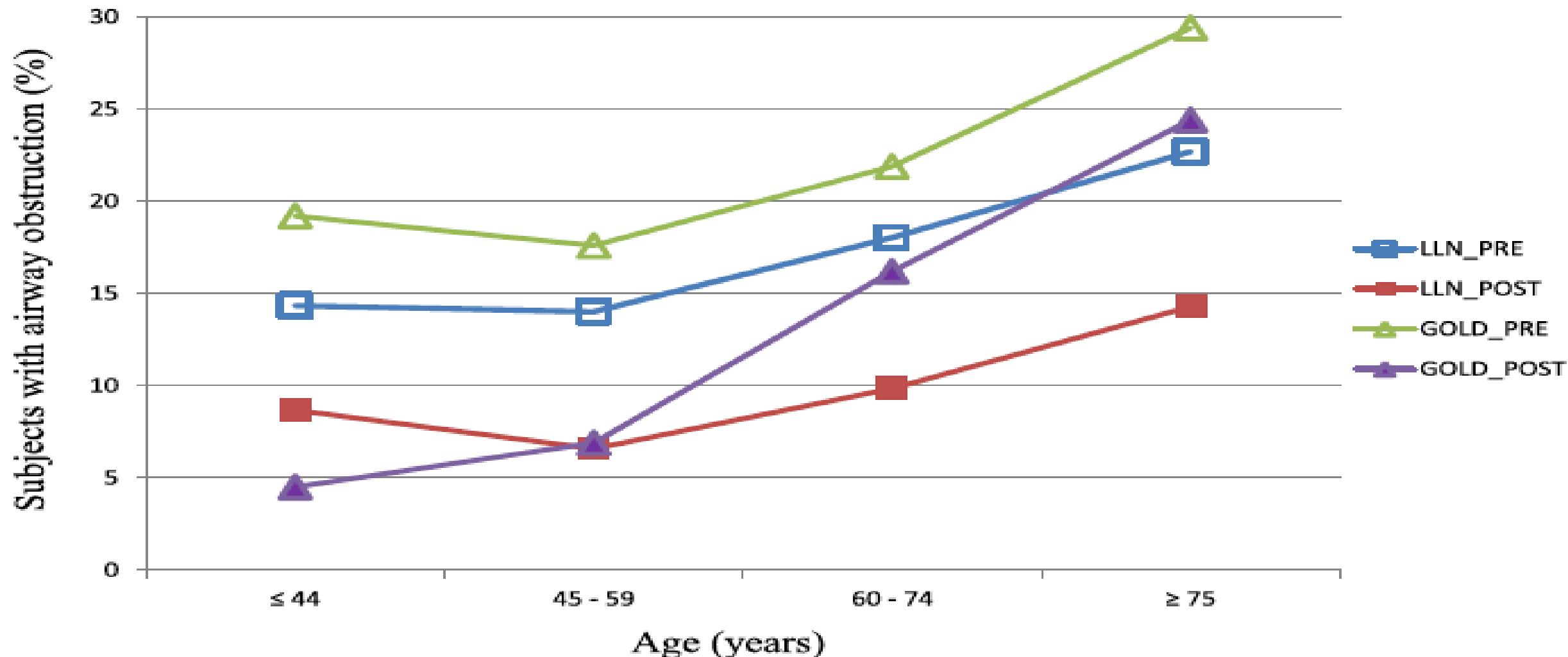


COPD prevalence in a north-eastern Italian general population

VERONA
7-8 APRILE

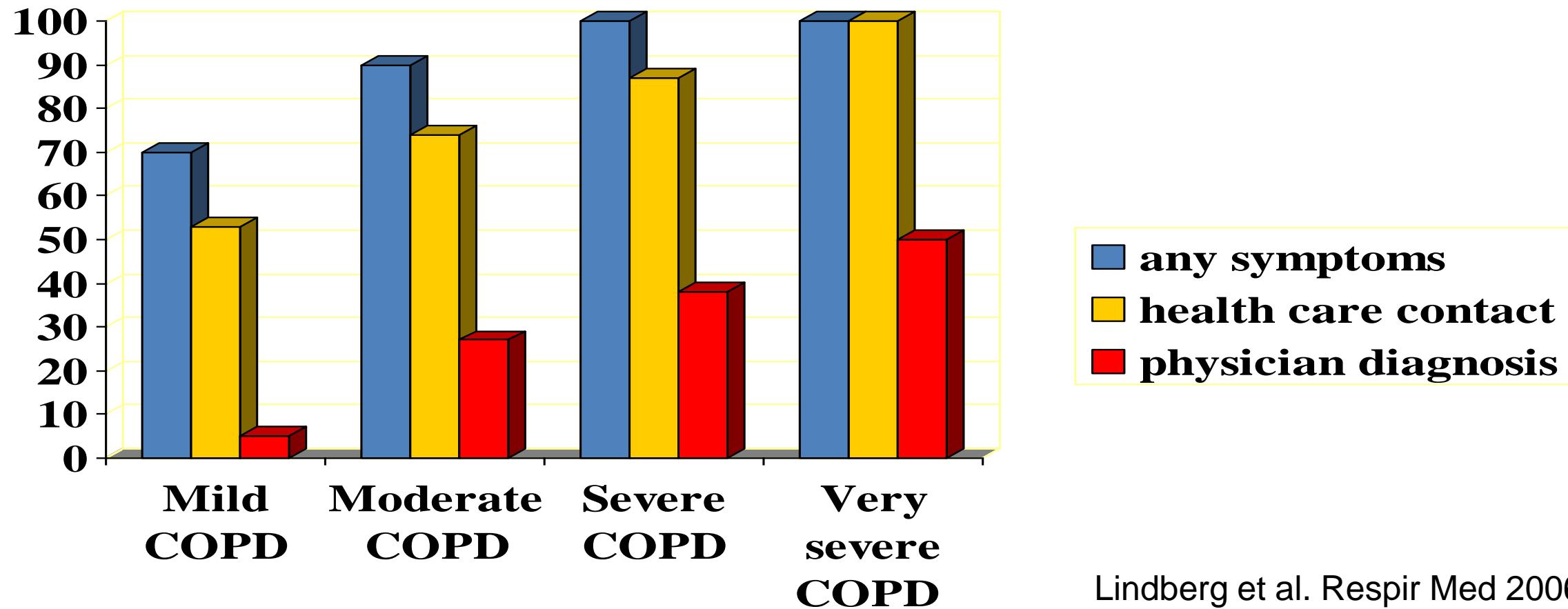
Massimo Guerriero ^a, Marco Caminati ^{b,*}, Giovanni Viegi ^{c,d},
Gianenrico Senna ^b, Giancarlo Cesana ^e, Carlo Pomari ^f

Respiratory Medicine (2015)



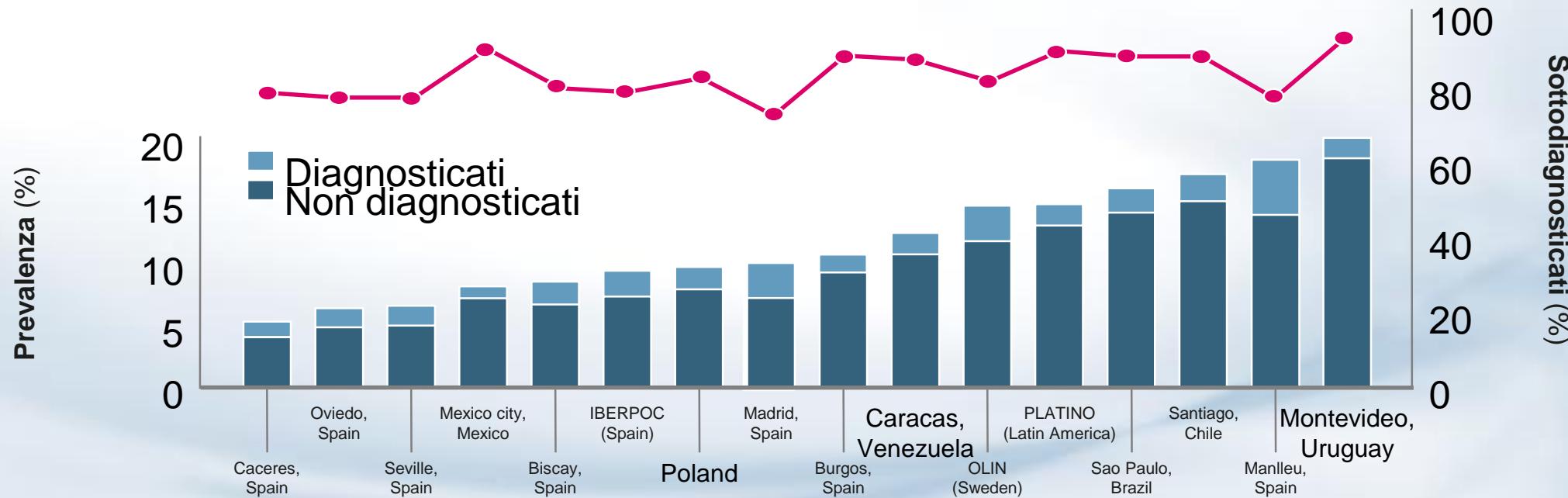
Underdiagnosis of COPD by disease severity

respiratory symptoms, health care contact due to respiratory complaints and physician diagnosis of COPD by disease severity (percent)



