Table 2.1. Cohort studies of *ortho*-Toluidine 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
Case & Pearson (1954) UK	123 male aniline production workers employed > 6 months between 1910 and 1952 (orthotoluidine exposure inferred from process knowledge). Workers exposed to magenta, auramine, 1- or 2-naphthylamine or benzidine were excluded	Employment roles	Bladder (188)	Ever-exposed	1	1.2 (.01-6.7)	Age, time period	Comparison to national mortality rates
Rubino *et al*. (1982) Italy	53 workers employed in Fuchsin and Safranine T manufacture, with potential exposure to ortho-toluidine and 4,4'-methylene bis(2methylaniline)	Employment roles	Bladder (188)	Ever-exposed	5 deaths	SMR 62.5 (20.1-145.8)		Exposure to 4,4'-methylene bis(2methylaniline)
Ott & Langner (1983), USA	117 men, employed 1914-58 and followed 1940-75, producing bromindigo and thioindigo, with potential exposure to 4-chloro-ortho-toluidine and other raw materials, including ortho-toluidine.	Employment roles	Bladder (188)	Ever-exposed	0	(--2.4)**		
Stasik (1988) Germany	335 men employed 1929-82 and followed 1929-82, producing 4-chloro-ortho-toluidine, N-acetyl-ortho-toluidine, 6-chloro-ortho-toluidine and ortho toluidine, with 4-chloro-ortho-toluidine reported to be predominant	Employment roles	Urogenital	Ever-exposed	0	(--18.3)**		

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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
Ward *et al* (1991); Carreón *et al* (2010) USA	1749 workers, employed 1946-88 and followed 1973-88, producing a rubber accelerant from ortho-toluidine and aniline	Employment roles	Bladder (188)	962 definitely exposed >10 years exposure 187 possibly exposed 600 probably unexposed	11 cases SIR 9 1 1	5.8 (2.9-10.5) 11.1 (5.1-21.1) 1.9 (0.1-10.4) 0.9 (0.0-4.9)		4-Aminobiphenyl was identified as a potential low-level contaminant (<1 ppm) in some bulk samples in 1990
Sorahan (2008) UK	Workers employed in the ortho-toluidine department of a company manufacturing chemicals for the rubber industry, employed ≥ 6 months1955-84 and followed 1955-96 for mortality and 1971-92 for cancer incidence	Employment roles	Bladder (188)	Duration (years) of employment in ortho-toluidine department None 0.1–4.9 ≥5.0	 50 4 2	 1.0 3.72 (1.21–11.4) 3.38 (0.67–17.0) p for trend <0.05		Cases exposed to phenyl-2-naphthylamine or 2-mercaptobenzothiole

**http://www.sph.emory.edu/~cdckms/exact-midP-SMR.html Byar Method based on Rothman and Boice, Epidemiologic Analysis with a Programmable Calculator, 1979.