

XV Riunione Annuale Cochrane  
15 Novembre 2010

## Gli interventi legislativi per il controllo del fumo di sigarette: evidenze di efficacia

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Regione Lazio

### Worst-case scenario 1993-2000

“If one assumed that smoking restrictions and social acceptability in Europe reach the same levels as they have in North America, it could result in a market drop of 150 billion units by the end of the decade.”

Source: PM 1993

### The Irish market

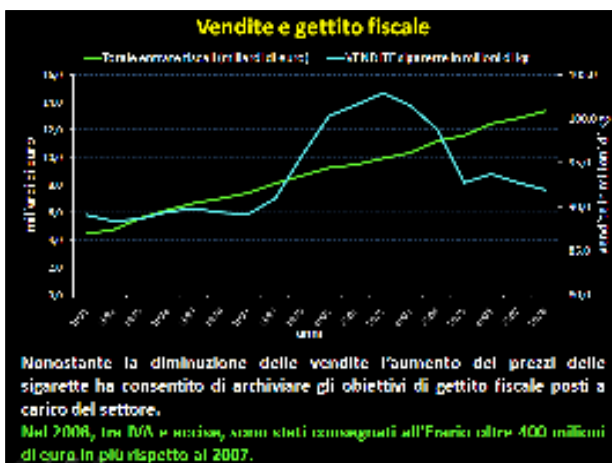
“Once again, the month-by-month data continues to look worrying. Overall, we believe the ban has probably reduced consumption by 5%. It will also make recruiting new smokers, and marketing to all smokers, much harder, we believe.”

Citigroup Smith Barney, 9 September 2004

### The Italian market

Indications from the most recent Nielson retail data that despite increasingly warmer weather—which would presumably moderate the adverse impact of the January 2005 indoor smoking ban—that the pace of cigarette consumption decline has unfortunately not significantly moderated.”<sup>[i]</sup>

<sup>[i]</sup> Morgan Stanley, 29 June 2005



### Politiche di controllo del tabacco in EU

A report on EU Tobacco control (2004)

[www.europeancancerleagues.org](http://www.europeancancerleagues.org)

### Specific policy recommendations

- Taxation policies
- Tobacco sales and promotion bans
- Smoke-free work and public places**
- Cessation strategies
- Tobacco product regulation
- Consumer information, labelling & packaging
- Comprehensive tobacco industry surveillance