Lindberg et al. Respir Med 2006

La sottodiagnosi è confermata negli studi di popolazione

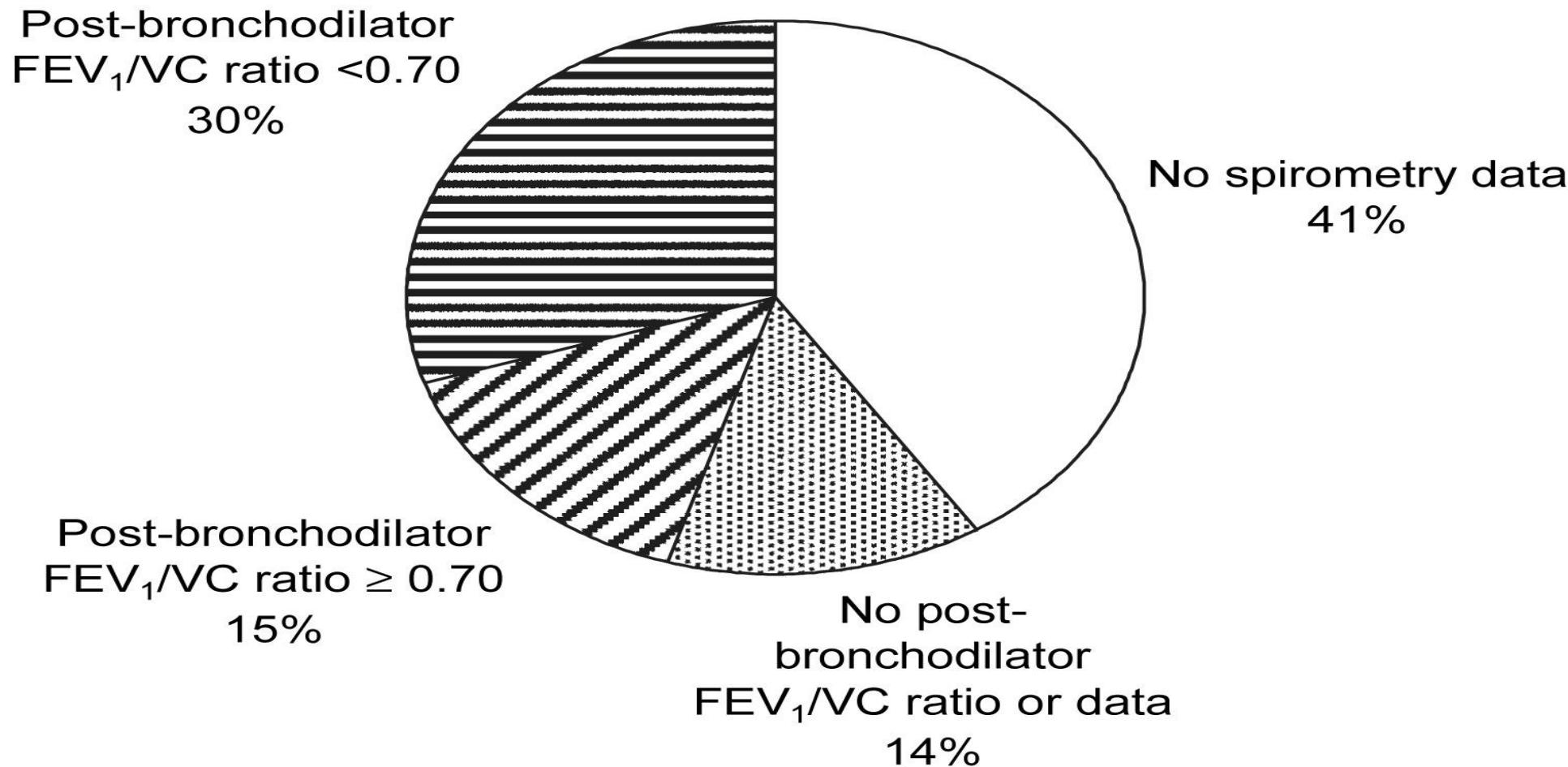


Negli studi di popolazione in cui è stata eseguita una spirometria con test di broncodilatazione si conferma che la sottodiagnosi di BPCO è molto elevata, indipendentemente dalla prevalenza complessiva, variando dal 73% in Spagna sino al 93% in Uruguay

COPD

Chronic Obstructive Pulmonary Disease

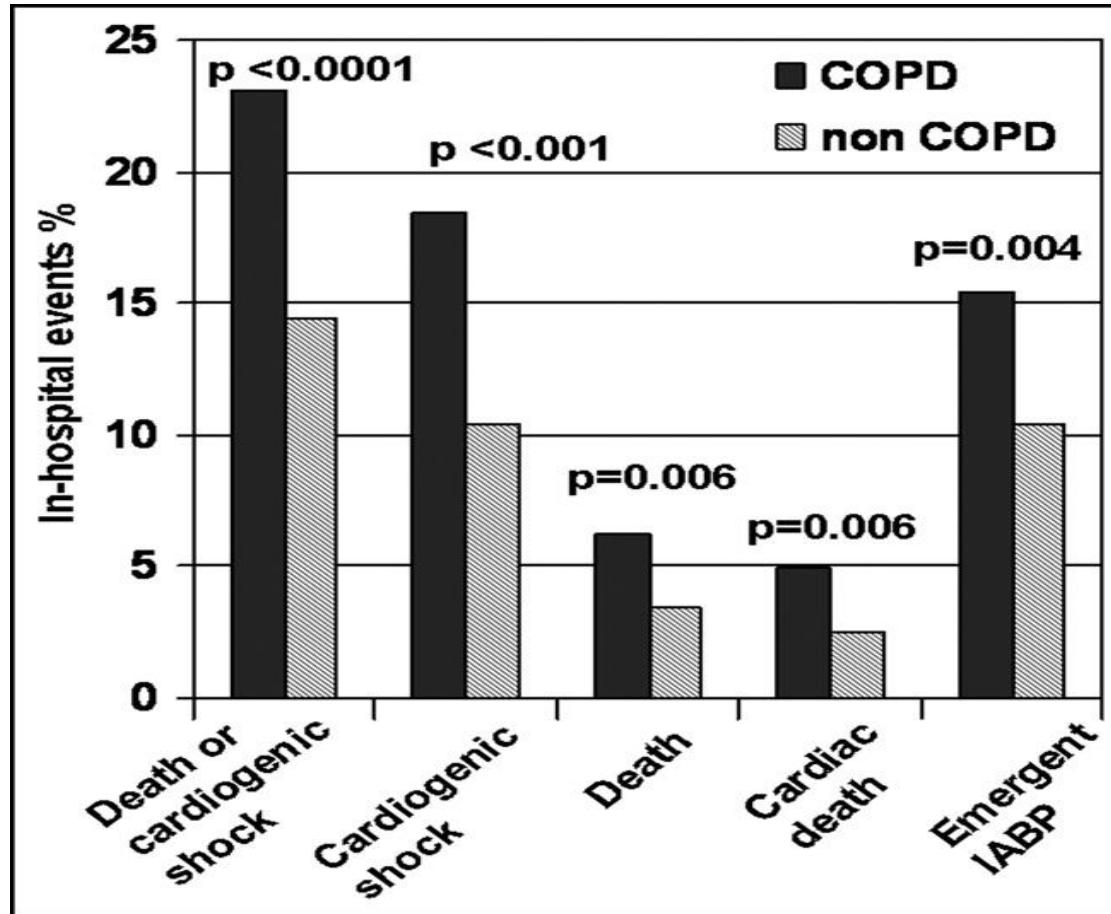
How often is diagnosis of COPD confirmed with spirometry?



