


## Smoking Kills!

...but who does it kill?

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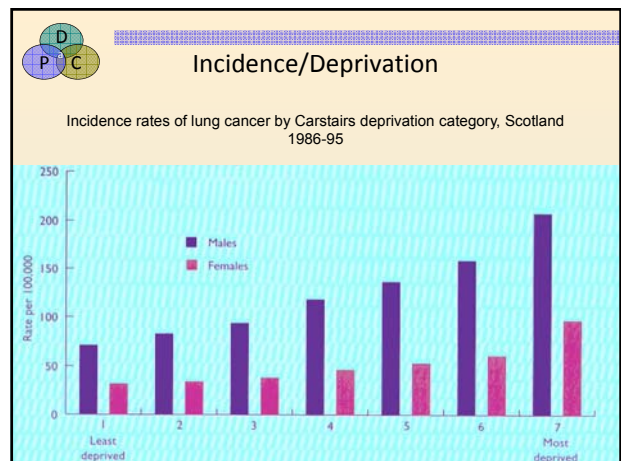
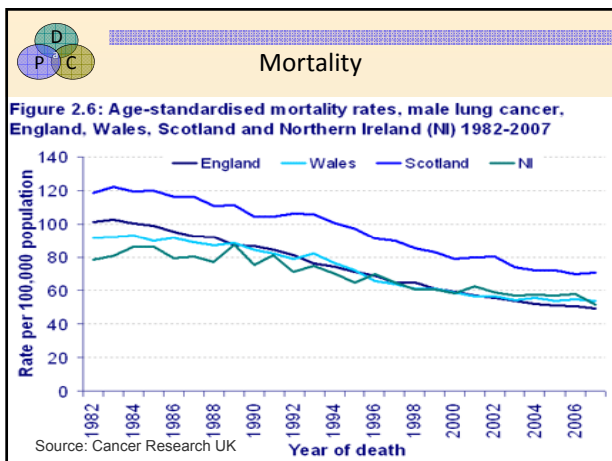
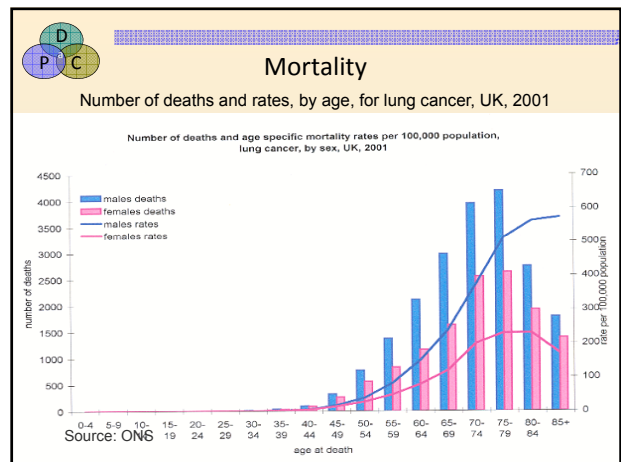
## Objectives...

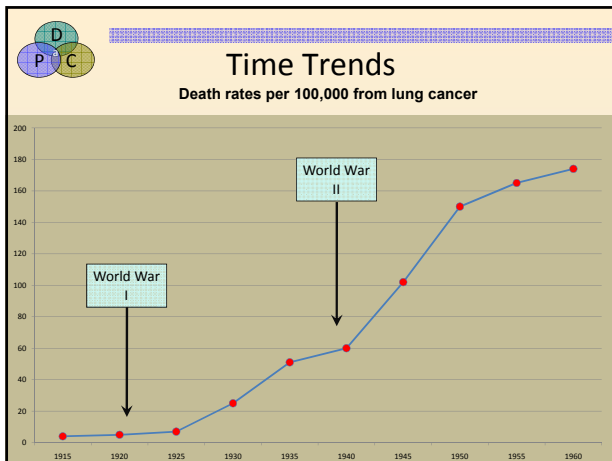
- Epidemiology of Lung Cancer
- Epidemiology of Risk: Smoking
- Smoking Bans: Do they work?
- A global view....

