

Table 2.4. Ecological studies of arsenic exposure and cancer

Reference, study location, period	Cohort description	Exposure assessment	Organ Site (ICD code)	Exposure Categories	No. of cases/deaths	Relative risk (95% CI)	Adjustment for potential confounders	Comments
Buchet and Lison (1998), Belgium, 1985-1989	Urban (Charleroi and Leige) and rural (Maasseik and Turnhout) areas. The two main sources of arsenic contamination were drinking water (20-50 µg As/L) and non-ferrous smelter emissions (yearly mean air concentration 0.3 µg/m ³) in the vicinity of smelters.	Area A, close to zinc smelter (Drinking water contains 20-50 µg/L until 1990 and the geometric mean urinary concentration of inorganic urinary arsenic concentration amounted to 35 µg As/day)	Lung (162,165);	<u>Lung cancer mortality</u>		<u>SRR^a (95% CI)</u>	No confounder adjustment	
			Bladder (188);	Area A Men	1.05 (0.94-1.18)			
			Kidney (189);	Women	1.24 (0.83-1.87)			
			Leukemia (200-208);	Area B Men	0.82 (0.70-0.95)			
			Other neoplasms (140-199, except above codes)	Women	1.40 (0.91-2.15)			
				Area C Men	0.94 (0.84-1.05)			
				Women	0.67 (0.41-1.09)			
				<u>Bladder cancer mortality</u>				
				Area A Men	0.92 (0.63-1.35)			
				Women	1.20 (0.63-2.31)			
		Area B, away from smelter (up to 20 µg As/l in drinking water and urinary excretion 11 µg As/day)	Area B Men	1.04 (0.66-1.63)				
			Women	0.53 (0.17-1.63)				
			Area C Men	0.97 (0.68-1.39)				
			Women	0.69 (0.33-1.45)				
			<u>Kidney cancer mortality</u>					
			Area A Men	1.13 (0.67-1.91)				
			Women	0.91 (0.45-1.81)				
			Area B Men	1.62 (0.98-2.69)				
			Women	1.57 (0.87-2.83)				
			Area C Men	0.63 (0.32-1.20)				
Area C, moderately influenced by zinc smelter (Drinking water with less than 5 µg/L for a long time and urinary concentration 12 µg As/day)	Women	1.03 (0.58-1.81)						
	<u>Leukemia mortality</u>							
	Area A Men	0.91 (0.66-1.27)						
	Women	1.07 (0.72-1.58)						
	Area B Men	1.15 (0.81-1.62)						
	Women	1.26 (0.85-1.88)						
	Area C Men	0.89 (0.65-1.22)						
	Women	0.79 (0.53-1.18)						
	<u>Other neoplasms mortality</u>							
	Area A Men	0.87 (0.78-0.98)						
Women	0.93 (0.83-1.05)							
Area B Men	0.98 (0.86-1.12)							
Women	0.95 (0.83-1.09)							
Area C Men	0.99 (0.89-1.10)							
Women	0.93 (0.83-1.03)							

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Dondon <i>et al.</i> (2005), mining area in Salsigne in southern France 1968-1994	Exposed area was defined as all the communes surrounding the La Combe du Saut industrial site covering approximately 206 km ² , with population density of 40/km ² -269/km ²	Control area was in close proximity to the exposed area with similar characteristics. Included communes within 20 km distance of Salsigne.	Lung Pharynx Digestive system	<u>Cancer</u>		<u>SMR^b</u>	Age structure Sex Ratio Socioeconomic status Occupation	
				All	629	0.77		
				Men	381	0.75		
				Women	248	0.79		
				1968-1975	189	0.74		
				1976-1985	218	0.70		
				1986-1994	222	0.89		
				<u>Lung</u>				
				All	135	1.24		
				Men	126	1.32		
				Women	9	0.69		
				1968-1975	41	1.52		
				1976-1985	49	1.15		
				1986-1994	45	1.15		
				1972-1987 (Men)	79	1.35		
				<u>Pharynx</u>				
				All	14	0.77		
				Men	12	0.72		
				Women	2	1.35		
<u>Digestive system</u>								
All	198	0.68						
Men	99	0.57						
Women	99	0.83						

^aData presented as standardized rate ratios (SRR).

^bData presented as standardized mortality ratios (SMR).