



# DEATH (avoidable) and TAXES (not avoidable)

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# CONCLUSIONS:



## How to save 115 M lives

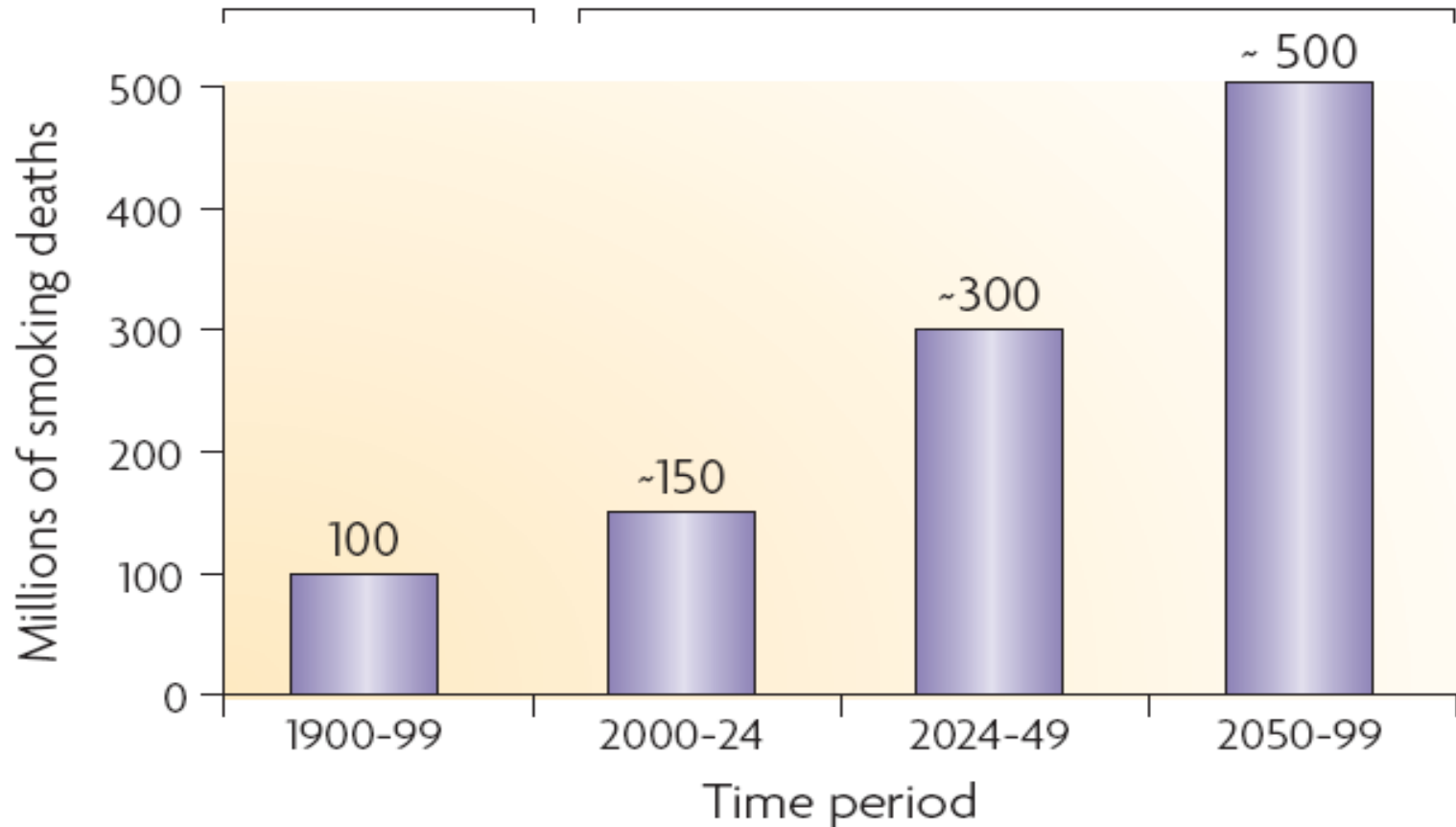
- Take tobacco seriously: big cause of death and big cause of poverty
- Focus on adults stopping as well as kids
- Triple excise tax on cigarettes: would double the retail price, drop consumption by at least 30%, and raise more tax revenue
- Other interventions: big, local packet warnings labels with tax stamp (to counter smuggling), absolute ad ban, complete ban on public smoking, monitor and report smoking mortality