### Summary statistics for lung cancer

Scotland	Males	Females
Rank	1	2
Percentage frequency of all cancers	19.2%	15.8%
Number of new cases diagnosed in 2006	2,509	2,177
Number of deaths recorded in 2007	2,239	1,876
Change in incidence from 1996 to 2006	-22.2%	5.0%
Change in mortality from 1997 to 2007	-21.7%	8.7%
1 year relative survival for patients diagnosed between 2000 and 2004	26.0%	28.8%
5 year relative survival for patients diagnosed between 2000 and 2004	7.0%	7.8%

Source: ISD Scotland





### Morbidity

How can we assess the burden of lung disease in terms of morbidity?

- Hospital Admissions/Discharges
- Bed Occupancy
- GP contacts

### Hospital Discharges

Scotland, 2005 % of total (n=1,234,235)

Condition	No discharges	%
Resp TB	324	0.02
Asthma	8437	0.68
Other Resp	90,053	7.3

### Hospital Bed Occupancy

Scotland 1995/96 - in %

	Males All Ages	Females All Ages
All Respiratory Diseases	14.0	13.4
Asthma	0.3	0.5
COPD	0.6	0.5
Pneumonia	5.0	7.0
Lung Cancer	1.9	0.9

### Morbidity

Is hospital data a true reflection of the total burden of lung disease in terms of morbidity in society ?

**No**

### Iceberg concept

receiving care  
Identified/awaiting care

ill but not seeking help  
healthy

Ears of the Hippo concept

express.howstuffworks.com

**Also....**




- Some conditions managed more commonly in 1<sup>o</sup> care eg COPD, asthma
- ∴ hospital statistics will miss these people
- Setting Matters...

%	Hospital Discharge	General practice
COPD	0.6	2.4
Lung Cancer	1.9	<0.1

Risk: Smoking

**Associated conditions...**

- Smoking is a risk factor in.....
- Lung cancer
- Emphysema
- COPD
- CHD
- Stroke
- Oral cancers
- Circulatory damage – gangrene
- Breast cancer
- Cervical cancer
- Asthma
- Ulcers
- and many others...

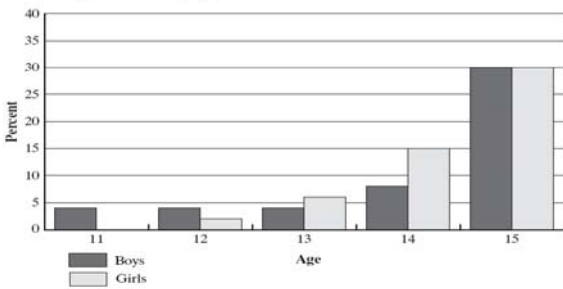
**Smoking Prevalence (Scotland)**

	%	No of cigarettes/day
Men 1998	34	17.5
Men 2003	29	15.9
Women 1998	32	14.9
Women 2003	28	14.7

Source: Scottish Health Survey 2003

**Scottish Health Survey 2003**

Figure 2B Proportion of children aged 11 to 15 with a saliva cotinine measurement of 15 ng/ml or more, by age and sex



Age	Boys (%)	Girls (%)
11	~4	~1
12	~4	~2
13	~4	~6
14	~8	~14
15	~30	~29

**Cost**

- Smoking costs the NHS around £1.5 billion per year
- In 1997-98, 364,200 people were admitted to NHS hospitals to be treated for diseases related to smoking
- They occupy an average of 9,500 hospital beds every day

[www.ash.org.uk](http://www.ash.org.uk)

**Primary causation for lung cancer**

Doll & Bradford-Hill, 1950s & 60s – studies showed:

- 99.5% of sample of 1,357 men with lung cancer were smokers
- 85-90% of cases are due to tobacco
- Smokers who give up reduce risk of lung cancer

"Doll R, Hill AB. (1950) Smoking and carcinoma of the lung. Preliminary report. *British Medical Journal*. 2: 739-748.  
"Doll R, Hill AB. (1954) The mortality of doctors in relation to their smoking habits. *British Medical Journal*. 228:1451-5.

