

21st Century Global Hazards of Smoking

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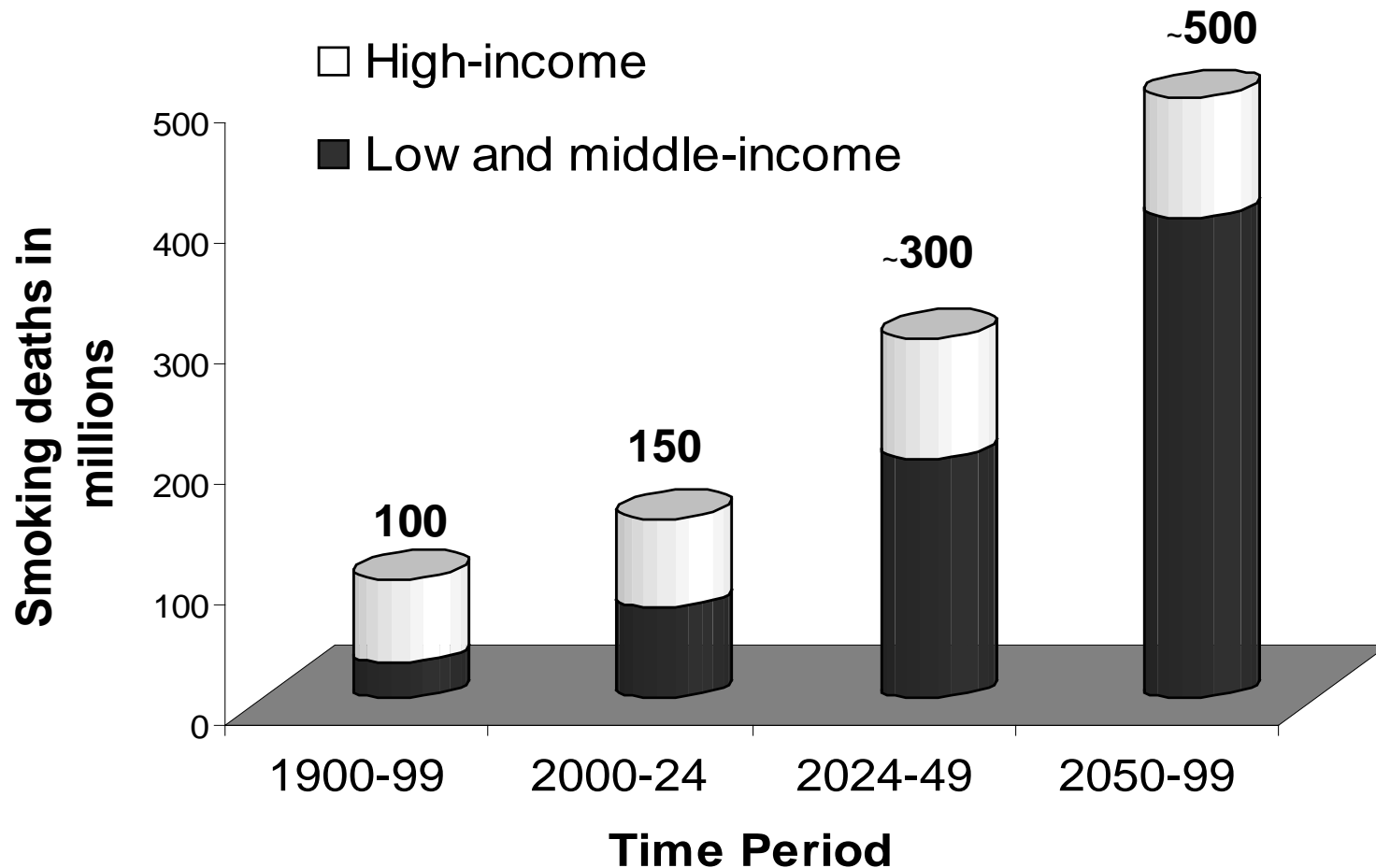


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Conclusions

- **On current patterns: 1 Billion smoking deaths this century, or about 250 million deaths among those <35 years in just 16 countries**
- **Prolonged smokers lose about one decade of life**
- **Cessation by age 40 (and preferably earlier) avoids 90% of the excess risk of continued smoking**
- **Tripling of excise tax worldwide is the best strategy to reduce smoking deaths**
- **Monitoring is needed: smoking on death certificates**

A billion tobacco deaths in the 21st century on current smoking patterns



Source: Peto et al 2001; Jha, 2009

Worldwide no of substance users

B=billions, M=millions

<u>Substance</u>	<u>Users</u>	<u>Annual deaths</u>
Smoking	1.3 B *	~ 5 M
Drinking	2.0 B	~ 2 M
Illicit drugs	0.2 B	~ 0.2 M

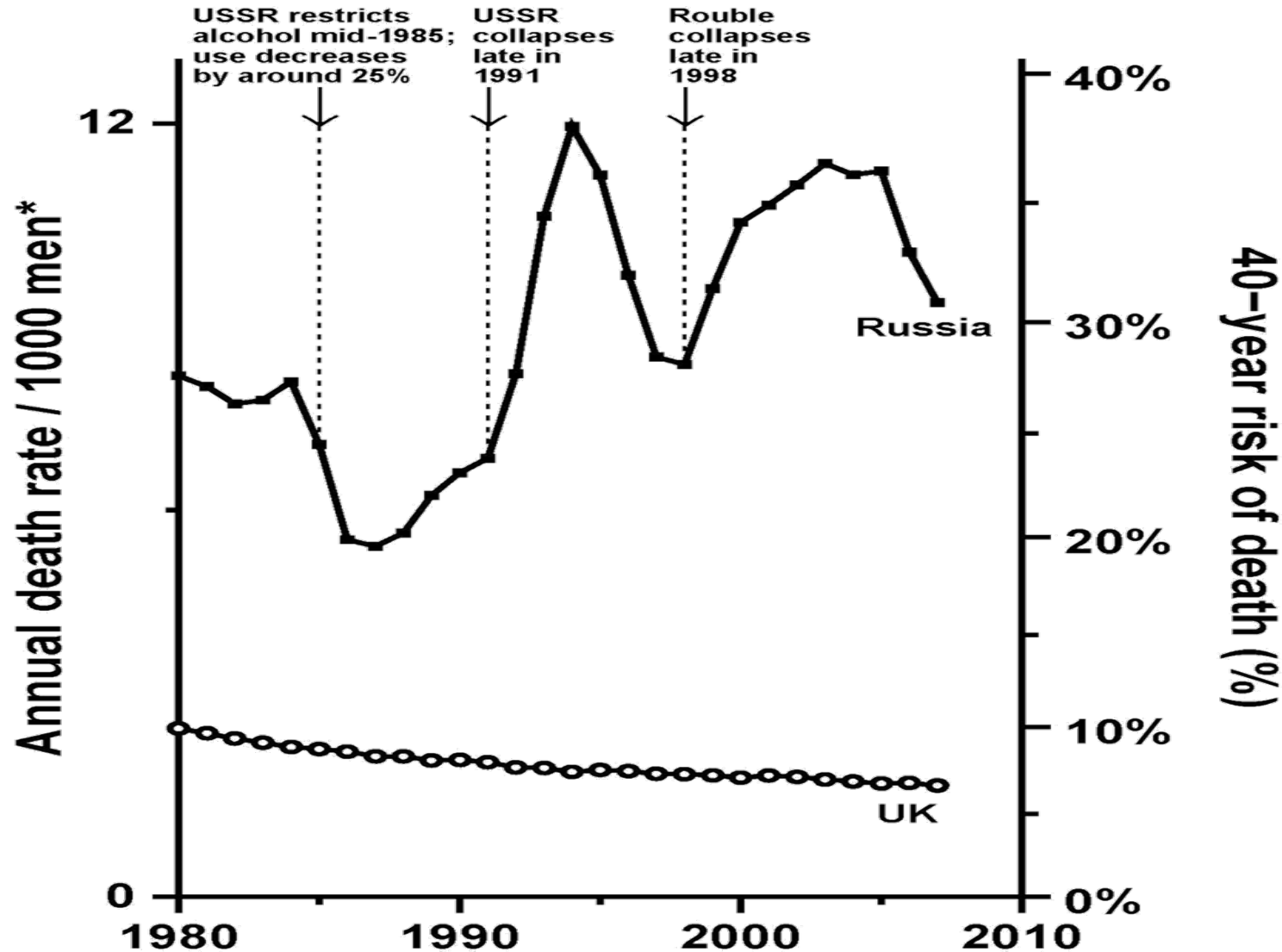
Global sales ~6,000 B sticks (vs 5,000 B in 1990)

1 ton of tobacco=1 M sticks=1 death

Smoking versus other risks (alcohol, fast driving)

- Risk of addiction is greater for smoking
- No “learning” from youthful excesses
- Risk of death from smoking is much higher: of 1000 males smokers aged 20
 - 250 die from smoking in middle-age
 - 20 die from road accidents or violence (30 from all alcohol-related conditions)