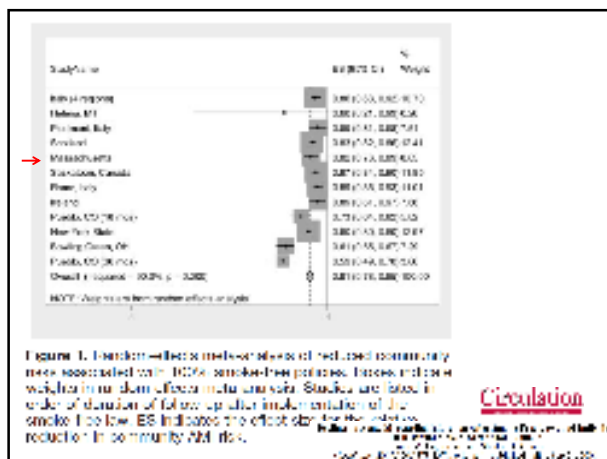


### Revisione Cochrane – Aprile 2010



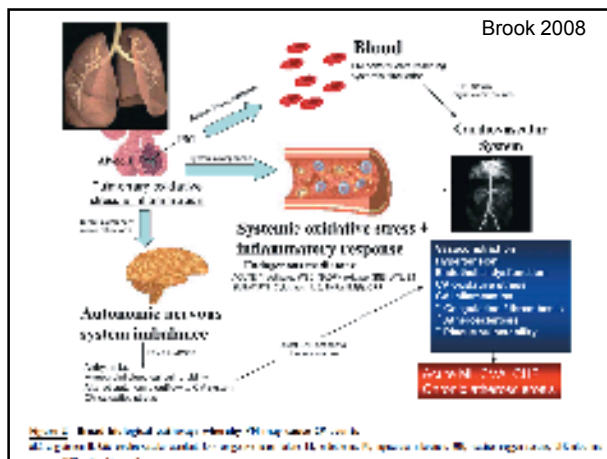
### Revisione Cochrane

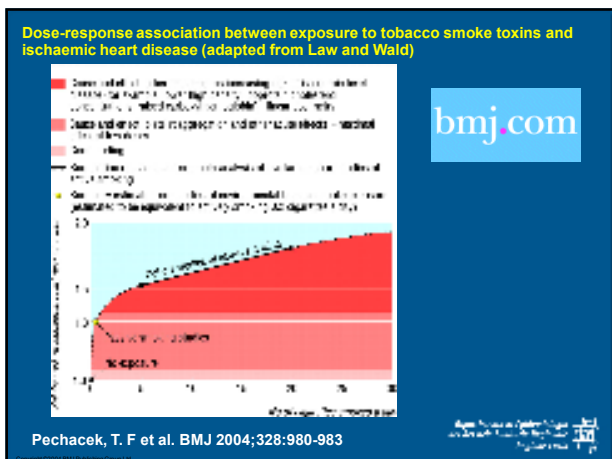
- Inclusi 50 studi (19 con uso di biomarker)
- Riduzione dell'esposizione a fumo passivo
- Riduzione di ospedalizzazioni per malattie cardiache (5 studi USA, 3 ITA, 1 Scozia, 1 Canada)



### Authors' conclusions

- Introduction of a legislative smoking ban does lead to a reduction in exposure to passive smoking.
- Hospitality workers experienced a greater reduction in exposure to SHS after implementing the ban compared to the general population.
- There is limited evidence about the impact on active smoking but the trend is downwards.
- There is some evidence of an improvement in health outcomes. The strongest evidence is the reduction seen in admissions for acute coronary syndrome.
- There is an increase in support for and compliance with smoking bans after the legislation.



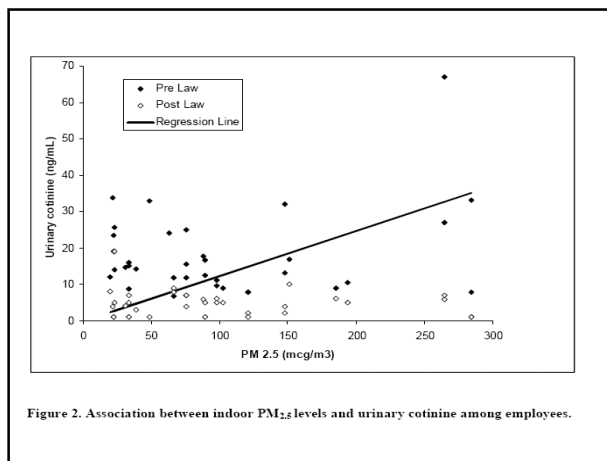
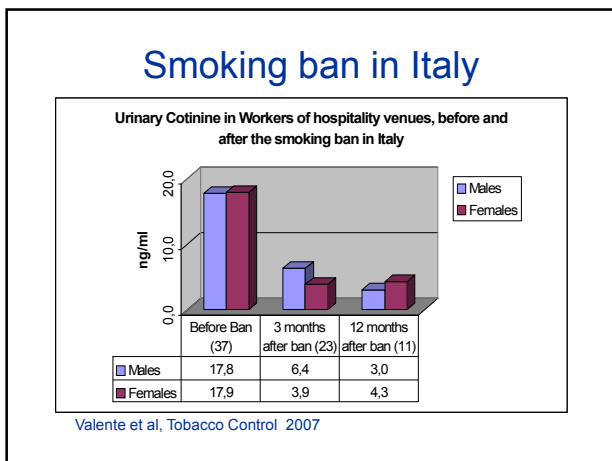
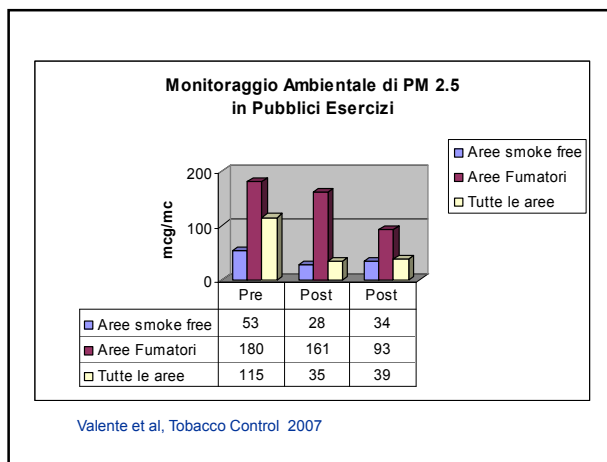
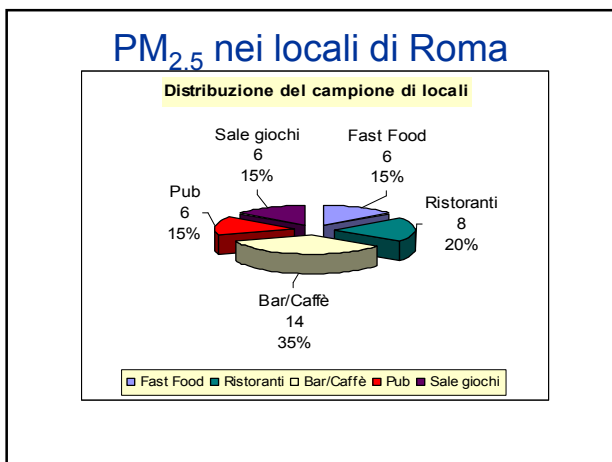