# A billion tobacco deaths in the 21<sup>st</sup> century on current smoking patterns



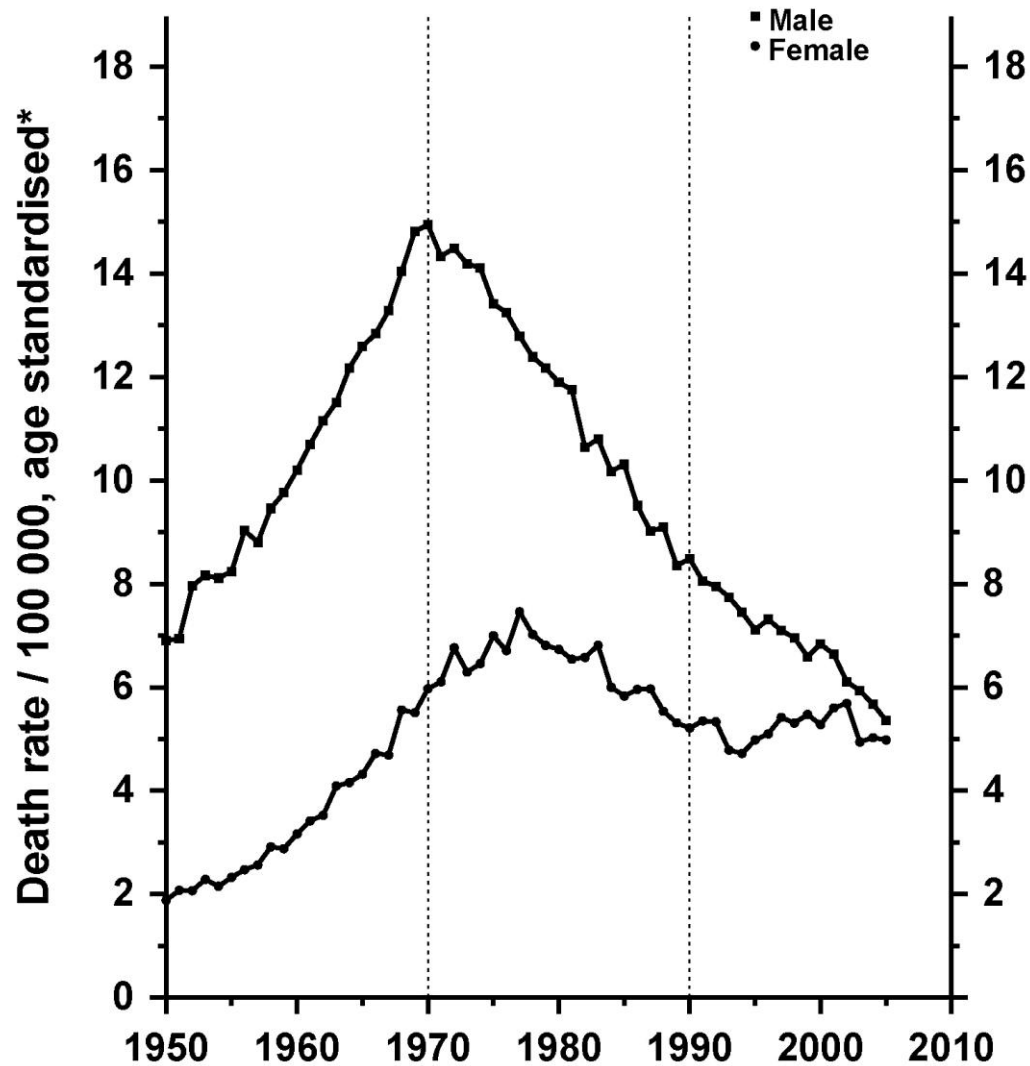
Total 20th century:  
0.1 Billion

Total 21st century: 1 Billion



Source: Peto et al, 2006; Jha, 2009

# UNITED STATES 1950–2005: Males & Females Lung cancer mortality at ages 35–44



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

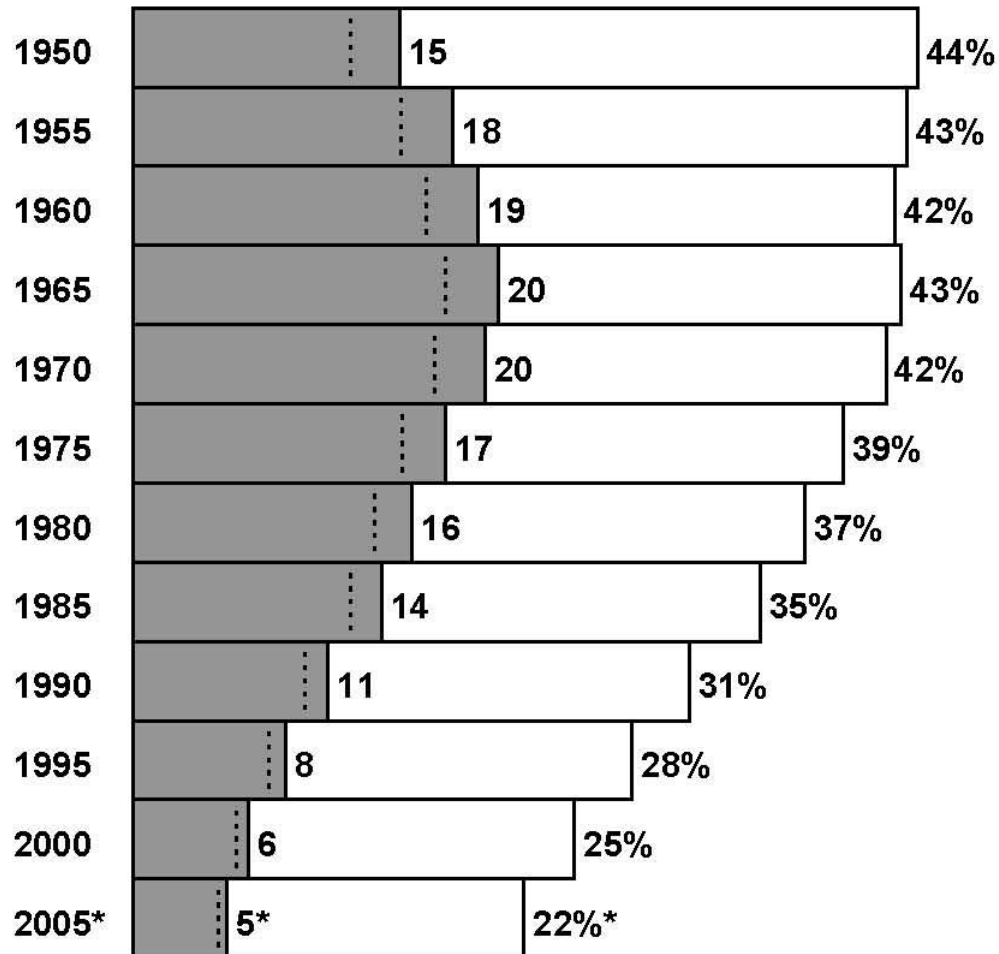
Source: WHO mortality & UN population estimates

Source: Peto et al, 2009

**Population risk of a 35-year-old dying at ages 35–69  
from smoking (shaded) or from any cause (shaded and white)**

\*eg, at year 2005 male death rates, out of 100 men aged 35, 22 would die before age 70 (with 5 of these deaths attributed to smoking)

**MALE**



# INDIA: Years of life lost among 30 year old smokers \*

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<b>Men who smoke bidis</b>	<b>6 years</b>
<b>Women who smoke bidis</b>	<b>8 years</b>
<b>Men who smoke cigarettes</b>	<b>10 years</b>

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

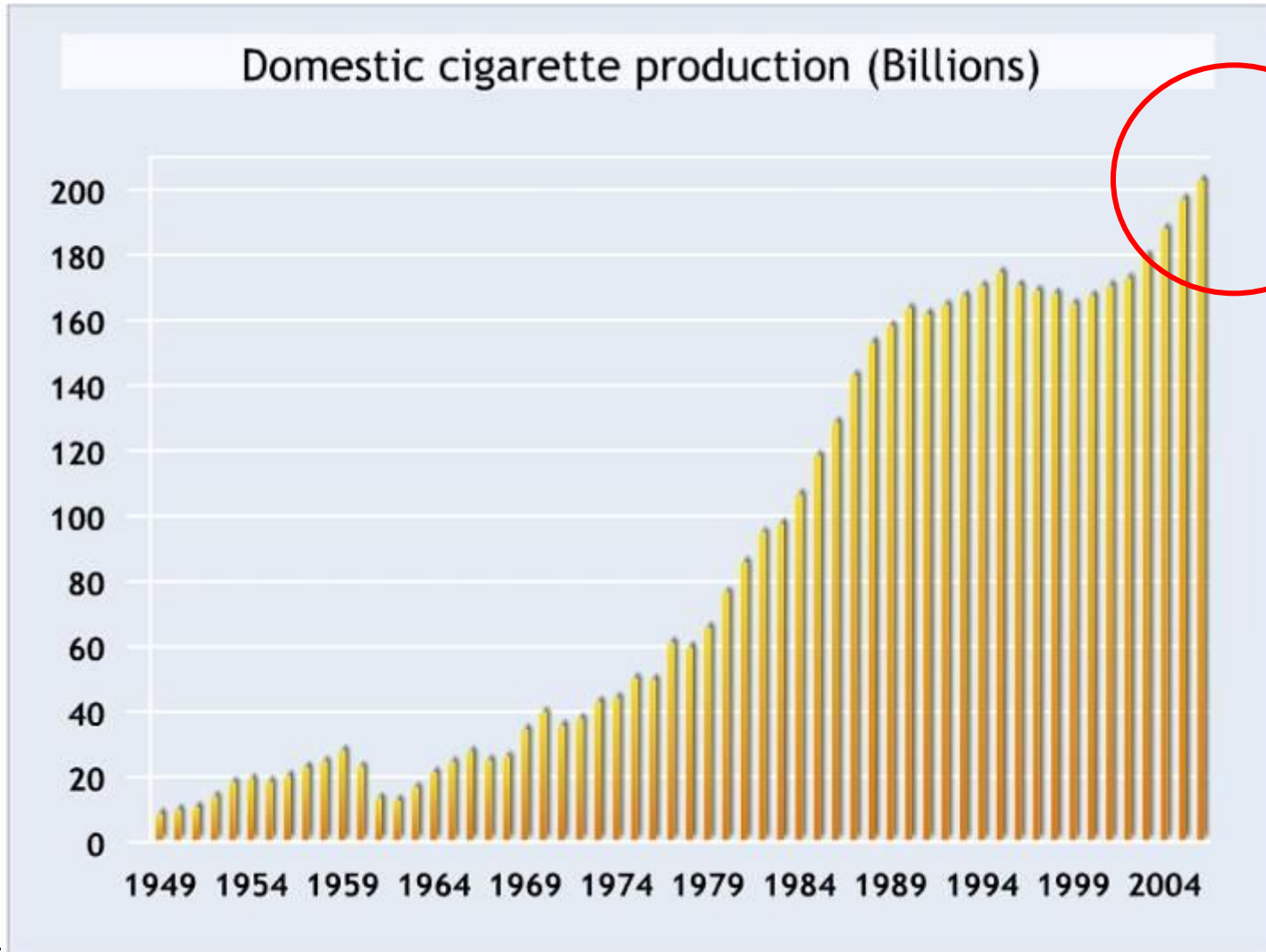


# Deaths from smoking in year 2010 in India

Age range	Women	Men	Both
Ages 30-69	93,000	579,000	672,000
All adults 20+	128,000	807,000	935,000

**Annual deaths from smoking will rise from 930,000 to 1,000,000 during 2010s**

# China is the largest cigarette producer



# THE MILLION WOMEN STUDY

(UK now: 7 years follow-up, 42,000 deaths)

**Dame Valerie Beral, U of Oxford, unpublished**

First large prospective study showing full effects of prolonged smoking in women

Smokers had started at age ~19 years (mean ~15 cigarettes/day)