All-cause mortality, males aged 15–54, in Russia and UK 1980–2007



* Mean of rates in component 5-year age groups (15–19 to 50–54 years)

Source: WHO mortality & UN population estimates

Source: Lancet
27 June 2009

Russian male death rate ratios

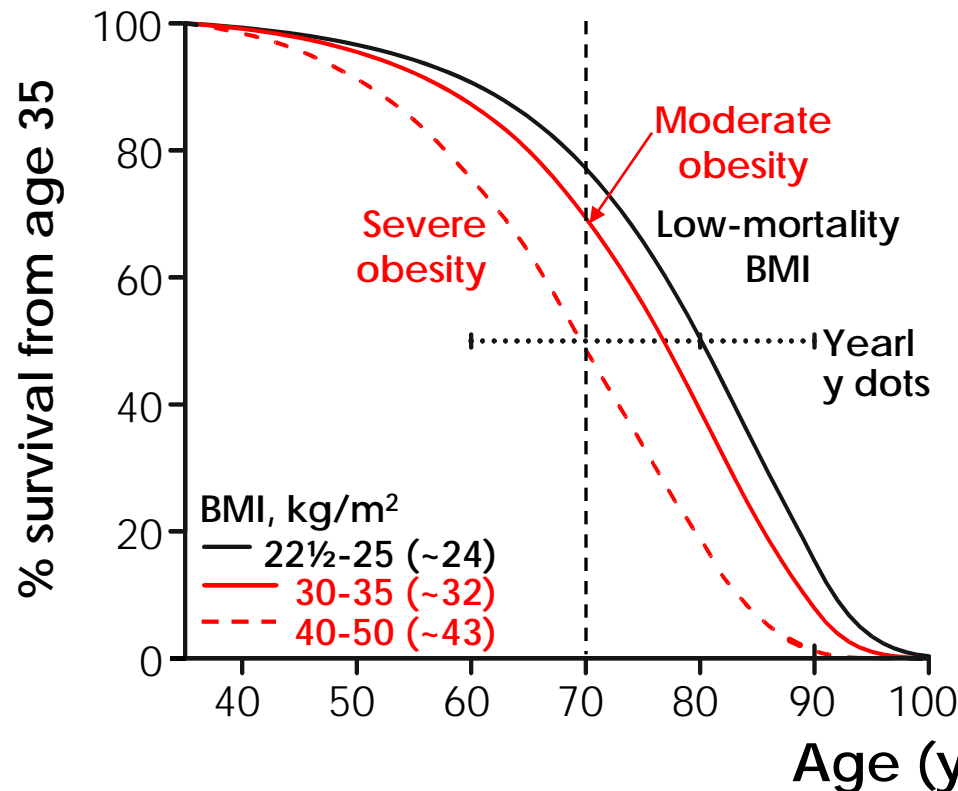
~1 bottle of vodka/day
vs <0.5 bottles/week:

2 x any medical cause
4 x road traffic accident
6 x any other accident
8 x suicide
10 x murder

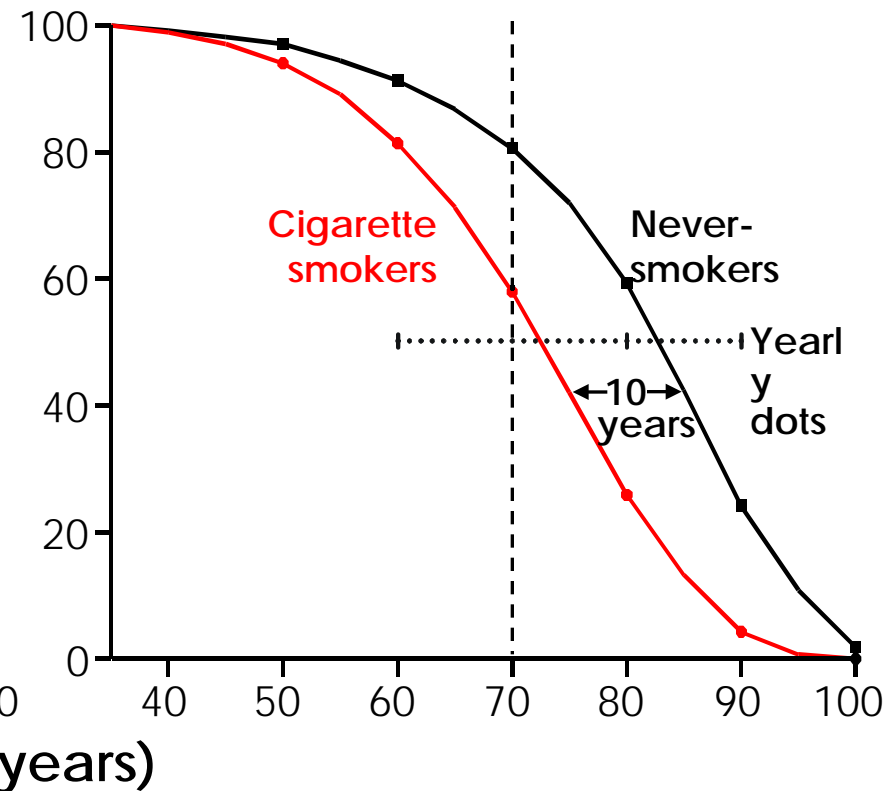
Life expectancy

Lose 3 years with moderate obesity/10 years with smoking
2 kg/m² extra BMI (if overweight) or 10% smoking prevalence shortens life by ~1 yr

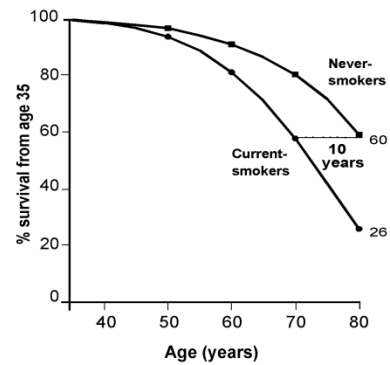
Prospective Studies Collaboration (males)



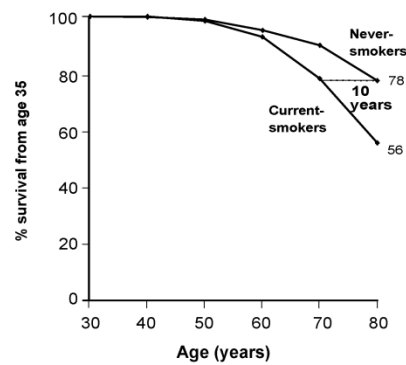
Male British Doctors' Study



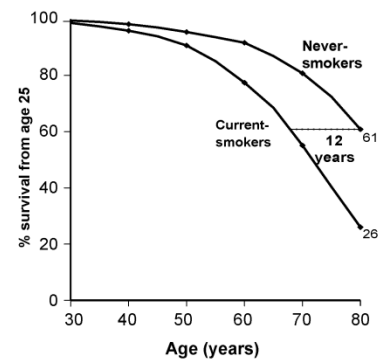
UK Men



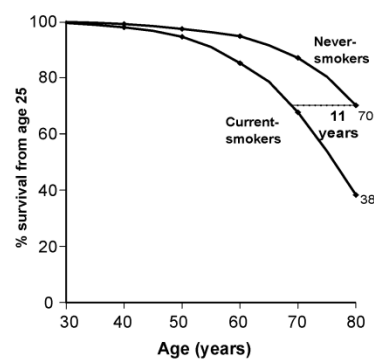
UK Women



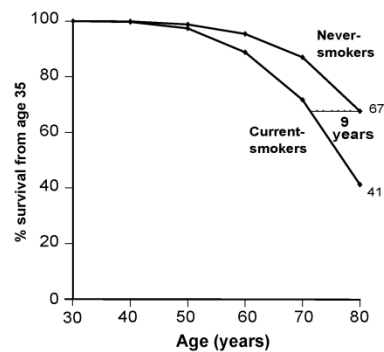
US Men



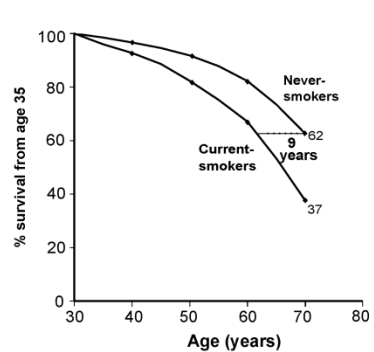
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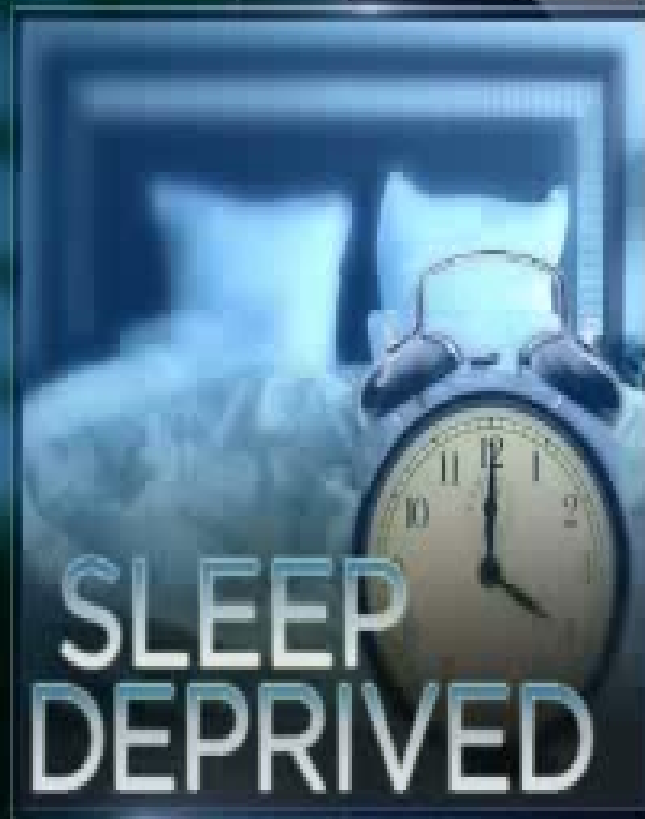