**In Italia**

10 gennaio 2005 Entra in vigore la Legge Sirchia  
Irlanda, Norvegia, Scozia, Svezia, Belgio

UK, Francia ... In alcuni paesi ancora si discute

Pochi studi sulle leggi "antifumo" e IMA:  
Sargent et al. *BMJ* 2004  
Bartecchi et al. *Circulation* 2006  
Barone-Adesi et al. *Eur Heart J* 2006



**Preventive Cardiology**

**Effect of the Italian Smoking Ban on Population Rates of Acute Coronary Events**


Giovanna Formica, MD; Francesco Vecchiarelli, MD; Carlo Vigna, MD; Proprietà, MD; Ferruccio Zaccaro, Sc; Roberto A. Conzio, MD

**Valutare i cambiamenti nel tasso di eventi coronarici acuti nei residenti a Roma nei periodi 2000-2004 e 2005**

Considerando diversi confondenti

**HP: Un effetto più evidente nei più giovani (più esposti)**

2008;117:1183-1188



**Metodi**

**Fonti dei dati**

**Schede Dimissioni Ospedaliere 2000-2005** diagnosi principale: Angina pectoris o Infarto Acuto del Miocardio (ICD-9-CM: 410 e 411)

**ReNCaM 2000-2005** (ICD-9: 410-414) deceduti senza ospedalizzazioni per cause coronariche nei 28gg precedenti e senza ospedalizzazioni per qualsiasi causa con dimissione nei 2 gg precedenti

Episodi a 28gg di distanza sono stati considerati come un unico evento

**Metodi**

**Analisi statistica**

Serie temporali dal 1 gennaio 2000 al 31 dicembre 2005.

Variabile dipendente: numero di eventi giornalieri

Variabili indipendenti: inquinamento dell'aria (PM10), temperatura apparente, epidemie influenzali, giorni di festa, 2005 verso 2000-2004

Regressione di Poisson (offset: popolazione)

Analisi di sensibilità: trend temporale, ospedalizzazioni complessive.

**Caratteristiche della popolazione**

	2000	2001	2002	2003	2004	2005
<b>Numero di residenti a Roma</b>						
35-64 anni	1,166,559	1,177,232	1,188,821	1,193,984	1,201,227	1,208,986
65-74 anni	284,981	287,982	290,260	293,154	298,232	303,985
75-84 anni	156,039	161,103	168,554	177,071	184,695	191,600
<b>Tassi di ospedalizzazione per tutte le cause (x 1000)</b>						
35-64 anni	112	103	102	100	100	98
65-74 anni	254	232	229	225	225	220
75-84 anni	356	318	319	316	312	310