Big risks, even though UK cigarette yields have been lowered in recent decades

# THE MILLION WOMEN STUDY

## ALL-CAUSE MORTALITY

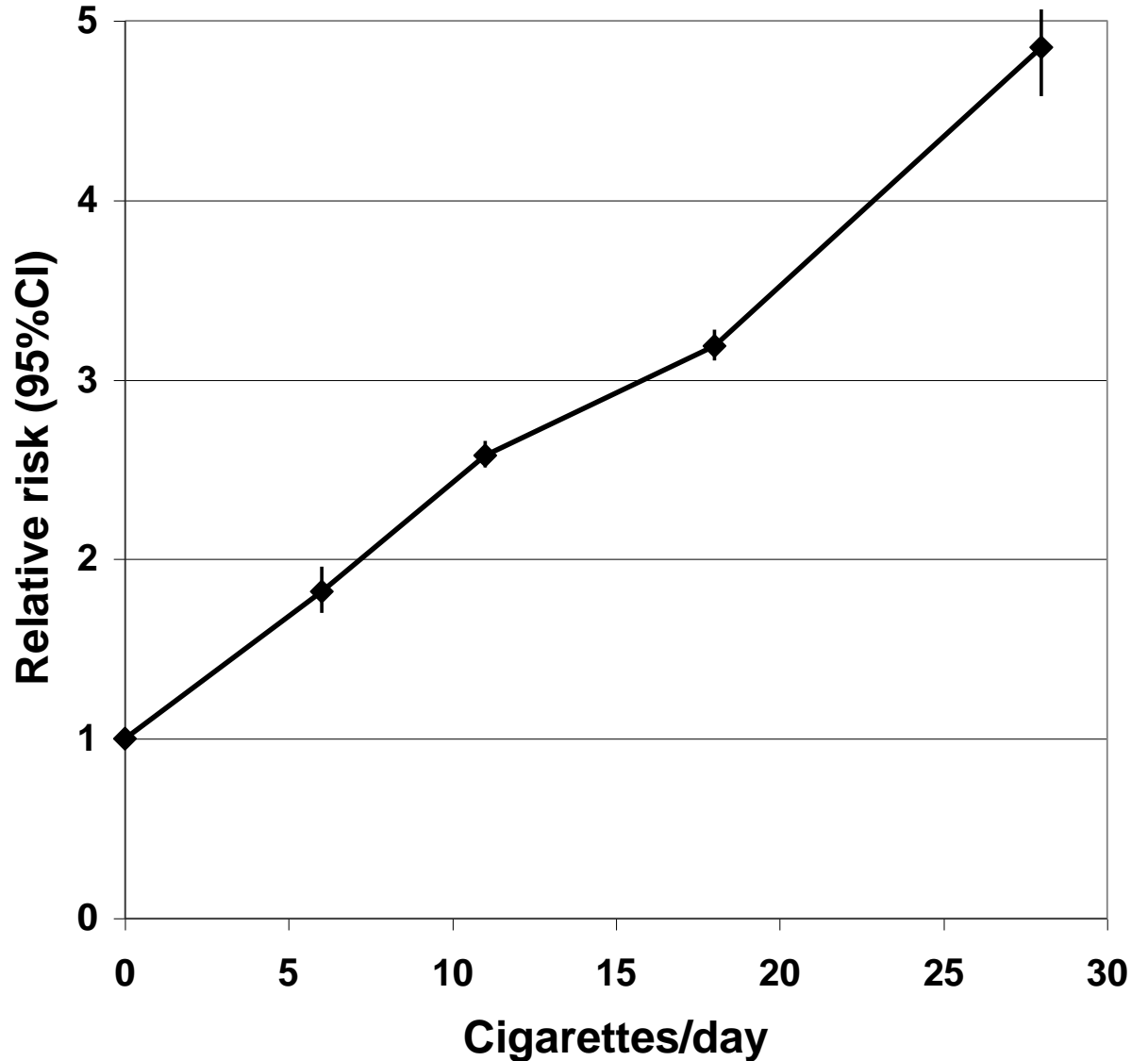
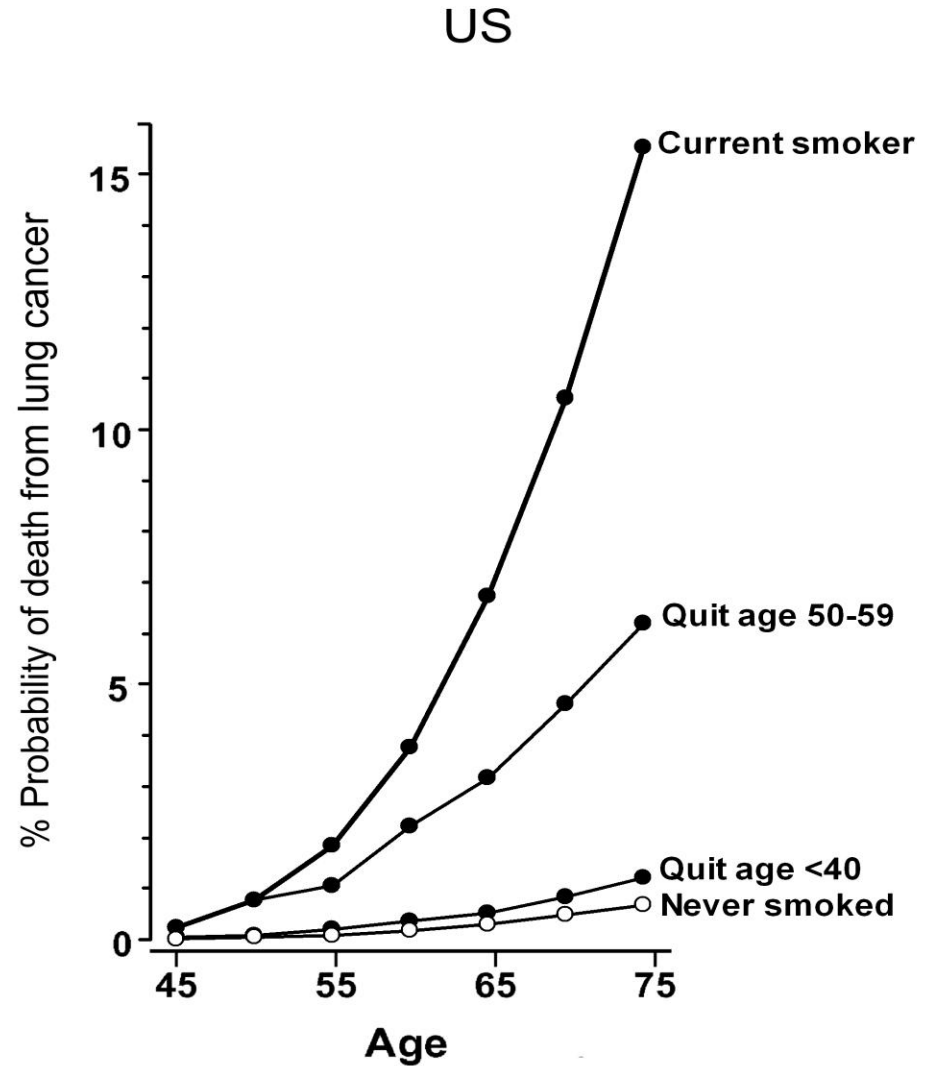
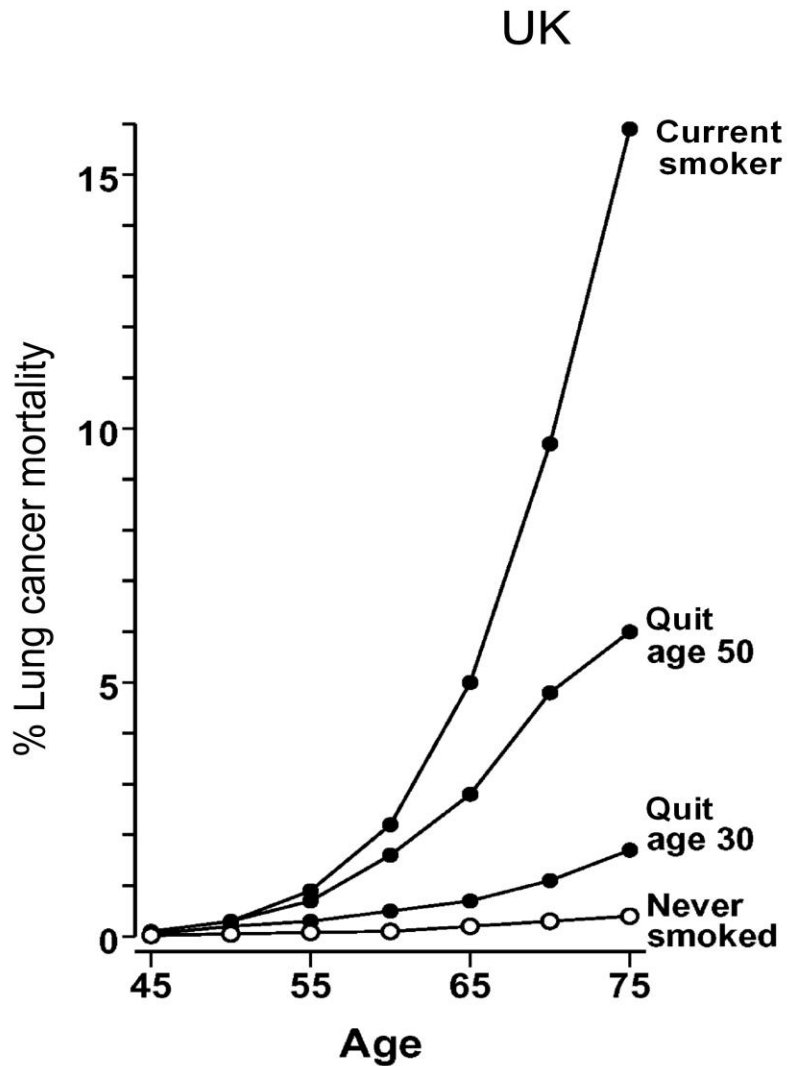


