

Table 4. Findings of Case-Control Studies of Brain Cancer and Occupation

Citation	Population	Exposure	Occupation	Risk Estimate	CI
Brownson RC et al. 1990	312 cases and 1248 controls identified from Missouri Cancer Registry for pd from 1984-1988	Not specifically stated	Agricultural crop production	150	100-240
			Printing and publishing	280	100-830
			<b>Firefighters</b>	200	40-960
Carozza et al. 2000	476 cases and 462 controls from San Francisco	Not specifically stated	<b>Firefighters ever employed w/ no latency period</b>	270	30-2610
			<b>Firefighters ever employed w/ 10 year latency period</b>	270	30-2610
			Mathematical, physical, and computer scientists <10 yrs employment with 10 year latency period	180	100-320
			Legal and social service workers w/≥10 years employment with 10 year latency period.	360	100-1370
			<b>Firemen with astrocytic tumors</b>	360	40-3610
Cocco et al. 1998	28,416 cases and 113,664 controls from US pop 1984-1992	Risk estimates for FF not reported.	<b>States no increase in risk for FF. Has extensive list of occupations and odds ratios.</b>		
			Petroleum refining- white males	140	110-190
			Leather tanning- white males	240	110-550
			Leather tanning- white females	740	180-3100
Krishnan et al. 2003	879 cases of adult gliomas in 6 San Fran Bay area counties, 864 controls	Not specifically stated	<b>Firefighter- longest held occupation</b>	588	70-4901
			<b>Firefighter- ever employed</b>	285	77-1058
			Food services workers- longest held	180	102-321
			Male janitors- longest held	884	111-7044
			Motor vehicle operator- longest held	208	103-420
			Physicians, surgeons (longest held)- Astrocytic cases	344	107-1110
			Janitors (longest held)- non-astrocytic cases	394	100-1560
			Textile workers (longest held)- non-astrocytic cases	582	125-2705
Ma et al. 1998	1883 black and white male FF from 24 states. Used death certificates from 1984-1993	Not specifically stated	<b>White FF</b>	100	80-140
			<b>Black FF</b>	690	300-1600
Sama et al. 1990	315 cases-white male FF. Used policeman and statewide males as ref pop.	Not specifically stated	<b>Firefighters w/ statewide males as ref pop</b>	86	34-215
			<b>FF w/ policeman as ref pop</b>	152	39-592
Burch JD et al. 1987	215 cases and 215 controls	Not specifically stated	Employment in rubber industry	900	
Cocco et al. 1999	12980 female cases and 51,920 female controls	EMF, methylene chloride, insecticides, fungicides, contact w/ public	Not list occupations but just job related exposures		
			PAH & CNS cancer	110	100-130
			PAH & meningioma	40	10-160
			Chlorinated aliphatic hydrocarbons- CNS cancer	110	110-120
Fincham et al. 1993	5 male cases and 61 male controls from Alberta 11 female cases and 401 females control from Alberta	Not specifically stated	Printing/publishing	338	162-705
			Educational Services	266	145-487

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Navas-Acien et al. 2002	Swedish men and women	Arsenic, mercury, petroleum products	<b>Male- Glioma Risk</b>		
			Chemist- occupation in 1970 census	187	101-348
			Veterinarian- occupation in 1970 census	298	112-795
			Dentist- occupation in 1970 and 1960	215	122-379
			Accountant, auditor- occupation in 1970 & 1960	235	112-493
			Forestry supervisor- occupation in 1970	163	105-254
			Horticultural worker- occupation in 1970	175	129-237
			Horticultural worker- occupation in 1970 & 1960	198	121-323
			Other mining and quarrying worker- occupation in 1970 & 1960	632	204-1965
			Road traffic supervisor-occupation in 1970	174	104-288
			Precision toolmaker-occupation in 1970	166	102-272
			Frame, circular sawyer and planer- occupation in 1970	239	107-534
			Services and military workers- occupation in 1970	118	102-136
			Other civilian protect service worker- occupation in 1970	194	134-282
			<b>Female- Glioma Risk</b>		
			Educational methods advisor- occupation in 1970	407	203-816
			Designer- occupation in 1970	369	153-887
			Sculptor, painter, photograph artist- occupation in 1970 & 1960	701	263-1871
			Librarian, archivist, curator- occupation in 1970	184	104-325
			Other engin. & building metal workers- occupation in 1970 & 1960	355	159-793
Navas-Acien et al. 2002	Swedish men and women	Lead	<b>Male- Meningioma Risk</b>		
			University, higher education teacher- occupation in 1970 & 1960	331	107-1031
			Social worker- occupation in 1970	312	140-697
			Managing director- occupation in 1970 & 1960	172	100-298
			Patternmaker, cutter- occupation in 1970	368	138-983
			Toolmaker, setter, & operator- occupation in 1970	139	104-184
			<b>Female- Meningioma Risk</b>		
			Professional and technical work- occupation in 1970	114	100-131
			Practical nurse- occupation in 1970 & 1960	145	100-210
			Class teacher- occupation in 1970	145	106-200
			Other educational worker- occupation in 1970	273	102-728
			Administrative and managerial- occupation in 1970	154	100-238
			Administrative and managerial- 1970 & 1960	313	130-753
			Other business manager- 1970	174	101-301
			Bookkeeping & cashier work- 1970 & 1960	171	108-269
			Motor-vehicle driver, tram driver- 1970	249	119-524
			Delivery women- 1970 & 1960	614	153-2460
			Store and warehouse worker- 1970 & 1960	291	109-778
			Transportation and repair	230	110-430