**Fattori che possono influenzare eventi coronarici acuti**

	2000	2001	2002	2003	2004	2005
<b>Inquinamento dell'aria: PM<sub>10</sub> (µg/m<sup>3</sup>)</b>						
media (ds)	60.6 (21.7)	47.5 (16.4)	43.0 (19.8)	42.0 (14.8)	42.1 (16.8)	39.4 (14.6)
n. giorni PM <sub>10</sub> >50	238	147	94	85	92	73
<b>Temperatura (°C)</b>						
media (ds)	15.5 (8.2)	15.8 (7.9)	16.3 (8.3)	16.3 (9.5)	15.3 (8.7)	14.8 (9.3)
n. giorni > 25°C	34	42	62	85	55	51
n. giorni < 6°C	44	33	25	54	50	82
n. giorni di influenza	13	7	19	9	11	20
Vendite di sigarette (1000 kg)	100,354	101,595	102,932	101,582	98,846	92,822

**Eventi coronarici acuti. Roma. 35-64 anni**

Anno	tasso		
	n (x1000)	RR	95%CI
2000	2433	2.05	1.00
2001	2363	1.98	0.99 - 1.04
2002	2538	2.13	1.05 - 1.12
2003	2324	1.95	0.97 - 1.04
2004	2281	1.92	0.94 - 1.00
2005	2136	1.80	0.88 - 0.94
<i>p-trend (anno)</i>		<0.001	
<b>Post (2005) vs pre (2000-04) legge antifumo</b>			
		0.89	0.85 - 0.93

### Eventi coronarici acuti. Roma. 65-74 anni

Anno	tasso		RR	95%CI
	n	(x1000)		
2000	2093	7.30	1.00	
2001	2131	7.33	1.04	0.98 - 1.11
2002	2239	7.66	1.10	1.03 - 1.17
2003	2336	7.86	1.14	1.07 - 1.22
2004	2227	7.39	1.05	0.99 - 1.12
2005	2126	6.95	0.99	0.93 - 1.06
<i>p-trend (anno)</i>			0.801	
Post (2005) vs pre (2000-04) legge antifumo			0.92	0.88 - 0.97

### Eventi coronarici acuti. Roma. 75-84 anni

Anno	tasso		RR	95%CI
	n	(x1000)		
2000	1783	11.44	1.00	
2001	1922	11.91	1.09	1.02 - 1.17
2002	2158	12.69	1.19	1.11 - 1.27
2003	2365	13.15	1.24	1.16 - 1.33
2004	2382	12.65	1.19	1.11 - 1.27
2005	2477	12.59	1.20	1.12 - 1.28
<i>p-trend (anno)</i>			<0.001	
Post (2005) vs pre (2000-04) legge antifumo			1.02	0.98 - 1.07

### Eventi coronarici acuti. Roma

	35-64 anni				65-74 anni			
	O	A	RR	95%IC	O	A	RR	95%IC
analisi principale	2136	2405	0.89	0.85 - 0.93	2126	2309	0.92	0.88 - 0.97
aggiustata per trend temporale	2136	2296	0.93	0.88 - 0.99	2126	2417	0.88	0.83 - 0.93

### Eventi coronarici acuti per genere

	35-64 anni				65-74 anni			
	O	A	RR	95%IC	O	A	RR	95%IC
maschi	1712	1890	0.91	0.86 - 0.96	1408	1556	0.90	0.85 - 0.96
femmine	424	461	0.92	0.83 - 1.02	718	756	0.95	0.87 - 1.03

### Eventi coronarici acuti per posizione socioeconomica

	35-64 anni				65-74 anni			
	O	A	RR	95%IC	O	A	RR	95%IC
1 (alta)	340	360	0.94	0.84 - 1.06	342	349	0.98	0.87 - 1.10
2	383	413	0.93	0.83 - 1.04	388	435	0.89	0.80 - 1.00
3	408	453	0.90	0.81 - 1.01	465	480	0.97	0.87 - 1.07
4	470	508	0.92	0.84 - 1.02	417	501	0.83	0.75 - 0.93
5 (bassa)	535	620	0.86	0.78 - 0.95	514	546	0.94	0.85 - 1.04

