Table 2.1. Cohort studies of cadmium and lung cancer

Reference/ country	Cohort Description	Cadmium level		Organ site	Exposure category	No. of cases	Relative risk (95% CI <sup>a</sup> l)	Adjustment for potential	Comments
		Years	Estimated levels (mg/m <sup>3</sup> )			cases	(7370 C11)	confounders	
Copper-cadmium alloy plants United-Kingdom									
Holden (1980)	Urban alloy $\geq 1$ year	< 1953	1	Lung cancer	Overall	8	1.78 [0.77-3.50]		Mortality, number of workers not stated
	Rural alloy $\geq 1$ year	1953-57	< 0.15		Overall	2	0.26 [0.03-0.92]		Expected deaths based on national rates
	624 vicinity $\geq 1$ year	> 1957	< 0.05		Overall	36	1.38 [0.97-1.91]		Vicinity workers also exposed to arsenic
Sorahan <i>et al</i> . (1995)	347 alloy	1922-78		Lung cancer	Overall	18	1.01 [0.60-1.59]		No association with cumulated exposure
	624 vicinity	1922-78		Lung cancer	Overall	55	1.60 [1.21-2.09]		
	(> 1 year) Mortality 1946-92 at the same plant								
These populations al	ll overlap to some extent								
Cadmium processing plants United-Kingdom									
Kazantzis et al.	6 910 men > 1 year			Lung cancer	Overall	339	1.12 (1.00-1.24)		3% of workers had ever
(1992) and Kazantzis & Blanks (1992)	Mortality 1943-89; 17 plants				Always low	270	1.08 (0.96-1.22)		high exposure
					Ever medium	55	1.21 (0.91-1.57)		
					Ever high	14	1.62 (0.89-2.73)		
Nickel-cadmium battery production United Kingdom									

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		Years	Estimated levels (mg/m <sup>3</sup> )	-		Cases	(75 % CI I)	potential confounders	
Potts (1965)	74 men (≥ 10 years) Mortality through 1965			Lung cancer	Overall	1	Cannot be calculated		No referent group
Kipling & Waterhouse (1967)	248 men (≥ 1 year) Incident through 1966 at same plant as Potts (1965)	1949	0.6-2.8	Lung cancer	Overall	5	1.14 [0.37-2.65]		
Sorahan (1987)	3 025 men and women (≥ 1 month) Mortality 1946-84	1950-67	< 0.5	Lung cancer	Overall	110	1.30 [1.07-1.57]		Dose-response based on
		1968-75	< 0.2		None <sup>b</sup>	64	1.0		years employed in high- exposure jobs. Trend not
		> 1975	< 0.05		< 2 years	19	1.4 [0.73-1.83]		significant
					2 years	6	1.3 [0.41-2.22]		
					5 years	6	1.3 [0.44-2.4]		
					≥ 15 years	6	1.5 [0.42-2.26]		
Sorahan & Esmen (2004)	926 men (> 1 year) at the same plant Mortality 1947-2000	1947-75		Lung cancer	Overall	45	1.11 [0.81-1.48]		No association with cumulated exposure
These populations a	ll overlap to some extent								
Sweden									
Kjellström <i>et al</i> . (1979)	228 men ( $\geq$ 5 years) Incidence 1959-75	< 1947	1	Lung cancer	Overall	2	1.48 (0.17-5.35)		
Elinder <i>et al.</i> (1985)	522 men (> 1 year) Mortality 1940-80 at same plant	1947-62	0.3	Lung cancer	Overall	8	1.33 [0.57-2.62]		
		1962-74	0.05		> 5 years	7	1.75 [0.70-3.61]		
		> 1975	0.02		and ≥20 years latency				

Table 2.1. Cohort studies of cadmium and lung cancer

Reference/ country	Cohort Description	Cadmium level		Organ site	Exposure category	No. of cases	Relative risk (95% CI <sup>a</sup> l)	Adjustment for potential	Comments
		Years	Estimated levels (mg/m <sup>3</sup> )			cases	(55% CF1)	confounders	
Järup et al. (1998)	717 men (> 1 year) Mortality 1951-92 at same plant	1931-82		Lung cancer	Overall	16	1.76 [1.01-2.87]		No association with cumulated exposure
These populations al	l overlap to some extent								
Cadmium recovery plants USA									
Lemen et al. (1976)	292 men (≥ 2 years) Mortality 1940-73		Personal	Lung cancer		12	2.35 [1.21 – 4.10]		
Stayner et al.	579 men ( $\geq$ 6 months)			Lung cancer	Overall	24	1.49 (0.95-2.21)		Test for trend significant
(1992)	Mortality 1940-84 Excludes workers hired before 1 January 1926				< 584c	2	0.34 [0.03-1]		
					585-1460	7	1.63 [0.65-3.07]		
					1461-2920	6	2.17 [0.79-4.28]		
					> 2920	9	2.72 [1.24-4.8]		

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Reference/ country	Cohort Description	Cadmium	level	Organ site	Exposure category	No. of cases			Adjustment for potential	Comments
		Years	Estimated levels (mg/m <sup>3</sup> )			cases			confounders	
Stayner <i>et al</i> . (1993)	Sub-group of cohort of						SMR			
(1993)	Stayner <i>et al.</i> (1992) hired after 1940						Non-Mex	ican-American		
					≤ 584 <sup>c</sup>	1	0.32	Cannot be		
					585-1460	6	2.81	calculated		
					1461-2920	5	4.70			
					> 2920	0				
							Mexican -	- American		
					≤ 584 <sup>c</sup>	1	0.42	Cannot be		
					585-1460	0.		calculated		
					1461-2920	1	0.82			
					> 2920	2	2.46			
Sorahan &	571 men ( $\geq$ 6 months	1926-69	Departments	Lung cancer						
Lancashire (1997)	during 1940-69) at the same plants		with minimal or no exposure to arsenic		<200	13	1.0			
					200-499	4	1.68 (0.	48-5.90)		
					500-999	2	1.30 (0.	26-6.59)		
					≥1000	2	2.68 (0.	54-13.36)		
These populations a	ll overlap to some extent									

<sup>&</sup>lt;sup>a</sup> Approximate 95% confidence intervals calculated by the Working Group are given in square brackets <sup>b</sup> Referent group includes jobs with no or "minimal" exposure to cadmium <sup>c</sup> Units are mg/m<sup>3</sup> -days