Japanese Men



Indian Men





Survey US women and men & link them to the National Death Index *"Facebook of death"*

deathbook®

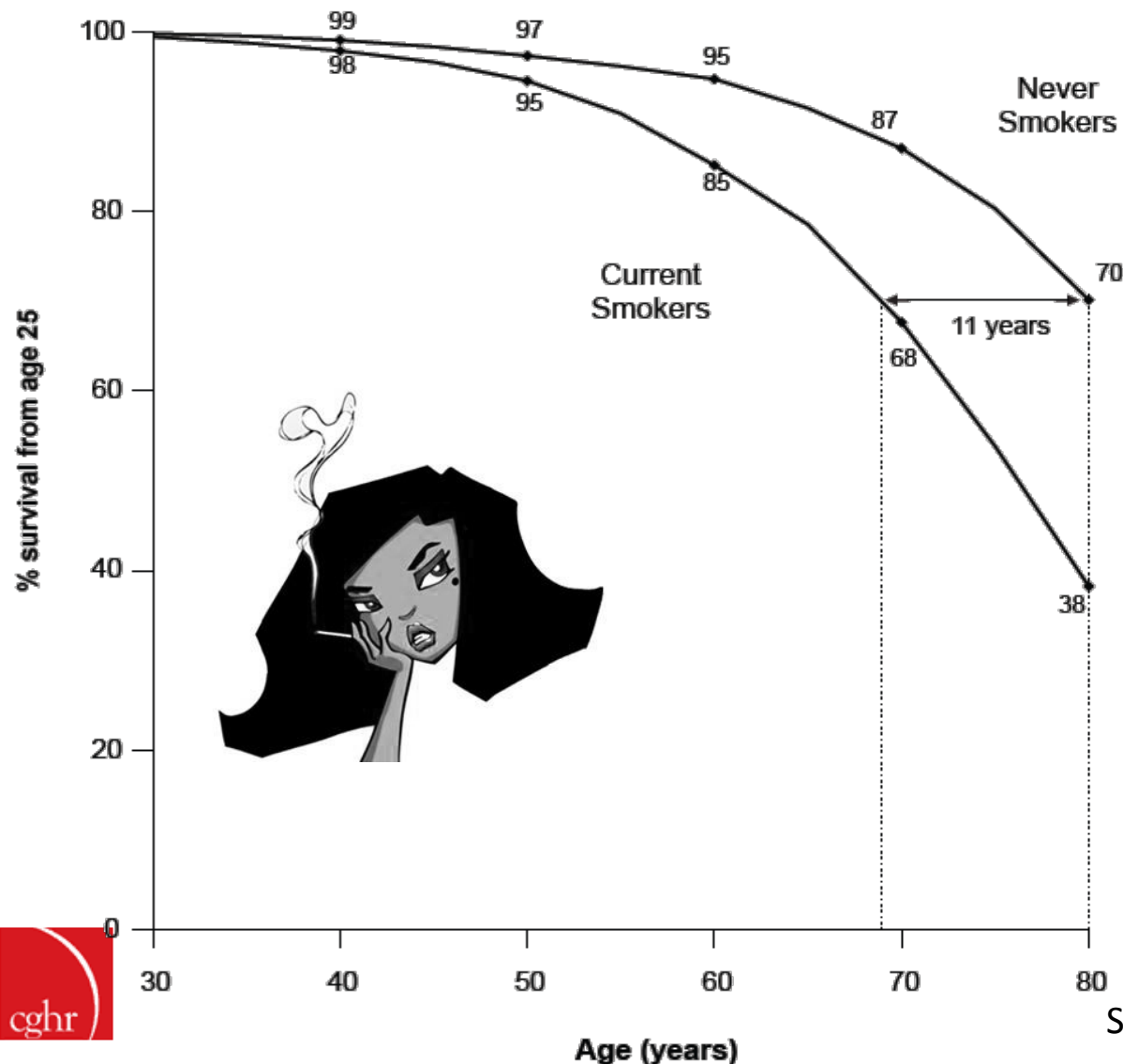
(Hazard ratios* current vs. never smokers,
ages 25-79, by gender)

**WOMEN WHO SMOKE: 3.0 times more likely
to die**

**MEN WHO SMOKE : 2.8 times more likely
to die**

FEMALES: Survival probabilities

between ages 25 and 80 years among current and never-smokers in the US

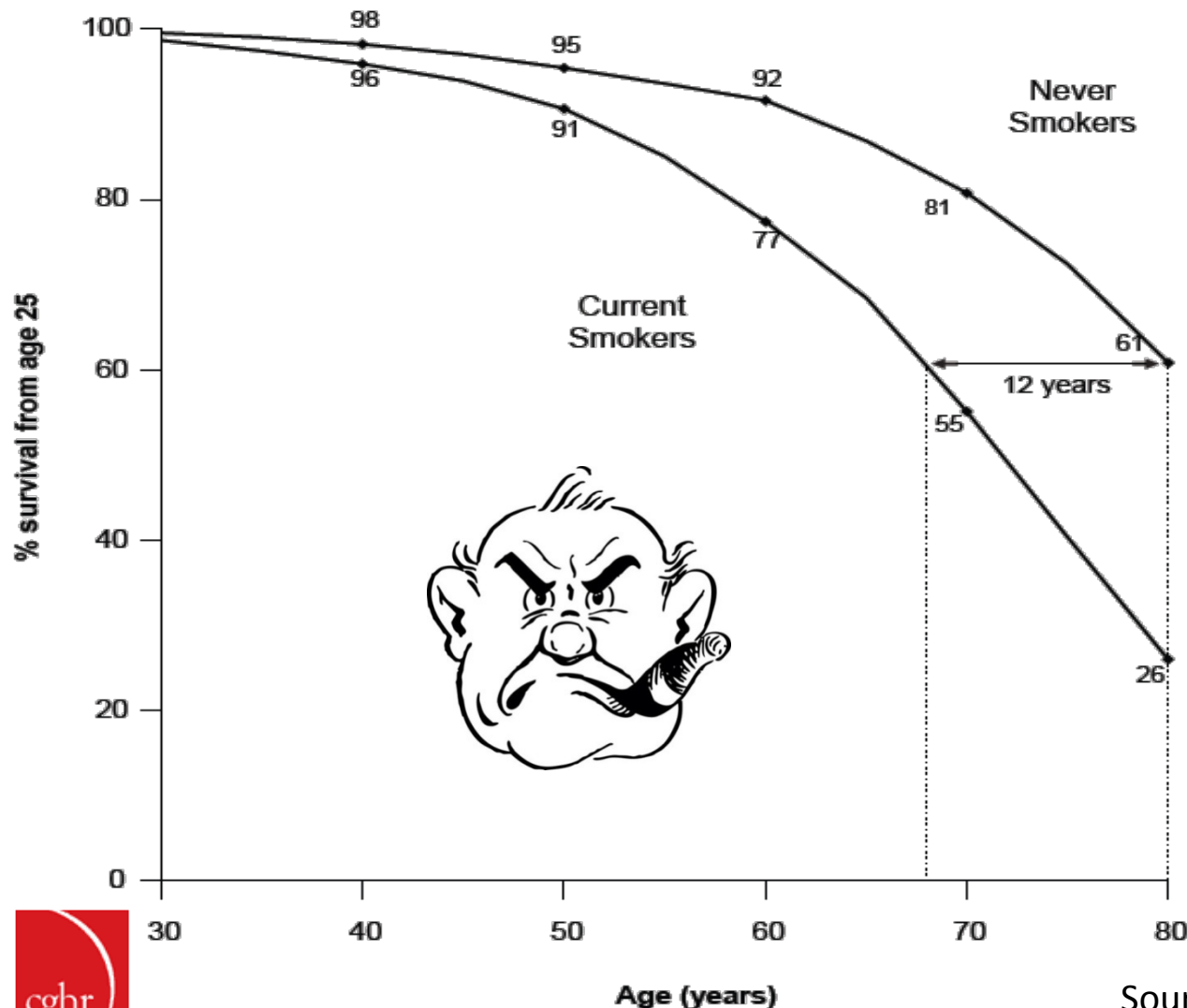


HR adjusted for age, education, alcohol, adiposity (BMI), scaled to 2004 national rates, but comparable results if only actual cohort used

