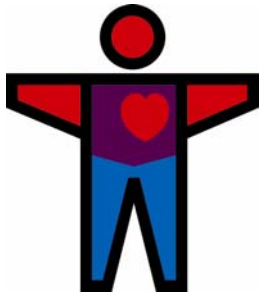
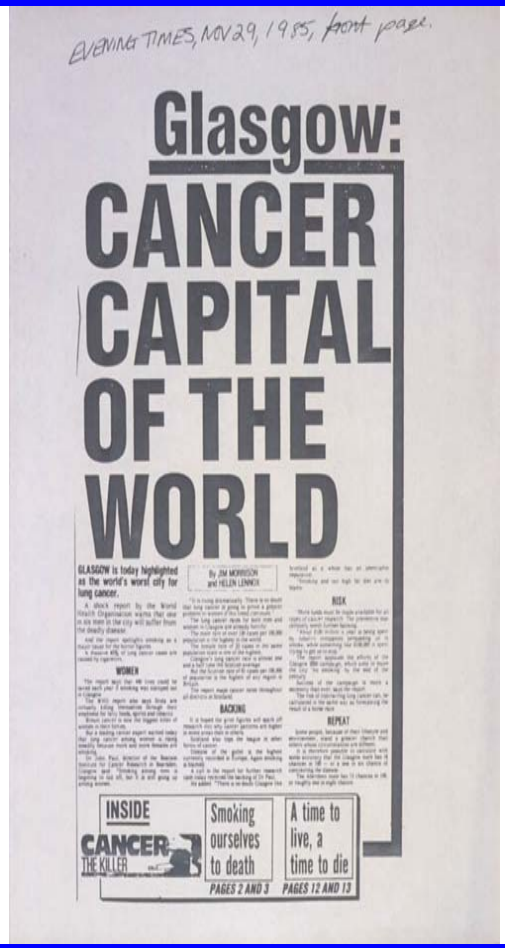
Celebrating 30 years of the MIDSPAN Studies



Cancer and smoking

David Hole

CANCER ATLAS HIGHLIGHTS PROBLEM of LUNG CANCER in GLASGOW & WEST OF SCOTLAND



EVENING TIMES, NOV 29, 1985, front page.

Glasgow:

CANCER CAPITAL OF THE WORLD

GLASGOW is today highlighted as the world's worst city for lung cancer.