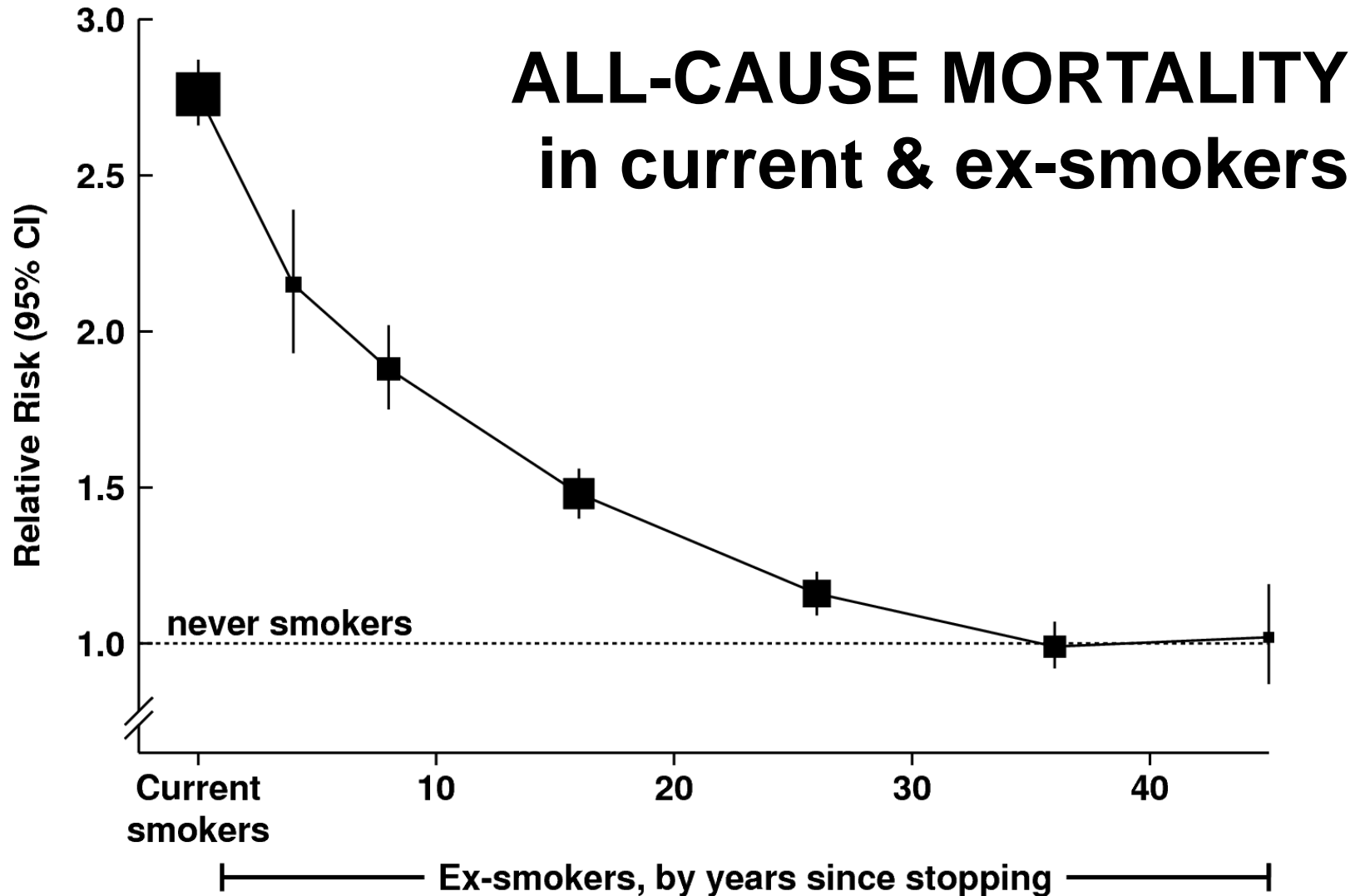


Figure 3: Risk of death from lung cancer in smokers and ex-smokers



Source: Peto et al, 2000; Thun et al, 2003

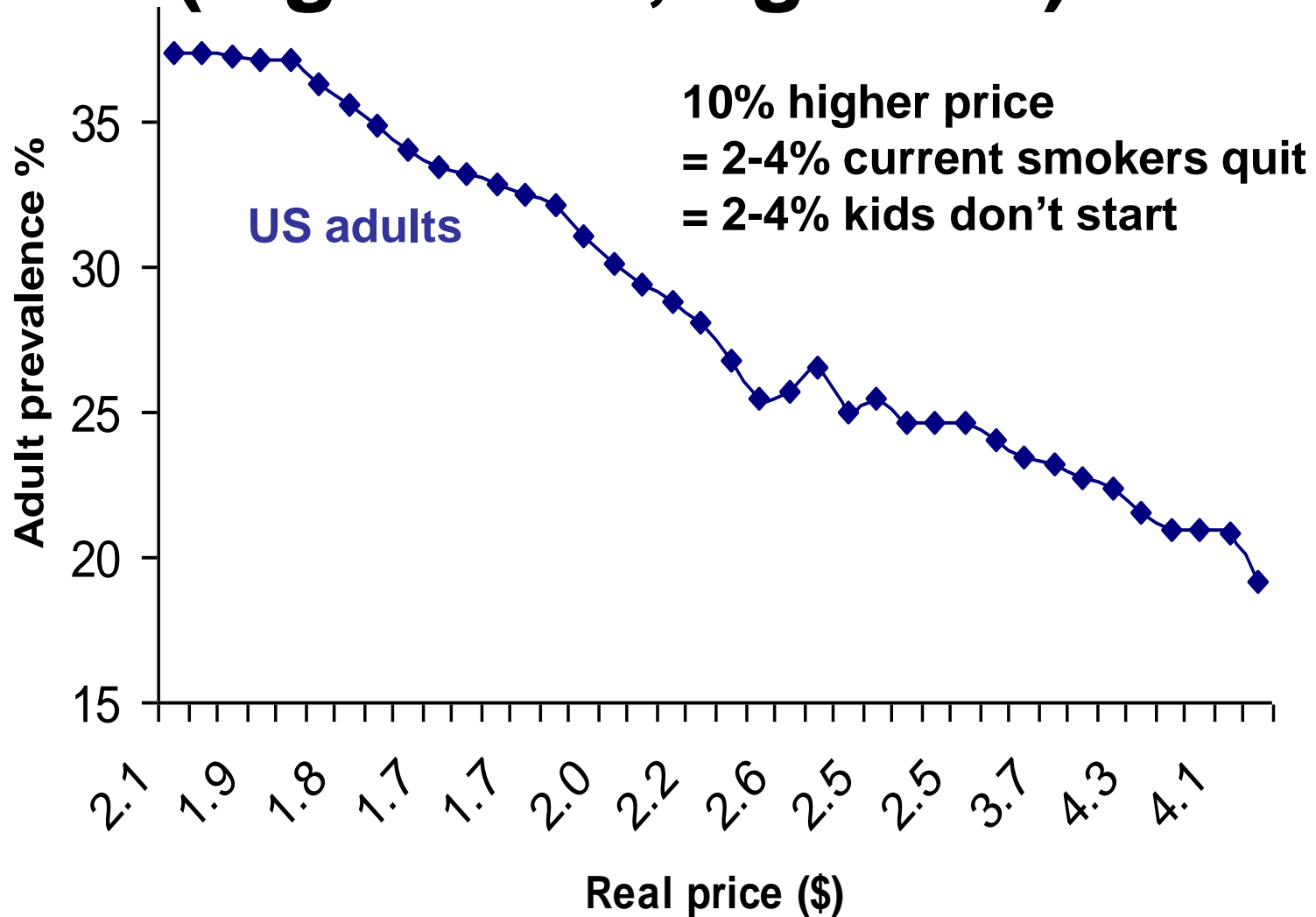
# THE MILLION WOMEN STUDY



# Which interventions help current smokers to quit?

- Higher cigarette/bidi taxes: 10% higher price means 2-4% of CURRENT SMOKERS TO QUIT
- Non-price measures: big, local packet warnings labels with tax stamp (to counter smuggling), absolute ad ban, complete ban on public smoking, monitor and report smoking mortality
- Increased access to nicotine replacement and other cessation therapies

# Price elasticity in humans (cigarettes, age 15+)

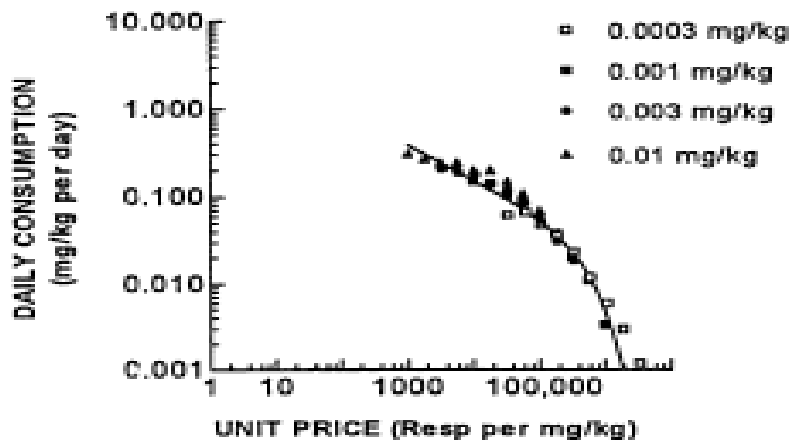




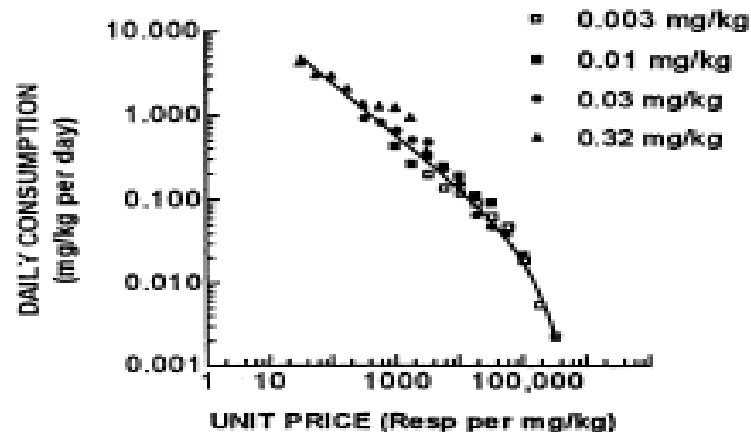
# Price elasticity in monkeys (various addictive goods)



