



DISEASE CONTROL
PRIORITIES PROJECT



Control of non-communicable diseases in sub-Saharan Africa

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INVESTING IN GLOBAL HEALTH "BEST BUYS" AND PRIORITIES FOR ACTION IN DEVELOPING COUNTRIES

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NCD control in SSA: key messages

3 NCD priorities for sub-Saharan Africa:

- Cancer vaccines: push universal infant HBV vaccination even harder and consider HPV vaccine for pre-adolescent women with single screening of post-adolescent women.
- Get blister-packed poly-pill widely available at low cost, & push 2ry prevention of vascular disease in middle age.
- Tobacco: big tax, big packet warnings (helps control smuggling), absolute ad ban.

10.8 million deaths in sub-Saharan Africa, 2001

Age range	No. of deaths (millions)	YLL per death	
0 to 4	4.5	60-65	} 6.3 M, mostly acute conditions
5 to 30	1.8	40-45	
30 to 69	3.4	20-25	} 4.5 M, mostly chronic conditions
70+	1.1	5-10	

Source: Lopez et al, 2006

Reducing premature mortality

Most causes of death before middle age (<35) are avoidable:

- female child survival
- childhood infections, ARI, diarrhea, malnutrition
- safe childbirth
- HIV
- injuries (less avoidable currently)

Halving mortality in middle age (35-69) requires control both of infections (particularly TB) and of chronic diseases (particularly vascular)

Avoidable causes:

- tobacco
- blood pressure (incl. obesity and diabetes)
- blood lipids
- inadequate medical treatment of chronic conditions

Source: Peto et al, 1992; Jha, 2002; Yusuf and InterHeart Investigators 2004

Deaths in middle age (30-69) by estimated cause, in sub-Saharan Africa, 2001

Cause	No. of deaths (millions)
HIV	1.1
Tuberculosis	.2
Other Infections	.4
Maternal	.1 (plus .1 below 30)
Vascular	.5
Cancer	.2
Respiratory	.1
Injuries	.3
Total	2.9

Source: Lopez et al, 2006

Treat high risk, not high BP or high cholesterol:
Secondary prevention by combining 3 or 4
generic drugs in patients with some diagnosed
vascular disease

- Aspirin vs not in patients with previous heart attack,
angina, stroke: annual event rate 5% vs 7%
 - BP lowering + aspirin vs aspirin 3% vs 5%
 - Statin (cholesterol) + BP + aspirin
vs BP + asp. 2% vs 3%
- 10-year risk: 50% untreated vs 16% for 3 drugs**

Source: Peto et al, 2006

Combination pills for secondary prevention of vascular disease

- With low-cost combination pills, a main strategy of 2ry prevention could work globally, wherever diagnosis of MI or occlusive stroke can happen.
- Ten-year recurrence risk would be reduced from about 1/2 without treatment down to about 1/6.

Source: Peto et al, 2006



World tobacco deaths on current smoking patterns

2000-2025	~ 150 M
2025-2050	~ 300 M
2050-2100	> 500 M
TOTAL for the 21 st century	~ 1000 M
-compare with 20 th century total	~ 100 M

Source: Peto et al, 1994

Three main messages for the individual smoker

1. Risk is BIG: half are killed
2. 1/4 are killed in MIDDLE age (35-69), losing many years
3. STOPPING smoking works

Three main messages for governments: avoiding 3 M deaths/year

- Take tobacco seriously!
 - **Big** cause of deaths
 - **Big** cause of poverty
- Focus on **adults stopping** as well as on kids
- Use cost-effective interventions:
 - Much higher taxes (raises revenue)
 - Completely ban advertising and promotion
 - Prominent warning labels in local language (counter smuggling)
 - Restrict smoking in public places
 - Action on smuggling

Source: Jha et al, 2006



Most smokers live in developing countries (current smokers age 15+ in 2000)

<i>Region</i>	<i>% M / F</i>	<i>No (millions)</i>
<i>Low/middle income</i>	49 / 8	920
- China	63 / 3	~320
- India	27 / 2	~100
- SSA	29 / 8	~ 60
<i>High Income</i>	37 / 21	200

Few smokers quit in low income countries

◆ *5-10% in China and India vs 30-40% in UK*

Source: Jha *et al*, 2006 and 2002, CAPM, 1996, Jacob, Sethi, et al, forthcoming

Chinese cigarette increase 40 years after US increase

US, 1910-1950

Year	Cigarettes per day
1910	1
1930	4
1950	10

China (men), 1950-1990

Year	Cigarettes per day
1952	1
1972	4
1992	10

Delayed hazard: proportion of all deaths at ages 35-69 due to tobacco

US, all adults

1950	12%
1990	33%

China (men)