By JIM MORRISON and HELEN LENNOX

WOMEN

BACKING

RISK

REPEAT

INSIDE

CANCER THE KILLER

Smoking ourselves to death

PAGES 2 AND 3

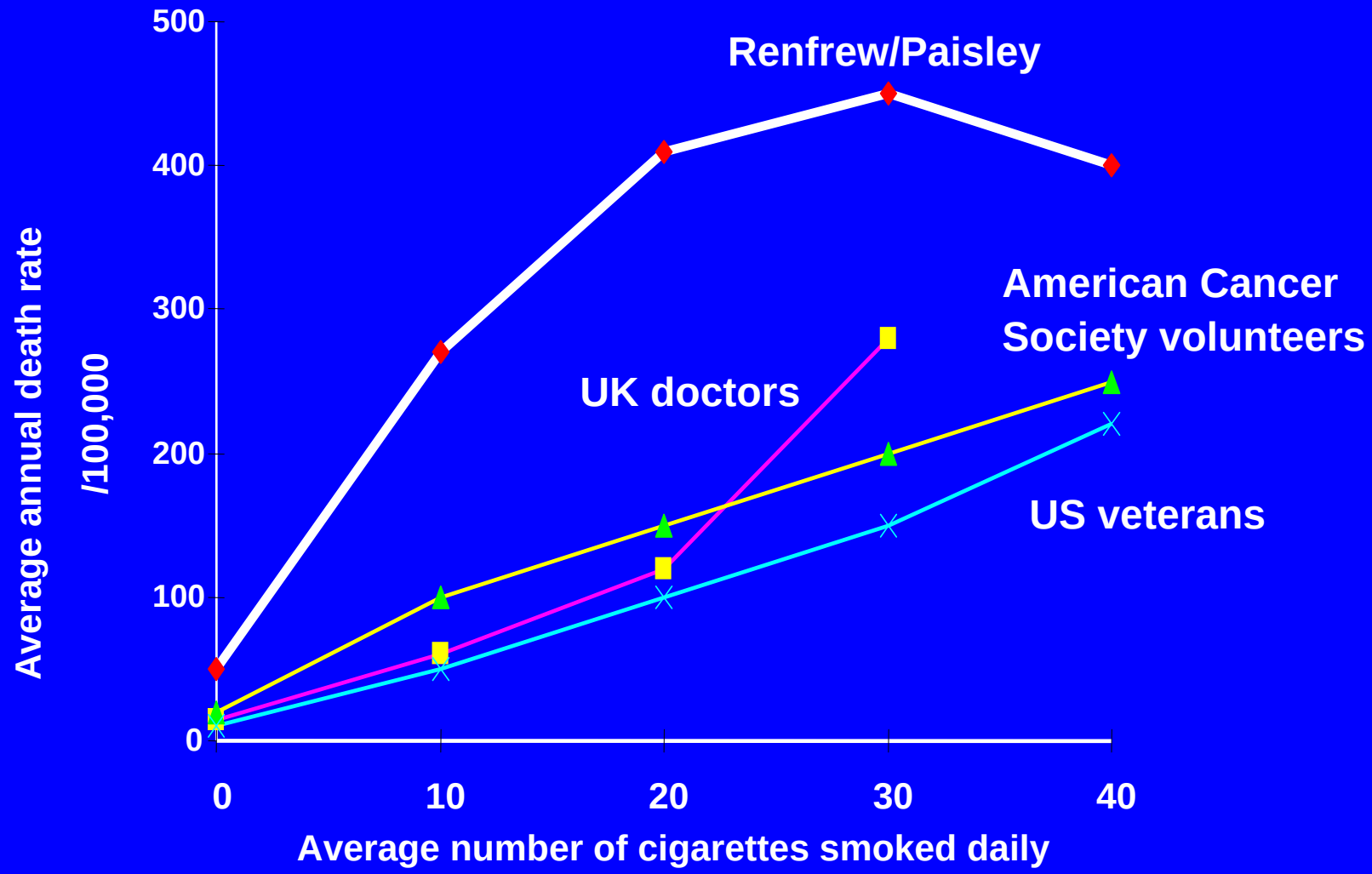
A time to live, a time to die

PAGES 12 AND 13

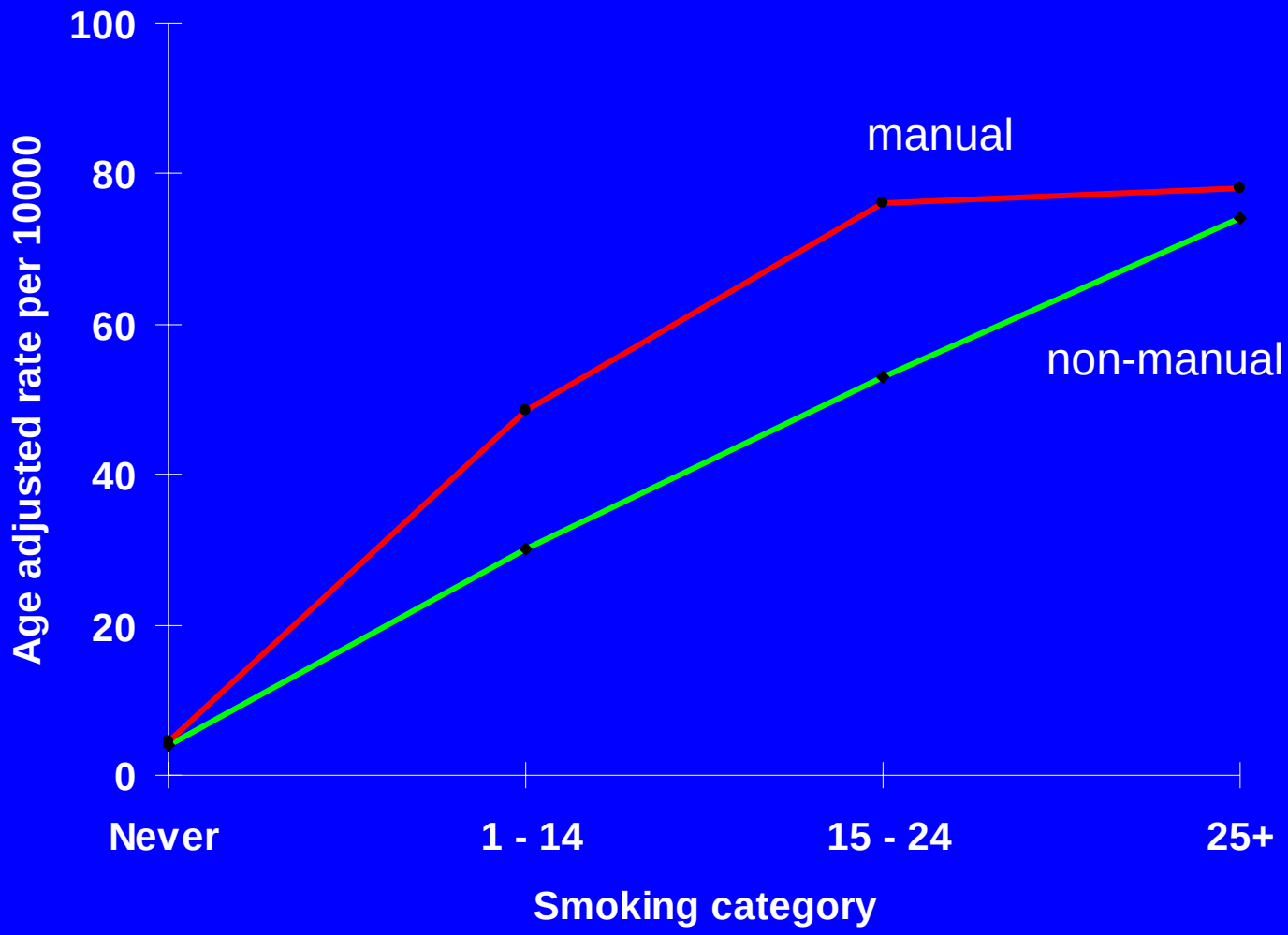
Glasgow is today highlighted as the world's worst city for <u>lung</u> cancer and Scotland as the world's worst country."

Evening Times, Nov 29, 1985. Front Page

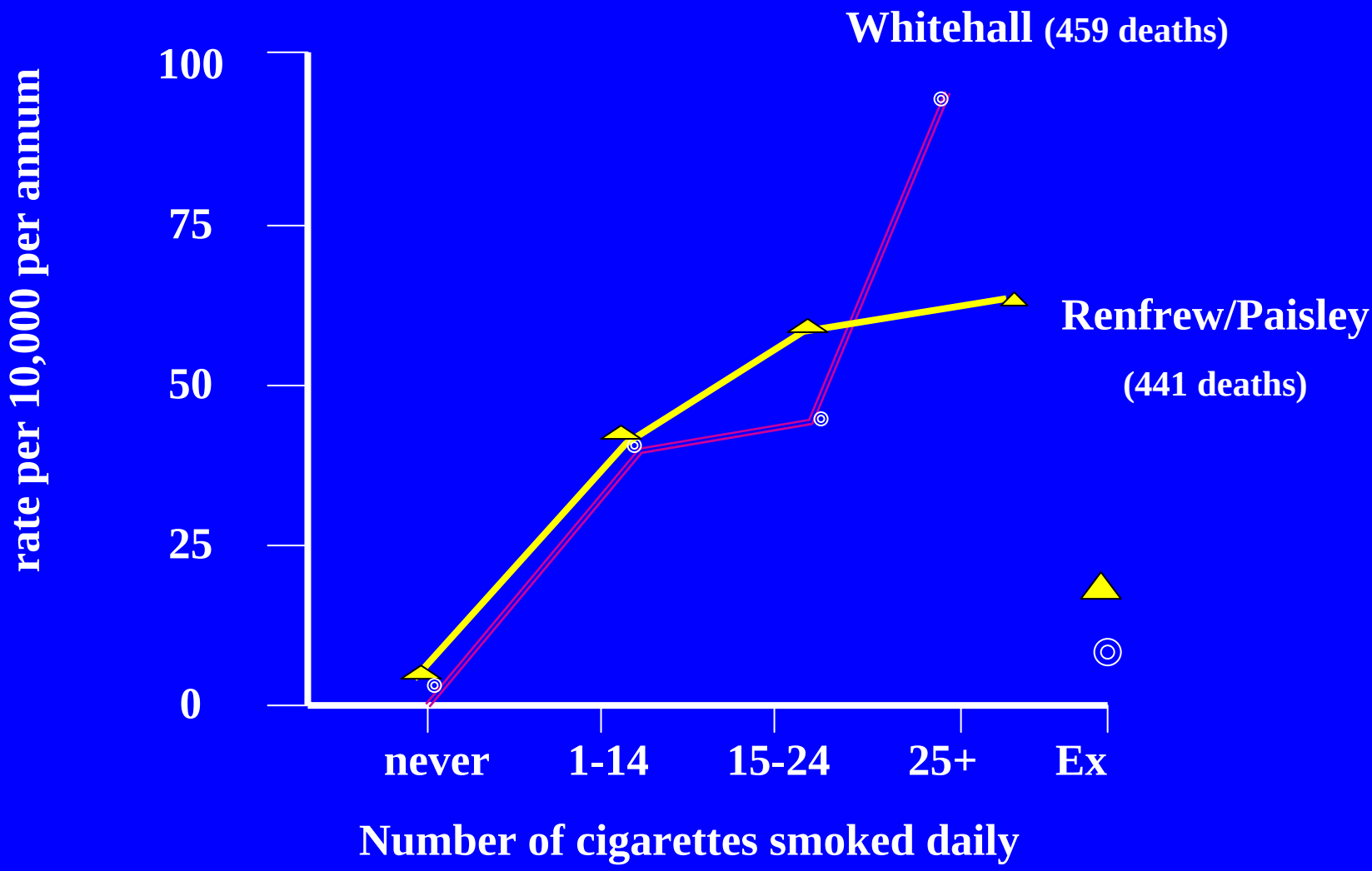
Comparison of Lung Cancer Mortality in Scotland (Renfrew/Paisley) with 3 major cohorts in US/UK



Lung Cancer Mortality
Renfrew/Paisley



LUNG CANCER MORTALITY in RENFREW/PAISLEY & WHITEHALL CIVIL SERVANTS - MANUAL WORKERS



What are the characteristics of smokers who develop lung cancer?