Primary care of the patient with chronic obstructive pulmonary disease in Italy

- 617,280 subjects registered with 400 Italian GPs
- 15,229 (2.47%) patients were suffering from chronic obstructive pulmonary disease (COPD)
- Of these, 67.7% had a chest radiograph at least once in a period of 10 years (1997e2006), while in the same period only **31.9% had a spirometry**, 29.9% had a visit to a specialist, and 0.94% had a visit to an allergologist

Impact of COPD on acute phase outcome of Myocardial Infarction



COPD¹ remained a significant risk factor for in-hospital death or cardiogenic shock also when adjusted for confounders²

OR 1.83 (95% CI 1.17-2.86)

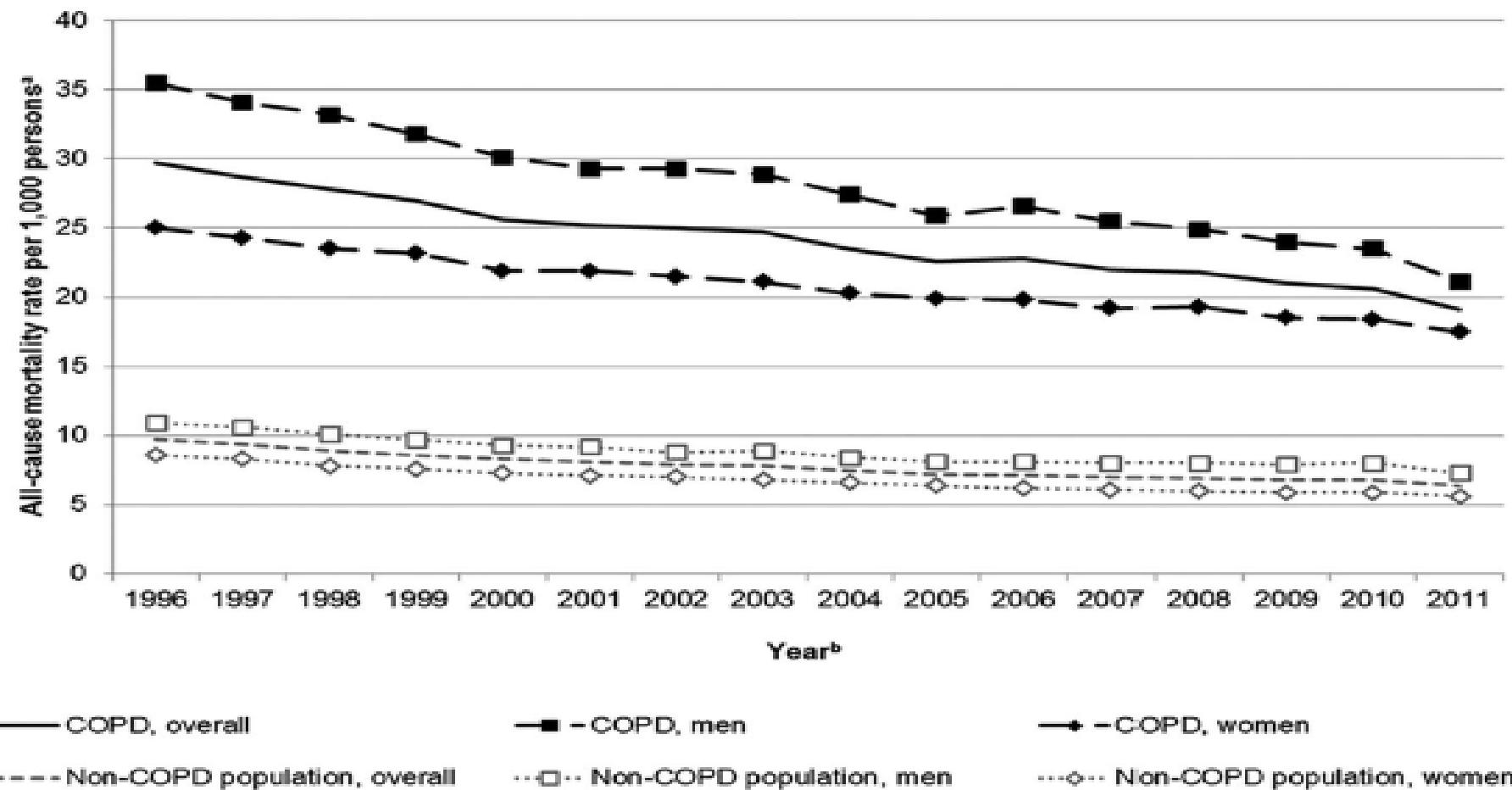
¹reported pharma therapy for COPD and/or FEV1<70 pp

²age, gender, BMI, diabetes, smoking, chronic renal insuff, previous PCI, n of diseased vessels, and LAD lesion

Wakabayashi et al. Am J Cardiol 2010

Mortality among subjects with COPD

Adjusted all-cause mortality rates among subjects with and without COPD



All-cause mortality by GOLD stage

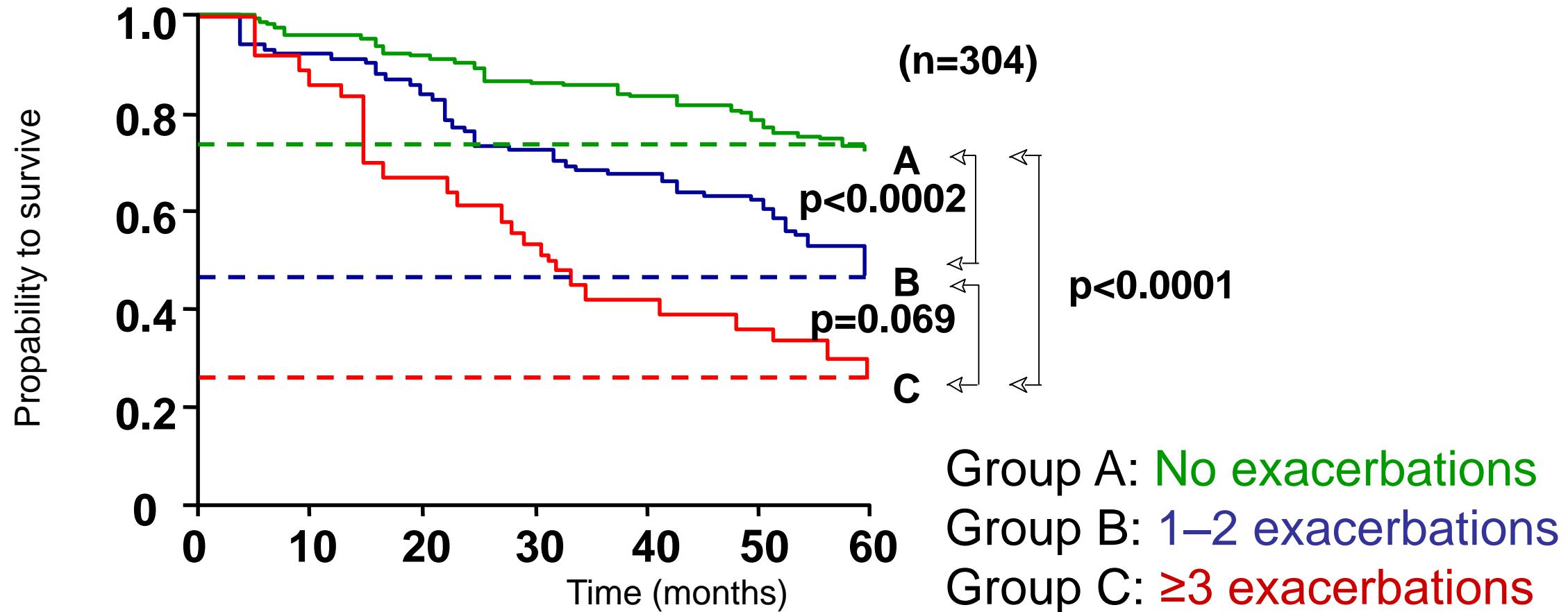
Associations between GOLD stage (FEV₁/FVC below the limit of LLN) with all-cause mortality.