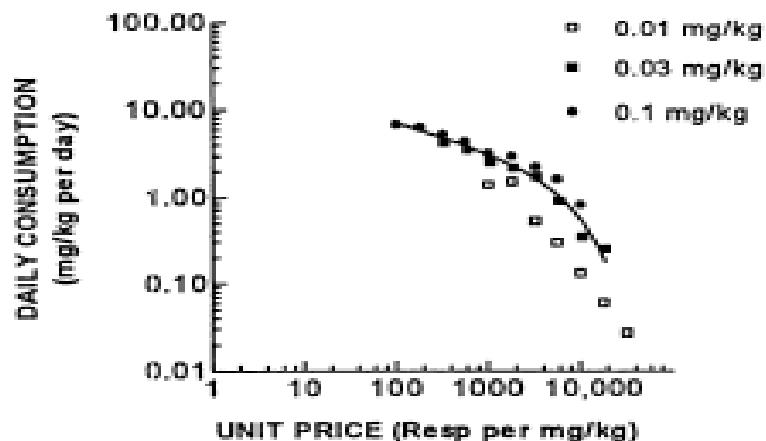
ALFENTANIL



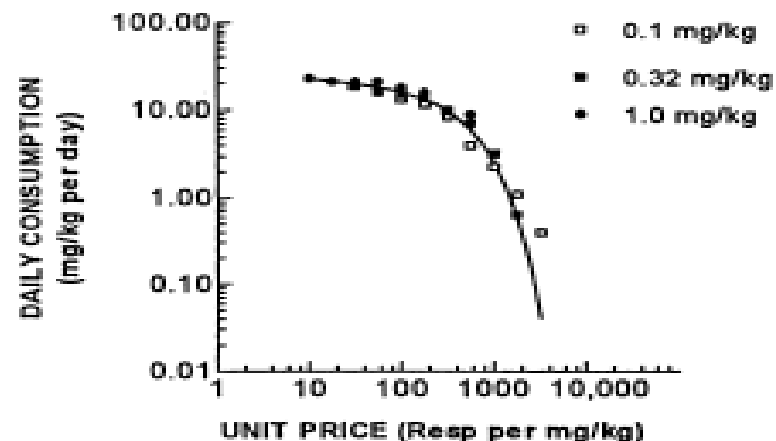
NALBUPHINE



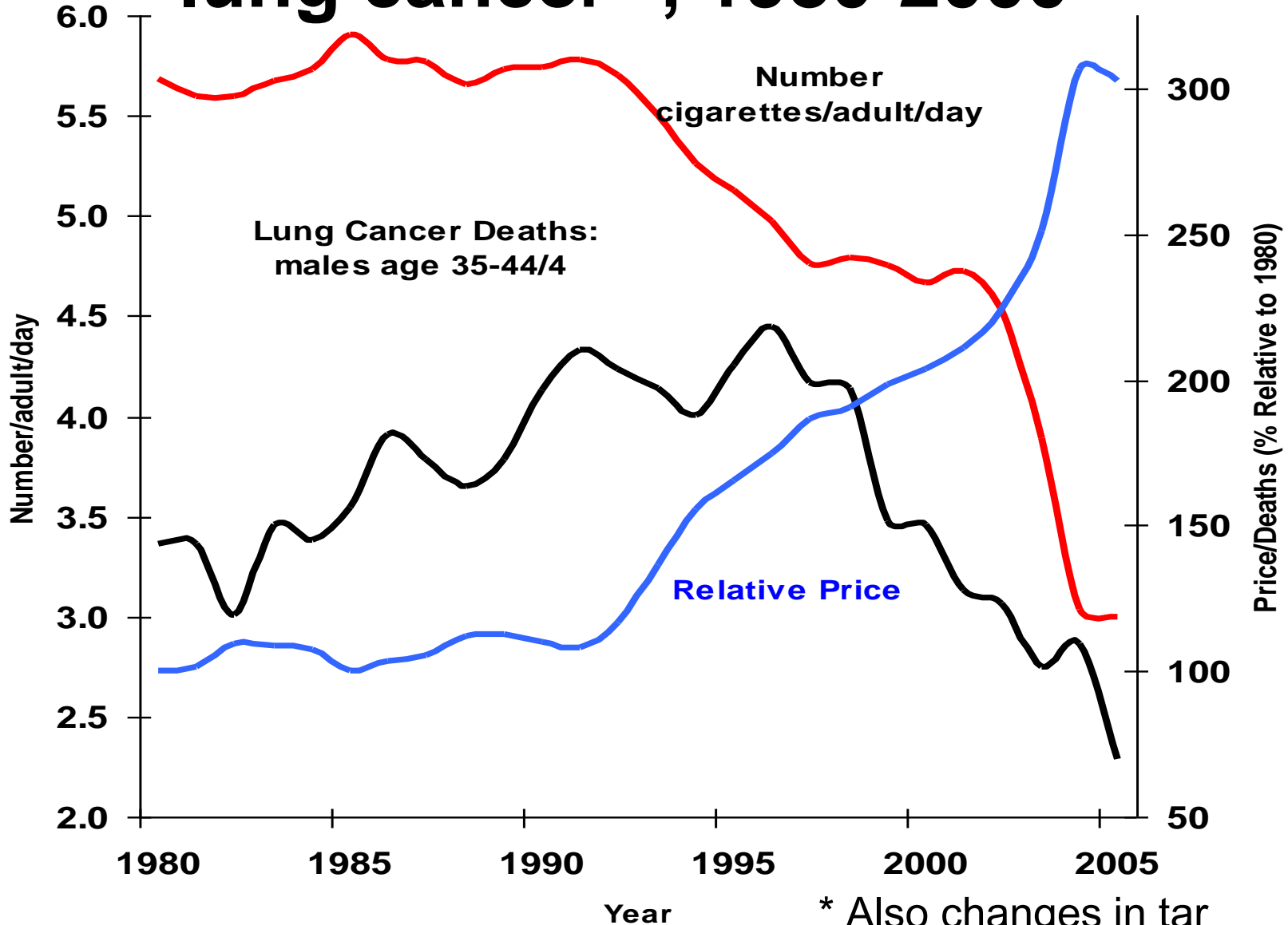
COCAINE



METHOHEXITAL



# France: smoking, tax and male lung cancer \*, 1980-2000



\* Also changes in tar

Source: Jha, 2009

# Some progress on tobacco taxes



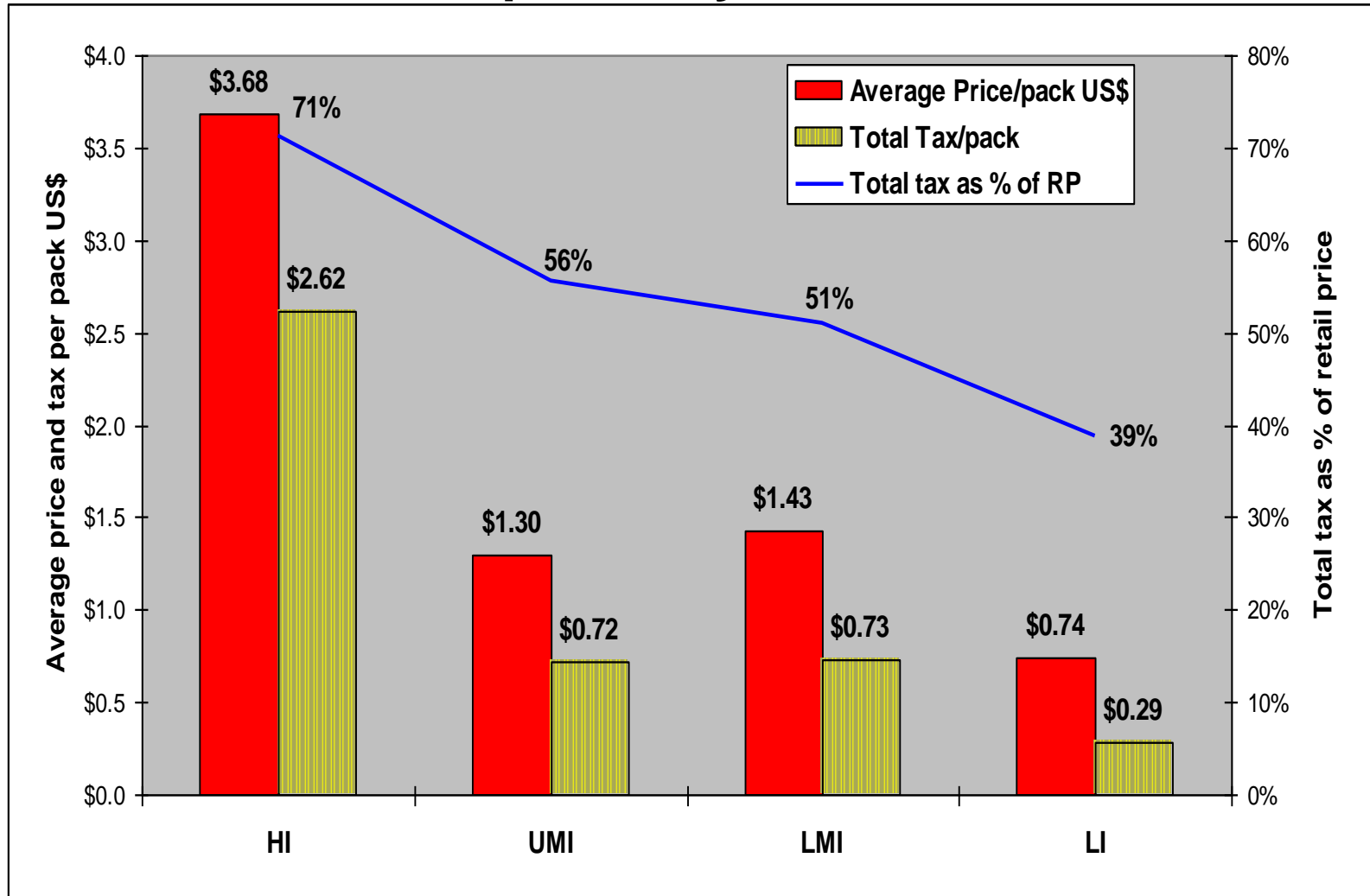
- **Jamaica- 36% tax hike**
- **Barbados-100% excise tax hike (and removed duty-free allowance on tobacco)**
- **Trinidad and Tobago-30% tax hike**
- **US- Federal tax hiked by 250% (from 39c to \$1.01) (will save 1-2 M lives)**
- **Mexico- about 25-30% price hike from 2011**
- **Delhi state- VAT on cigarettes rose from 12.5% to 20%**

