

# Work-related long-latency respiratory disease in Great Britain: 1996 to 2014

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**Background:** Long-latency respiratory diseases (LLRD) are characterised by an onset of disease symptoms many years after first exposure to the causal agent. Although much of the current burden of LLRD in Great Britain (GB) is attributed to historical asbestos exposure with high risk occupations well documented, other agents, for example silica, also contribute and exposures (including asbestos) are still occurring. It is therefore important to continue to monitor the status of LLRD in GB (and elsewhere).

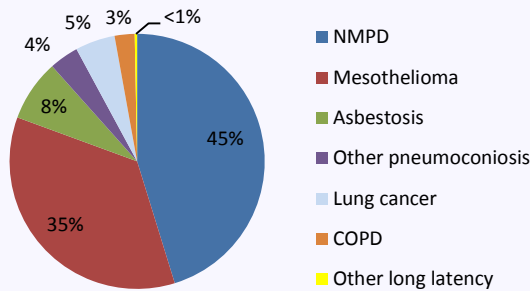


Figure 1 LLRD reported by chest physicians to SWORD by diagnostic category, 1996-2014

**Objectives:** To investigate work-related LLRD incidence in GB (including change over time), as reported by chest physicians to SWORD (Surveillance of Work-related and Occupational Respiratory Disease) (1996-2014), including variations by age and gender, occupation and suspected causal agent.

**Methods:** Age standardised annual average incidence rates by diagnostic category and gender (applying ONS national population data as the denominator) were calculated. Trends in incidence were investigated using a multi-level model (adjusting for factors that might influence the trend e.g. number of reporters). Incidence rate ratios (IRRs) by occupation were calculated (a 30 year lag period was assumed between exposure and onset of disease. Data from the 1971 census provided the denominator).

	Annual average incidence rate (95% CIs) per 100,000 ,per year		Annual average % change in incidence (95% CIs)
	Males	Females	
NMPD	9.8 (9.3,10.4)	0.5(0.4,0.6)	-0.5 (-1.6, 0.6)
Mesothelioma	7.6 (7.1,8.1)	0.7(0.6,0.8)	-2.1 (-3.4, -0.7)
Pneumoconiosis	2.7 (2.4,3.0)	0.1(0.05, 0.1)	2.5 (0.6, 4.5)
Lung cancer	1.1 (1.0, 1.3)	/	-1.3 (-4.3, 1.9)
COPD	0.5 (0.3, 0.6)	/	-3.4 (-7.5, -0.1)
Total cases	21.3 (20.6, 21.9)	1.3 (1.1, 1.5)	-1.0 (-1.8, -0.2)

Table 1 Annual average incidence rates and change in incidence, SWORD, 1996-2014

**Results:** LLRD diagnoses comprised 74% of the total reported cases with NMPD reported most frequently (Figure 1). Cases were predominantly male (95%) and attributed to asbestos (92% of the total cases). Annual average incidence rates (per 100,000 persons) were higher for males compared to females with overall little significant change in incidence over time (Table 1). Incidence rates increased strongly with age, typically peaking at age 75 years or above and then declining in very old age (Figure 2).

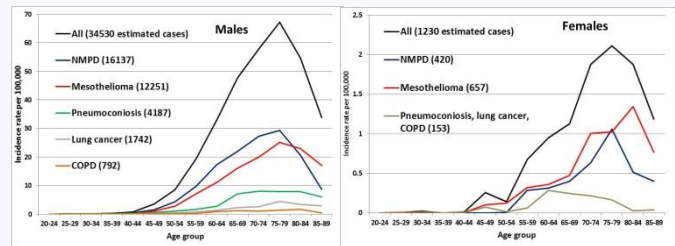


Figure 2 Incidence rates of LLRD reported by chest physicians to SWORD, by age and gender

10 of the 18 occupational groups studied (males) had total LLRD rates that were statistically significantly higher than the reference category (Figure 3). For COPD, miners and quarrymen and welders had the highest IRR. For asbestosis it was plumbers and for all other diagnoses it was shipyard and dock workers. Female occupations with IRRs (total LLRD) which were statistically significantly higher than the reference category were construction workers, textile workers, glass and ceramics makers, electrical and electronic workers and other manufacturing workers.

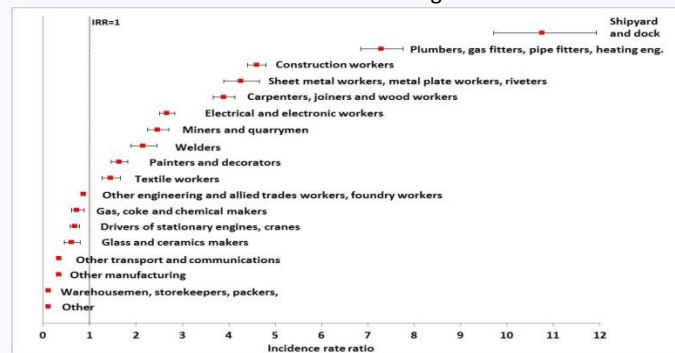


Figure 3 IRRs for total LLRD (males) by occupation, as reported by chest physicians to SWORD, 1996-2014

**Conclusions:** This study provides a useful overview of the status of LLRD in GB over recent decades. Although, due to changes in referral patterns, SWORD data may be limited in its utility for determining LLRD temporal trends in incidence, these data are a valuable resource for investigating which occupations are at an increased risk and the associated agents. Work is ongoing to benchmark SWORD data against other data sources to further investigate the extent of under-reporting/impact of referral changes on LLRD reporting to SWORD.