Total mortality	Total (n)	Deaths (n)	HR ^a	95% CI	HR ^b	95% CI
No obstruction	6407	2981	1		1	
GOLD 1	46	22	2.28	1.50–3.48	2.03	1.33–3.09
GOLD 2	108	93	1.87	1.52–2.31	1.64	1.33–2.03
GOLD 3	65	61	2.13	1.65–2.75	1.98	1.53–2.56
GOLD 4	12	12	1.85	1.05–3.27	1.88	1.07–3.33

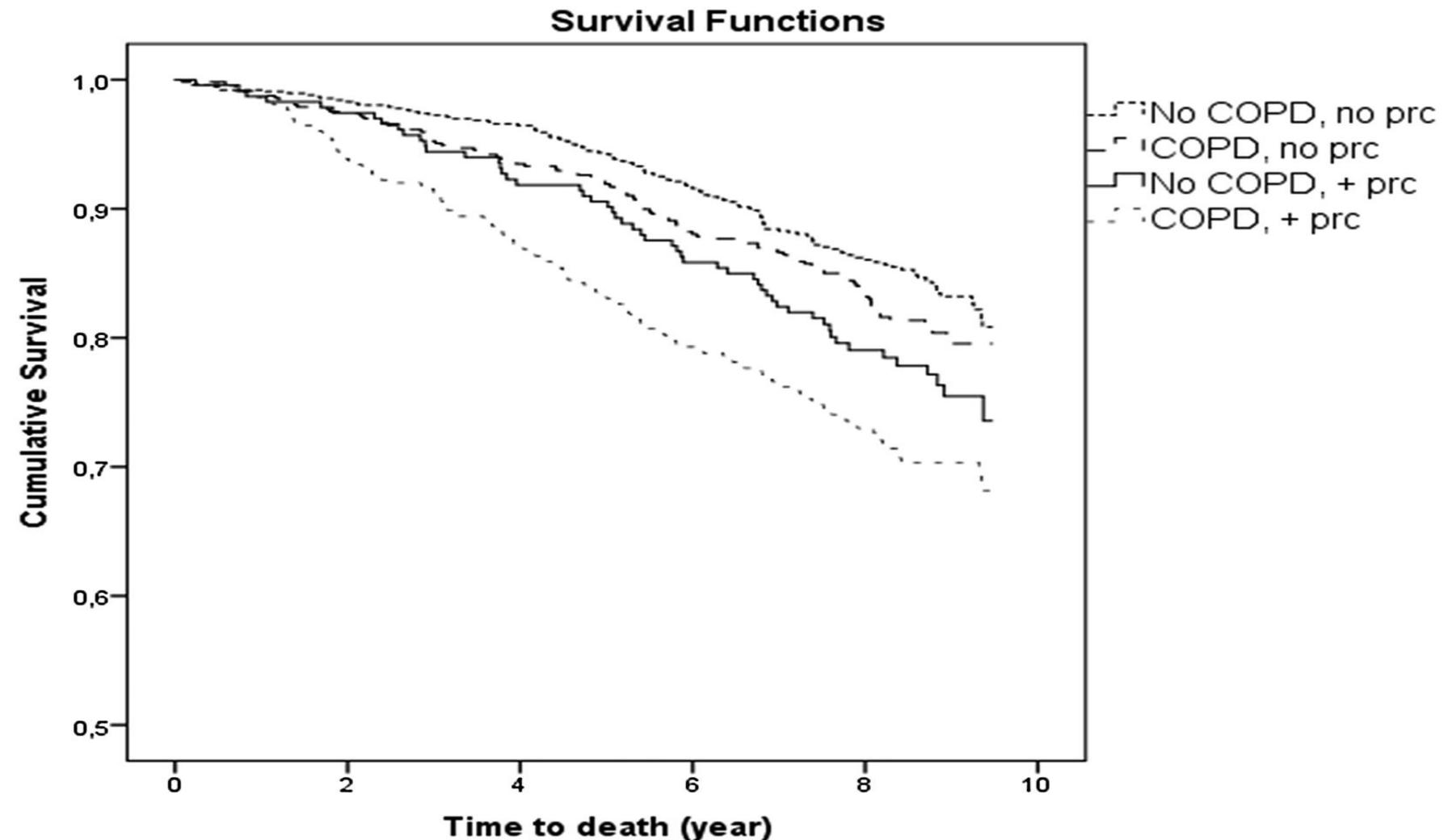
a HR, adjusted for age and sex.

b HR, adjusted for age, sex, and smoking.

Exacerbations increase the risk for death among subjects with COPD



Mortality in relation to COPD and productive cough



Asthma

Asthma prevalence – adults aged 18-44 y

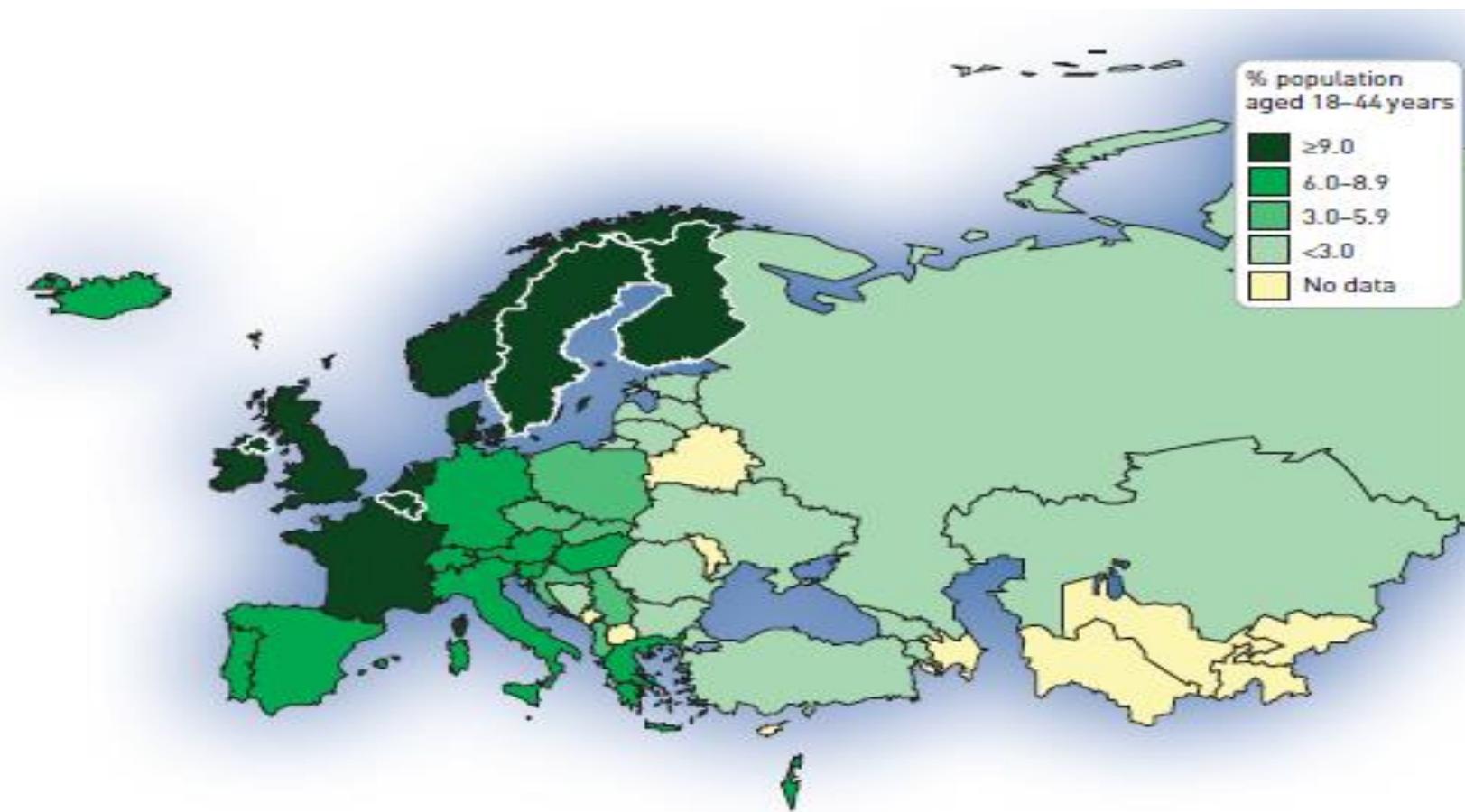
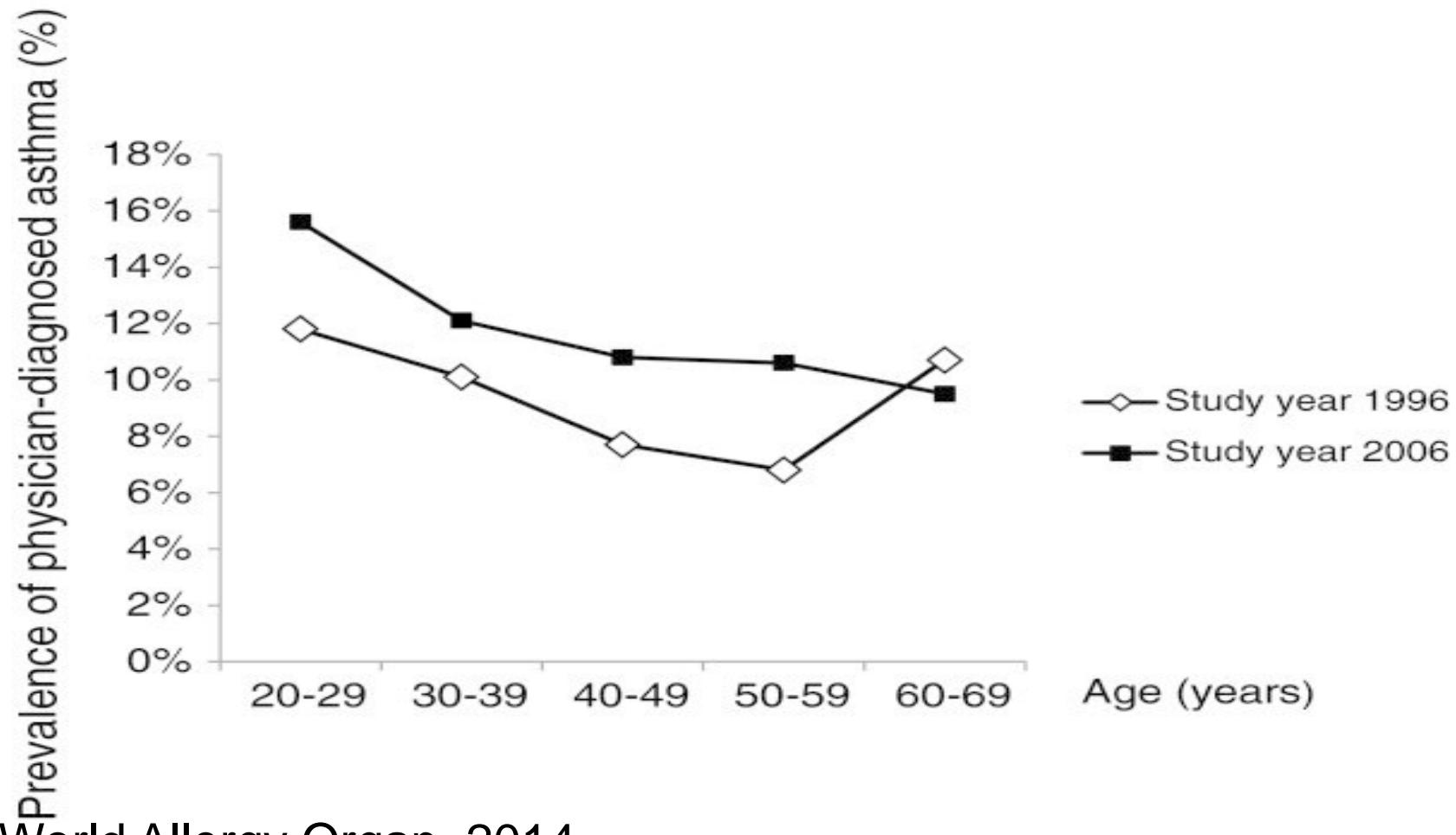