### In sintesi

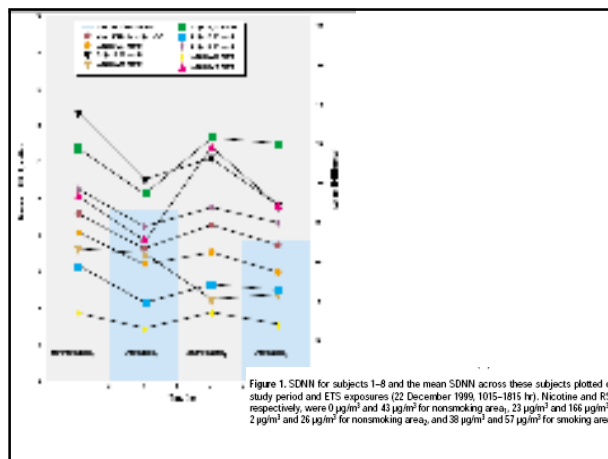
Nella popolazione di 35-64 anni, una riduzione del 11% di eventi coronarici acuti, corrispondenti a 2136 casi osservati nel 2005 verso i 2405 casi attesi (-269 casi)

Nella popolazione 65-74 anni, una riduzione del 8%, pari a 2126 casi osservati nel 2005 invece dei 2309 casi attesi (-183 casi)

Risultati consistenti nelle analisi di sensibilità

**Acute Exposure to Environmental Tobacco Smoke and Heart Rate Variability**  
 C. Arden Pope, III,<sup>1</sup> Delbert J. Eatough,<sup>1</sup> Diane R. Gold,<sup>2</sup> Yanbo Pang,<sup>1</sup> Karen R. Nielsen,<sup>3</sup> Prema Nath,<sup>4</sup> Richard L. Varner,<sup>5</sup> and Richard E. Kanner<sup>6</sup>

<sup>1</sup>Department of Chemistry & Biochemistry and Department of Economics, Brigham Young University, Provo, Utah; <sup>2</sup>Channing Laboratory, Brigham and Women's Hospital, Harvard Medical School, Boston, Massachusetts, USA; <sup>3</sup>Cardiovascular Genetic Research Clinic, University of Utah School of Medicine, Salt Lake City, Utah, USA; <sup>4</sup>University of Utah Hospital and Clinics, Salt Lake City, Utah, USA; <sup>5</sup>Institute for Prevention of Cardiovascular Disease, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, Massachusetts, USA; <sup>6</sup>Division of Respiratory, Critical Care and Occupational Medicine, Department of Internal Medicine, University of Utah School of Medicine, Salt Lake City, Utah, USA



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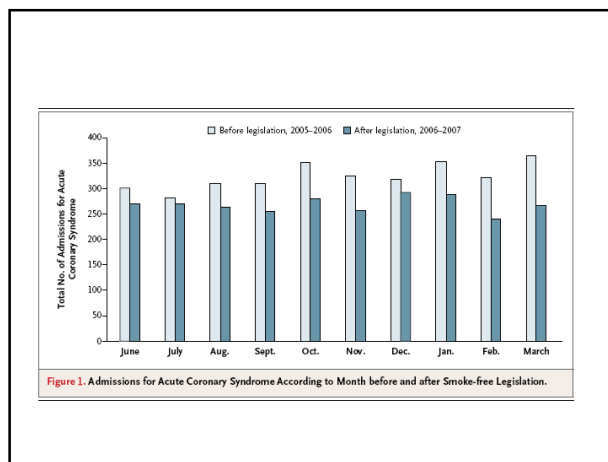
SPECIAL ARTICLE

**Smoke-free Legislation and Hospitalizations for Acute Coronary Syndrome** 2008

Jill P. Pell, M.D., Sally Haw, B.Sc., Stuart Cobbe, M.D., David E. Newby, Ph.D., Alastair C.H. Pell, M.D., Colin Fischbacher, M.B., Ch.B.

**METHODS**  
 Since the end of March 2006, smoking has been prohibited by law in all enclosed public places throughout Scotland. We collected information prospectively on smoking status and exposure to secondhand smoke based on questionnaires and biochemical findings from all patients admitted with acute coronary syndrome to nine Scottish hospitals during the 10-month period preceding the passage of the legislation and during the same period the next year. These hospitals accounted for 64% of admissions for acute coronary syndrome in Scotland, which has a population of 5.1 million.

