Table 2.4. Cohort studies of vinyl chloride monomer and polyvinyl chlorideproduction workers and lymphohaematopoietic neoplasms

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
Mundt et al. (2000) USA	10 109 white male workers from 37 plants (race unknown, 6%) employed at least ≥ 1 year in jobs that entailed exposure to VCM in 1942–72; mortality follow-up, 1942–95; vital status, 96.8%; cause of death, 99%	JEM		Job exposed to VC		**SMR**		Reference rates: state rates
			Lymphohaematopoeitic (ICD-9 200–208)		71	0.86 (0.67–1.08)		
			Lymphosarcoma or reticulosarcoma (ICD-9 200)		12	1.20 (0.62–2.09)		
			Hodgkin lymphoma (ICD-9 201)		3	0.44 (0.09–1.29)		
			Leukaemia/aleukaemia (204–208)		31	0.94 (0.64–1.34)		
Ward et al. (2000, 2001) Italy, Norway, Sweden, UK	12 700 male workers employed at 19 VCM/PVC plants ≥ 1 year in 1950–85; mortality follow-up, 1955–97; incidence follow-up, 1955–96	Calendar period JEM for 13/19 factories grouped in 22 broad categories; factory-specific JEM with validated exposure estimates (ppm)		Employed in VC industry (full cohort)		**SMR**	Age, Calendar period	Reference rates and incidence rates: national Poisson regression analysis
			Lymphohaematopoeitic (ICD-9 200–208)		62	0.94 (0.72–1.21)		
			Non-Hodgkin lymphoma (ICD-9 200, 202)		26	1.19 (0.78–1.75)		
			Hodgkin lymphoma (ICD-9 201)		7	1.03 (0.41–2.12)		
			Leukaemia (ICD-9 204–208)		22	0.87 (0.54–1.31)		
Thériault & Allard (1981) Canada	451 male workers exposed to VCM or ≥ 5 years in a polymerization plant, employed in 1948–72; mortality follow-up, 1948–77	Questionnaire to the worker or next of kin on detailed occupational history	Leukaemia (ICD-9 200–209)	Exposed versus unexposed	1	**SMR** 0.60 (NR)		Reference rates: Canadian population in 1971; comparison population: 870 workers not exposed to VCM for ≥ 5 months

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Table 2.4. Cohort studies of vinyl chloride monomer and polyvinyl chlorideproduction workers and lymphohaematopoietic neoplasms

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
Weber et al. (1981) Germany	7021 male VCM/PVC production workers from beginning of operation to 1974; mortality follow-up, from beginning of operation to 1974; vital status, > 90%; cause of death, 7–13%	JEM	Lymphatic and haematopoietic (ICD-8 200–209)	Exposed versus unexposed	15	2.14 (1.12–3.53)		Reference rates: national
Smulevich et al. (1988) Soviet Union	3232 VCM/PVC production workers (2195 men, 1037 women) employed for ≥ 1 month in VCM-exposed jobs; mortality follow-up, 1939–77	Exposure data in 1953–66 from JEM	Non-Hodgkin lymphoma and multiple myeloma (ICD-9 200, 202, 203)	Estimated area exposure: low, medium and high	5	**SMR** 4.17 ($p < 0.05$)		City (Gorki) mean death rates in 1959, 1969 and 1975
			Leukaemia (ICD-9 204–207)		5	5 5.00 ($p < 0.05$)		
Wong et al. (2002) Taiwan, China	3293 male workers in 6 PVC polymerization plants exposed to VCM ≥ 1 year in 1950–92; mortality follow-up, 1985–97; vital status, 99%	JEM	Lymphatic and haematopoietic (ICD-9 200–208)		7	**SMR** 2.71 (1.09–5.60)		Reference rates: national; cohort assembled from Bureau of Labour Insurance

JEM, job exposure matrix; VCM, vinyl chloride monomer; PVC, polyvinyl chloride

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