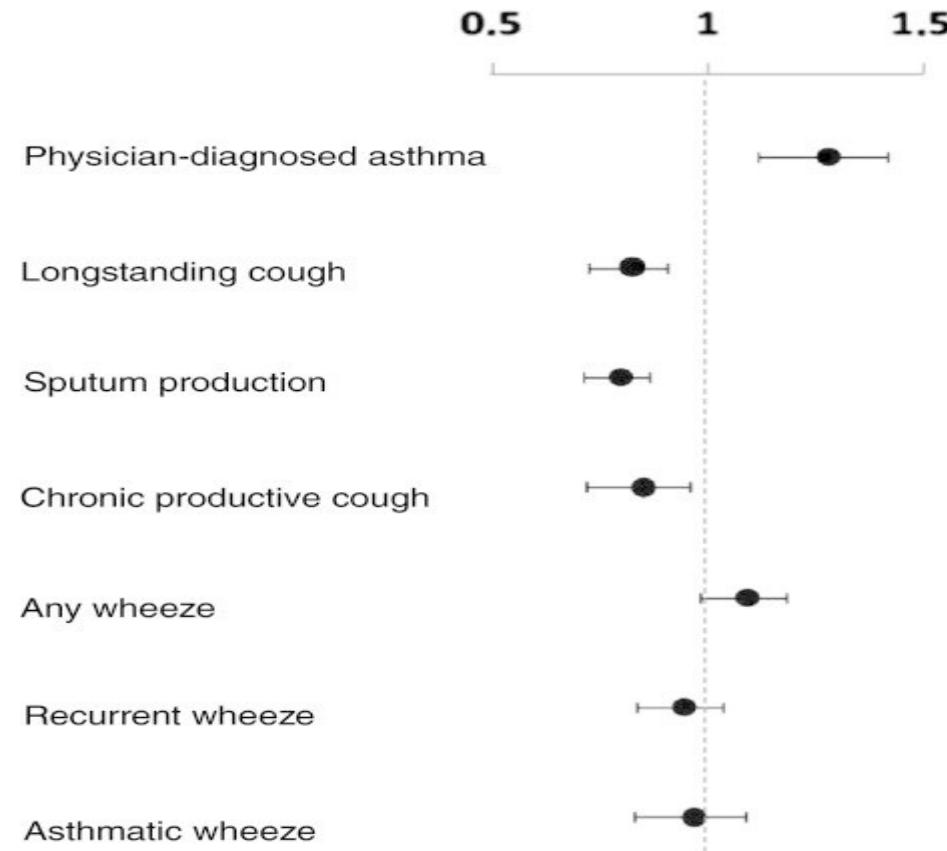
Figure 1 – Prevalence of asthma ever in adults aged 18–44 years. Data from World Health Organization World Health Survey, 2002–2004; SIGURKARLSSON *et al.*, 2011; Polish Multicentre Study of Epidemiology of Allergic Diseases; European Federation of Allergy and Airways Diseases Patients Associations; Serbian Health Insurance Fund; the Swiss Study on Air Pollution and Lung Disease in Adults; PRIFTANJI *et al.*, 1999; Organisation for Economic Co-operation and Development.