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Preston-Martin S et al. 1989	272 cases in men aged 25-69 and 272 matched controls	Electric and magnetic fields, x-rays, rubber, plastics, petroleum	Astrocytoma risk for jobs w/ high exposure to electric and magnetic fields w/ >5 years employment	430	120-1560
			Meningiomas in jobs w/ exposure to petroleum products such as gasoline or kerosene	360	130-1240
Robinson et al. 1999	Women <65 yrs old in fastest growing or traditionally female occupations	Not specifically stated	Teacher 1984-1995	125	114-137
			Teacher 1984-1989	124	108-142
			Teacher 1990- 1995	126	110-144
			Actors and directors 1984-1995	264	114-520
			Actors and directors 1990-1995	407	164-838
Rodvall et al. 1996	192 cases of glioma and 192 matched controls in Sweden	Pesticides, plastics, solvents	Men exposed to plastics	360	100-1240
			Men exposed to radiation	240	110-550
			Men exposed to solvents	260	130-520
			Men exposed to benzene	550	140-2130
			Women exposed to dust	210	100-460
Santana et al. 1999	40 cases of brain and CNS tumors, 671 controls w/ other cancers-from Brazilian Navy.	Not specifically stated	Brazilian Navy Men ≤ 56 yrs old	463	254-845
			Unmarried	318	169-599
			Unmarried-age adjusted	338	176-652
			Health related occupation	297	114-775
			Health related occupation- age adjusted	293	107-807
			Unmarried- ≥20 years enlistment time	380	169-856
			Health related occupation- ≥20 years enlistment time	463	177-1216
			Health related occupation adjusted for age, marital status, SES	231	107-497
Thomas TL et al. 1982	Brain cancer mortality in white male active and retired OCAW members employed by 3 different oil refineries	Not specifically stated	Oil refinery worker- died b/w 1943-1949	425	
			Died b/w 1950-59	250	
			Died b/w 1950-59 w/ age at death=50-64	286	
			Age at death= 50-64	224	
			All brain cancer deaths	210	
Thomas TL et al. 1987	435 cases from primary brain tumor, 386 controls	Microwave and radiofrequency	Subjects ever exposed to microwave & radiofrequency (MW/RF) electromagnetic radiation	160	100-240
			Ever exposed to MW/RF radiation in electrical or electronics job	230	130-420
			Electronics manufacture and repair workers-exposed controls	390	160-990
			Electronics manufacture and repair workers-astrocytic tumor cases	460	190-1220

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Zheng et al. 2001	375 cases of brain glioma and 2434 controls from Iowa.	Not specifically stated	<b>Men</b>		
			Rubber and plastics products	490	120-1920
			Rubber and plastics products w/ $\geq 10$ yrs experience	530	130-2160
			Electrical service	570	170-1870
			Plumbing, heating, AC w/ $< 10$ yrs experience	2160	180-25900
			Roofing, siding, and sheet metalwork	2230	320-15300
			Roofing, siding, and sheet metalwork w/ $\geq 10$ years experience	1110	150-8310
			Newspaper	580	190-1790
			Newspaper w/ $\geq 10$ years experience	820	240-2750
			Wholesale trade: durable goods	240	110-490
			Wholesale trade: farm products	580	190-1840
			Wholesale trade: farm products w/ $< 10$ yrs experience	1730	160-18500
			Wholesale trade: grain and field beans	760	180-3310
			Wholesale trade: grain and field beans w/ $\geq 10$ yrs experience	740	130-4080
			Gasoline service stations	480	120-1930
			<b>Women</b>		
			Agriculture	340	140-850
			Agriculture w/ $\geq 10$ yrs experience	340	130-920
			Apparel and other textile products	490	130-1830
			Apparel and other textile products w/ $\geq 10$ yrs experience	1040	210-5070
			Electrical and electronic equipment	330	100-1020
			Electrical and electronic equipment w/ $\geq 10$ yrs experience	680	130-3660
			Dept stores w/ $\geq 10$ yrs experience	290	110-770
			Misc retail w/ $\geq 10$ yrs experience	320	100-1000
			Drug stores and proprietary	380	100-1420
			Drug stores and proprietary w/ $\geq 10$ yrs experience	600	150-2480