1990	12%
2030	33%



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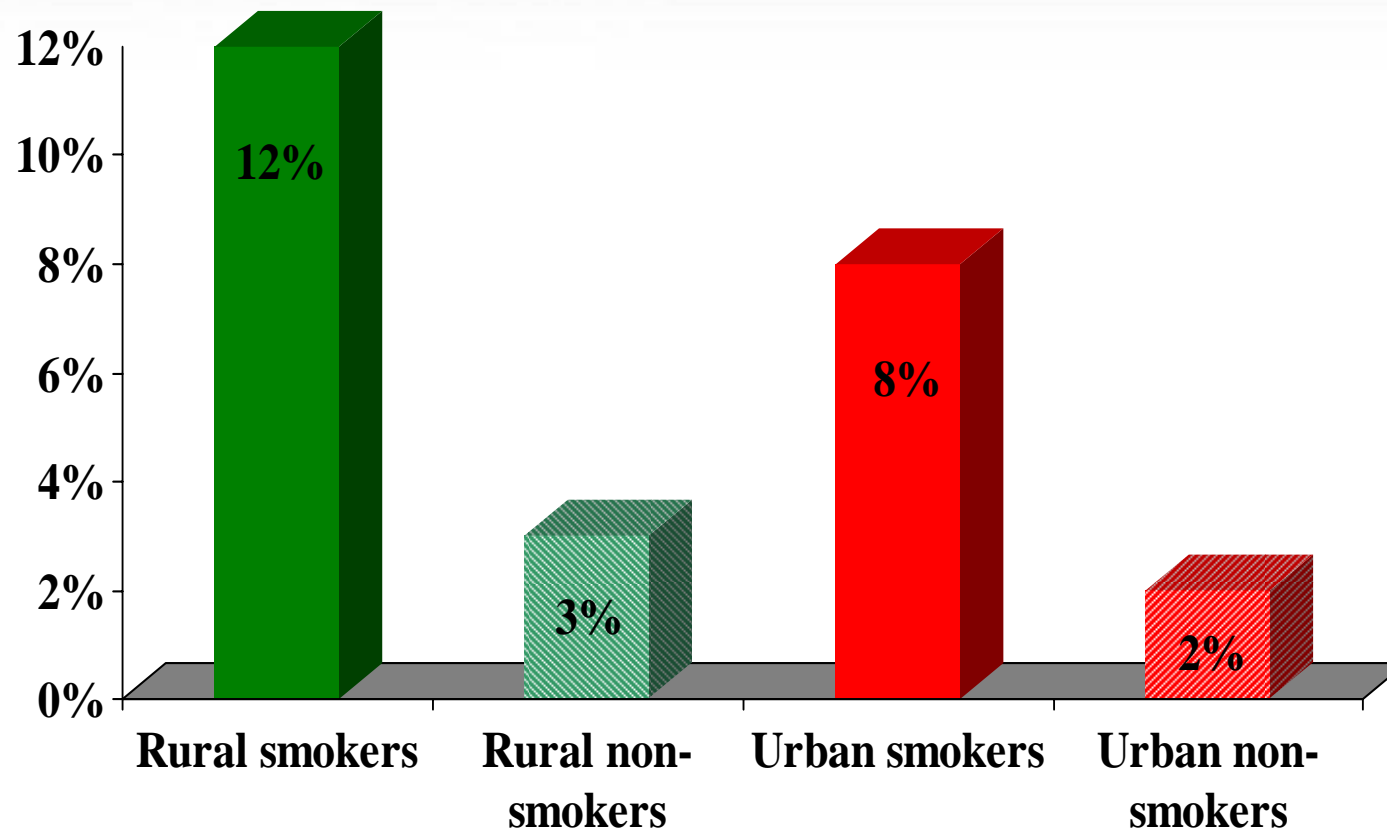
women

1990	3%
2030	1%

Deaths in middle age (30-69) by estimated cause, in sub-Saharan Africa, 2001

Cause	No. of deaths (millions)	No. deaths (millions) due to smoking?
HIV	1.1	-
Tuberculosis	.2	0.05 (25%)
Other Infections	.4	-
Maternal	.1	-
Vascular	.5	0.125 (25%)
Cancer	.2	0.1 (33%)
Respiratory	.1	0.025 (25%)
Injuries	.3	-
Total	2.9	0.27 (vs 0.1 official estimate)

Risk of 25 year old male dying from tuberculosis before age 70, Tamil Nadu, India 2003



Gajalakshmi et al, 2003



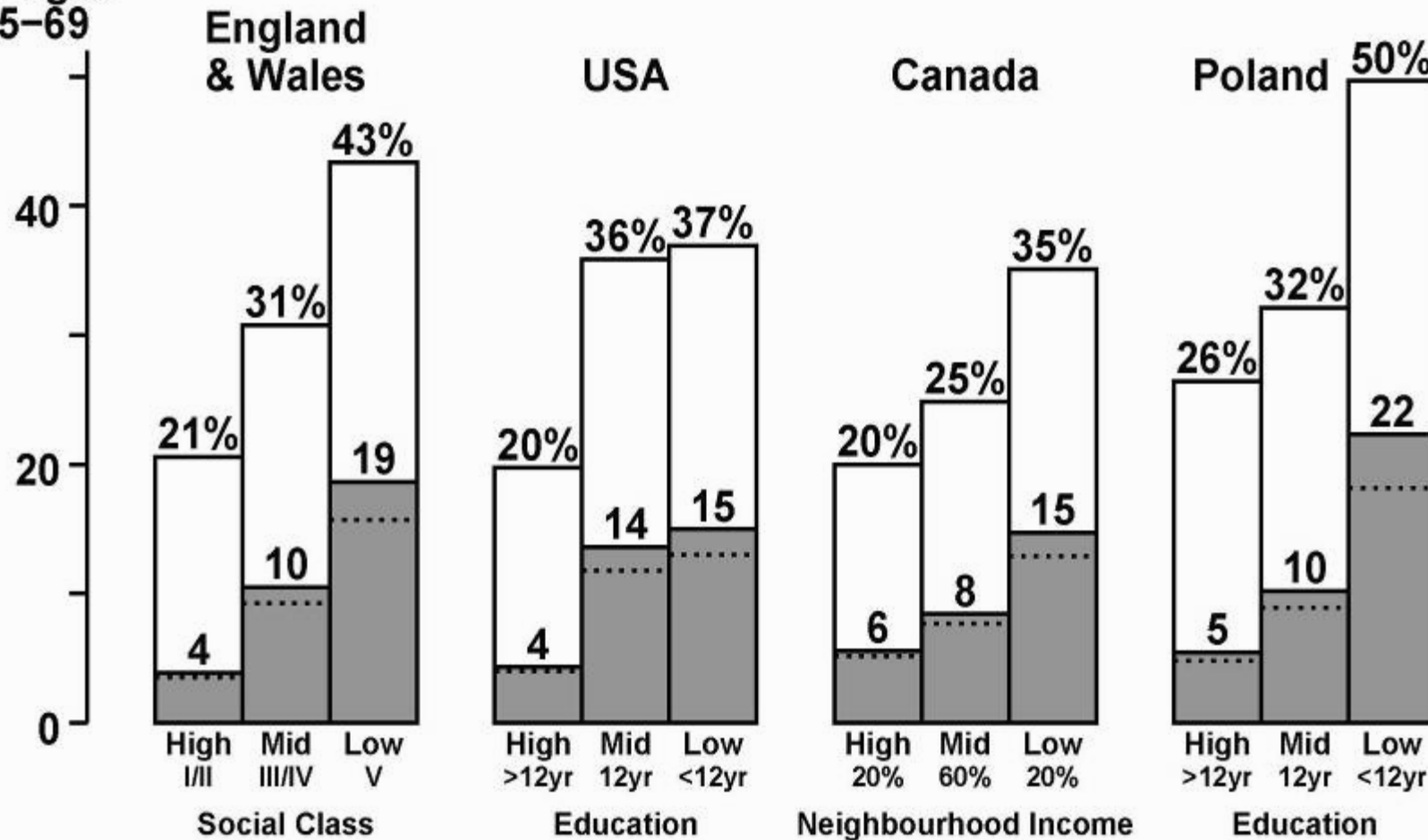
RGI-CGHR Million Death Study: Preliminary results of male mortality in India at ages 25-69 yrs, 2001-3