Prevalence of physician diagnosed asthma in 1996 and 2006

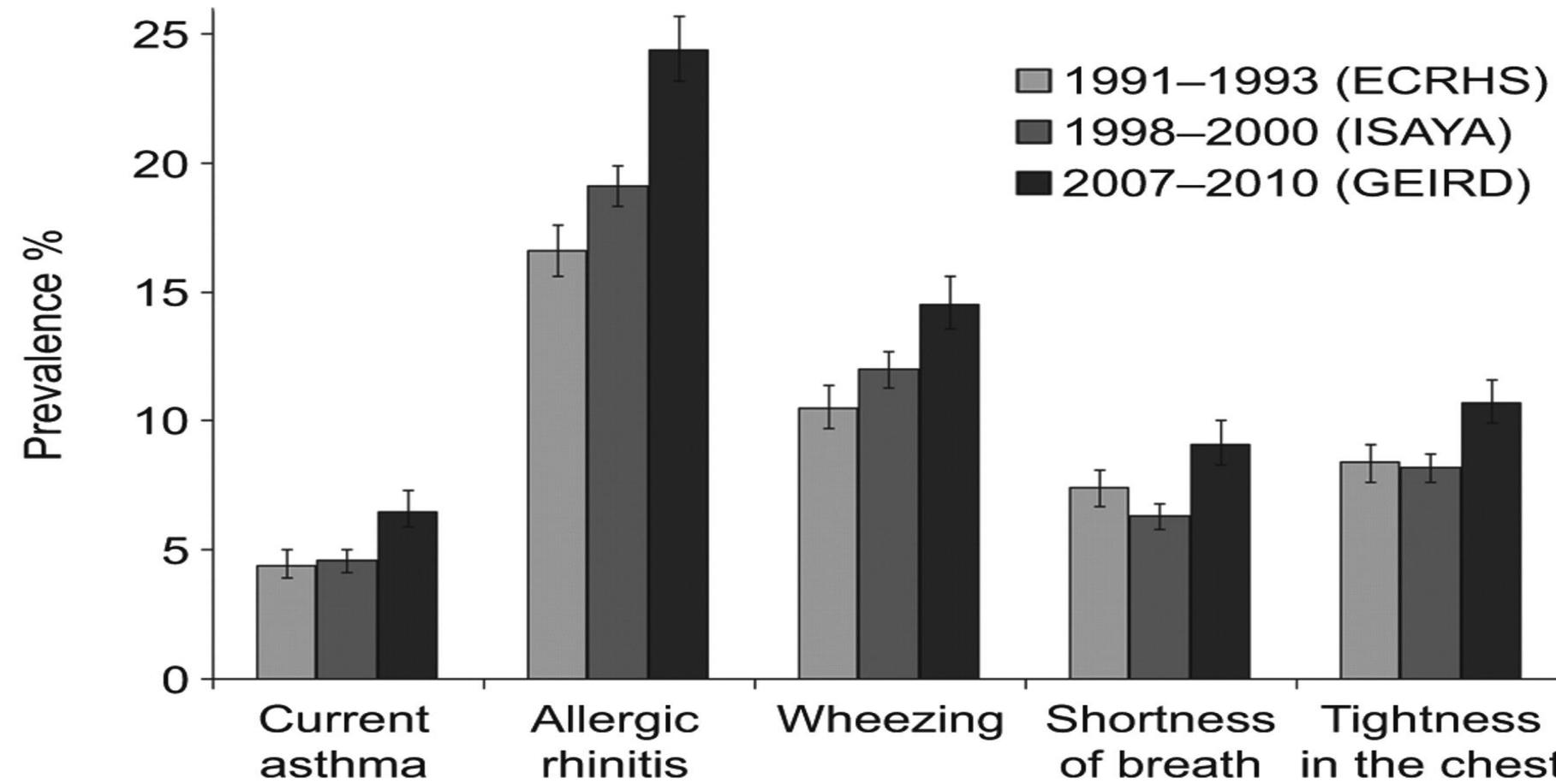


Changes in prevalence of asthma and respiratory symptom from 1996 to 2006

Adjusted Odds Ratios for study year 2006 (vs 1996)



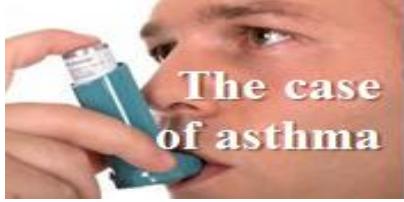
Trends in the prevalence of asthma and allergic rhinitis in Italy between 1991 and 2010





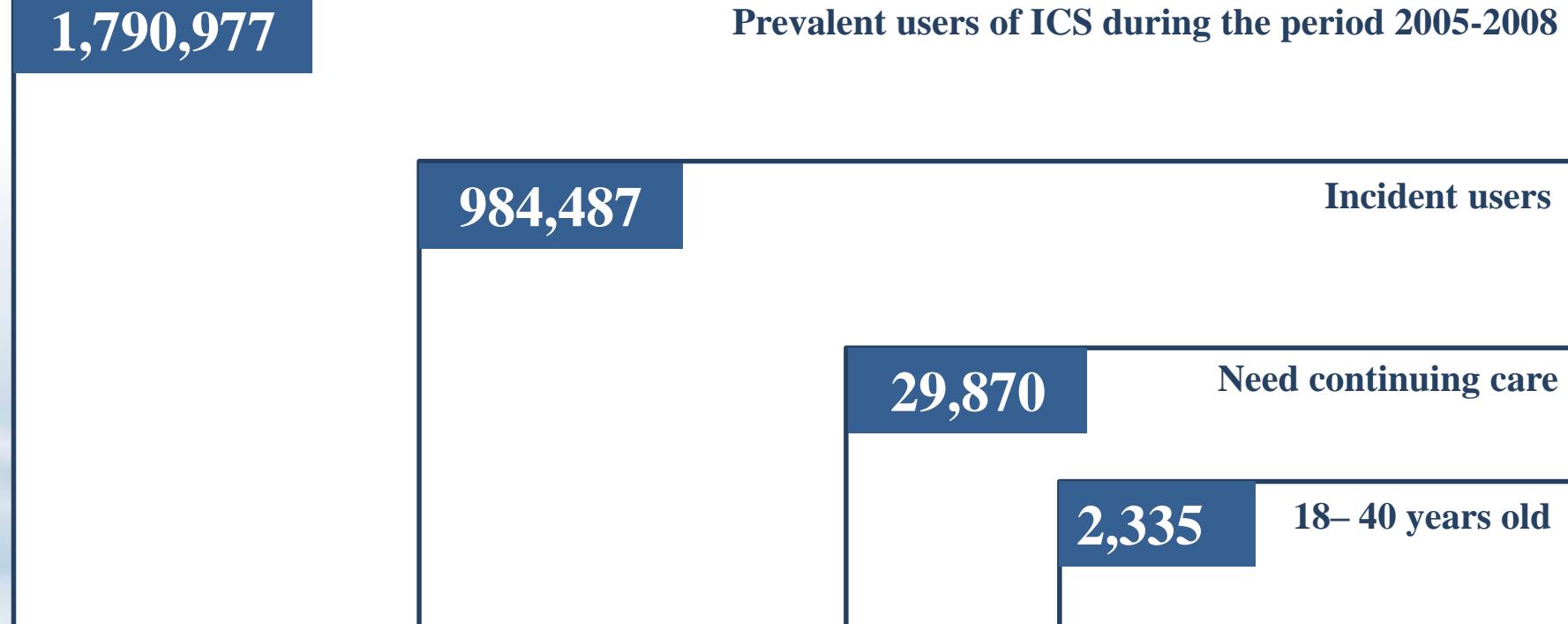
Critical issues and cautiousness

(How to ensure credibility to Real World Evidence?)



Healthcare Research

& Pharmacoepidemiology



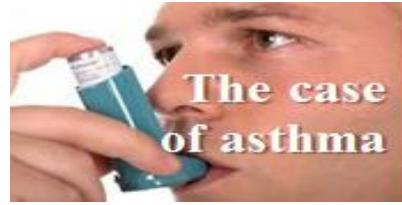
Corrao G, Arfè A, et al; CRD Real-World Evidence Scientific Board. Persistence with inhaled corticosteroids reduces the risk of exacerbation among adults with asthma. *Respirology* 2016 Apr 7. doi: 10.1111

| Ottica Respiro, Verona 2016
| Dai big data alla real world evidence: il caso delle malattie respiratorie croniche
| giovanni.corrao@unimib.it | 5 Maggio 2016 | Milano |



Critical issues and cautiousness

(How to ensure credibility to Real World Evidence?)



2,335 pts 18 – 40 yrs old who started therapy with ICS



Discontinuing

Adding

2005 ... 2008

2012



ICS



ICS + LABA (or ICS + other agents)

