Supplementary Material

Interactions between occupational exposure to extremely low frequency magnetic fields and chemicals for brain tumor risk in the INTEROCC study

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Supplementary Table S1. Most Frequent Jobs Among Participants in Categories of Cumulative Occupational ELF Exposure in the 1-4 Year Exposure Time Window and Solvent Exposure (5-year lag), INTEROCC study, 2000-2004, Australia, Canada, France, Germany, Israel, New Zealand, and United Kingdom.

ISCO88	Job Title	Frequency (n)
Low ELF - Never Solvent		
4115	Secretaries	340
2320	Secondary education teaching professionals	181
5220	Shop salespersons and demonstrators	155
5131	Child-care workers	118
2411	Accountants	110
High ELF – Never Solvent		
4190	Other office clerks	236
5220	Shop salespersons and demonstrators	226
9132	Helpers and cleaners in offices, hotels and other establishments	131
3415	Technical and commercial sales representatives	122
2230	Nursing and midwifery professionals	118
Low ELF - Any Solvent		
8324	Heavy-truck and lorry drivers	17
7141	Painters and related workers	16
1222	Production and operations department managers in manufacturing	9
8334	Lifting-truck operators	9
5220	Shop salespersons and demonstrators	8
High ELF – Any Solvent		
7231	Motor vehicle mechanics and fitters	57
7233	Machine-tool setters and setter-operators	47
7141	Painters and related workers	22
8232	Plastic-products machine operators	22
7341	Compositors, typesetters and related workers	19

Note: out of a total number of 9,368 jobs.

Supplementary Table S2. Adjusted ORs (95% CIs) for Glioma in Relation to Categorical Indicators of Cumulative Occupational ELF (1-4 Year Exposure Time Window) and Any Solvent or Other Chemical (5-year lag) Exposures, INTEROCC study, 2000-2004, Australia, Canada, France, Germany, Israel, New Zealand, and United Kingdom[a].

Chemical Exposure	Low ELF (<50th percentile)		High ELF (≥50th percentile)		High vs. Low ELF in stratum of chemical	Interaction Term (multiplicative)[b]
	Cases/ Controls	OR (95% CI)	Cases/ Controls	OR (95% CI)	OR (95% CI)	OR (95% CI)
Solvents						
Never Solvent	578/1832	1.00 (ref)	762/1814	1.36 (1.19-1.56)	1.36 (1.19-1.55)	1.32 (0.85-2.06)
Ever Solvent	44/133	0.73 (0.50-1.06)	112/196	1.31 (1.00-1.71)	1.73 (1.01-2.98)	
Ever vs. Never solvent in stratum of ELF		0.69 (0.47-1.02)		0.92 (0.70-1.21)		
Never aliphatic and alicyclic hydrocarbons	578/1832	1.00 (ref)	762/1814	1.36 (1.19-1.56)	1.36 (1.19-1.55)	1.01 (0.50-2.06)
Ever aliphatic and alicyclic hydrocarbons	19/49	0.91 (0.52-1.60)	34/63	1.26 (0.80-1.96)	1.11 (0.24-5.22)	
Ever vs. Never aliphatic and alicyclic hydrocarbons in stratum of ELF		0.86 (0.48-1.52)		0.91 (0.57-1.43)		
Never aromatic hydrocarbons	578/1827	1.00 (ref)	762/1812	1.36 (1.19-1.56)	1.36 (1.19-1.55)	1.27 (0.79-2.05)
Ever aromatic hydrocarbons	38/116	0.70 (0.47-1.04)	94/178	1.22 (0.91-1.62)	1.78 (1.00-3.18)	
Ever vs. Never aromatic hydrocarbons in stratum of ELF		0.66 (0.44-0.99)		0.84 (0.63-1.12)		
Never other organic solvents	578/1827	1.00 (ref)	762/1812	1.36 (1.19-1.56)	1.36 (1.19-1.55)	0.93 (0.40-2.17)
Ever other organic solvents	14/27	1.11 (0.56-2.17)	25/41	1.41 (0.83-2.38)	1.15 (0.19-7.06)	
Ever vs. Never other organic solvents in stratum of ELF		1.03 (0.52-2.05)		0.97 (0.56-1.67)		
Never toluene	578/1827	1.00 (ref)	762/1812	1.37 (1.19-1.57)	1.36 (1.19-1.55)	1.07 (0.50-2.29)
Ever toluene	16/44	0.81 (0.44-1.47)	28/57	1.18 (0.73-1.91)	1.59 (0.41-6.15)	
Ever vs. Never toluene in stratum of ELF		0.77 (0.42-1.41)		0.81 (0.50-1.33)		
Other						
Never animal dust	629/2023	1.00 (ref)	920/2122	1.39 (1.23-1.58)	1.40 (1.24-1.59)	0.82 (0.47-1.42)
Ever animal dust	39/93	1.22 (0.81-1.81)	43/82	1.38 (0.92-2.05)	1.03 (0.50-2.15)	
Ever vs. Never animal dust in stratum of ELF		1.04 (0.69-1.57)		1.05 (0.70-1.58)		
Never asbestos	559/1821	1.00 (ref)	682/1736	1.29 (1.12-1.48)	1.29 (1.12-1.48)	1.55 (1.07-2.24)
Ever asbestos	64/194	0.72 (0.52-0.99)	198/322	1.44 (1.14-1.80)	1.99 (1.38-2.88)	
Ever vs. Never asbestos in stratum of ELF		0.72 (0.51-1.01)		1.11 (0.88-1.40)		