**Dose-effect relationship**

- Risk:
  - >20 cigarettes/day > 10-20/day > under 10/day
- All cigarette smokers greater risk than pipe or cigar smokers
- Ex-smokers have a greater risk than non-smokers


**Dose-effect relation**

- Risk falls almost to that of a non-smoker 7 yrs after giving up
- Lower risk when using filter tips
- Virginia tobacco more harmful

**Passive smoking**

- Estimation: 25% of lung cancer in non-smokers due to passive smoking
- 33% if non-smokers live in a smoking household
- UK: 300 die annually of lung cancer caused by passive smoking

**So what happens if you ban smoking?**







**Helena Study**


- Population 66,000
- Isolated town
- One hospital for cardiac care

**June 2002** smoking banned in restaurants, bars, taxis, buses, public buildings and shops



**Helena Study**

- Heart attack rates fell by 58% in 6 months
- No change in people living outside the town



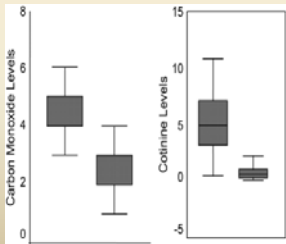
**Smoking bans...**

- Most governments now take threat seriously
- First health promotion interventions in 1950s
- 1990s – NHS goes smoke-free
- 2003 – Ireland goes smoke-free
- 2006 – Scotland’s bars & other public places go smoke-free
- 2007 – England & Wales follow
- 2008 – India introduces ban

**Effective?**

➤ Effects of the Irish Smoking Ban on Respiratory Health of Bar Workers and Air Quality in Dublin Pubs

Patrick Goodman<sup>1</sup>, Michelle Agnew<sup>2</sup>, Marie McCaffrey<sup>3</sup>, Gillian Paul<sup>4</sup> and Luke Clancy<sup>2</sup>  
*American Journal of Respiratory & Critical Care Medicine*, 2007 Apr 15;175(8):840-5



- statistically significant improvements in measured pulmonary function tests
- significant reductions in self-reported symptoms

**Effective?**

- Risk of Acute MI decreased by 17% overall (Incidence Rate Ratio: 0.83, 95% CI: 0.75 to 0.92)
- Greatest effect amongst younger individuals and nonsmokers
- The IRR incrementally decreased 26% for each year of observation after ban implementation.

Meyers et al, 2009, *J Am Coll Cardiol*, 2009; 54:1249-1255

**Benefits...**

- Helping people to stop smoking is a very cost effective health care intervention
- Cost to the NHS of prescribing statins £5,400 - £13,300 per life-year gained
- Smoking cessation advice £212 - £873 per life-year gained

[www.ash.org.uk](http://www.ash.org.uk)

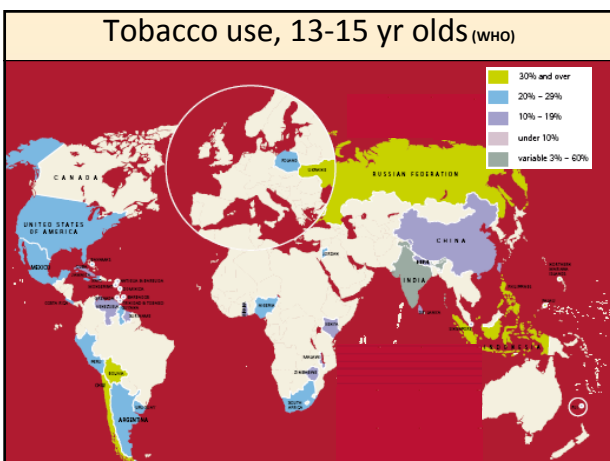


World Population: 6,706,993,152 (July 2008 estimate, CIA)

- More than one billion smokers in the world

- More than half of them will die of tobacco related illness

Tobacco use kills 5.4 million people a year - an average of one person every six seconds - and accounts for one in 10 adult deaths worldwide



2 aspects to global trade:

- Raw tobacco
- Finished products

Estimates vary, but probably worth between 15 and 50 billion dollars per year

- Add to that illicit trade (probably bigger)