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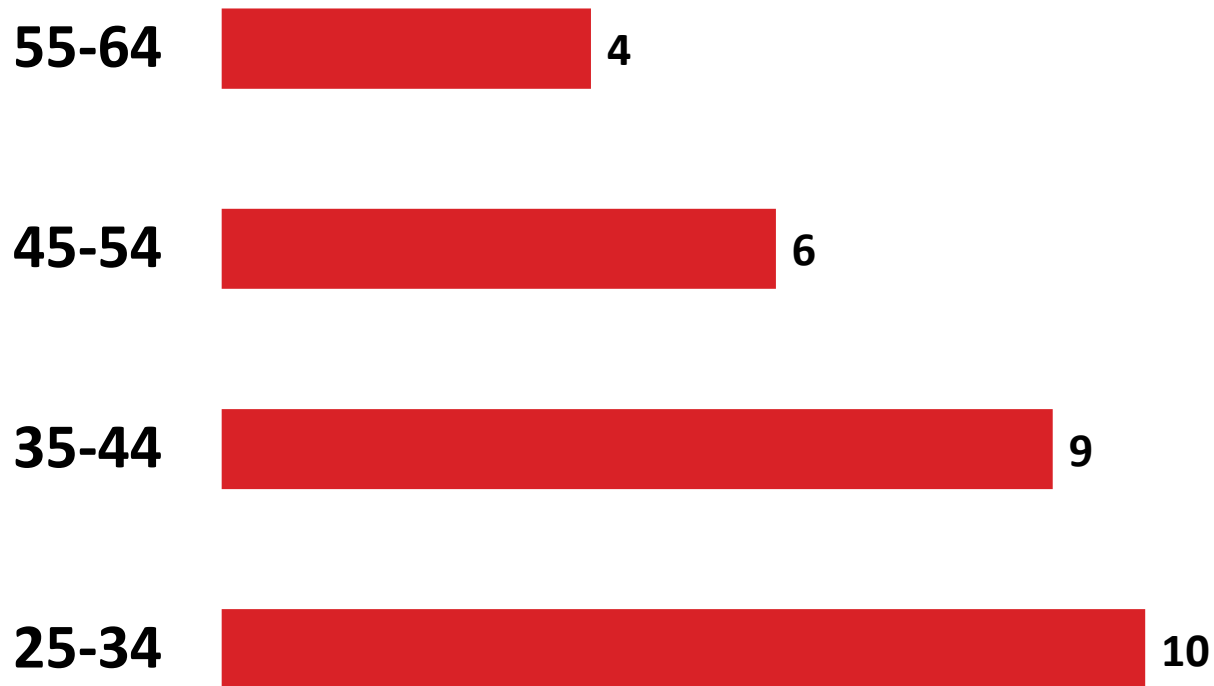
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Years gained by quitting smoking by age



GATS1 (orange) in 14 countries, B,R,I,C, + 10 other LMICs
GATS+US+UK: 16 countries, 4B population, 2.3B age <35

Of 2.3B age<35, 0.5B either smoke, or will smoke by age 30 (at current 25-34 prevalences): 450M male, 50M female.



Chinese cigarette increase 40 years after US increase

**Delayed hazard: observed (1950, 1990) and
predicted (2030) proportions of all deaths at
ages 35-69 due to tobacco**

US (all adults)		China (men)	
1950	12%	1990	12%
1990	33%	2030	33%

**INDIA:
1 million tobacco
deaths per year during
the 2010s**

Jha et al, NEJM 2008

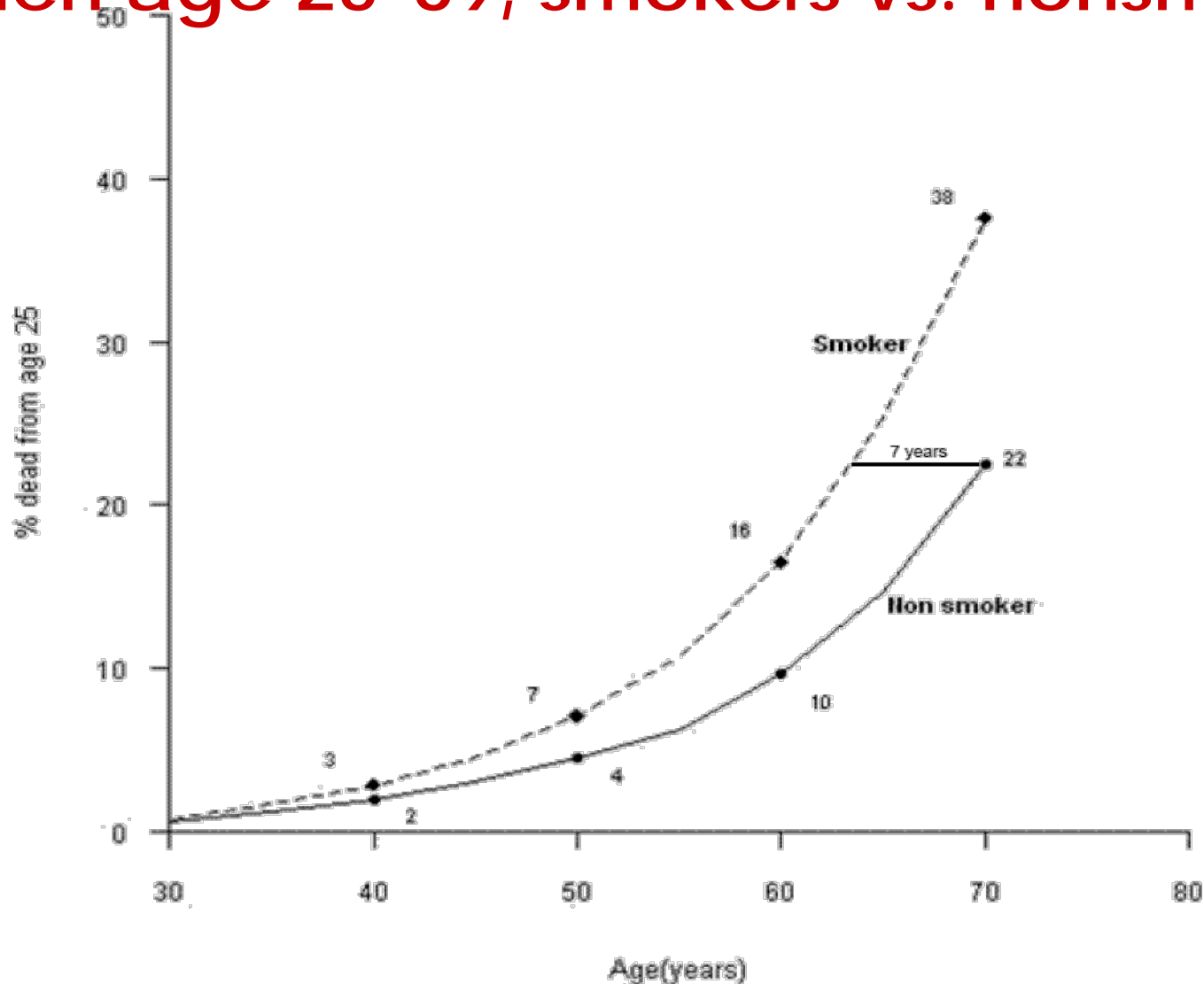
INDIA: Years of life lost among 30 year old smokers* (MDS results)



Men who smoke bidis	6 years
Women who smoke bidis	8 years
Men who smoke cigarettes	10 years

* At current risks of death versus non-smokers, adjusted for age, alcohol use and education
(note that currently, few females smoke cigarettes)

