

Table 2.1. Cohort studies of Coal gasification workers and cancer

Reference, location, name of study	Cohort description	Exposure assessment	Organ site (ICD code)	Exposure categories	No. of cases/deaths	Relative risk (95% CI)*	Adjustment for potential confounders	Comments
Kennaway & Kennaway (1947), United Kingdom	Register-based national mortality analysis of all deaths in England and Wales, 1921–38	Occupational titles	Lung	Gas works labourers	96	129 [104–157]	No data available on tobacco smoking	
				Gas producer men	12	203 [105–355]		
			Larynx	Gas works labourers	43	90 [65–122]		
				Gas producer men	2	59 [7–212]		
Kawai <i>et al.</i> (1967), Japan	A cohort of 503 workers at a generator gas plant in a steel industry was followed from 1953 to 1965. The plant was closed down in 1953.	Occupational titles	Lung	Gas generator plant	6	3333 [1220–7260]		Precision in the estimation of expected numbers was low.
Doll <i>et al.</i> (1972), United Kingdom	A cohort of 3023 gas manufacturing workers aged 40–65 years employed at, or in receipt of pension from, four gas boards ('original gas boards') was followed for mortality from 1953 to 1965. Minimum duration of employment, 5 years	Occupational titles at start of study	Lung	Heavy exp. to coal gas (A)	99	179 [146–218]	Tobacco smoking habits studied in a 10% sample of the cohort indicated no excess.	No excess of atherosclerotic heart disease supports that smoking habits were not in excess among the gas workers.
				Low or no exposure (C1)	11	75 [37–134]		
			Bladder	Heavy exp. to coal gas (A)	10	235 [113–433]		
				Low or no exposure (C1)	1 [1.3 expected]	–		
			Skin	Heavy exp. to coal gas (A)	3	600 [124–1750]		
				Low or no exposure (C1)	0 (not possible to calculate expected number)	–		

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Doll <i>et al.</i> (1972), (contd)	4 687 men from four additional gas boards were followed for mortality from 1957 (one gas board from 1959) to 1965.		Lung	Heavy exp. to coal gas (A)	23	134 [85–201]		
				Intermittent exposure (B)	40	172 [123–235]		
				Low or no exposure (C2)	16	53 [30–86]		
			Bladder	Heavy exp. to coal gas (A)	2	153 [19–554]		
				Intermittent exposure (B)	2	107 [13–385]		
				Low or no exposure (C2)	1 [2.5 expected]1	–		
Hansen <i>et al.</i> (1986), Esbjerg, Denmark	47 gas production workers employed > 1 year any time between 1911 and 1970. An age-matched reference cohort of 141 persons was selected from population registers.		Lung		7	OR 3.94 ($p < 0.05$)	No data on tobacco smoking habits available	Analytical method may not have been appropriate. A shorter time to death from lung cancer was noted among the gas workers than among the referent cohort ($p = 0.01$)

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Berger & Manz (1992), Hamburg, Germany	4908 male employees from a gas-producing plant, employed > 10 years between 1900 and 1989 were followed for mortality from 1953 to 1989.	Department	Lung	Gas furnace workers	78	288 (228–359)	Tobacco smoking data available for about 80% of the cohort. No smoking-adjusted SMR for lung cancer was presented.	Causes of death were obtained by different methods for the cohort and the national reference group.
				Other labourers	102	96 (78–117)		
				White-collar workers	12	45 (23–79)		
				Gas furnace workers	31	177 (120–251)		
				Other labourers	72	113 (88–142)		
				Stomach	White-collar workers	10		
			Stomach	Gas furnace workers	13	184 (98–315)		
				Other labourers	48	170 (125–225)		
				Colon and rectum	White-collar workers	7		
Wu (1988), China	3107 workers active in 1971 at any of six coal gas plants were followed for mortality until 1982.		Lung	[not stated]	SRR 3.66 (90% CI, 2.36–5.43)		The short report does not allow an assessment of the validity of the study.	
Martin <i>et al.</i> (2000), France	Case-control study nested within a cohort of male workers employed > 1 year at a company producing gas and electricity. 310 lung cancer cases occurring between 1978 and 1989 were included, 1225 referents were selected from the cohort.	Industry-specific job-exposure matrix with index of cumulative exposure	Lung	Coal gas production	298	1.0	Risks adjusted for exposure to asbestos and socioeconomic status.	There may be residual confounding from tobacco smoking.
				Unexposed	7	1.02 (0.21–4.94)		
				Q1	7	1.59 (0.39–6.49)		
				Q2	7	0.55 (0.07–4.57)		
				Q3	7	3.87 (1.15–12.9)		
				Q4	5			