

**Table 2.5. Cohort studies of vinyl chloride monomer (VCM) and polyvinyl chloride (PVC) production workers and skin 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
Mundt <i>et al.</i> (2000) USA	10 109 white workers in 37 plants (Of the 3165 men with known race, 96% were white) 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	Skin (ICD-9 172–173)	Job exposed to VC	12	<b>SMR</b> 0.64 (0.33–1.12)		Reference rates: state and USA population
Ward <i>et al.</i> (2000, 2001) Italy, Norway, Sweden, UK	700 male workers employed in 19 VCM/PVC plants <sup>3</sup> 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)	Melanoma (ICD-9 172)	Employed in VC industry (full cohort)  VCM production PVC production VCM and PVC production PVC processing  <i>Latency (years)</i> < 16 16–21 22–26 27–34 ≥ 35	15 18 1 0 13 1 4 3 1 3 4	<b>SMR</b> 1.60 (0.90–2.65) <b>SIR</b> 1.06 (0.63–1.68) <b>SMR</b> 5.13 (0.13–28.6) (0.00–2.45) 2.12 (1.13–3.62) 0.66 (0.02–3.68) <b>Relative risk</b> 1.00 1.06 (0.20–5.61) 0.49 (0.04–5.43) 1.78 (0.25–12.8) 4.41 (0.51–38.4) Test for linear trend, <i>p</i> = 0.193	Age, calendar period      Age, calendar period	Reference mortality and incidence rates: national      Internal comparison, poisson regression analysis

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Ward <i>et al.</i> (2000, 2001) (contd)				<i>Duration (years)</i>				
				1–2	5	1.00		
				3–6	1	0.22 (0.03–1.85)		
				7–11	1	0.22 (0.03–1.89)		
				12–18	4	0.83 (0.22–3.16)		
				≥ 19	4	1.10 (0.27–4.44)		
						Test for linear trend, $p = 0.665$		
				<i>Cumulative exposure (ppm-years)</i>				
				35–99	3	1.00		
				100–535	4	2.31 (0.51–10.3)		
				536–2811	4	2.57 (0.57–11.5)		
				≥ 2812	3	2.68 (0.53–13.7)		
						Test for linear trend, $p = 0.193$		
Smulevich <i>et al.</i> (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		Estimated area exposure: low, medium and high	1	<b>SMR</b> 2.00 ( $p > 0.05$ )		City (Gorki) mean death rates in 1959, 1969 and 1975

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