Never benzo(a)pyrene	122/255	1.00 (ref)	89/208	0.88 (0.62-1.24)	0.91 (0.61-1.34)	1.91 (1.22-3.00)
Ever benzo(a)pyrene	108/354	0.51 (0.36-0.72)	224/440	0.86 (0.63-1.18)	1.69 (1.27-2.26)	
Ever vs. Never benzo(a)pyrene in stratum of ELF		0.59 (0.40-0.87)		0.99 (0.68-1.44)		
Never diesel exhaust emissions	553/1857	1.00 (ref)	773/1881	1.38 (1.21-1.58)	1.39 (1.21-1.59)	0.99 (0.67-1.46)
Ever diesel exhaust emissions	74/185	1.01 (0.74-1.37)	110/201	1.38 (1.05-1.81)	1.27 (0.85-1.91)	
Ever vs. Never diesel exhaust emissions in stratum of ELF		1.00 (0.72-1.39)		1.00 (0.76-1.32)		
Never formaldehyde	615/1970	1.00 (ref)	845/1966	1.37 (1.21-1.56)	1.38 (1.21-1.57)	1.37 (0.75-2.48)
Ever formaldehyde	22/86	0.68 (0.42-1.12)	55/131	1.28 (0.91-1.81)	1.45 (0.67-3.14)	
Ever vs. Never formaldehyde in stratum of ELF		0.70 (0.42-1.16)		0.92 (0.64-1.31)		
Never gasoline exhaust emissions	583/1915	1.00 (ref)	832/1965	1.39 (1.22-1.59)	1.40 (1.22-1.60)	0.95 (0.64-1.42)
Ever gasoline exhaust emissions	70/180	0.96 (0.71-1.32)	103/198	1.28 (0.97-1.69)	1.16 (0.76-1.77)	
Ever vs. Never gasoline exhaust emissions in stratum of ELF		0.95 (0.68-1.32)		0.92 (0.70-1.22)		
Never oil mist	629/1991	1.00 (ref)	877/2063	1.37 (1.20-1.55)	1.38 (1.21-1.56)	1.51 (0.75-3.03)
Ever oil mist	18/57	0.70 (0.40-1.22)	38/59	1.44 (0.94-2.22)	1.99 (0.79-5.05)	
Ever vs. Never oil mist in stratum of ELF		0.76 (0.43-1.36)		1.03 (0.66-1.61)		
Never polycyclic aromatic hydrocarbons	125/265	1.00 (ref)	94/216	0.90 (0.64-1.27)	0.97 (0.67-1.43)	1.89 (1.21-2.94)
Ever polycyclic aromatic hydrocarbons	108/358	0.51 (0.37-0.72)	227/448	0.87 (0.64-1.19)	1.71 (1.28-2.28)	
Ever vs. Never polycyclic aromatic hydrocarbons in stratum of ELF		0.59 (0.40-0.87)		0.96 (0.67-1.38)		
Never quartz	596/1983	1.00 (ref)	849/2000	1.42 (1.25-1.62)	1.41 (1.24-1.61)	0.75 (0.49-1.13)
Ever quartz	67/130	1.28 (0.92-1.78)	102/187	1.35 (1.03-1.78)	1.27 (0.80-2.02)	
Ever vs. Never quartz in stratum of ELF		1.41 (1.00-2.01)		0.93 (0.70-1.23)		
Never wood dust	652/2085	1.00 (ref)	926/2131	1.39 (1.23-1.57)	1.39 (1.22-1.57)	0.86 (0.42-1.74)
Ever wood dust	18/40	1.05 (0.59-1.88)	38/76	1.25 (0.82-1.89)	1.47 (0.51-4.25)	
Ever vs. Never wood dust in stratum of ELF		1.18 (0.65-2.16)		0.95 (0.62-1.45)		