Respiratory symptomatology

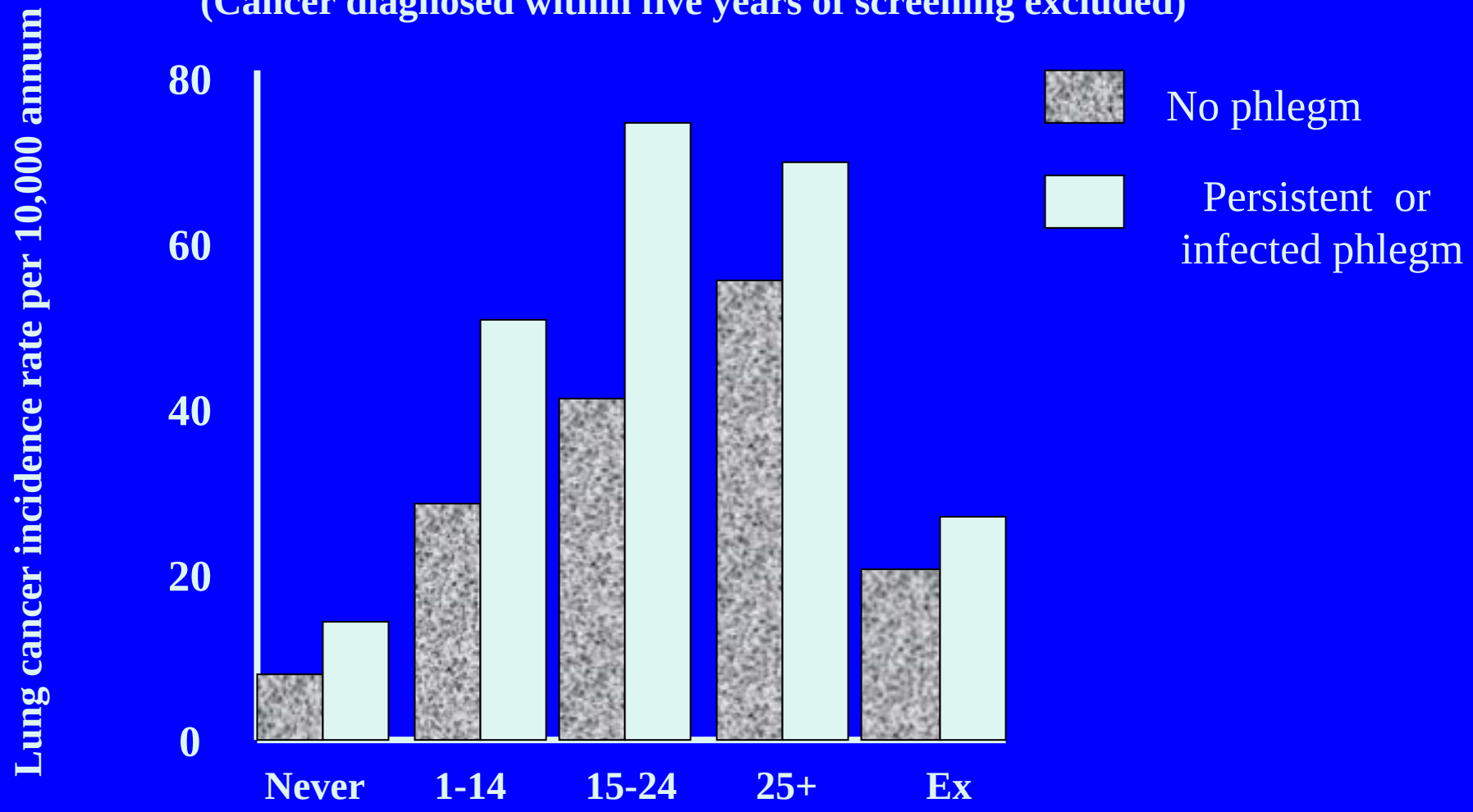
FEV1

Tuberculin reactivity status

Air pollution

PRESENCE of RESPIRATORY SYSTEMS

Incidence of Lung Cancer in Males With and Without Respiratory Symptoms by Amount Smoked
(Cancer diagnosed within five years of screening excluded)



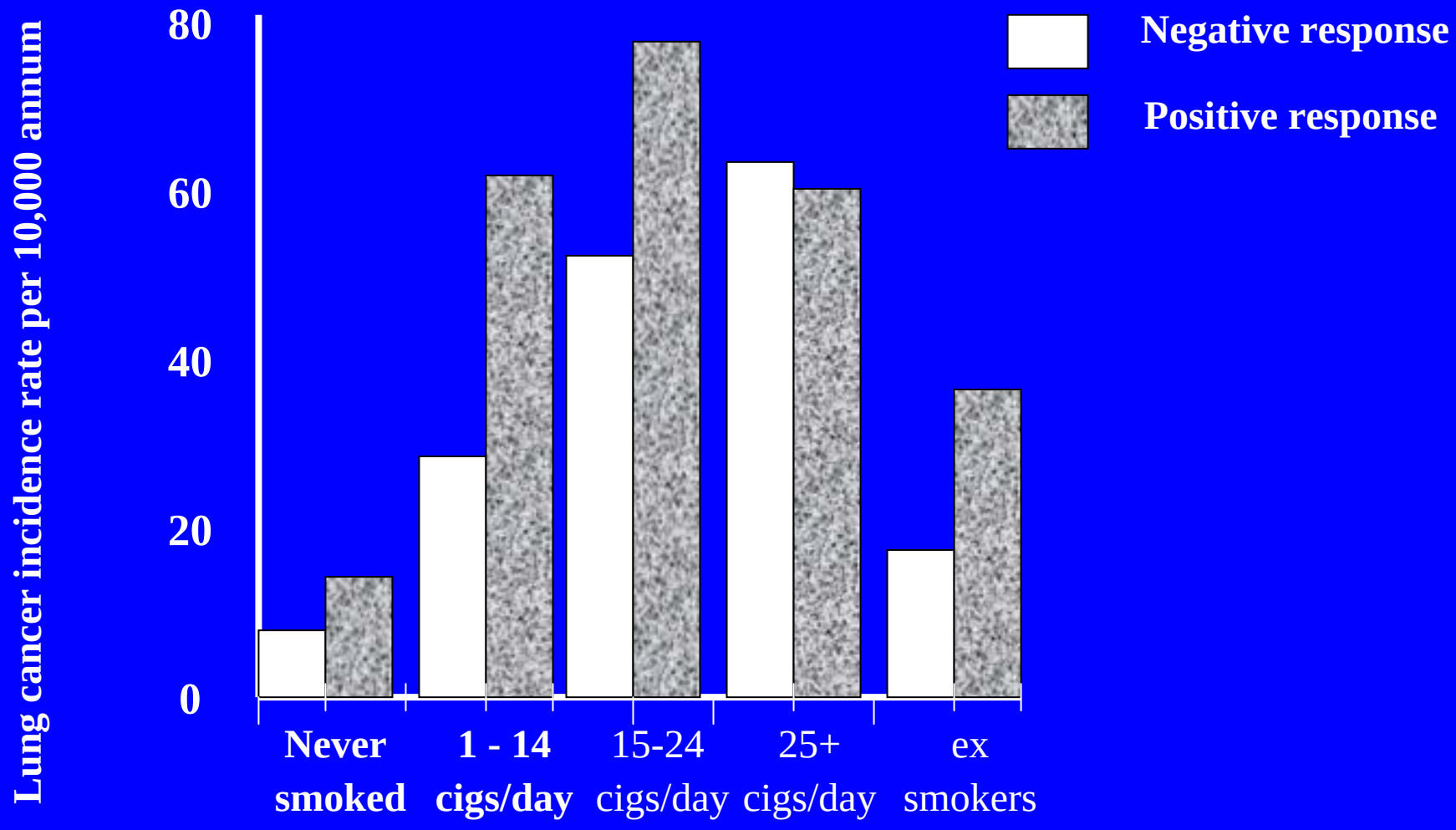
Overall estimate of risk = 1.5 (p<0.01)