Cumulative risk of death, Bangladeshi men age 25-69, smokers vs. nonsmokers



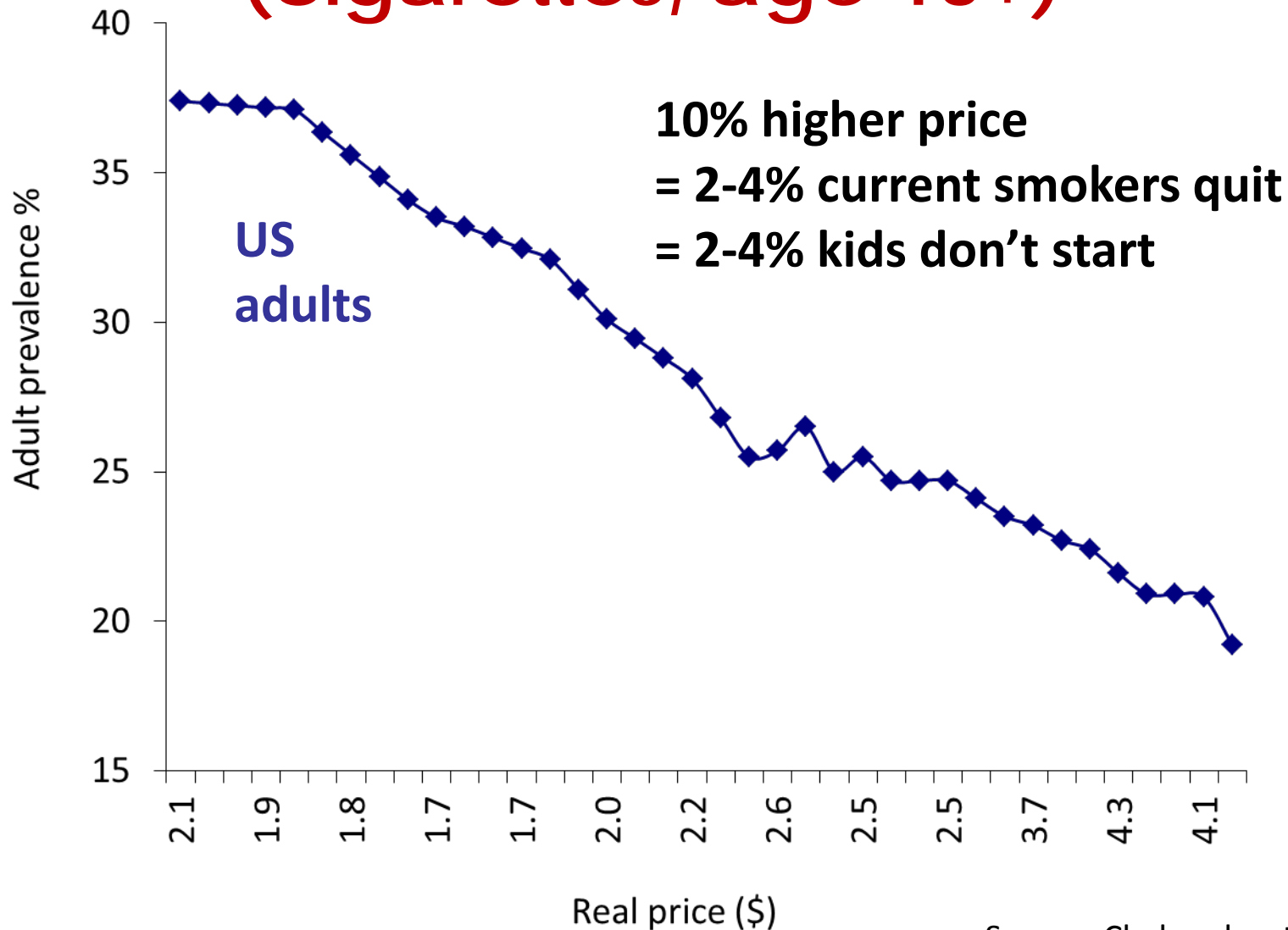
*adjusted for age, alcohol use and education

Source: Alam et al, 2012

Which interventions help current smokers to quit?

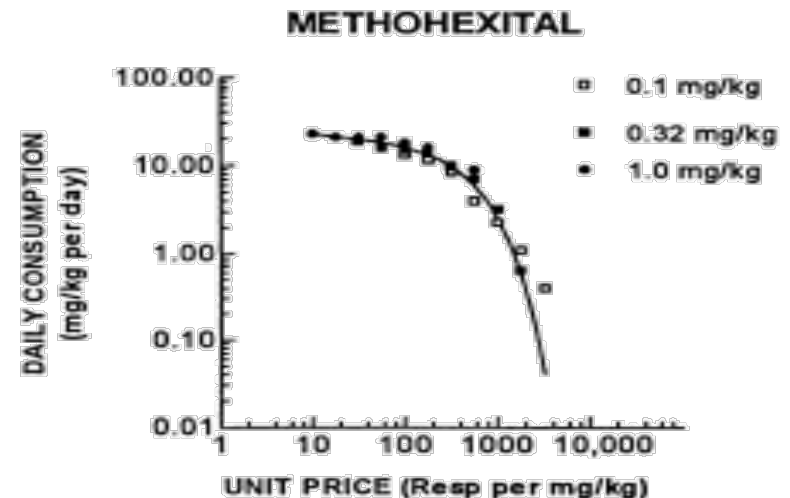
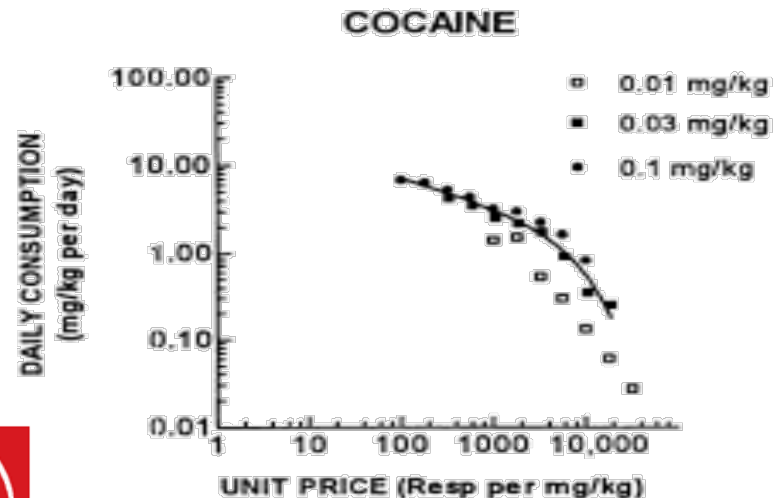
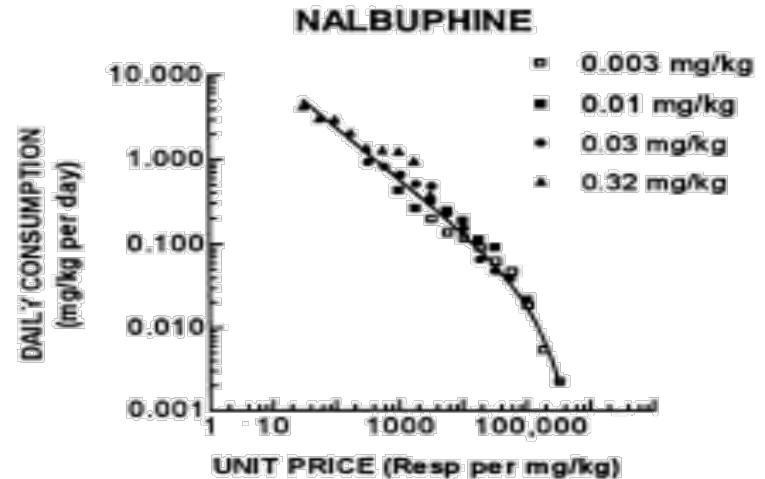
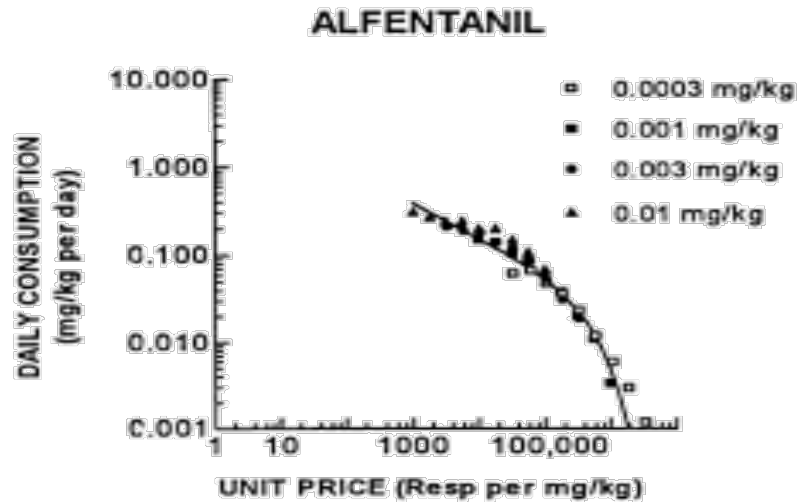
- Higher cigarette/bidi taxes: 50% higher price means 20% of CURRENT SMOKERS WILL QUIT
 - *Greater effects on the poor and in youth*
- Non-price measures: big, local packet warnings labels with tax stamp (to counter smuggling), absolute ad and promo ban, complete ban on public smoking, monitor and report smoking mortality, counter smuggling
- Increased access to nicotine replacement and other cessation therapies

Price elasticity in humans (cigarettes, age 15+)



