



Mesothelioma is a form of cancer affecting the pleura (pleural mesothelioma) or, less commonly, the peritoneum (peritoneal mesothelioma). In cases of mesothelioma where the site is specified, pleural mesothelioma accounts for 90% of male deaths and 80% of female deaths from mesothelioma.

Asbestos and mesothelioma

Exposure to "blue asbestos" (crocidolite) is an established cause of mesothelioma, and fibres of crocidolite are usually found in the lungs of people who have died of mesothelioma. Other forms of asbestos (amosite and tremolite) may also cause mesothelioma, but the type of asbestos most commonly used in building materials and for other domestic purposes ("white asbestos" or chrysotile) is considered the least important as a cause of mesothelioma.

Asbestos exposure is also a recognised cause of lung cancer and a number of other respiratory conditions.

Incidence

There is no cure for mesothelioma and survival is usually for short periods only. Mortality may therefore be used as an indicator of the incidence of the disease.

In 1990, there were 505 deaths certified as due to cancer of the pleura in England and Wales, representing a crude death rate of approximately 10 per million. However, as the site is not specified in 40% of death certificates mentioning mesothelioma, this figure probably under-represents the mortality due to this condition.

Deaths from cancer of the pleura represent less than two percent of all deaths attributed to respiratory cancer.

Trends in mortality

The majority of pleural cancer deaths occur in males and in those aged 45 and over (figure 1). The ratio of male to female deaths is currently more than 5:1.

In males in the 45+ age group, mortality from pleural cancer (figure 2), and from all forms of mesothelioma has increased markedly over the past 20 years. Female mortality rates have also increased in older age groups (figure 3).

Figure 1: Pleural cancer deaths by age and sex, England & Wales 1990

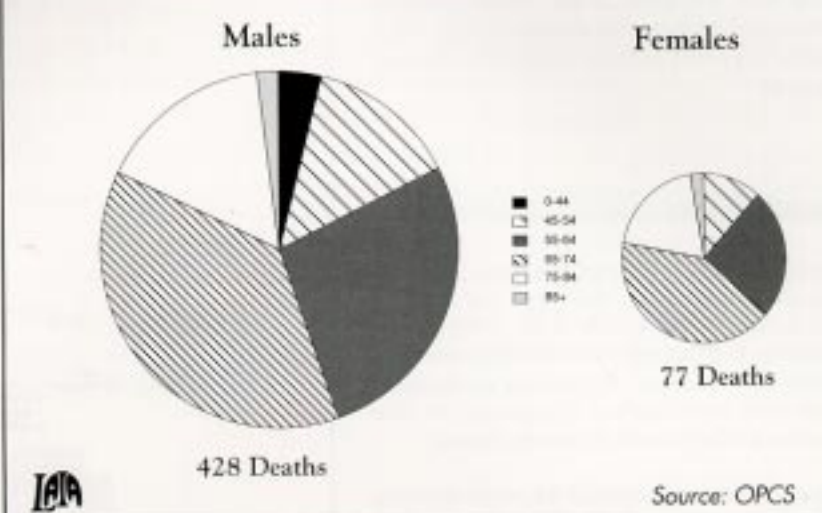


Figure 2: Pleural cancer mortality rates, age 45-84, males, England & Wales 1968-90