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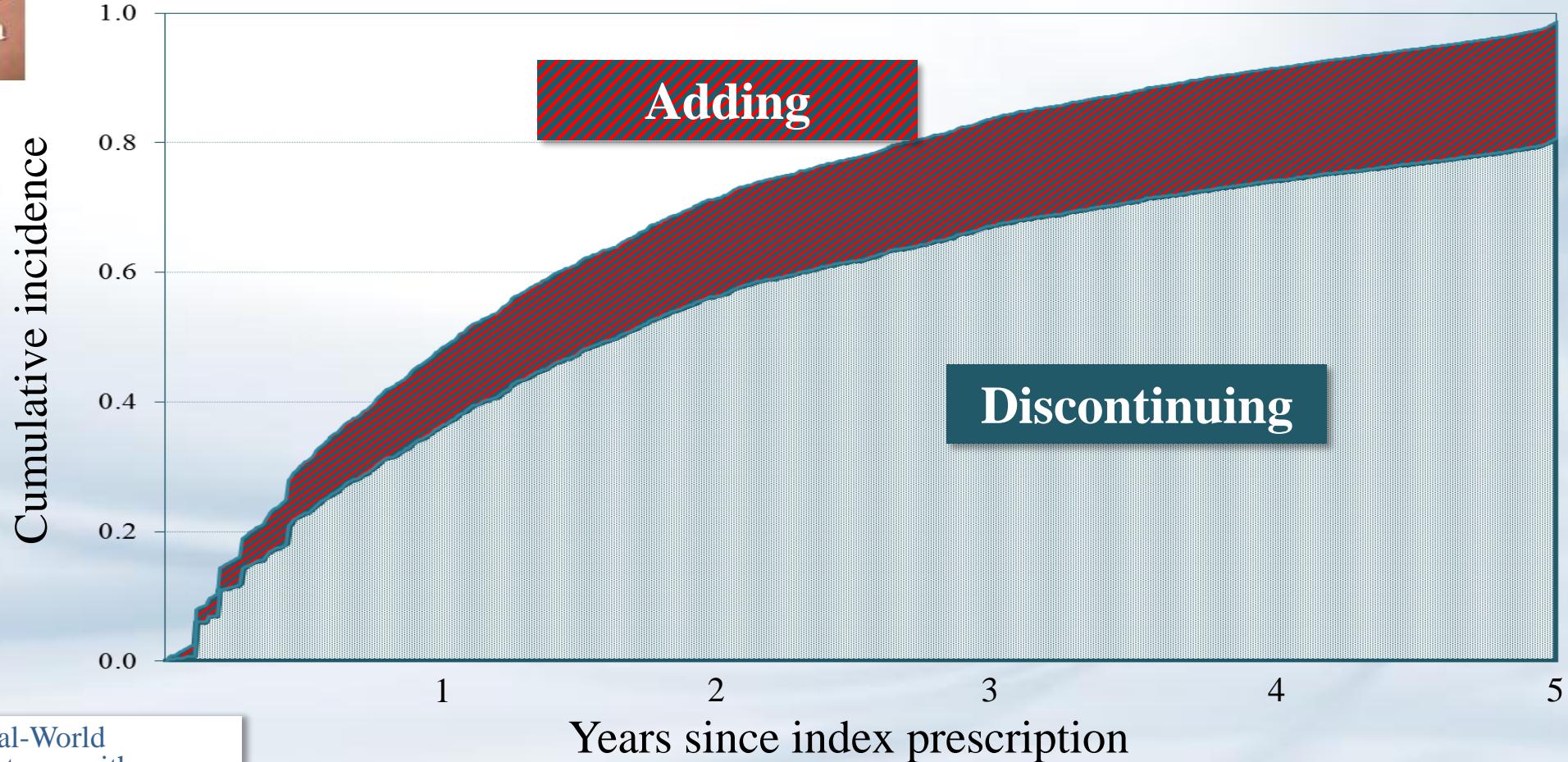
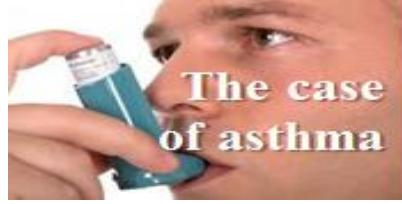
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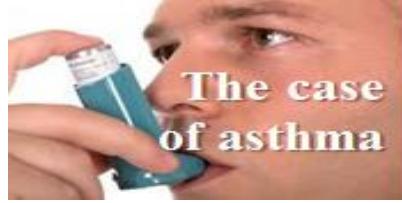
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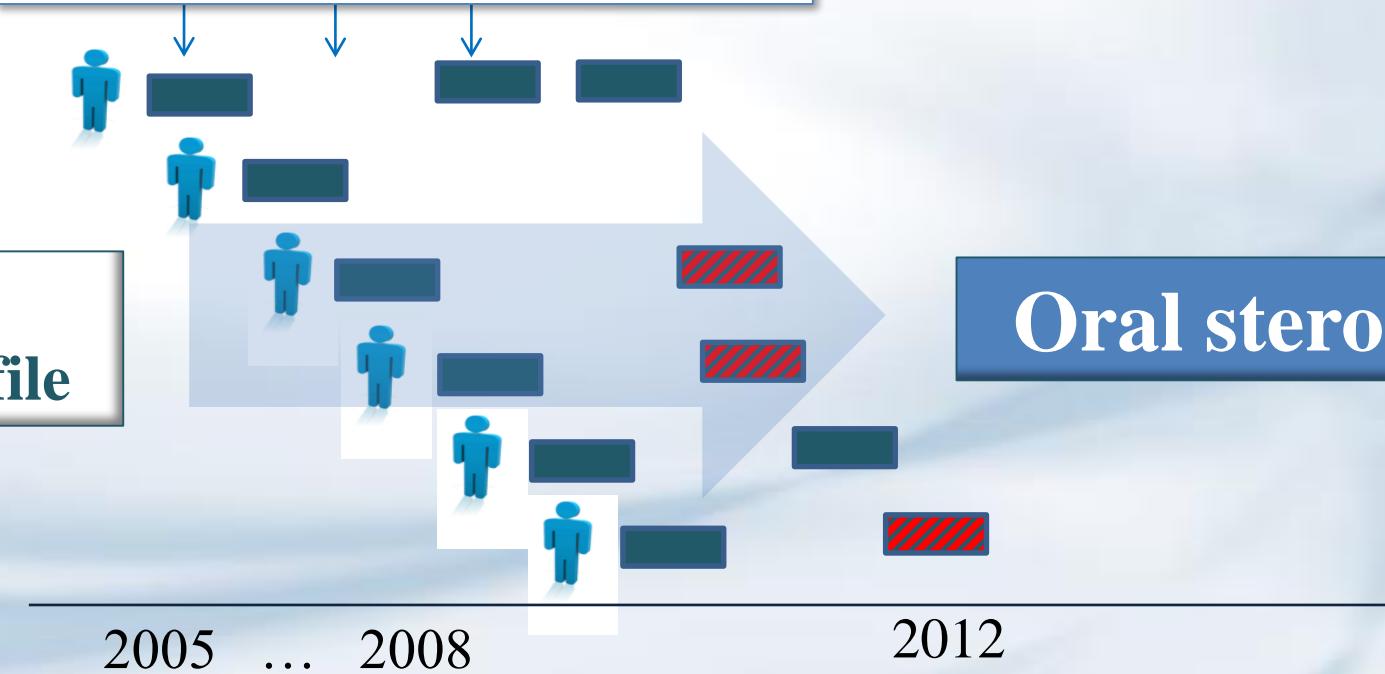
Critical issues and cautiousness

(How to ensure credibility to Real World Evidence?)



2,335 pts 18 – 40 yrs old who started therapy with ICS

Pharmaco-
utilization profile



ICS

ICS + LABA (or ICS + other agents)

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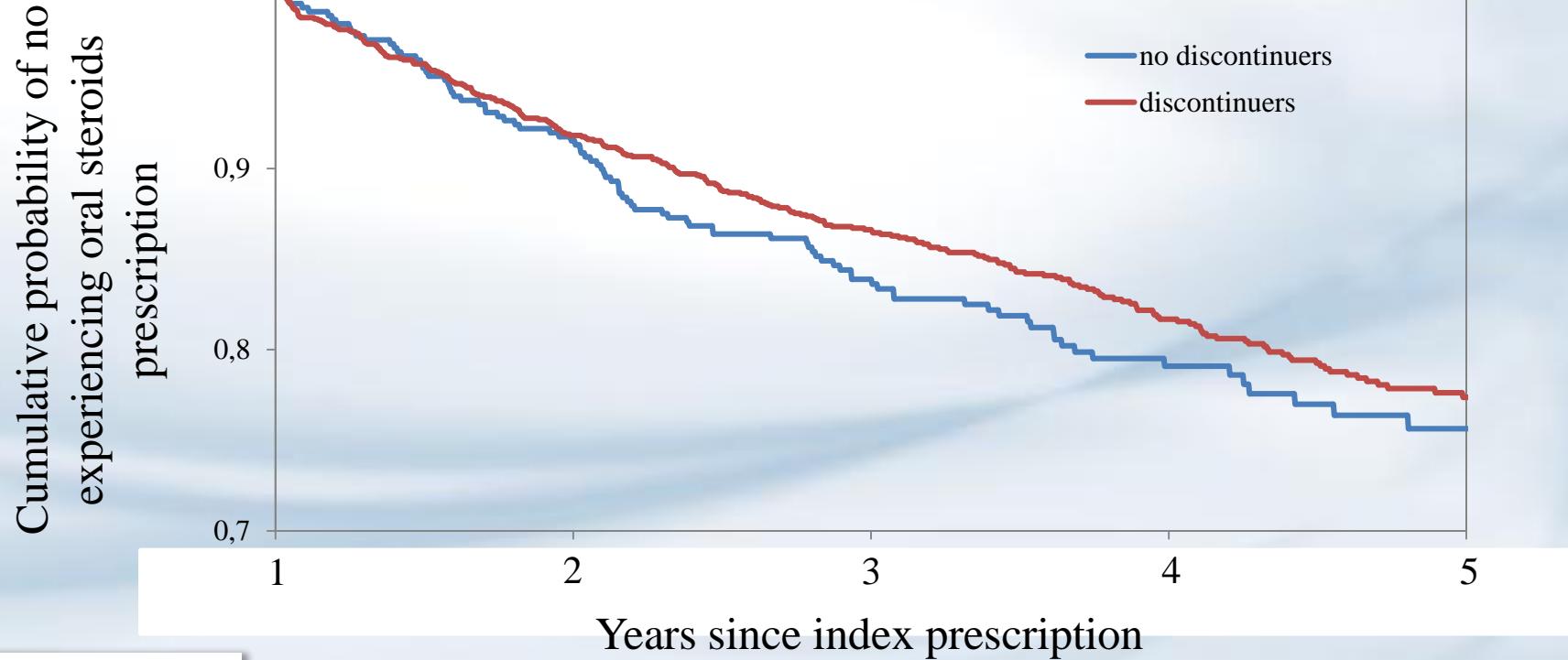
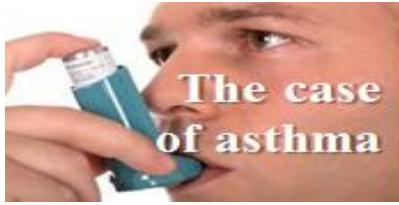
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Critical issues and cautiousness