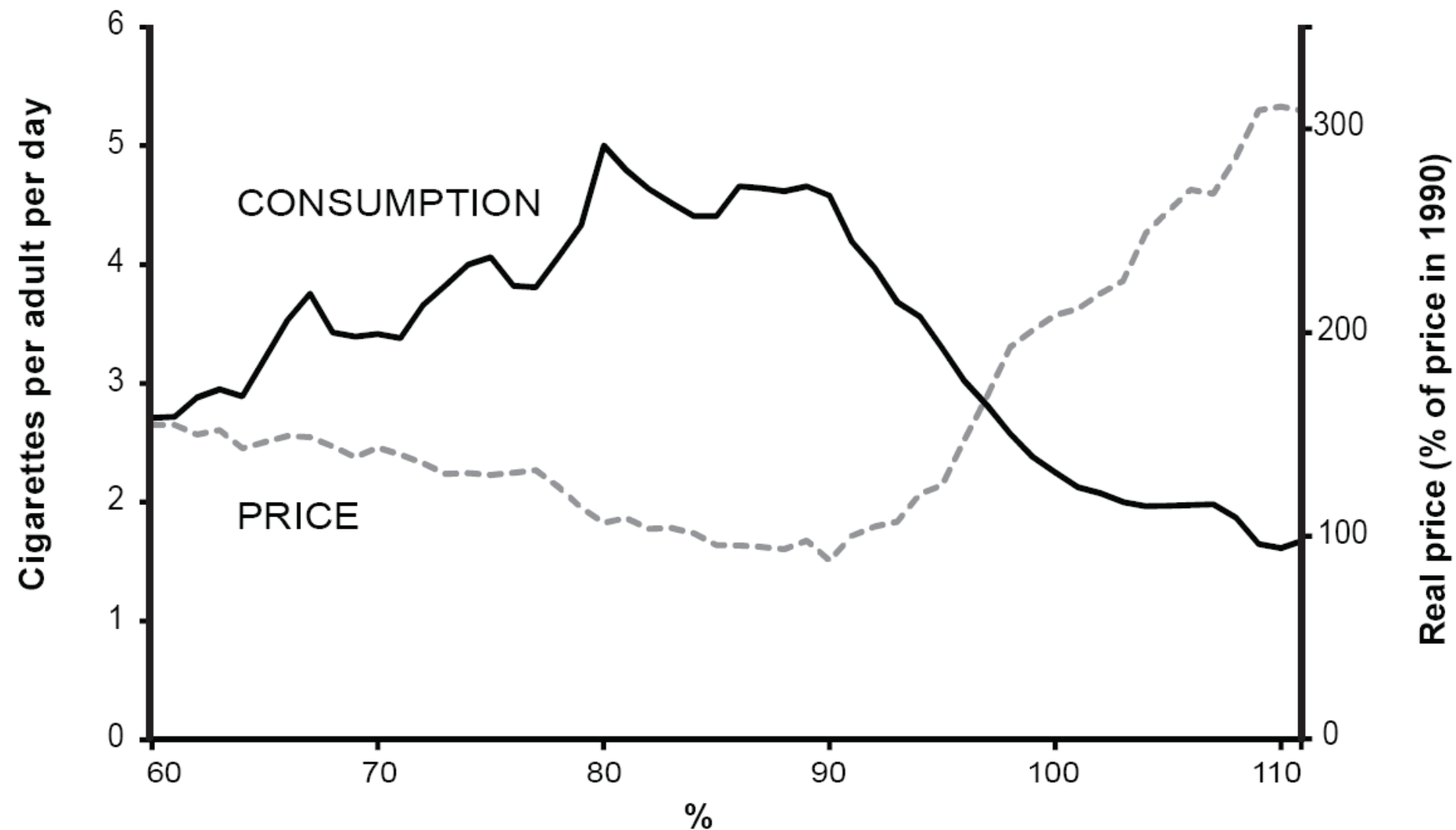
Source: Chaloupka et al, 2008

Price elasticity in monkeys (various addictive goods)