# Tax structure: importance of excise tax

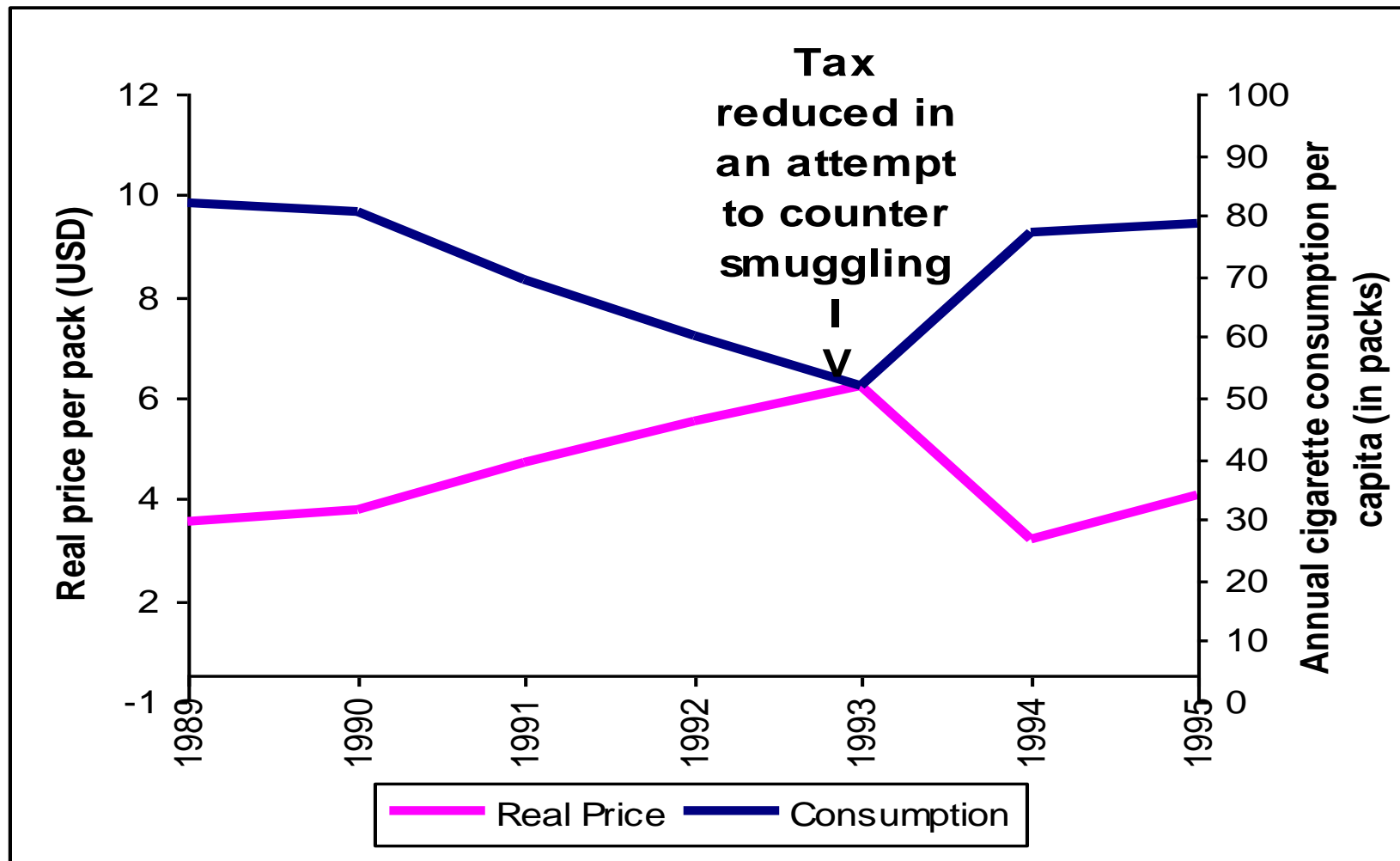


- **Analyses of EU 1998-2007**
- **Greater reliance on specific tobacco excises will:**
  - Reduce gap in prices between high and low priced cigarette brands (ad valorem increases gap)
  - Produce more stable, predictable stream of cigarette excise tax revenues
  - Have greater impact on cigarette smoking
- **Mexico's structure (oligopoly with Phillip Morris and BAT) works in favour of higher excise**
- **Maximal health and revenue impact involves specific taxes, regularly adjusted for inflation, comparable on all tobacco products and complementary policies to reduce industry price manipulation**

# Ample room to raise cigarette taxes in most developing countries: 2004-5 prices by income level



# Canada reduced taxes in 1993-4



# Combating illicit trade

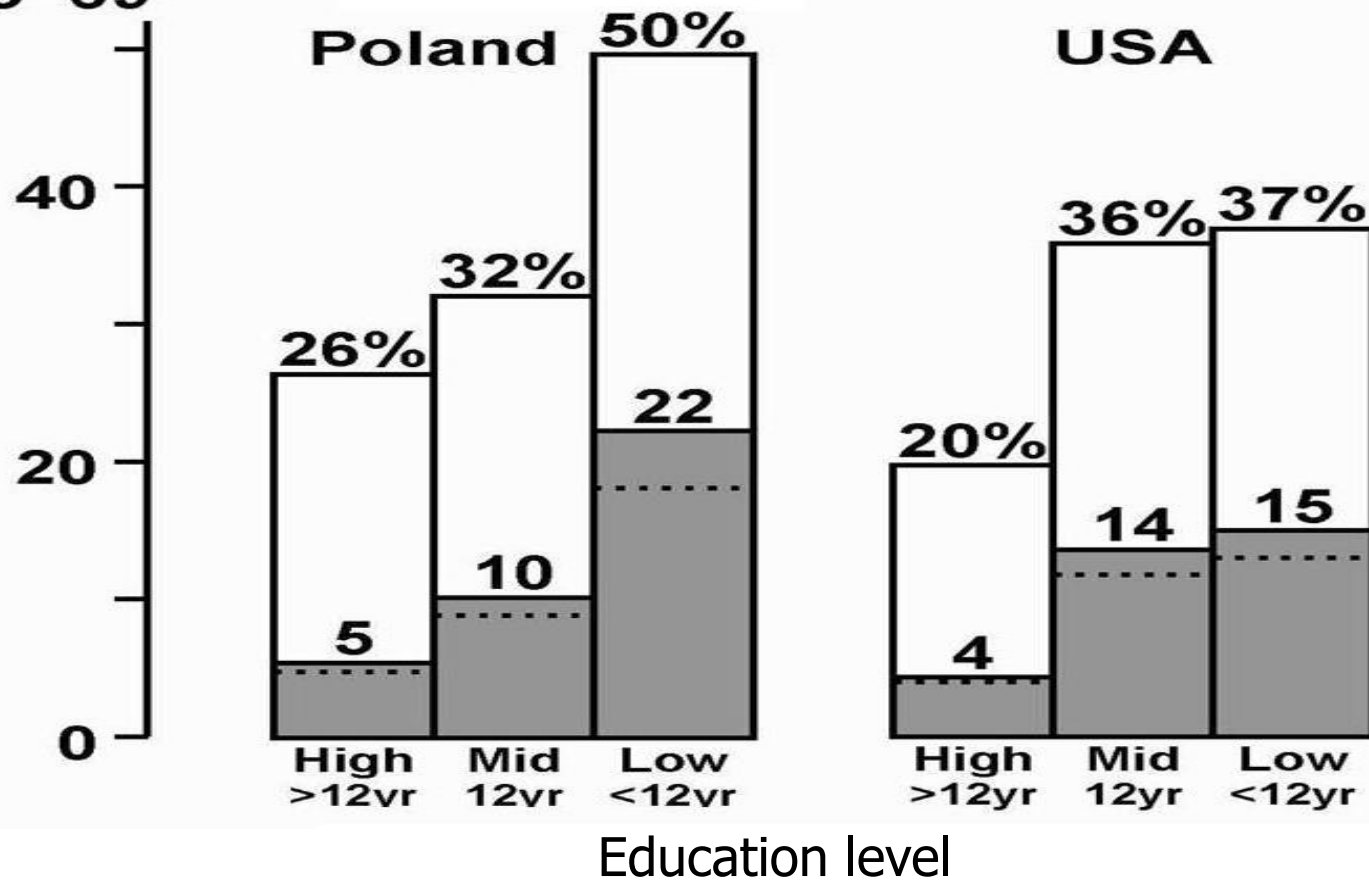


- **A 10% increase in law enforcement –assuming no change in income, will**
  - Decrease smuggling activities by 5.4%
  - Reduce global consumption by 2.3%
  - Increase governments' tax revenues by 7.8% despite 4% total tax revenue lost due to smuggling
- **Lessons from Spain** which reduced share of smuggled cigarettes from estimated 15% in 1995 to 5% in 1999
  - Focus on large scale, container smuggling
  - Strengthened tax administration with new technology and better enforcement
  - Collaboration with France, Andorra, Ireland, UK and the EU Anti-Fraud Office
  - Did NOT focus on individual tax avoidance, street sellers
- **Lessons from California:** high tech approaches