**RESULTS**  
 Overall, the number of admissions for acute coronary syndrome decreased from 3235 to 2684 — a 17% reduction (95% confidence interval, 16 to 18) — as compared with a 4% reduction in England (which has no such legislation) during the same period and a mean annual decrease of 3% (maximum decrease, 9%) in Scotland during the decade preceding the study. The reduction in the number of admissions was not due to an increase in the number of deaths of patients with acute coronary syndrome who were not admitted to the hospital; this latter number decreased by 6%.

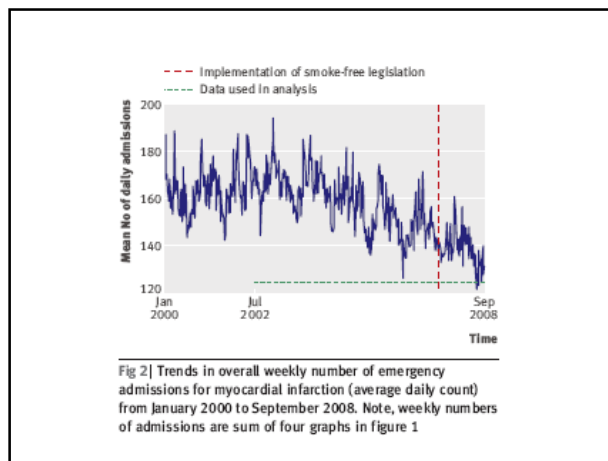


BMJ RESEARCH 2010

**Short term impact of smoke-free legislation in England: retrospective analysis of hospital admissions for myocardial infarction**

Michelle Sims, research officer,<sup>1,2</sup> Roy Maxwell, senior analyst,<sup>2</sup> Linda Baild, professor of social policy,<sup>2,3</sup> Anna Gilmore, clinical reader in public health,<sup>1,2</sup> clinical senior lecturer<sup>4</sup>

**Results** After adjustment for secular and seasonal trends and variation in population size, there was a small but significant reduction in the number of emergency admissions for myocardial infarction after the implementation of smoke-free legislation (−2.4%, 95% confidence interval −4.06% to −0.66%, P=0.007). This equates to 1 200 fewer emergency admissions for myocardial infarction (1600 including readmissions) in the first year after legislation. The reduction in admissions was significant in men (3.1%, P=0.001) and women (3.8%, P=0.007) aged 60 and over, and men (3.5%, P<0.01) but not women (2.5% P=0.38) aged under 60.



## Analisi sensitività

Final models*	All events
% change after smoke-free legislation (95% CI)	-2.37‡ (-4.06 to -0.66)
Other predictors kept in analysis:	
Time (long term trend)	Yes
Temperature§	Yes
Ru	No
Christmas holidays	Yes
Week of year	Yes
Residuals:	
AR(1) model	Yes



Fig 3| Trends in overall weekly number of emergency admissions for myocardial infarction (average daily count) averaged across years

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ORIGINAL ARTICLE

2010

### Smoke-free Legislation and Hospitalizations for Childhood Asthma

Daniel Mackay, Ph.D., Sally Haw, B.Sc., Jon G. Ayres, M.D., Colin Fischbacher, M.B., Ch.B., and Jill P. Pell, M.D.

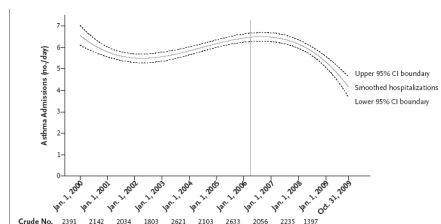
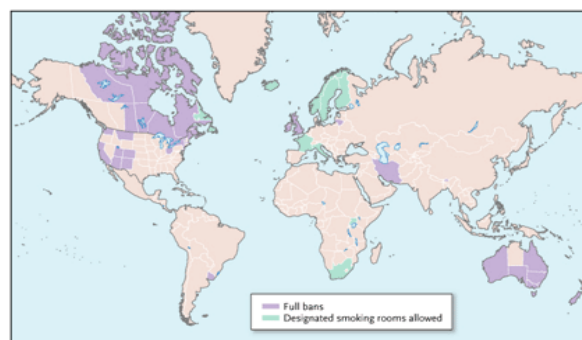


Figure 3. Daily Hospital Admissions for Asthma among Children between January 2000 and October 2009. The smoothing of numbers for daily hospital admissions was performed with the use of the 8-spline module for the Stata statistical software package, version 10.1 (Stata). Smoke-free legislation was implemented on March 26, 2006 (vertical line). Crude numbers are for the number of admissions between the dates shown.