	Smoking/ total deaths	RR (95% CI), smoker/ not	% attrib. smoking
Tuberculosis	311/755	2.7 (2.3-3.2)	41%
COPD	156/324	3.5 (2.5-4.9)	48%
Heart attack	293/1158	2.0 (1.7-2.4)	25%
Stroke	154/502	2.1 (1.7-2.4)	27%
Cancer	188/504	2.7 (2.1-3.5)	37%
All causes	1877/6278	2.2 (1.9-2.5)	30%

Source: Jha *et al*, forthcoming

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

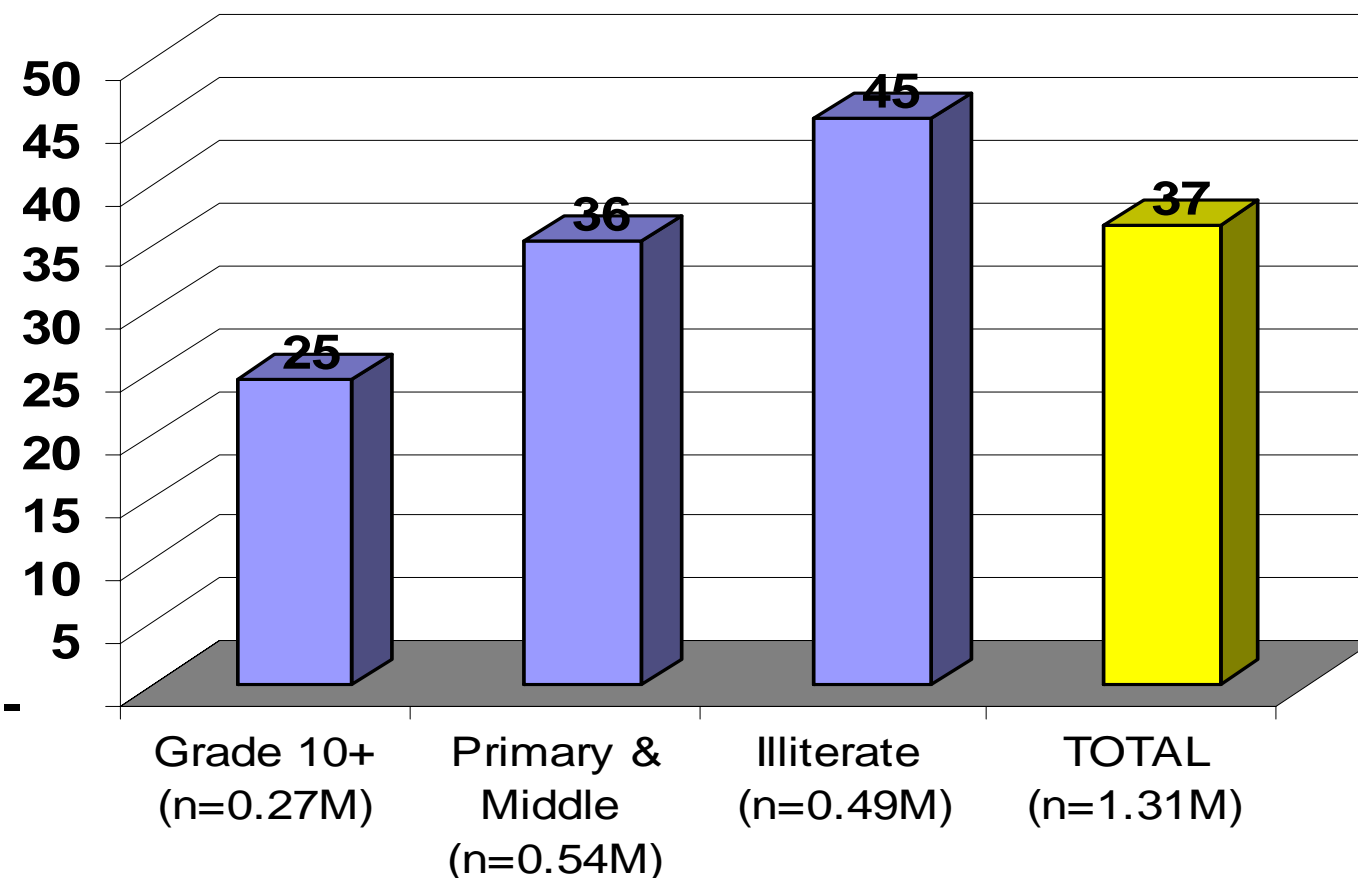
% risk
of dying
at ages
35-69



Source: Jha *et al*, 2006

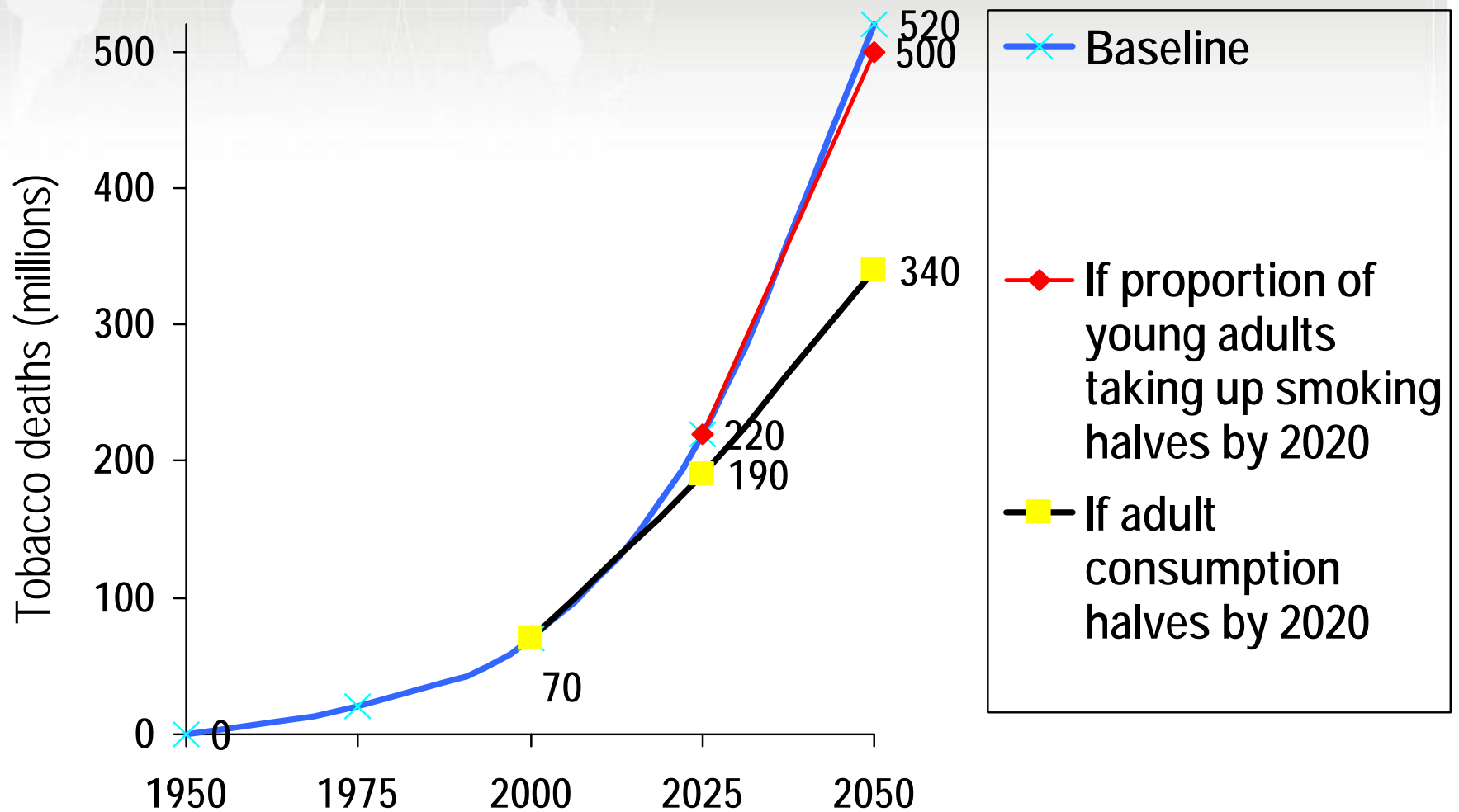