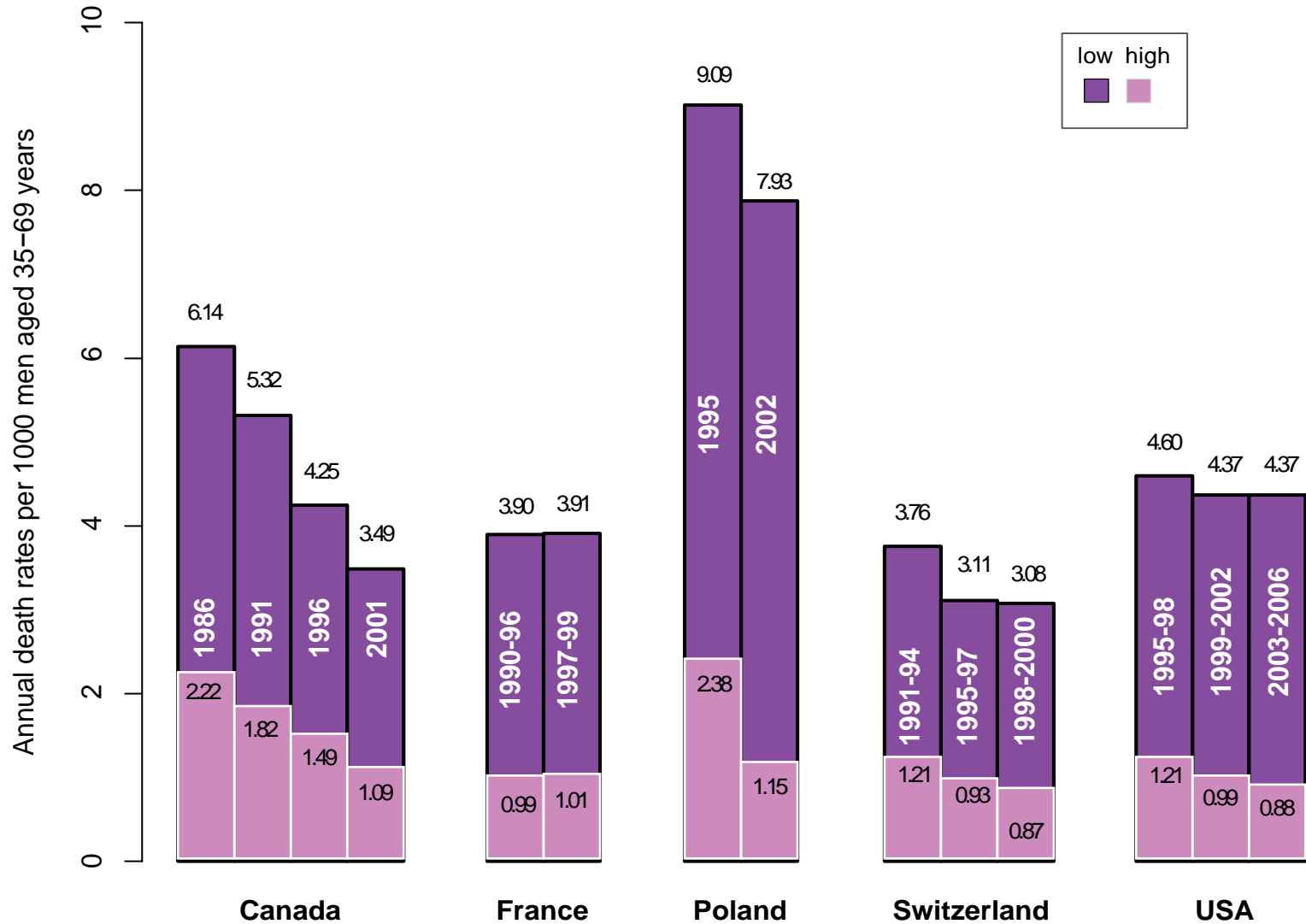
# Social inequalities in male mortality in 1996 from smoking (shaded) and any cause




% risk of dying at ages 35-69



## Smoking-attributable mortality in the lowest and the highest social strata



# % decline in mortality due to smoking and not due to smoking by SES ~ last decade



## Due to smoking?

<u>Country</u>	<u>SES</u>	<u>YES</u>	<u>NO</u>	
Canada:	Low	43	23	
	High	51	31	
US:	Low	-4	-7	Mean due/not to smoking:
	High	28	9	
Switzerland:	Low	18	6	LOW: 15% vs 7%
	High	30	1	HIGH: 32% vs 20%
France:	Low	0	1	
	High	0	28	
Poland:	Low	16	10	
	High	52	30	

# Tobacco taxes and the poor



## *Impact of 2009 US federal tax (pack price from \$4.35 to \$5.02)*

Income level (Millions, M, of smokers)	Adult smoking prev. (%)	Life years saved (M)	% of lives saved	% of taxes pre/post hike
Below poverty line (10 M)	28%	3.3	40%	15% → 13%
>2 times poverty line (40 M)	18%	4.7	30%	63% → 66%

# Prominent packet warnings used in Canada



**WARNING**  
**TOBACCO USE  
CAN MAKE YOU  
IMPOTENT**

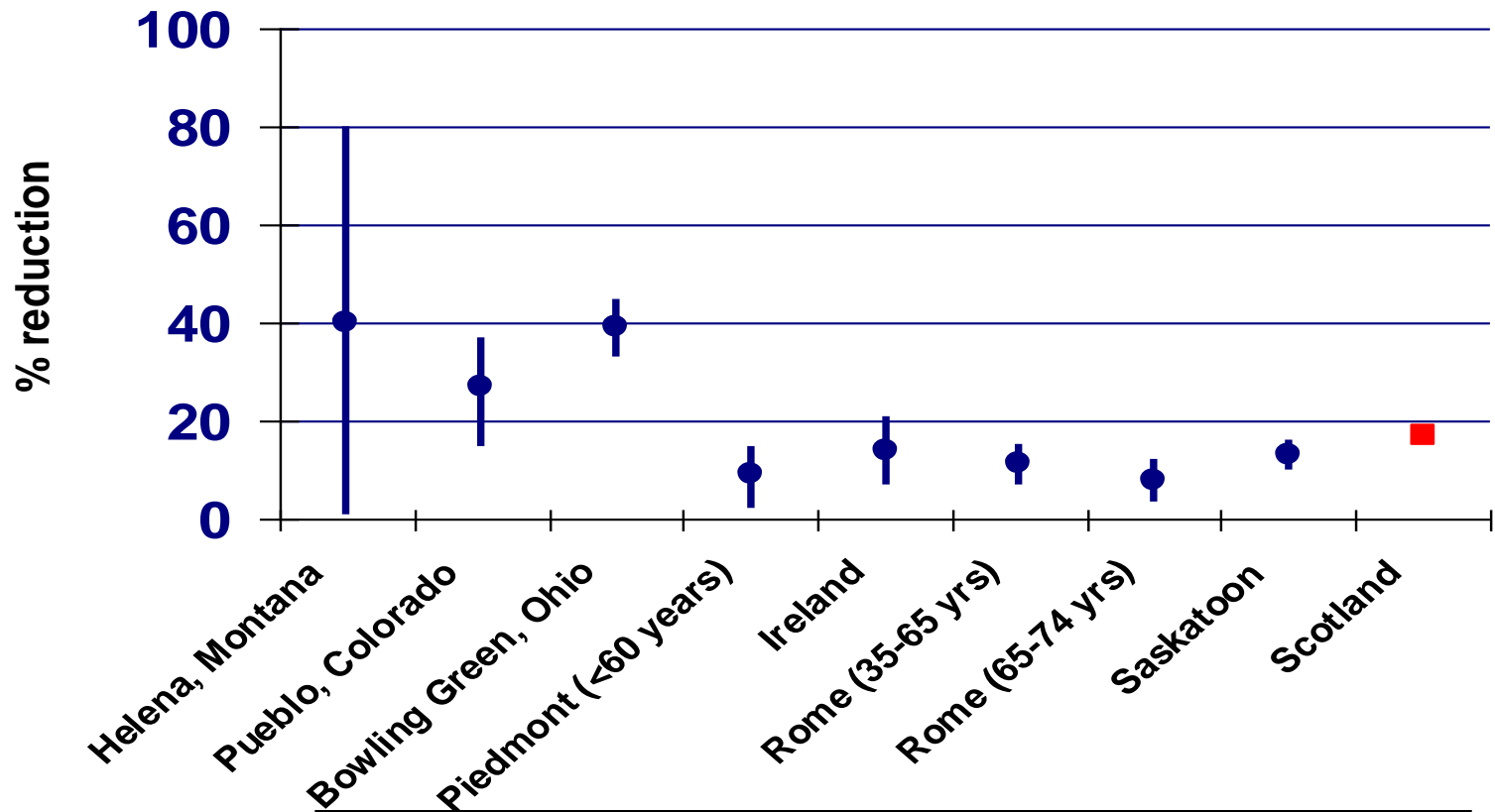
Cigarettes may cause sexual impotence due to decreased blood flow to the penis. This can prevent you from having an erection.

Health Canada



**Local language warning with tax stamps can help counter smuggling**

# Reductions in heart attack after bans on public smoking



Scottish found a reduction in ACS - Never smokers 21%  
- Ex-smokers 19%  
- Smokers 14%