### Making Smoking History Worldwide (Koh et al, NEJM 2007)

#### Smoking bans in public places

Evidenze chiare sull'associazione del fumo passivo con le malattie coronariche



## Conclusioni

### Making Smoking History Worldwide Koh et al, NEJM 2007

I primi anni del XXI secolo hanno reso possibile l'impossibile. [...]

Siamo testimoni di un'evoluzione in sanità pubblica in cui, ciò che era considerato straordinario, sta rapidamente diventando la norma.

La storia del fumo ci spinge a riaffermare il diritto al più alto standard di vita per tutti.



Clin Endocrinol 2009 Jun;70(6):815-28.  
**Lipids, lipid modifying agents and cardiovascular risk: a review of the evidence.**  
[Preiss D](#), [Sattar N](#).

- Meta-analysis of studies including > 90,000 subjects has provided robust evidence that statins reduce important clinical end-points. These included a 12% fall in all-cause mortality, 19% fall in CHD mortality and 23% fall in CHD mortality or myocardial infarction.

**Epidemiology and Prevention**

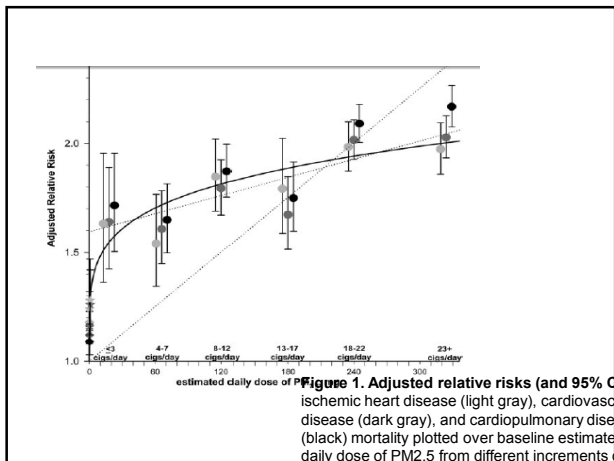
**Cardiovascular Mortality and Exposure to Airborne Fine Particulate Matter and Cigarette Smoke  
Shape of the Exposure-Response Relationship**

C. Arden Pope III, PhD; Richard T. Burnett, PhD; Daniel Krewski, PhD; Michael Jerrett, PhD; Yuanli Shi, MD; Eugenia E. Calle, PhD; Michael J. Thun, MD

**Background**—Fine particulate matter exposure from both ambient air pollution and secondhand cigarette smoke has been associated with larger risks of cardiovascular mortality than would be expected on the basis of linear extrapolations of the relative risks from active smoking. This study directly assessed the shape of the exposure-response relationship between cardiovascular mortality and fine particulates from cigarette smoke and ambient air pollution.

**Methods and Results**—Prospective cohort data for >1 million adults were collected by the American Cancer Society as part of the Cancer Prevention Study II in 1982. Cox proportional hazards regression models that included variables for increments of cigarette smoking and variables to control for education, marital status, body mass, alcohol consumption, occupational exposures, and diet were used to describe the mortality experience of the cohort. Adjusted relative risks of mortality were plotted against estimated average daily dose of fine particulate matter from cigarette smoke along with comparison estimates for secondhand cigarette smoke and air pollution. There were substantially increased cardiovascular mortality risks at very low levels of active cigarette smoking and smaller but significant excess risks even at the much lower exposure levels associated with secondhand cigarette smoke and ambient air pollution.

**Conclusions**—Relatively low levels of fine particulate exposure from either air pollution or secondhand cigarette smoke are sufficient to induce adverse biological responses increasing the risk of cardiovascular disease mortality. The exposure-response relationship between cardiovascular disease mortality and fine particulate matter is relatively steep at low levels of exposure and flattens out at higher exposures. (*Circulation*. 2009;120:941-948.)



**Figure 1. Adjusted relative risks (and 95% CI) for ischemic heart disease (light gray), cardiovascular disease (dark gray), and cardiopulmonary disease (black) mortality plotted over baseline estimate of PM<sub>2.5</sub> from different increments of cigarette smoking.**