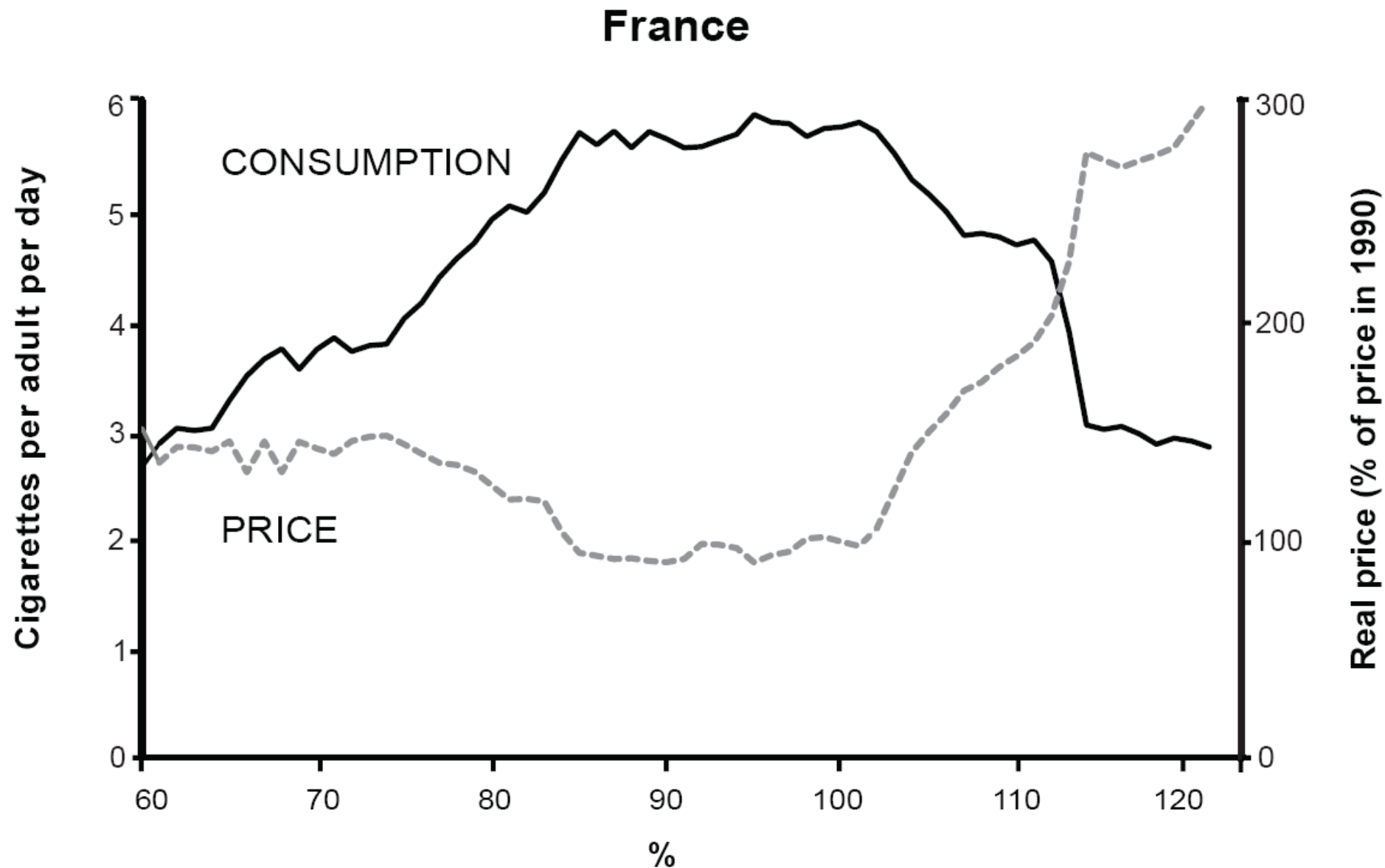


Cigarette prices tripled, consumption halved, tax revenue doubled: SOUTH AFRICA

South Africa



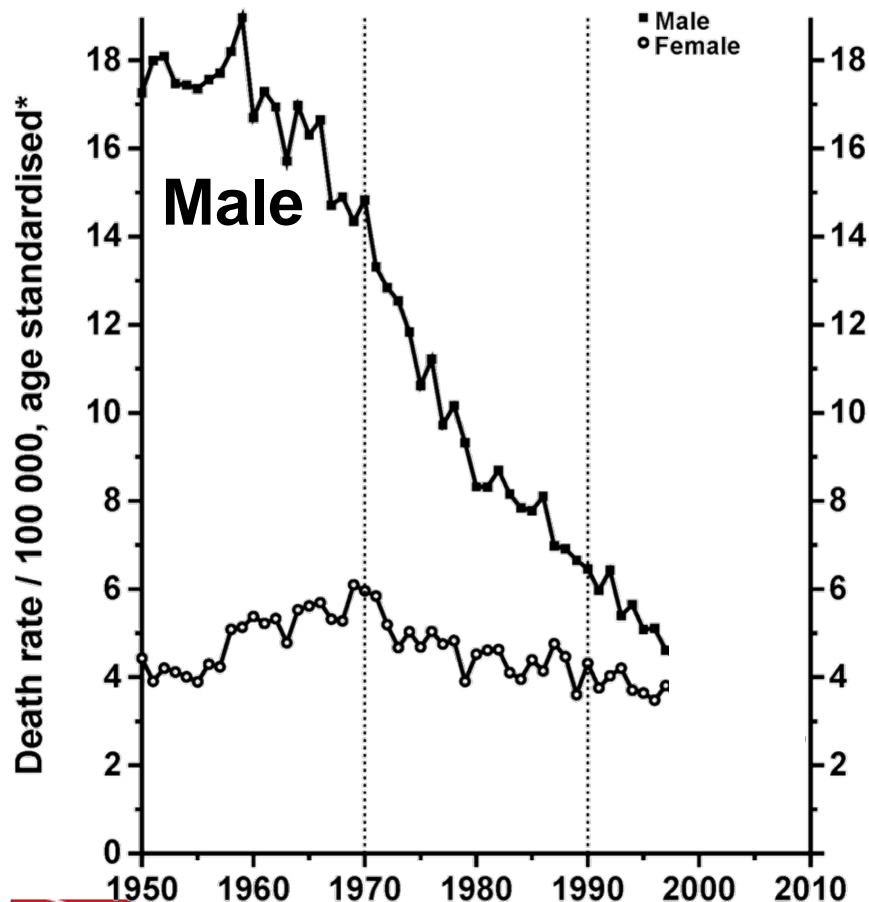
Cigarette prices tripled, consumption halved, tax revenue doubled: FRANCE



UK & France, lung cancer mortality trends (35-44) to 1997, but not beyond

UNITED KINGDOM

Lung cancer mortality at ages 35-44

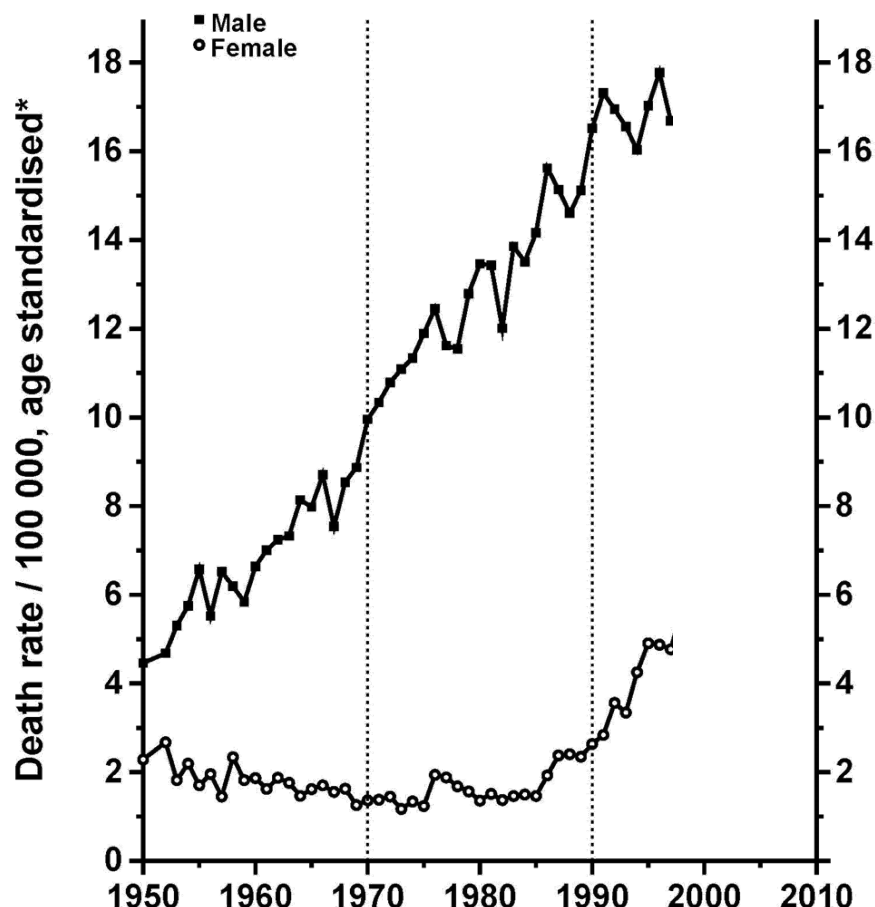


*Mean of annual rates in the two component 5-year age groups

Source: WHO mortality & UN population estimates

FRANCE

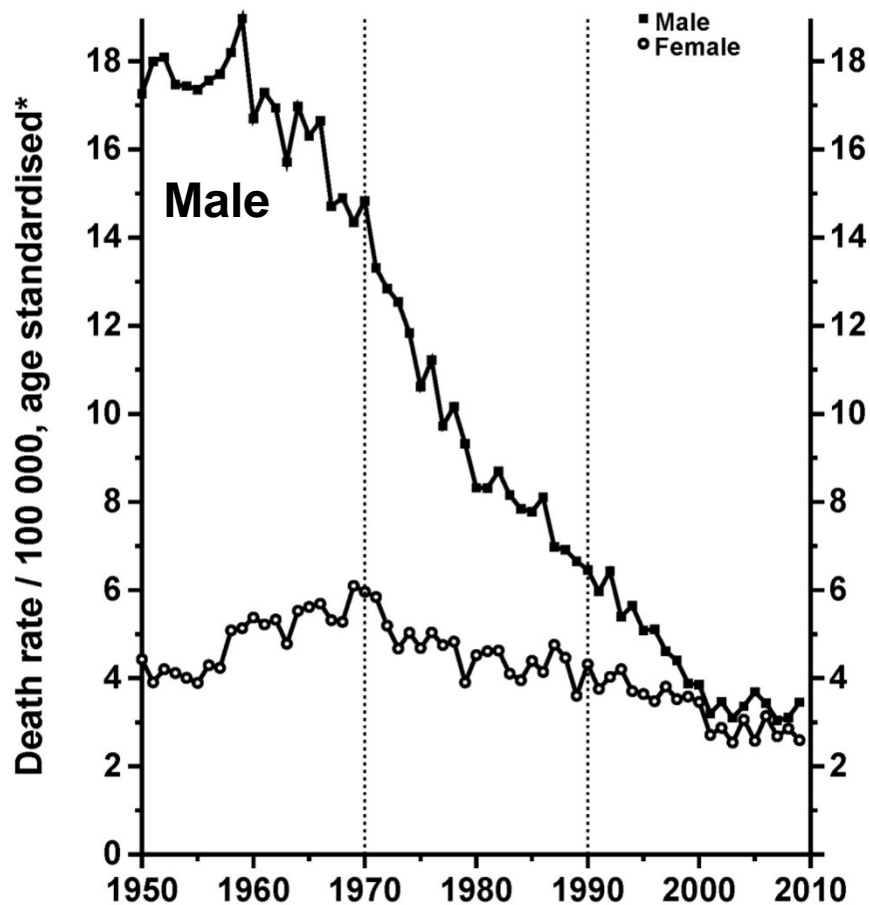
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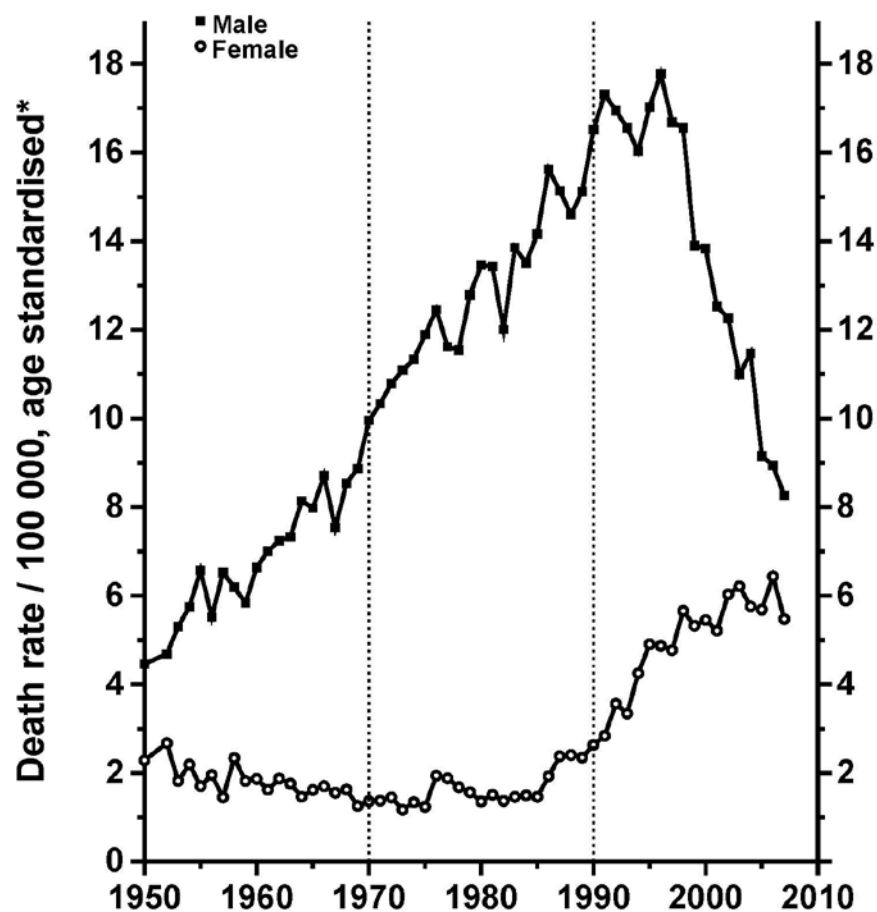
UNITED KINGDOM 1950–2009: Males & Females Lung cancer mortality at ages 35–44