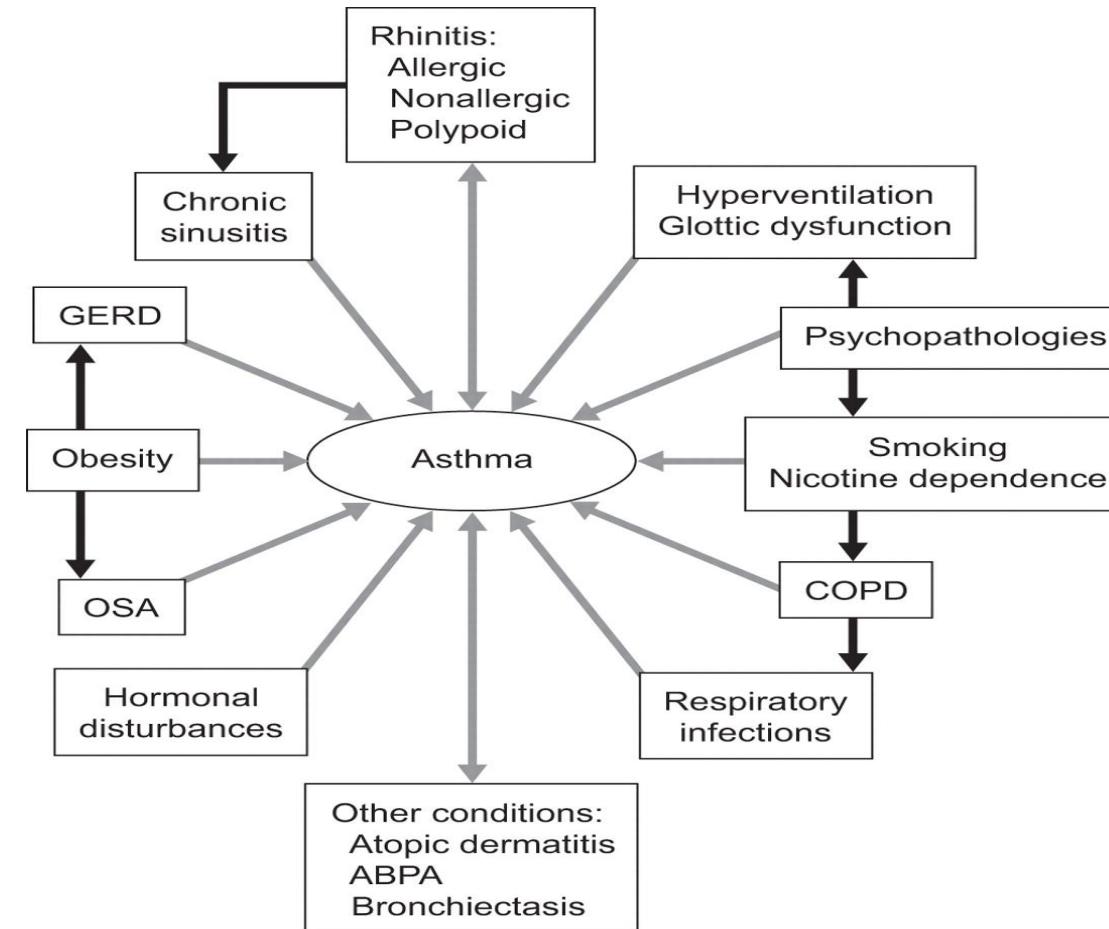
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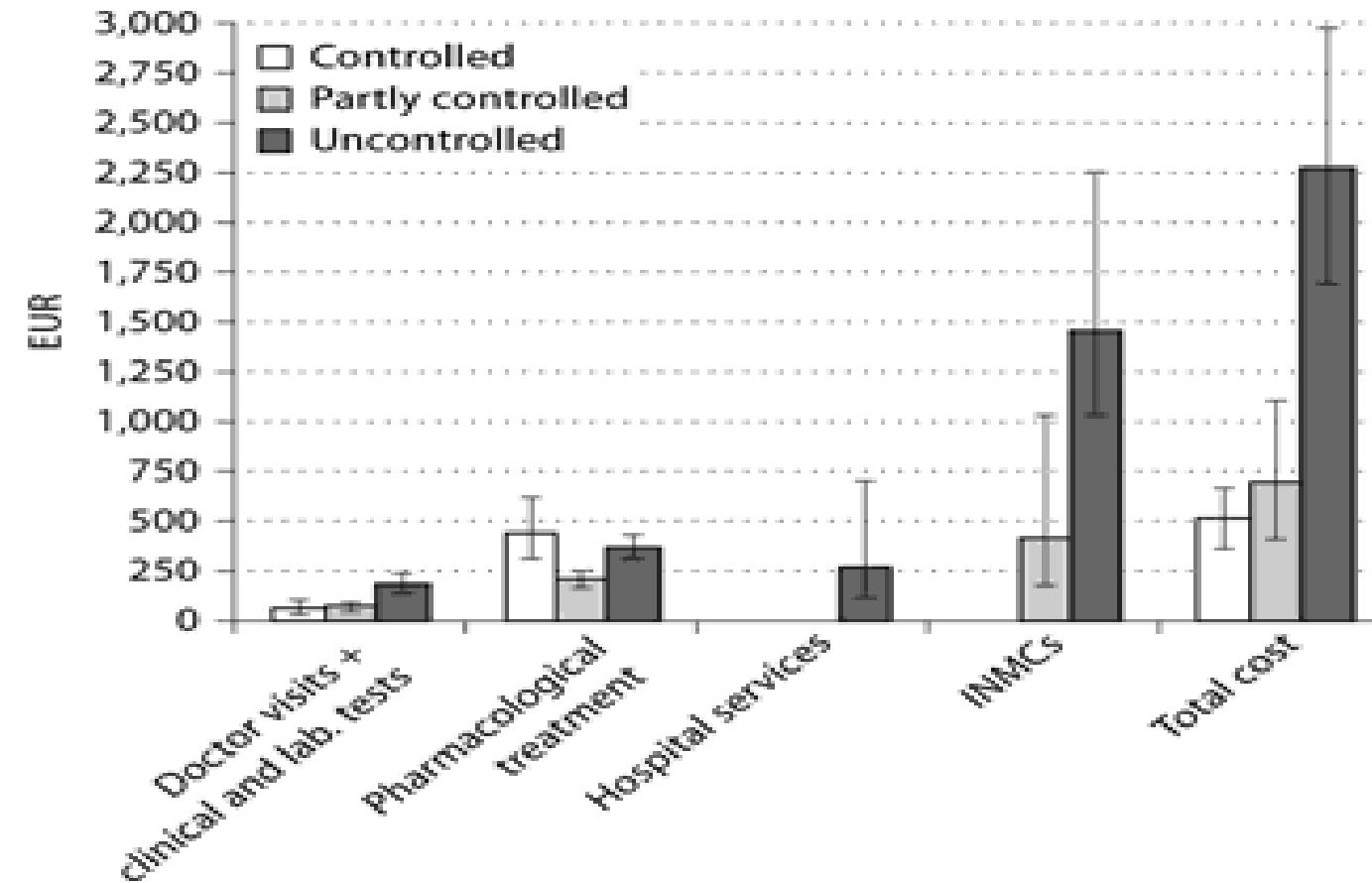
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Asthma-related comorbidities



Asthma-related comorbidities: GERD, OSA, ABPA, COPD

The Cost of Persistent Asthma in Europe: An International Population-Based Study in Adults



Approccio & Aderenza

- Ipertensione Arteriosa Sistemica: Prescritta una terapia - 4,5 milioni; Aderenza 65,5%.
- Diabete: Prescritta una terapia - 807 mila; Aderenza 62,8%.
- Asma e BPCO: Prescritta una terapia - 1,3 milioni; Aderenza 13,9%. **Stiamo curando 180.700 pazienti!**
- OSMED 2014.