Smoking is more common among less educated males

RGI National Survey of 1.1 M Households in 1998



Source: Jacob, Sethi, Jha et al, forthcoming

Unless current smokers quit, smoking deaths will rise dramatically over the next 50 years



Source: Peto and Lopez, 2001; Jha and Chaloupka, 2000



Stopping smoking works



Source: Peto et al, 2000



Benefits of stopping smoking even after an acute heart attack: 5-year mortality after answering questions (a few months post-MI)

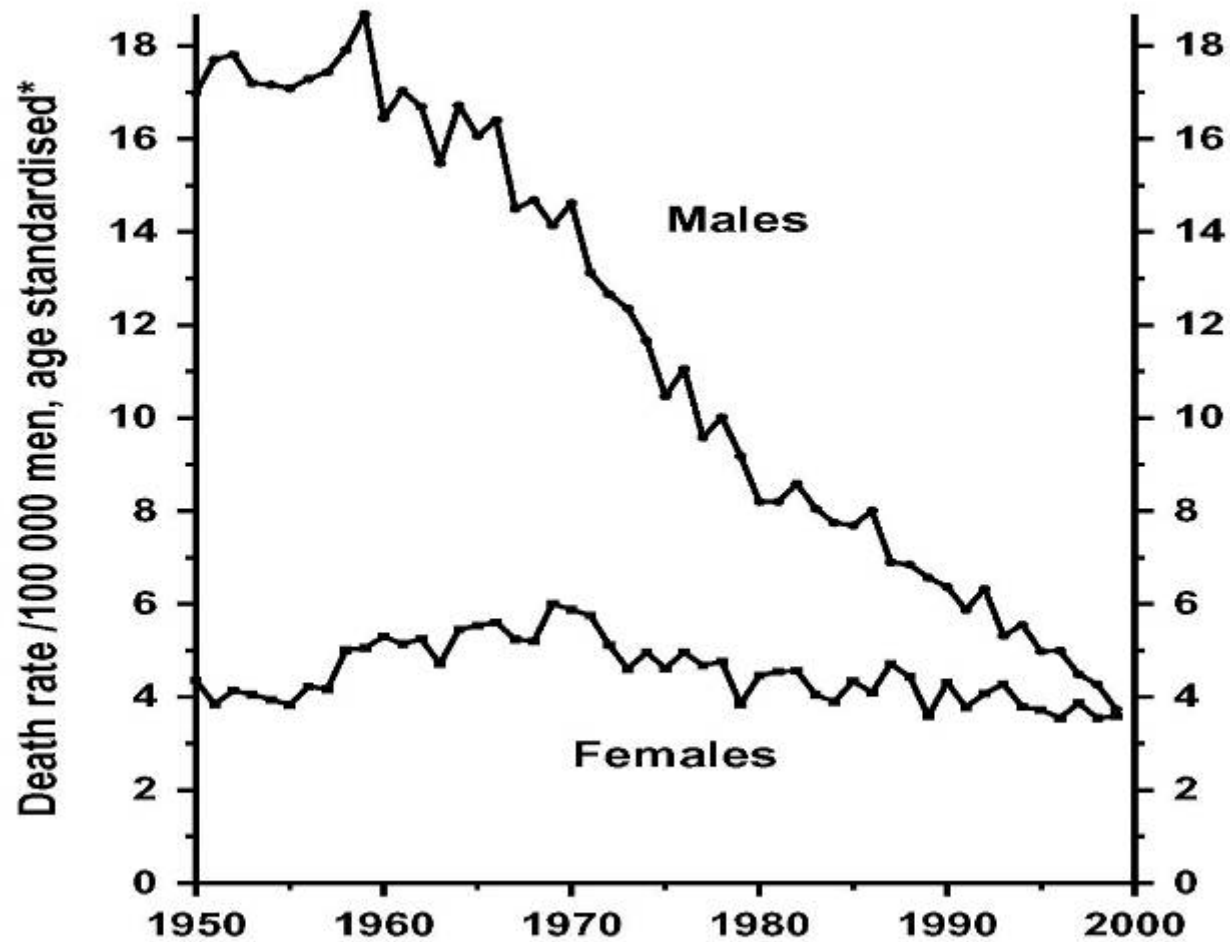


Cumulative deaths (%):