Similar differences are found for dyspnoea & hypersecretion

TUBERCULIN REACTIVITY

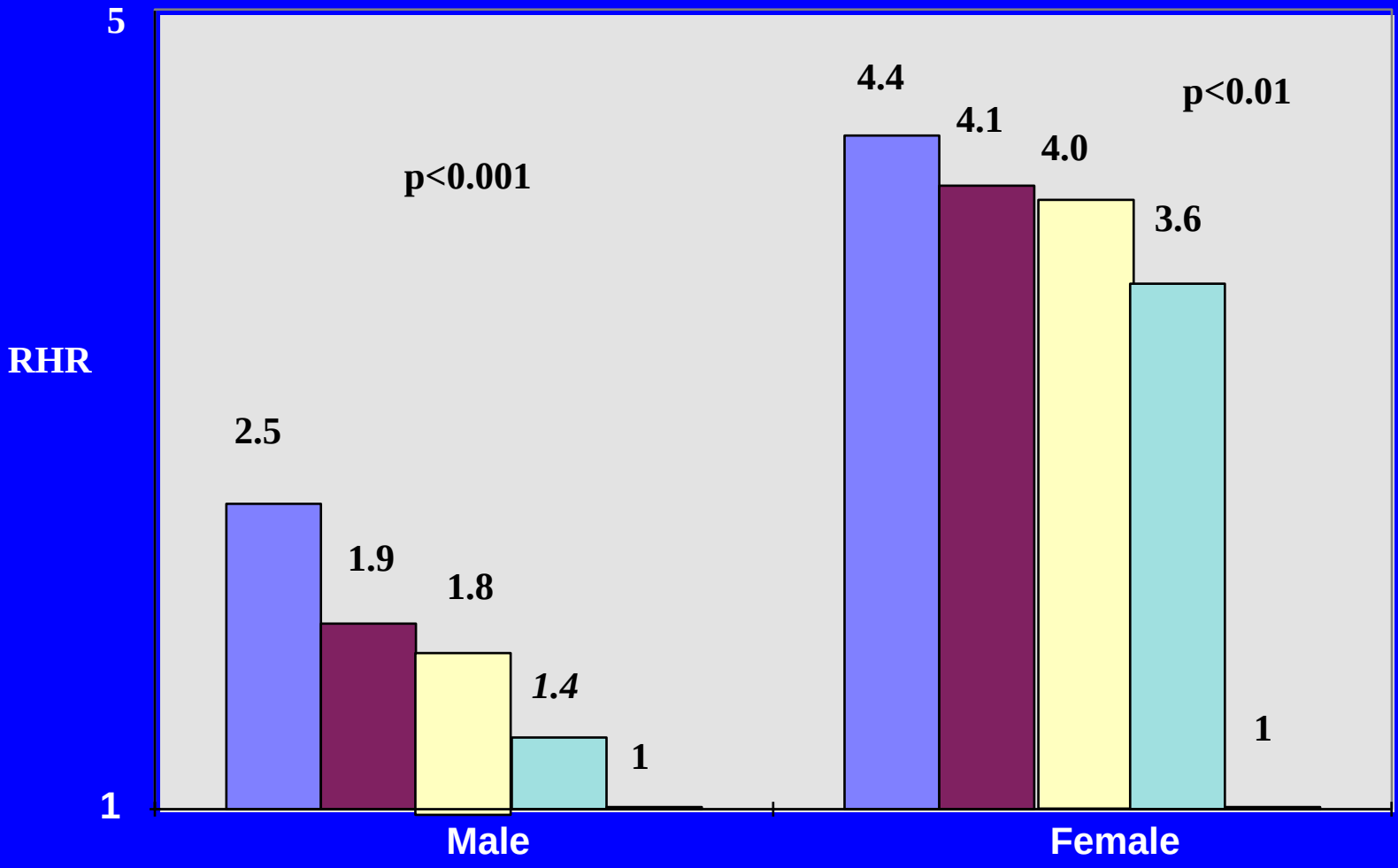
Lung Cancer Incidence in Males by the Test Response and Amount Smoked

(Cancer diagnosed within five years of screening excluded)



Overall estimate of risk = 1.9 ($p<0.01$)