*Mean of annual rates in the two component 5-year age groups

Source: WHO mortality & UN population estimates

FRANCE 1950–2007: Males & Females Lung cancer mortality at ages 35–44

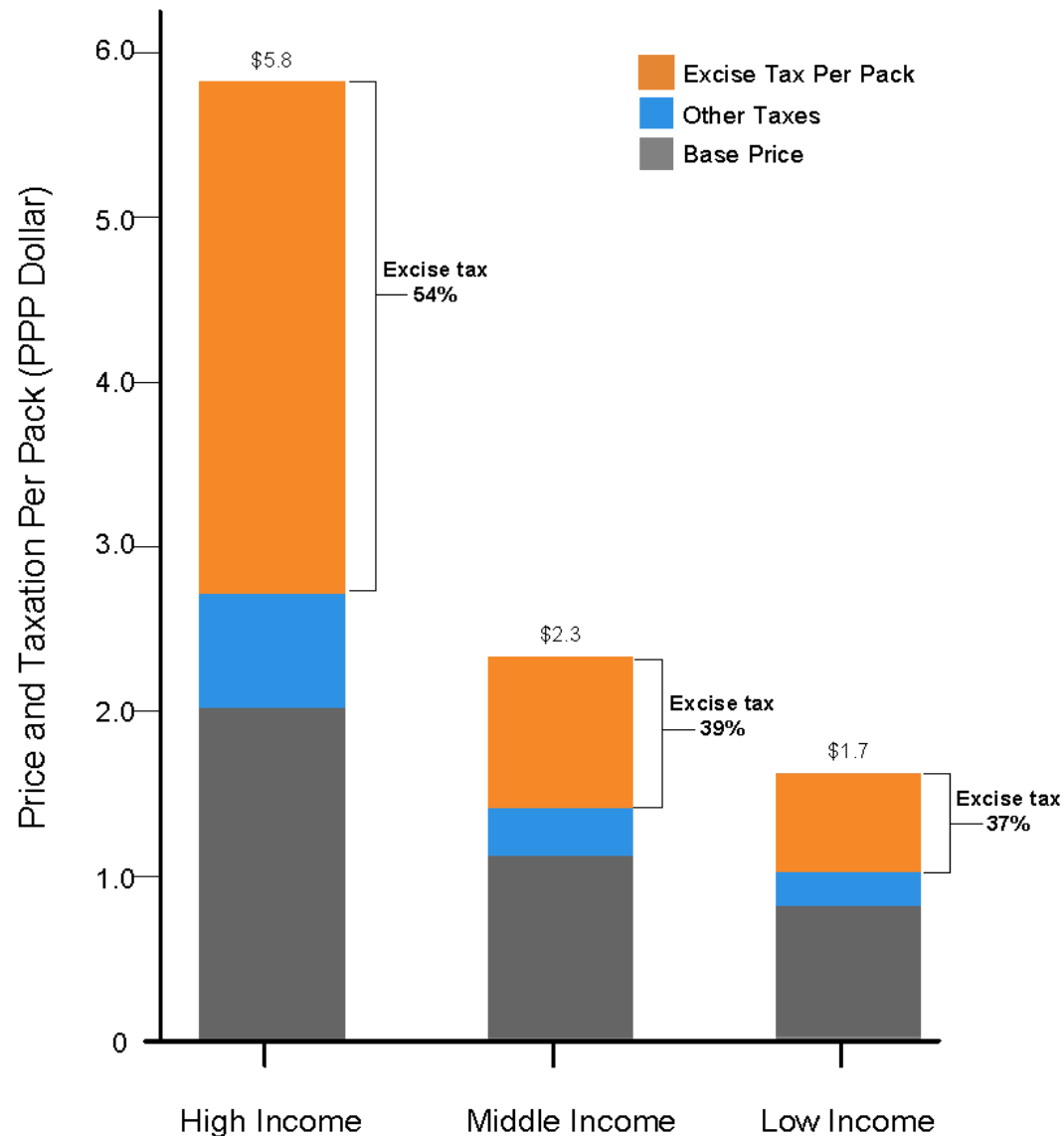


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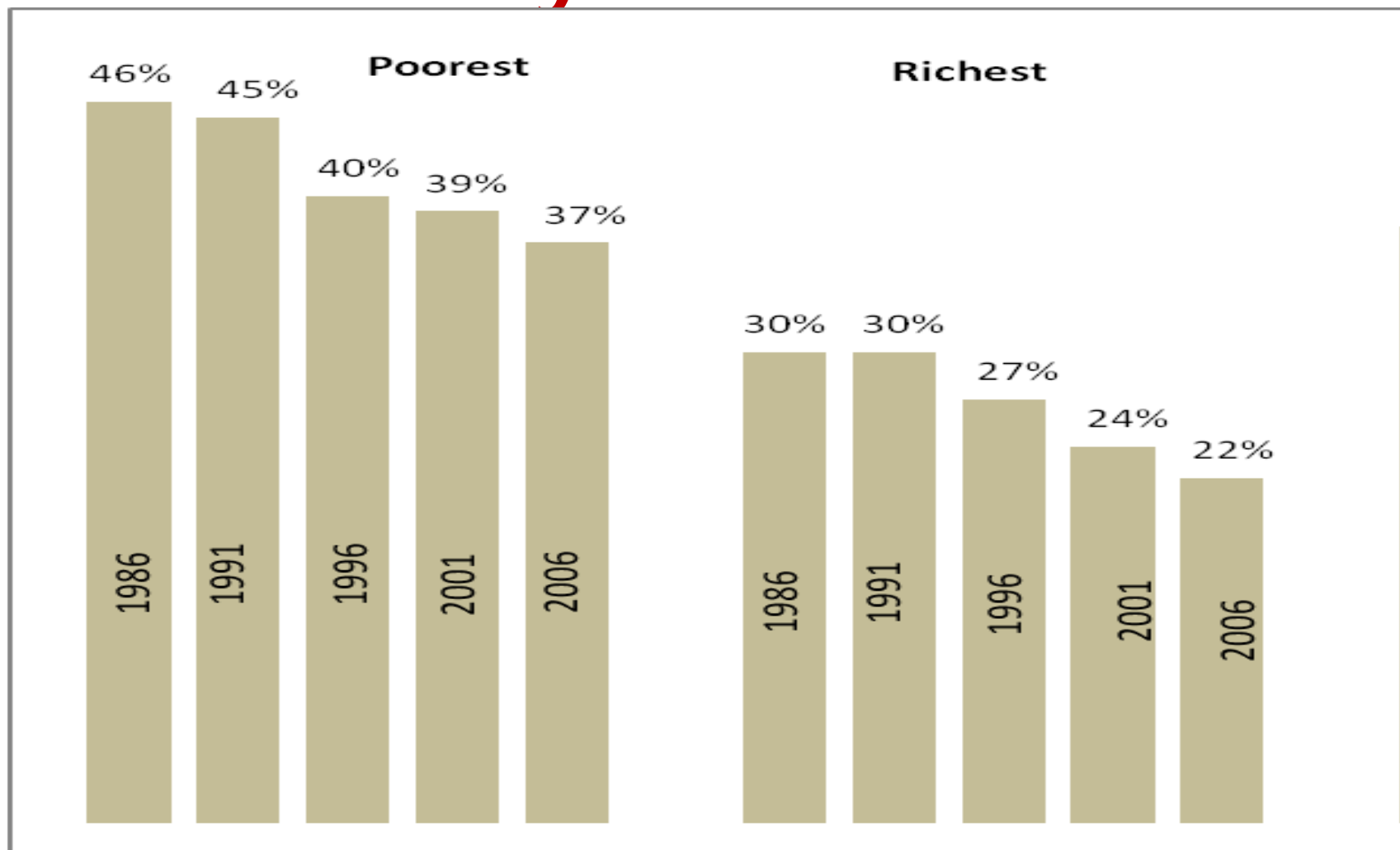
Source: WHO mortality & UN population estimates

Source: Peto, 2012

Excise taxes underused in LMICs



Tobacco deaths in Canadian men by income



Plain packaging (Australia) and pictorial warning labels (Canada)



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