Yes	70(7.8%)	138(15.4%)	192(21.5%)	248(27.8%)	297(33.3%)
No	123(6.6%)	216(11.6%)	302(16.3%)	387(20.9%)	459(24.8%)



UNITED KINGDOM 1950–1999: Males & Females Lung cancer mortality at ages 35–44



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

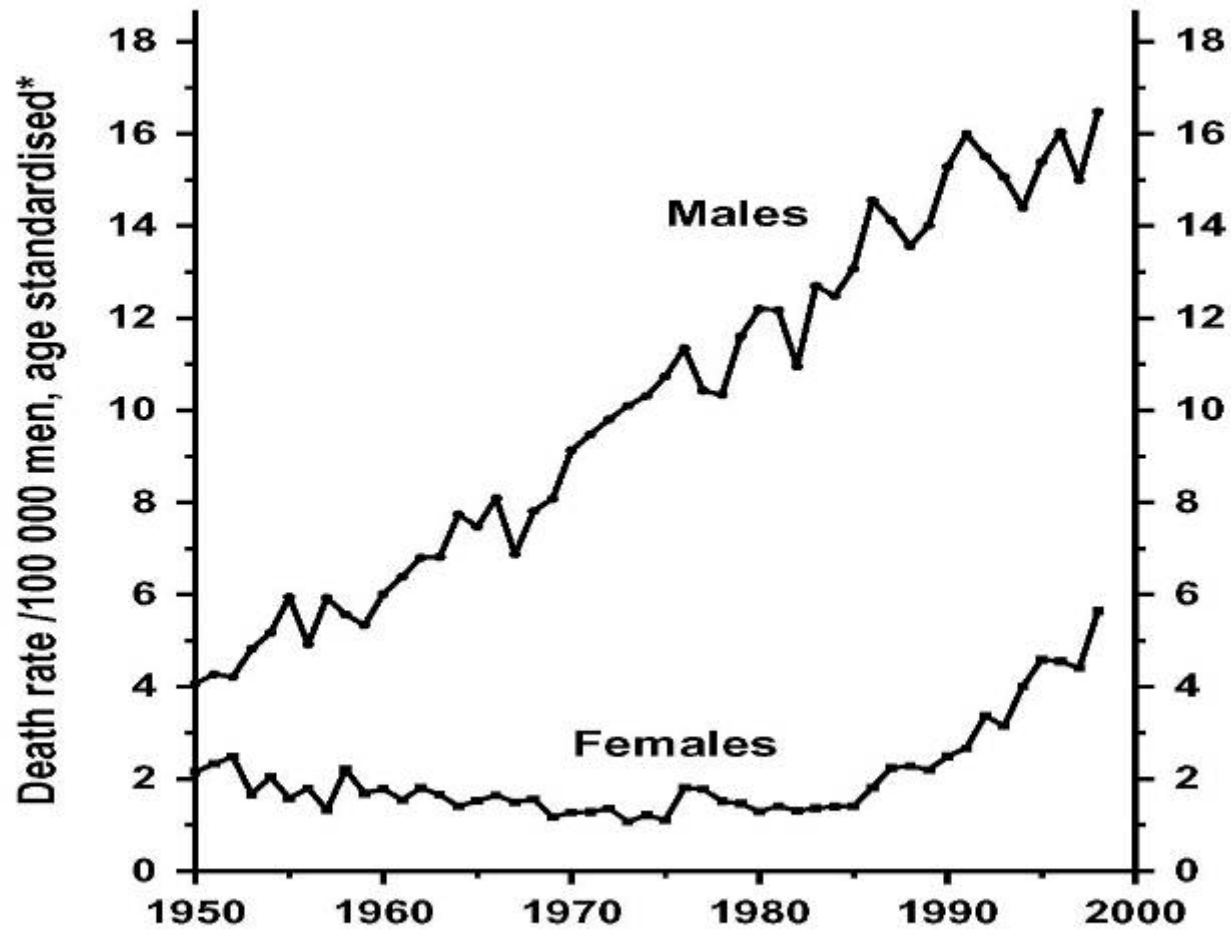
Source: WHO mortality &
UN population estimates

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Source: Peto et al, 2003: ctsu.ox.ac.uk



FRANCE 1950–1999: Males & Females Lung cancer mortality at ages 35–44



*Mean of annual rates
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Source: WHO mortality &
UN population estimates

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Source: Peto et al, 2003: ctsu.ox.ac.uk



Which interventions are effective?

Measures to reduce demand

- Higher cigarette taxes
- Non-price measures: advertising and promotion bans, consumer information, warning labels and restrictions on public smoking
- Increased access to nicotine replacement (NRT) and other cessation therapies