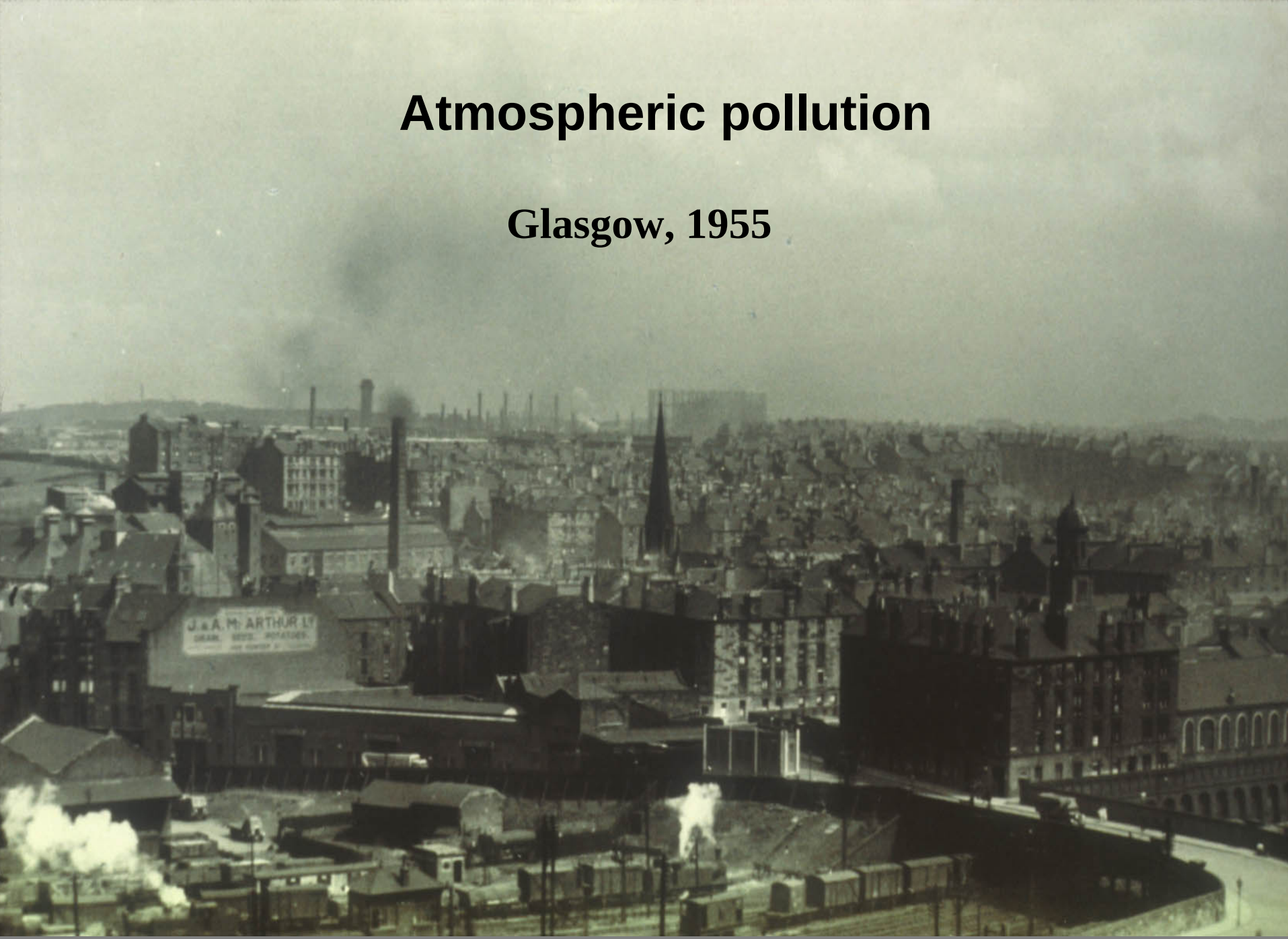
LUNG CANCER and ‘FEV1’
(after adjustment for number of cigarettes smoked)