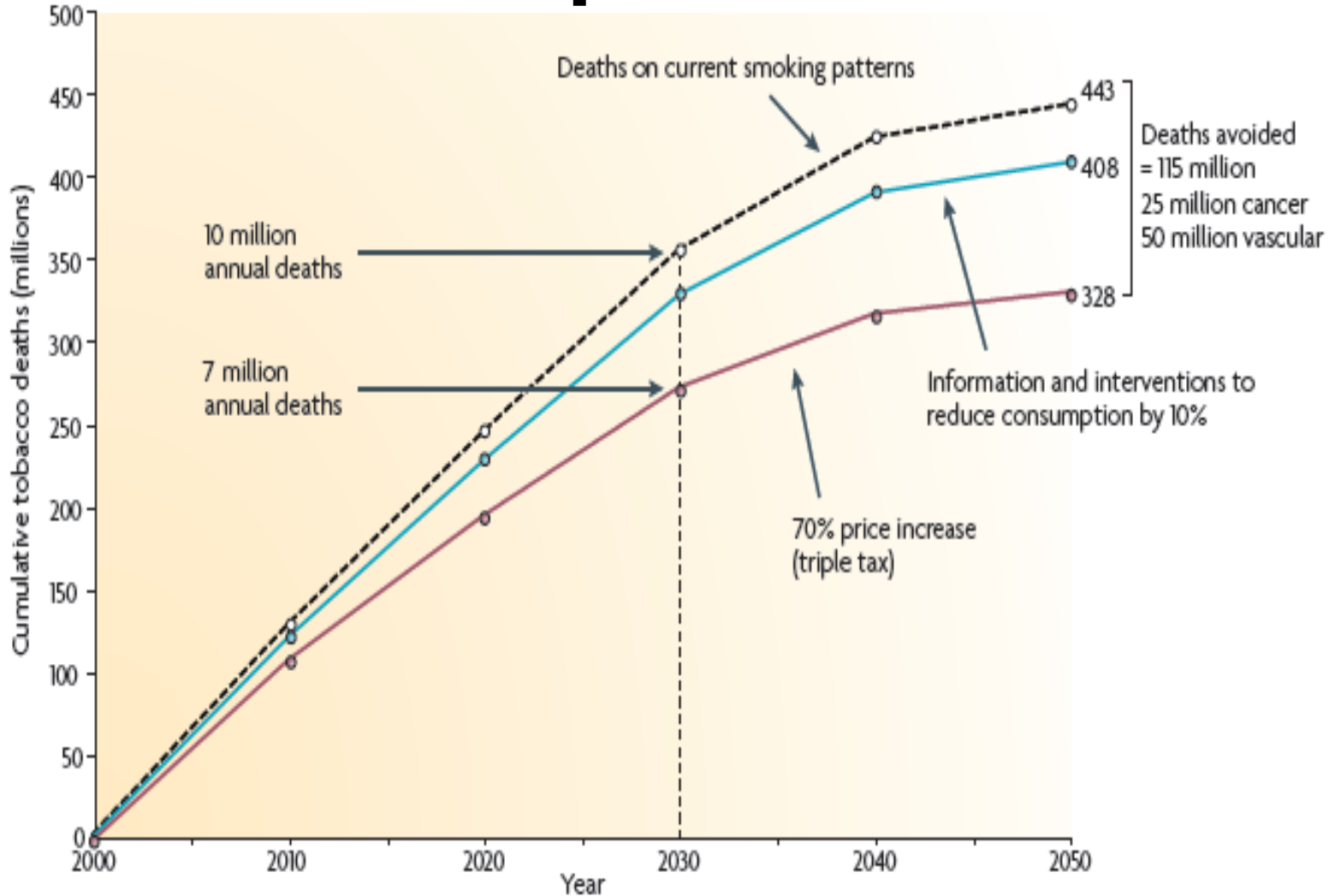
# Monitor the epidemic

1. Add a question on all death certificates:

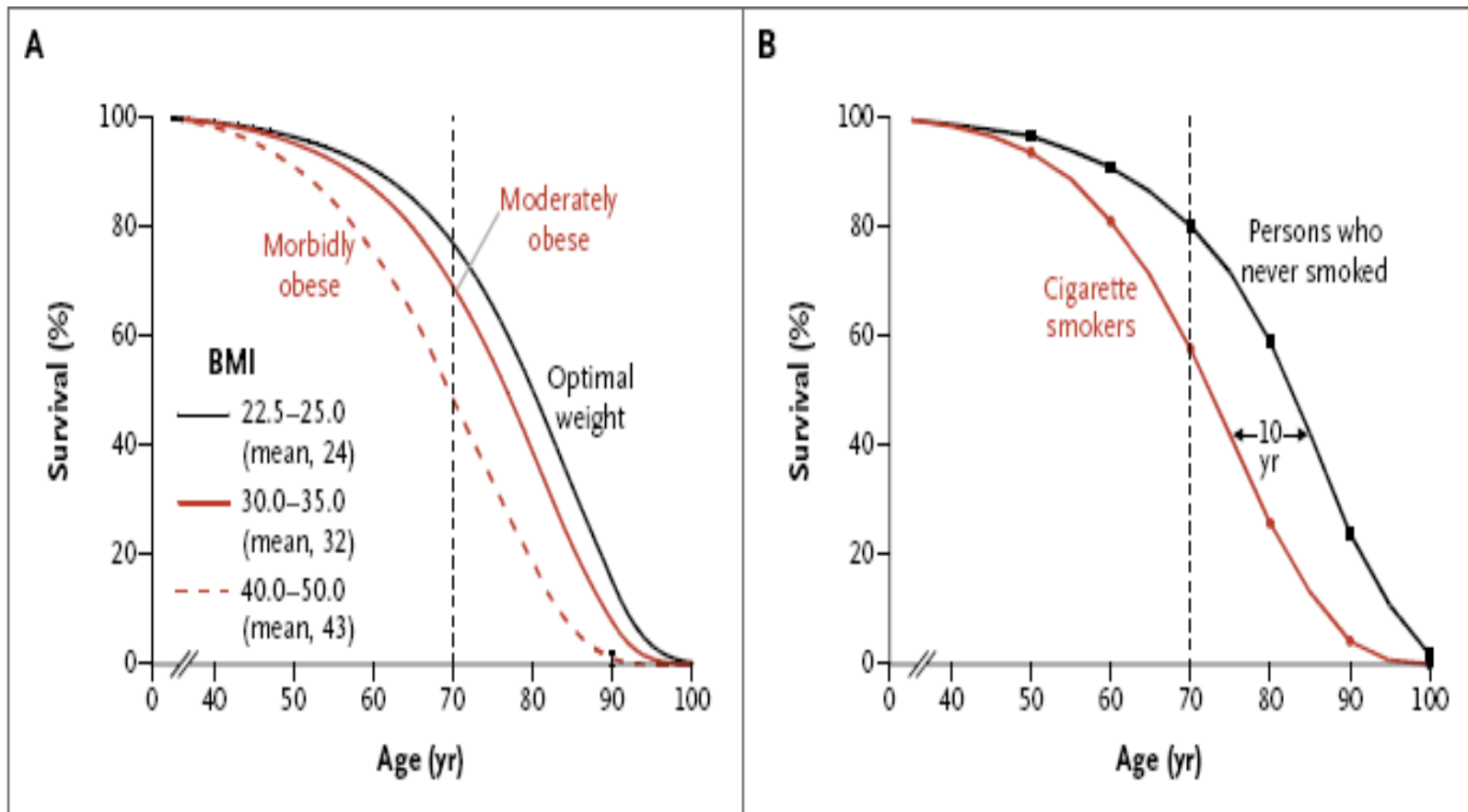
- About 5 years ago was the dead person a smoker?
- Definite yes, definite no, do not know
  - Report tobacco excess mortality every year to the media using simple methods

2. Track ex-smoking rates via simple surveys in a few thousand adults every 2-3 years

# Smoking deaths avoided from price and non-price interventions



# Life expectancy loss of 3 years with moderate obesity and 10 years with smoking

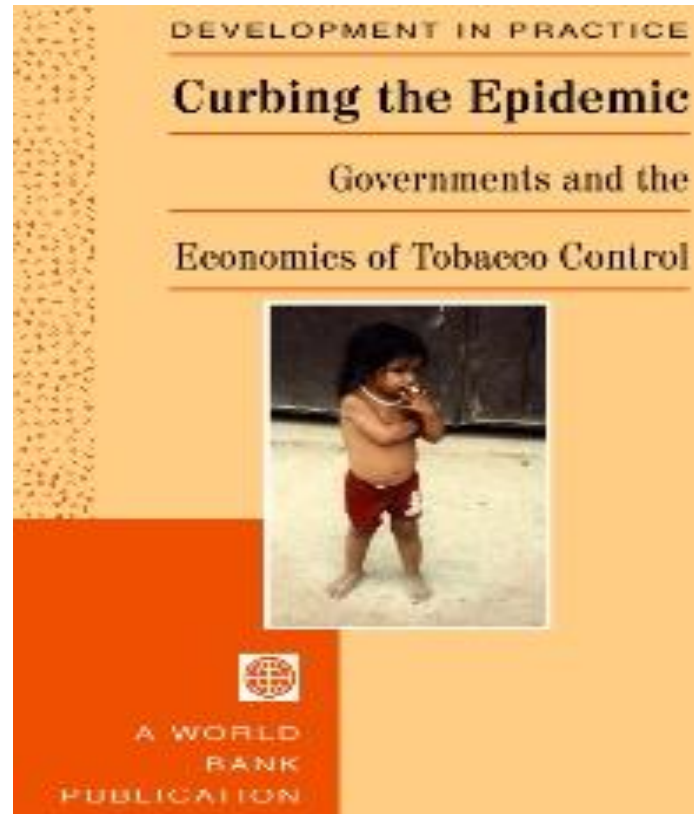
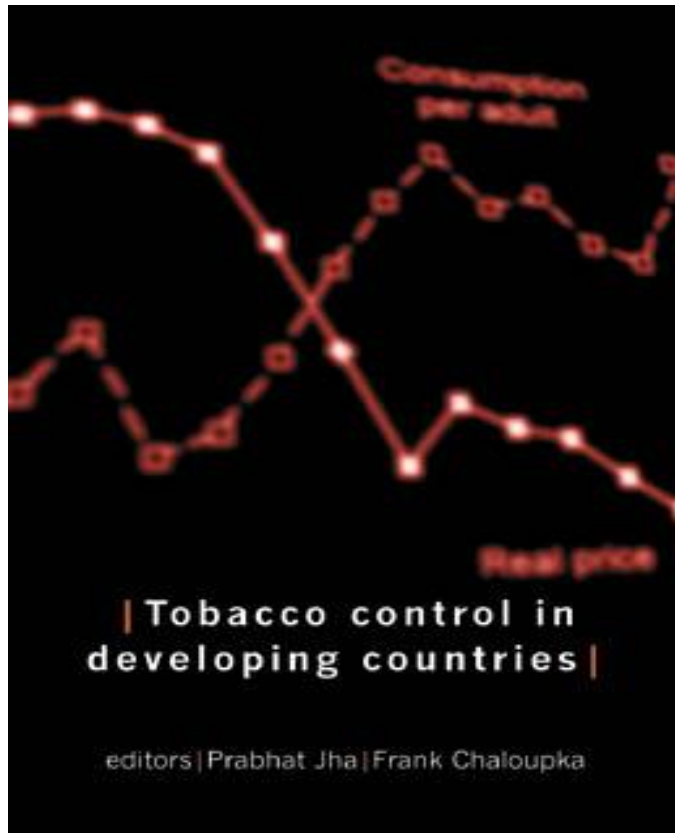


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# More evidence: (Don't buy my books)



CGHR.ORG The World Bank

[www.tobaccoevidence.net](http://www.tobaccoevidence.net)  
[www.cghr.org/tobacco](http://www.cghr.org/tobacco)



WHO