Source: Jha and Chaloupka, 2000

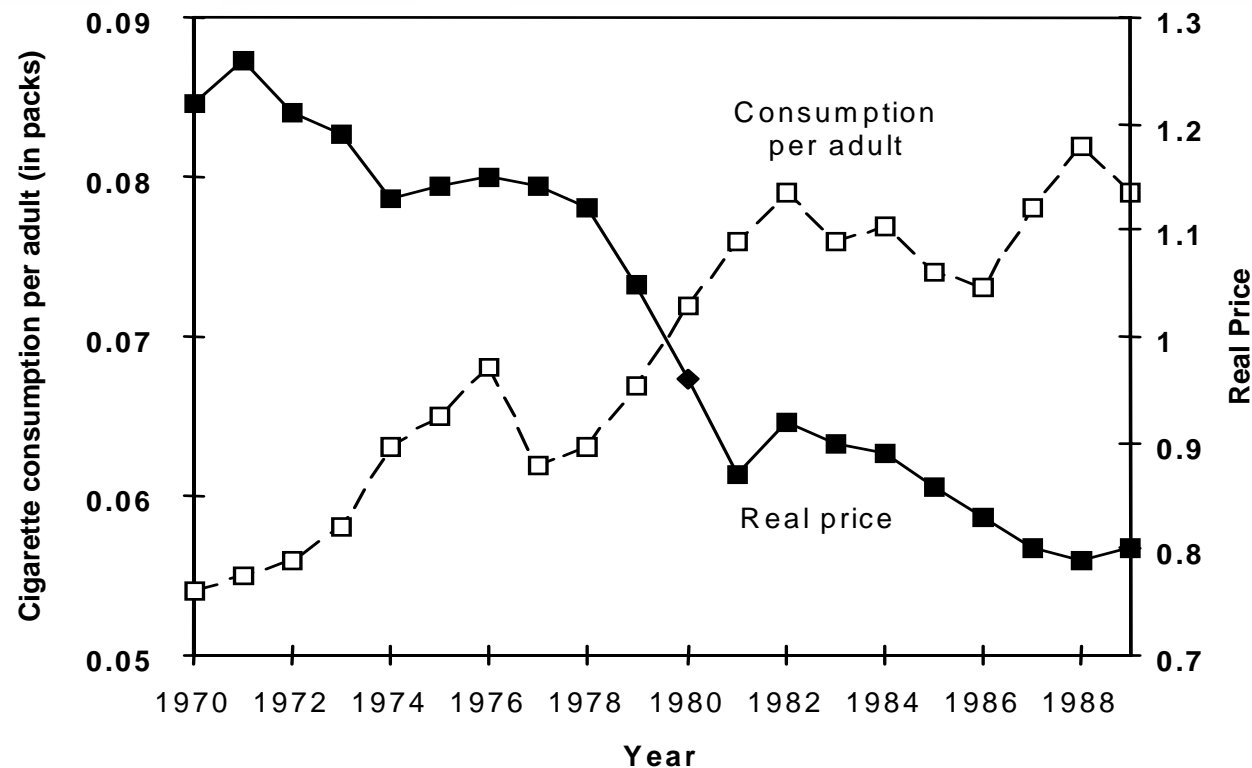
Taxation is the most effective measure

- Higher taxes induce quitting, reduce consumption and prevent starting
- A 10% price increase reduces demand by:
 - 4% in high-income countries
 - 8% in low or middle-income countries
 - About half of the effect is on amount and half on initiation
 - Long-run effects may be greater
- The poor and the young are the most price responsive

Source: Chaloupka *et al.*, 2000

Cigarette price and consumption show opposite trends (1)