Lung cancer cases occurring within 1st 5 years omitted

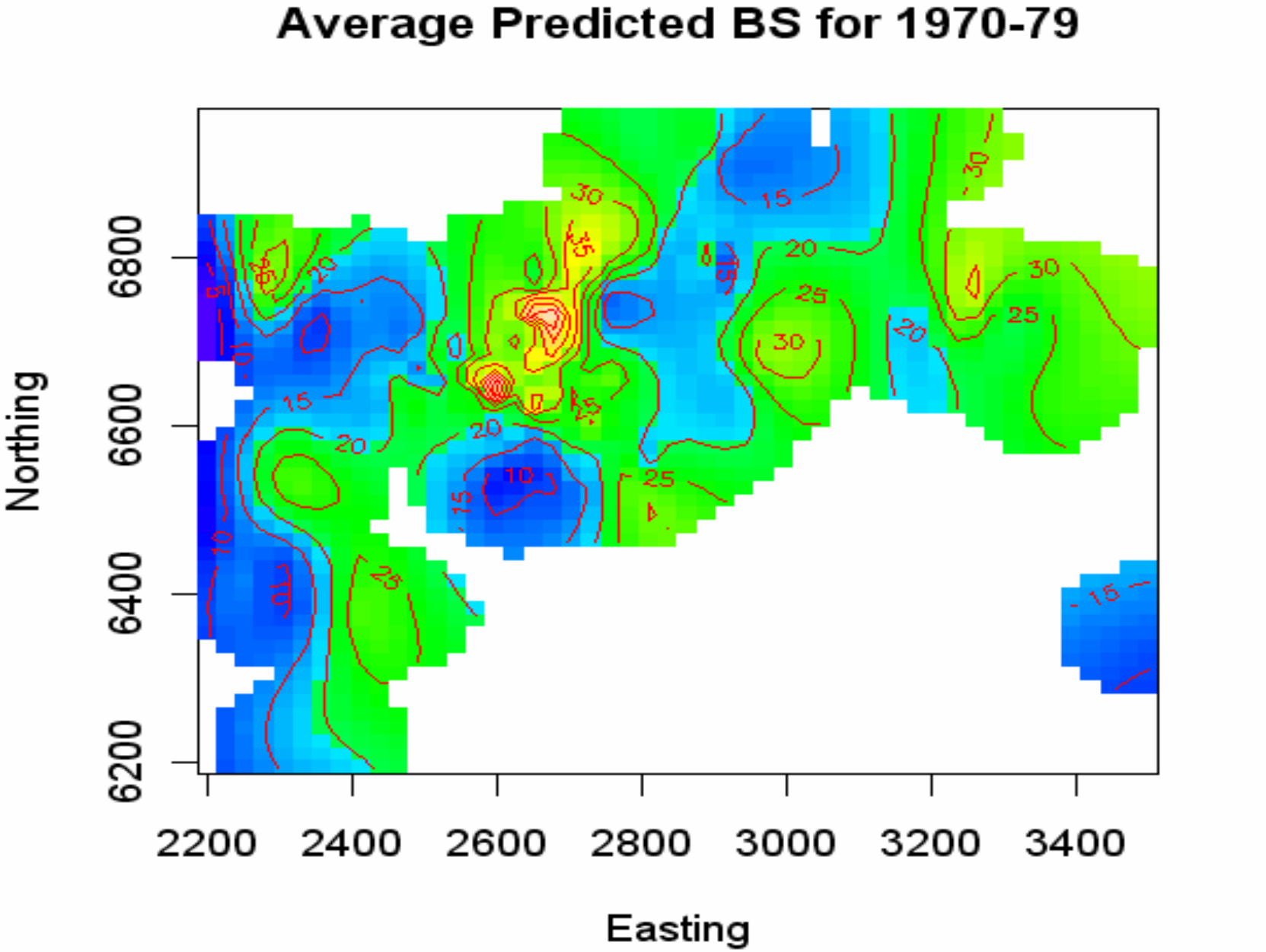
Atmospheric pollution

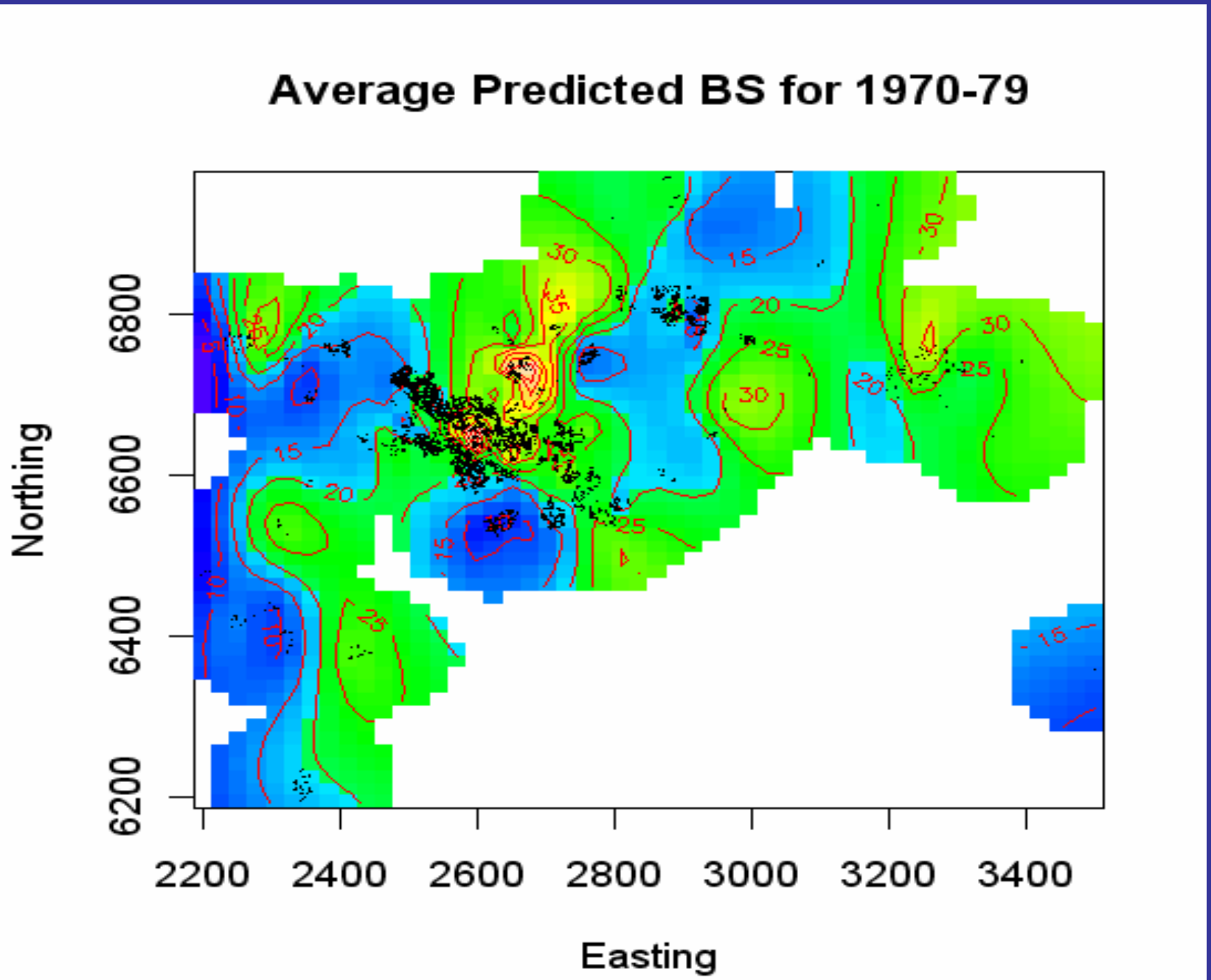
Glasgow, 1955



Exposure assignment from monitoring sites to individuals

- **Based upon distance from house to nearest recording station(s)**
- **Subject's exposure estimated by *inverse distance squared weighting* of average black smoke of**
  - *all* monitoring sites within 1km if ($r \leq 1km$)
  - the *2 nearest* monitoring sites if ($r > 1km$)


Average Predicted BS for 1970-79
Northing
6200
6400
6600
6800
2200
2400
2600
2800
3000
3200
3400
Easting


Average Predicted BS for 1970-79
Northing
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6400
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2600
2800
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3200
3400
Easting

Lung cancer risk & black smoke exposure

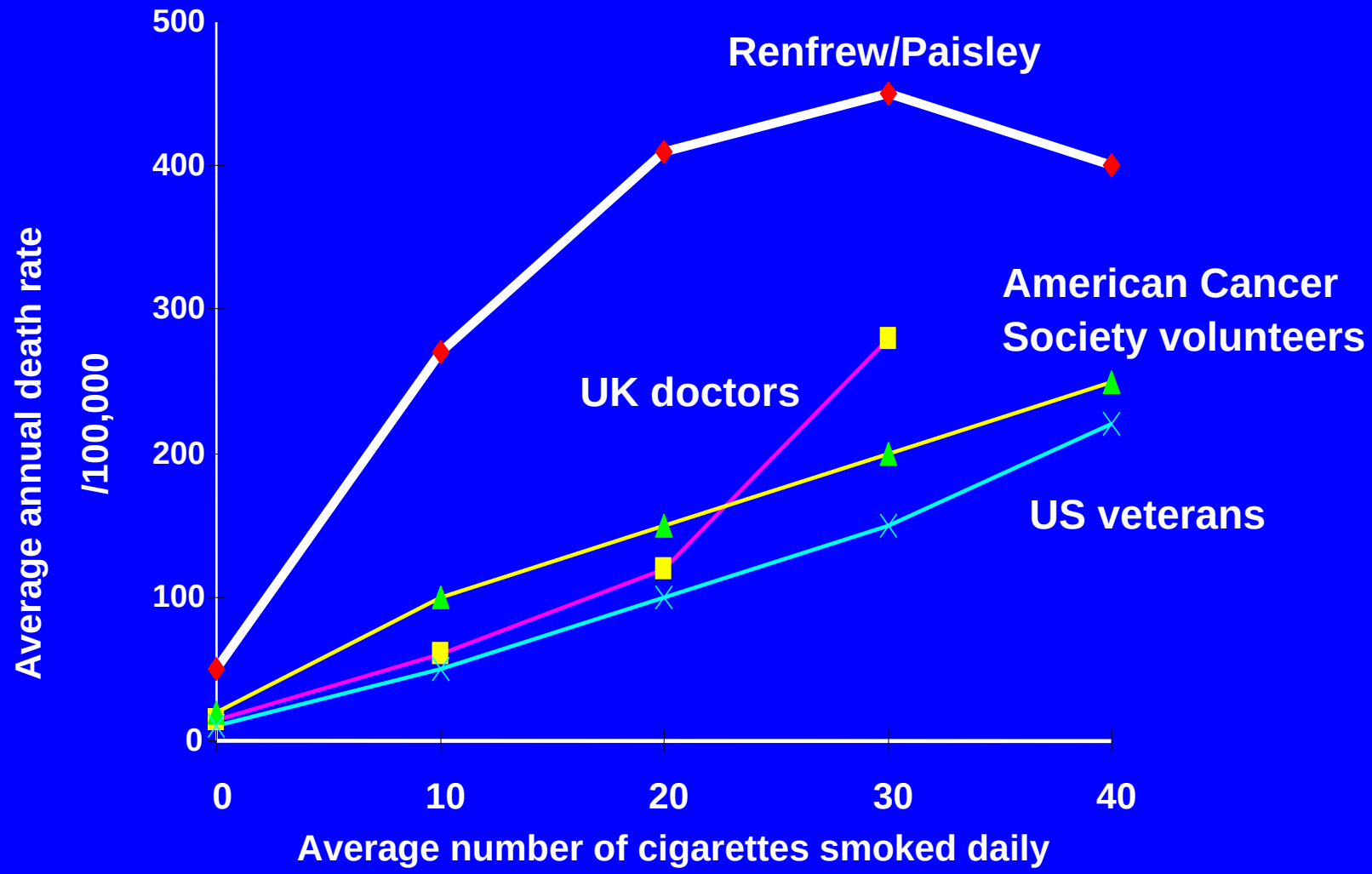
Follow-up till	Number of lung cancer deaths		Adjusted hazard ratios per 10 μg/m³ increase in black smoke	
	within 2 kms of station	within 5 kms of station	within 2 kms of station	within 5 kms of station
1989	432	709	1.20 (0.98,1.47)	**1.21*** (1.01,1.45)
1998	628	1047	**1.20*** (1.02,1.42)	**1.23*** (1.06,1.42)

