

Table 2.4. Case-control studies of gamma radiation and cancer

Reference, study location and period	Characteristics of cases	Characteristics of controls	Exposure assessment	Organ site (ICD code)	Exposure categories	Relative risk (95% CI)*	Adjustment for potential confounders	Comments
Ostroumova <i>et al.</i> (2006), Southern Urals, the Russian Federation Techa River Study	Nested case-control study of leukaemia among people who resided in villages along the Techa River near the Mayak facility; cancer incidence follow-up through Dec 31, 2000		Individual monitoring for external radiation exposure, based on personal dosimeters	Leukaemia	1836	OR/Sv		
Kesminiene <i>et al.</i> (2008), Belarus, the Russian Federation, and Baltic Countries Chernobyl Liquidator Study	Case-control study of hematological malignancies among Chernobyl liquidators from Belarus, the Russian Federation, and the Baltic countries; cancer incidence follow-up 1993–1998 for the Russian Federation, 1993–2000 for Belarus, 1990–1998 for Baltic countries.	Alive at time of diagnosis.	Realistic Analytical Dose Reconstruction with Uncertainty Estimation (RADRUE)	All hematologic malignancies	70 cases/287 controls	ERR/100mGy 0.60 (90%CI: -0.02, 2.35)	ERR/100mGy for CLL was 0.47 (< 0, 7.61).	
				Leukaemia	40 cases/165 controls	0.48 (< 0, 3.31)		
Romanenko <i>et al.</i> (2008), Ukraine The Ukrainian-American Study	Case-control study of leukaemia among Ukrainian liquidators; 71 leukaemia cases ascertained during the period 1986–2000	5 controls alive and at risk at time of index case diagnosis, matched on oblast, year of birth	Realistic Analytical Dose Reconstruction with Uncertainty Estimation (RADRUE)	Leukaemia	71	ERR/Gy 3.44 (95%CI: 0.47–9.78)	ERR/Gy for non-CLL leukaemia was 2.73 (< 0, 13.50) and ERR/Gy for CLL was 4.09 (< 0, 14.41). The association was primarily due to those exposed at ages 45+ years.	

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Yiin <i>et al.</i> (2007), Portsmouth, USA The PNS Study	Case-control study of lung cancer among shipyard workers; 1 097 cases ascertained during the period 1952–1996	3291 controls alive and at risk at age of index case				ERR/10 mSv 0.019 (95%CI: –0.09, 0.066)		
Schubauer-Berigan <i>et al.</i> (2007), MultiSite Leukaemia Study	Case-control study of leukaemia among workers; 206 leukaemia cases ascertained during the period 1986–2000	823 controls alive and at risk at age of index case diagnosis, matched on facility, year of birth	Personal dosimeter	Leukaemia		ERR/10 mSv 0.0144, (90%CI: <–0.0103, 0.0759)	Sex and benzene	