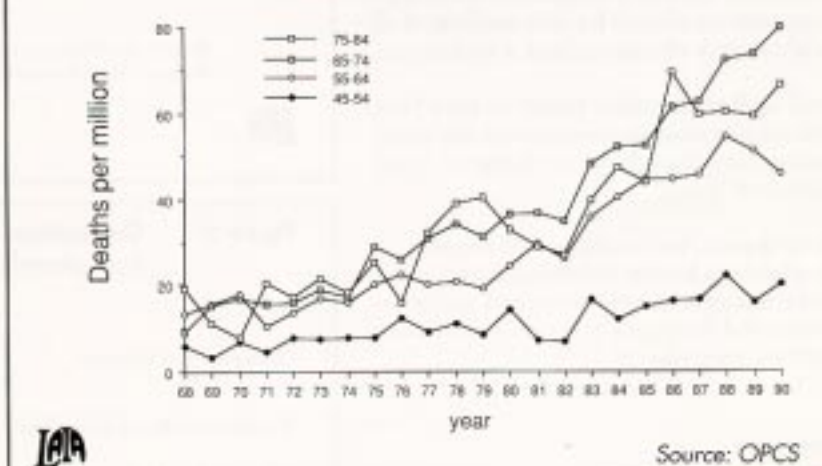
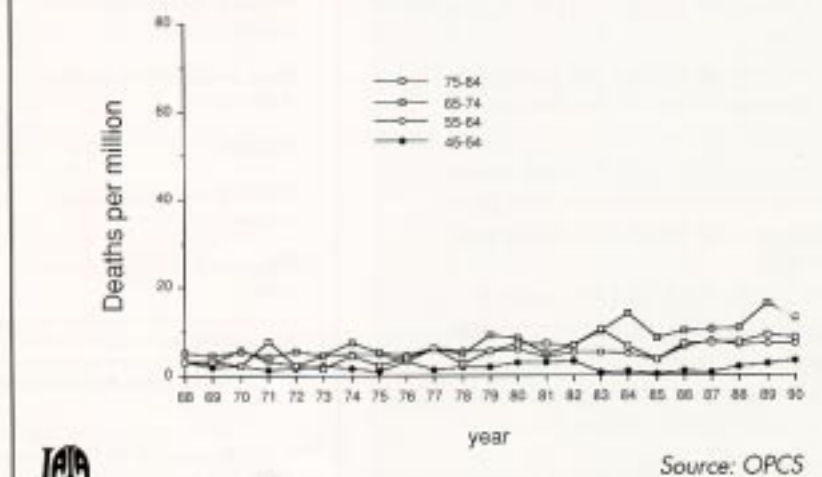


Figure 3: Pleural cancer mortality rates, age 45-84, females, England & Wales 1968-90



There is a long time lag of 20 years or more between exposure to blue asbestos and the development of mesothelioma. Thus these recent increases are likely to be related to past industrial hygiene, prior to the introduction of regulations on asbestos in the 1960s.

Geographical distribution

A notable excess of mesothelioma deaths in males occurs in a few areas of the country, mainly districts close to shipyards where exposure to blue asbestos is known to have occurred in the past (figure 4).

Mesothelioma and occupation

Assessment of occupational risks based on mortality data need to be interpreted with caution because information on the death certificate relates to the final occupation of the deceased. This cannot take account of previous occupations which may have resulted in exposure to blue asbestos or other causes of mesothelioma.

Among British males aged 20-64, workers in nine occupational groups have significantly raised mortality from pleural cancer (figure 5). However, even in these groups, mesothelioma contributes only a small proportion of all deaths due to respiratory cancer. Furthermore, these high risk occupations account for only one third of all pleural cancer deaths among men of working age.

Special studies of workers known to have been exposed to blue asbestos show considerably higher mortality rates than those calculated for broad occupational groups.

Among women, past occupational exposure to blue asbestos is known to have occurred in the manufacture of asbestos textiles and insulation materials and during the war-time manufacture of military gas masks.

Summary

- Pleural mesothelioma is a rare form of cancer, even among workers at relatively high risk of developing the disease.
- Blue asbestos fibres are the most important cause of the disease.
- High rates of mesothelioma occur in areas and occupations where blue asbestos has been used in the past.
- Mortality from pleural cancer is increasing in men and in some age groups in women. Given the long latency period, rates may continue to increase despite improvements in industrial hygiene.

Figure 4: Crude mortality rates from mesothelioma in males by county, 1976-83



Source: Jones RD et al. Mesothelioma in Great Britain 1968-1983. *Scand J Work Environ Health* 1988; 14: 145-152



Source: OPCS

Figure 5: Occupational groups with significant excess of deaths from pleural cancer ($p < 0.05$), males aged 20-64

Occupational Groups	Malignant neoplasms			
	Pleura		All respiratory	
	Deaths	SMR*	Deaths	SMR*
Woodworkers & pattern makers	28	353	642	107
Metal working production fitters	35	245	1307	117
Electricians & electrical maintenance	23	315	649	118
Plumbers, heating, ventilation and gas fitters	20	500	425	145
Sheet metal workers, platers, shipwrights	16	495	443	175
Welders	11	309	405	148
Other metal & electrical workers	22	215	796	98
Miners (not coal), quarrymen, wells	12	644	245	177
All occupations	491	102	38,372	101

*SMR = standardised mortality ratio

All the occupations listed above had highly significantly raised SMR's ($p < 0.01$)
Source: OPCS Decennial supplement 1979-80, 1981-82



Source: OPCS