After adjustment for other risk factors, particularly cigarette smoking,

increased risk = 20-23% per 10 μg/m³,

irrespective of length of follow-up & distance from monitoring station

Comparison of Lung Cancer Mortality in Scotland (Renfrew/Paisley) with 3 major cohorts in US/UK



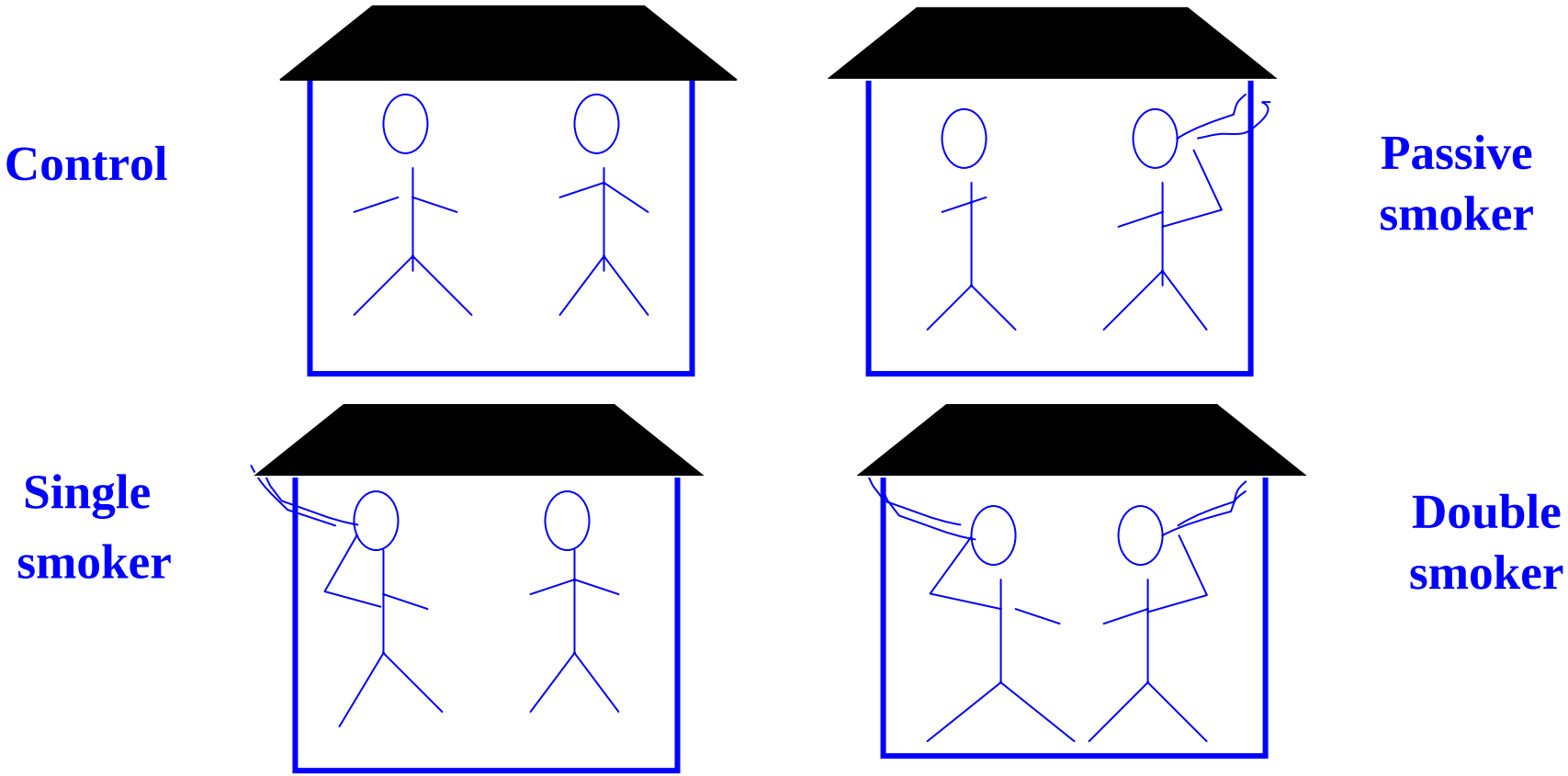
Renfrew/Paisley Cohabitees' Study

(subset of Renfrew/Paisley Survey)

Subjects	**Individuals living at same address**
Number of respondents	**3962 men, 4042 women**
Age groups	**45-64 years**
Date screened	**1972 - 1976**
Recruitment	**Special census, 80% response**
Follow up	**2476 deaths** **(514 in life-long non-smokers)** **949 incident cancers** **(186 in life-long non-smokers)**