Real price of cigarettes and consumption in South Africa, 1970-89

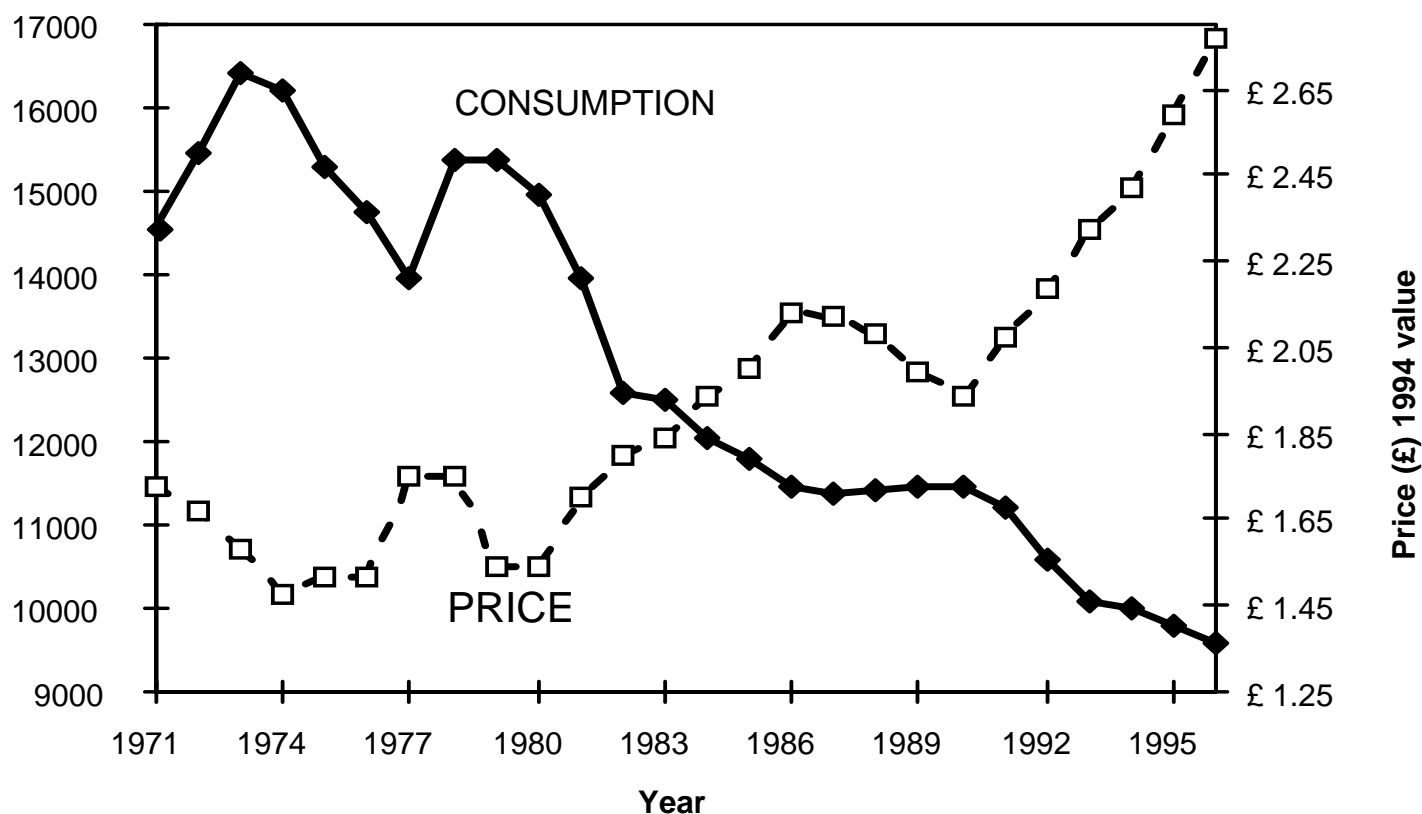


Source: Saloojee 1995



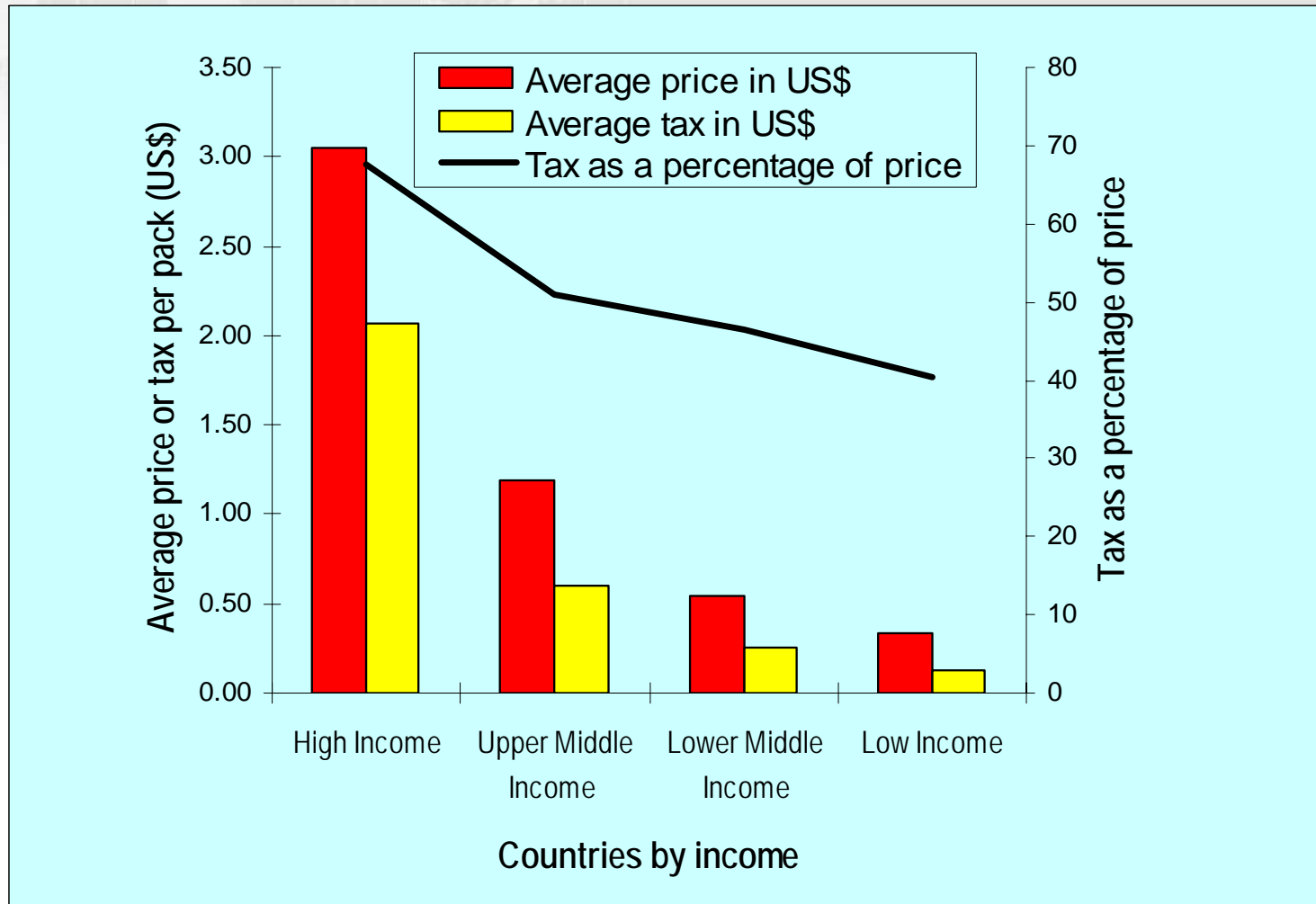
Cigarette price and consumption show opposite trends (2)

Real price of cigarettes and consumption in the UK, 1971-96



Source: Townsend 1998

There is still ample room, especially in lower-income countries, to raise cigarette taxes