Each participant reported their own smoking habit

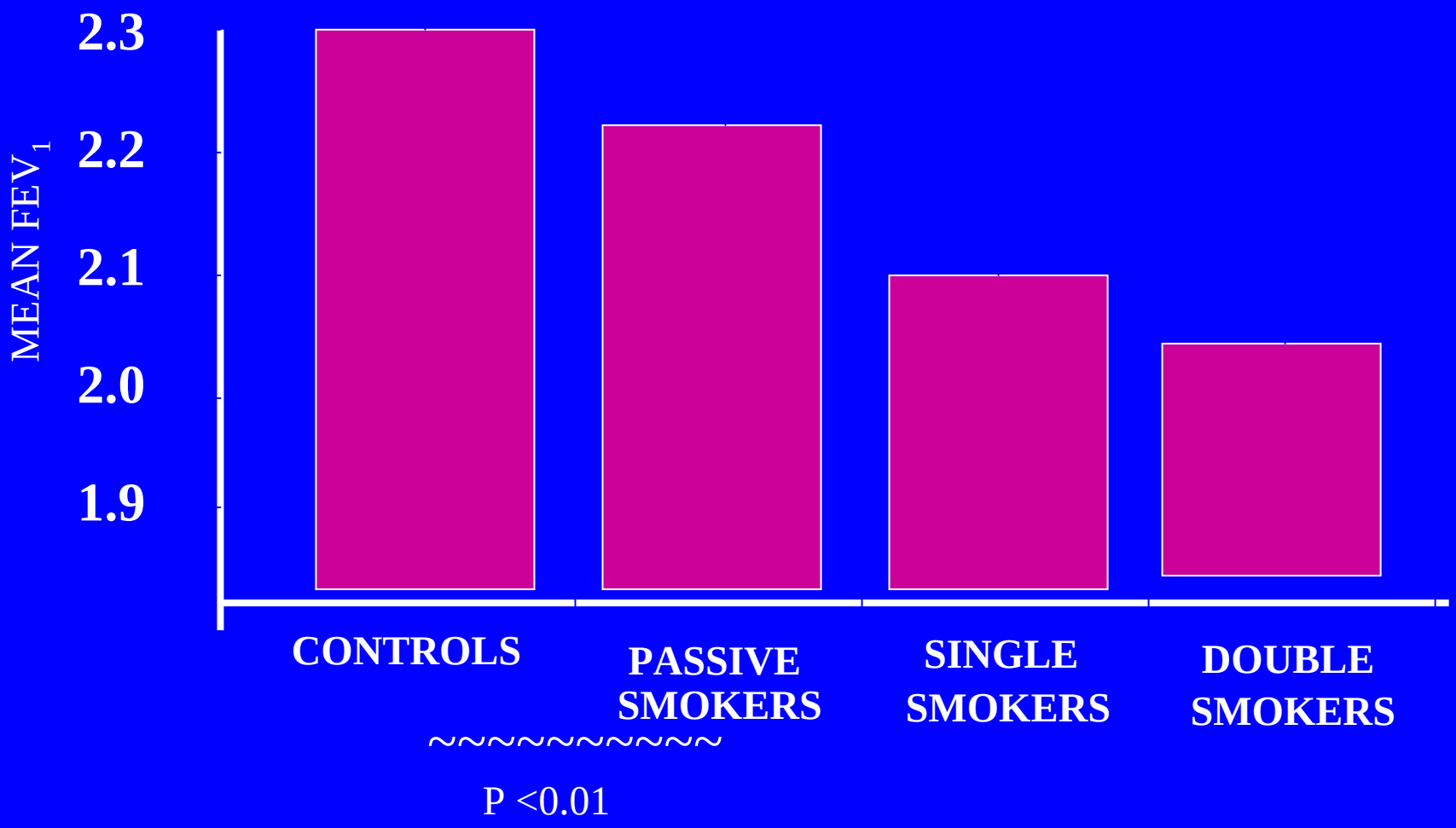
Passive Smoking - definitions



(BMJ 1989;299:423-7)

Mean FEV_1 Level by EXPOSURE CATEGORY

(adjusted for sex, age and height)



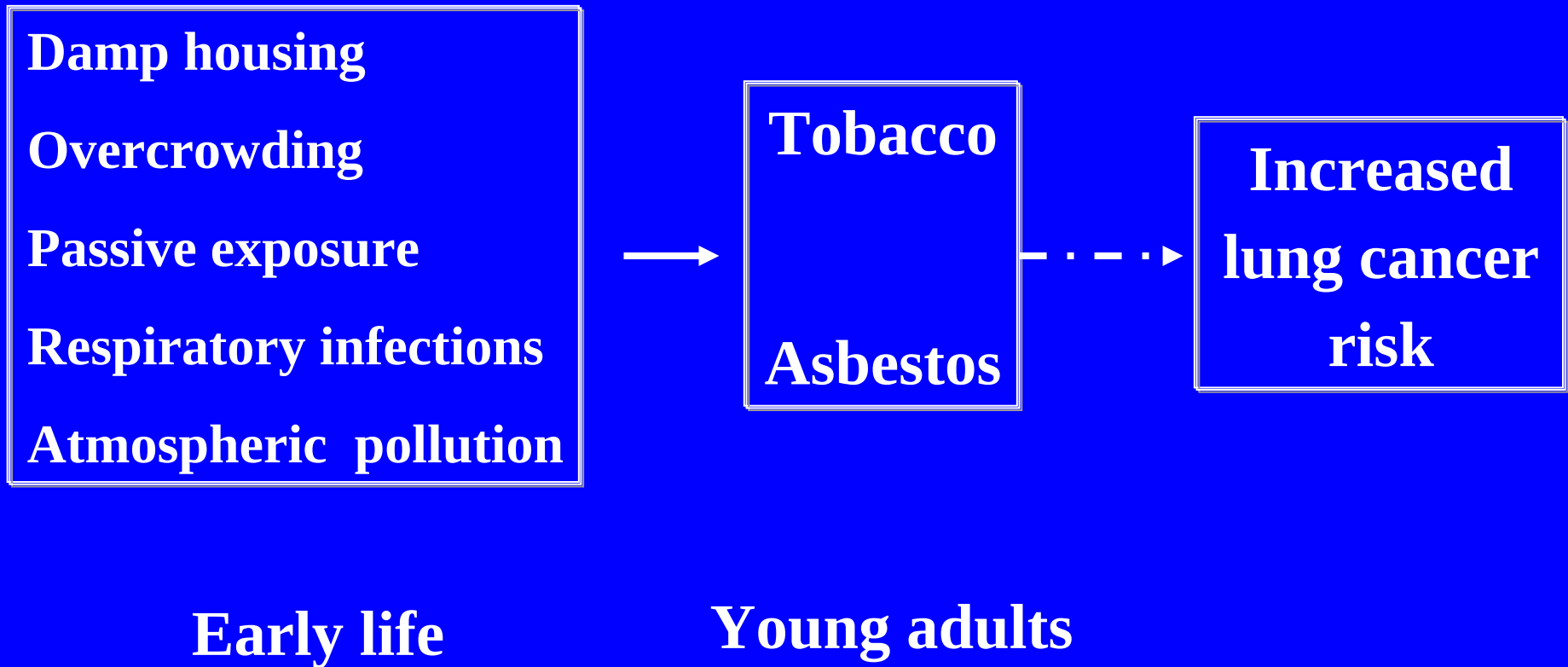
SYMPTOMATOLOGY in PASSIVE SMOKERS (Females)

Symptom	*Controls*	*Passive Smokers*	
		Low	*High*
	(N=439)	*(N=754)*	*(N=541)*
Infected spit	**2.1**	**2.4**	**3.1**
Persistent spit	**6.4**	**5.8**	**8.6**
Dyspnoea	**12.7**	**11.2**	**16.2**
Hypersecretion	**4.1**	**3.8**	**5.7**
Angina	**3.6**	**4.1**	**5.8**
Major ECG abn.	**0.4**	**1.1**	**0.5**

MORTALITY among PASSIVE SMOKERS in RELATION to LEVEL of EXPOSURE (Females)

Symptom	*Controls*	*Passive Smokers*	
		Low	*High*
	(N=439)	*(N=754)*	*(N=541)*
Cause			
All causes	**55.5 (31)**	**61.6 (57)**	**84.2 (51)**
IHD	**5.6 (3)**	**11.2 (12)**	**25.8 (16)**
Lung Cancer	**3.5 (1)**	**2.8 (2)**	**6.3 (3)**
All smoking-related	**35.2 (16)**	**32.1 (31)**	**45.6 (28)**

Proposed smoking model



“Impact of passive smoking on associated causes of death in adults in Scotland”

Report to the Scottish Executive in support of proposed legislation on banning smoking in enclosed work/public places

(November 2004)

Numbers of deaths in Scotland per year attributable to 'active' and 'passive' smoking

Cause of death	*Total*	*Attributable to active smoking*	*Attributable to passive smoking **
Lung cancer	4,000	3,123	44
Heart disease	11,700	3,767	395
Stroke	6,750	1,540	335
Respiratory disease	6,500	2,700	91
4 causes combined	**28,950**	**11,130**	***865***

**** among lifelong non-smokers***

based on Renfrew/Paisley estimates of smoking prevalence & smoking risk


GLASGOW'S MILES BETTER
LET'S MAKE GLASGOW A NO-SMOKING CITY,
- GIVE UP CIGARETTES.


LET'S ACT NOW FOR
CLEAR AIR
IN PUBS AND CLUBS