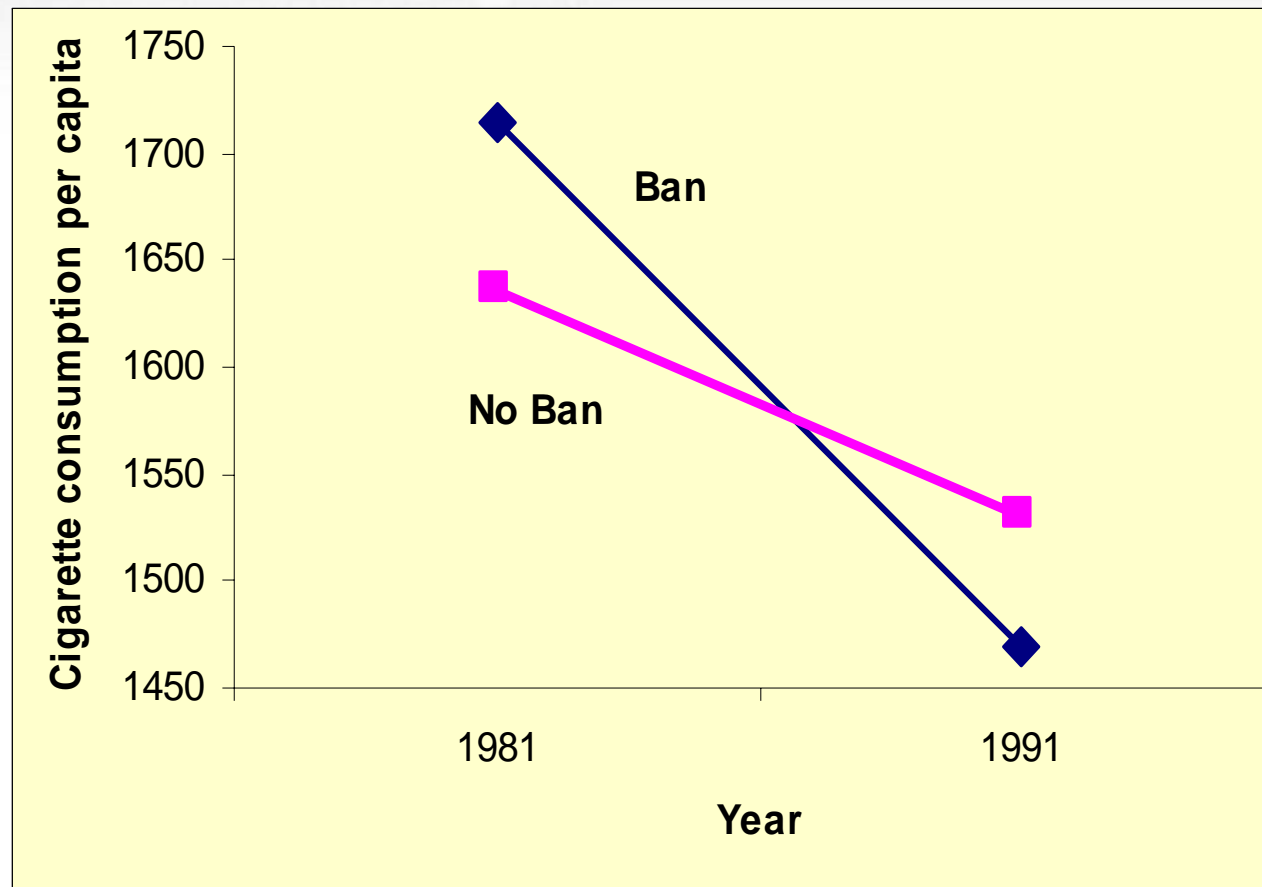


Source: Jha and Chaloupka, 1999, 2000



Comprehensive advertising bans reduce cigarette consumption

Consumption trends in countries with such bans vs. those with no bans
(n=102 countries)



Source: Saffer, 2000

Which interventions are ineffective at reducing consumption?

Most measures to reduce supply

- Prohibition
- Youth access restrictions
- Crop substitution
- Trade restrictions
- *Control of smuggling is the only exception and it is the key supply-side measure*

Source: Jacobs *et al.*, 2000; Woollery *et al.*, 2000; Taylor *et al.*, 2000

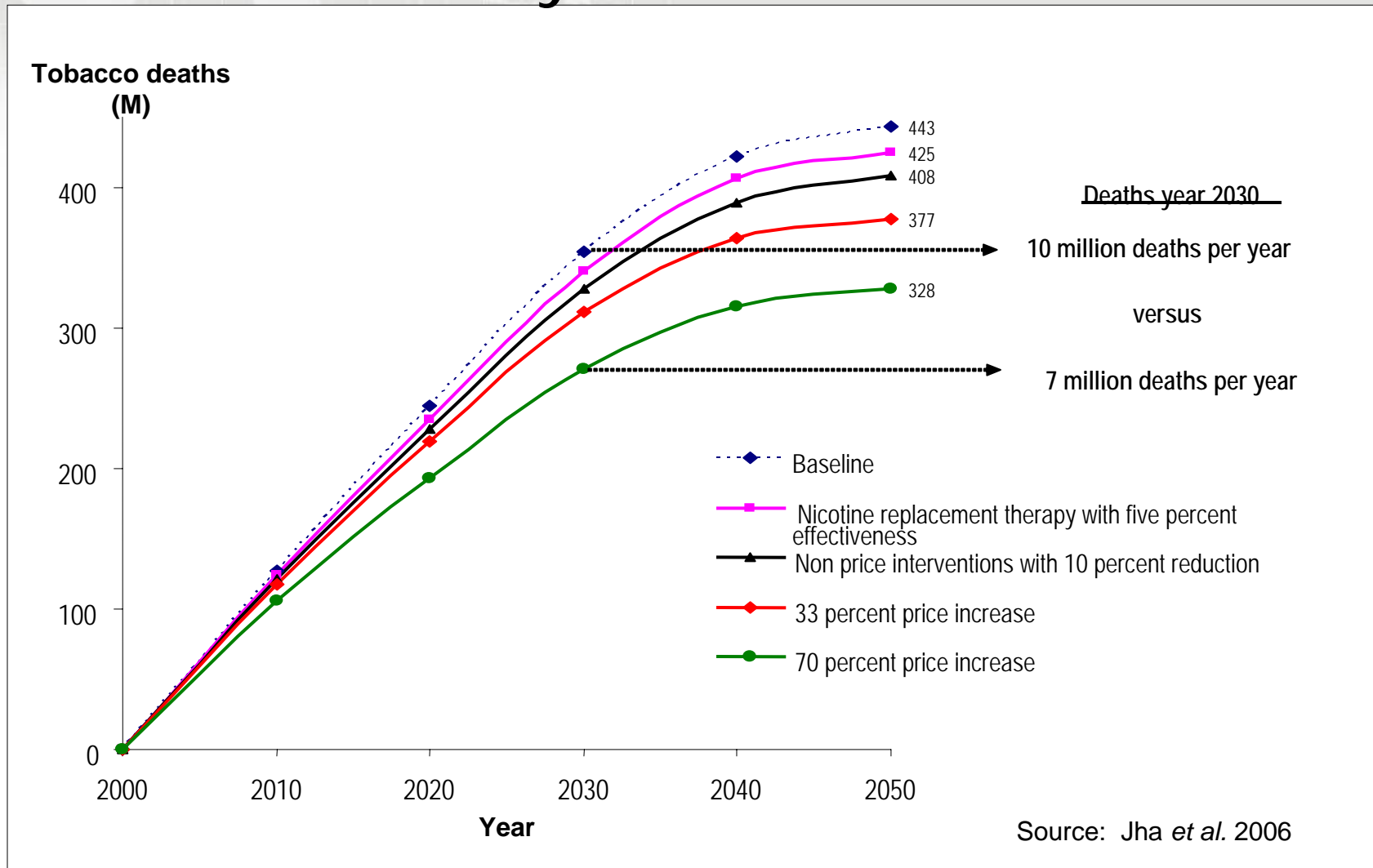


Cost-effectiveness of tobacco control US\$ per healthy year of life, assuming generous control costs

World Bank Region	Baseline smoking deaths (M)	33% price increase	NRTs with effectiveness of 1% to 5%	Non price interventions with effectiveness of 2% to 10%
Low- and middle-income	362	3 to 42	55 to 761	54 to 674
High-income	81	85 to 1,773	175 to 3,781	1,166 to 14,572
World	443	13 to 195	75 to 1,250	233 to 2,916

Source: Jha *et al.* 2006

Tobacco control can avoid 3 million deaths by 2030 worldwide



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Information on tobacco control

- www.dcp2.org
- www.cghr.org
- www.worldbank.org/tobacco
- www.tobaccoevidence.net