[a] Conditional logistic regression models were stratified by country-region, sex, and five-year age groups, and adjusted for level of education. The 50th percentile of ELF among the control distribution was 0.46 μT-years.

[b] *p* values for interaction (multiplicative scale) were as follows: solvent (0.22), aliphatic and alicyclic hydrocarbons (0.97), aromatic hydrocarbons (0.32), other organic solvents (0.87), toluene (0.86), animal dust (0.47), asbestos (0.02), benzo(a)pyrene (0.005), diesel exhaust emissions (0.96), formaldehyde (0.30), gasoline engine exhaust (0.81), oil mist (0.24), polycyclic aromatic hydrocarbons (0.005), quartz (0.16), wood dust (0.67).

Supplementary Table S3. Adjusted ORs (95% CIs) for Meningioma in Relation to Categorical Indicators of Cumulative Occupational ELF (1-4 Year Exposure Time Window) and Any Solvent or Other Chemical (5-year lag) Exposures, INTEROCC study, 2000-2004, Australia, Canada, France, Germany, Israel, New Zealand, and United Kingdom[a].

Chemical Exposure	Low ELF (<50th percentile)		High ELF (≥50th percentile)		High vs. Low ELF in stratum of chemical	Interaction Term (multiplicative)[b]
	Cases/ Controls	OR (95% CI)	Cases/ Controls	OR (95% CI)	OR (95% CI)	OR (95% CI)
Solvents						
Never Solvent	543/1753	1.00 (ref)	597/1743	1.19 (1.03-1.37)	1.19 (1.03-1.37)	1.29 (0.73-2.31)
Ever Solvent	25/119	0.91 (0.57-1.46)	51/174	1.40 (0.98-2.00)	1.40 (0.69-2.83)	
Ever vs. Never solvent in stratum of ELF		0.91 (0.55-1.50)		1.19 (0.82-1.71)		
Never aliphatic and alicyclic hydrocarbons	543/1700	1.00 (ref)	597/1693	1.19 (1.03-1.38)	1.19 (1.03-1.37)	0.96 (0.42-2.20)
Ever aliphatic and alicyclic hydrocarbons	16/43	1.36 (0.73-2.52)	18/54	1.55 (0.87-2.75)	1.01 (0.25-4.08)	
Ever vs. Never aliphatic and alicyclic hydrocarbons in stratum of ELF		1.37 (0.72-2.64)		1.32 (0.74-2.38)		
Never aromatic hydrocarbons	543/1753	1.00 (ref)	597/1743	1.19 (1.03-1.37)	1.19 (1.03-1.37)	1.53 (0.79-2.97)
Ever aromatic hydrocarbons	17/106	0.72 (0.42-1.26)	41/156	1.32 (0.90-1.95)	1.78 (0.78-4.08)	
Ever vs. Never aromatic hydrocarbons in stratum of ELF		0.68 (0.38-1.21)		1.14 (0.77-1.70)		
Never other organic solvents	543/1694	1.00 (ref)	597/1686	1.19 (1.03-1.37)	1.19 (1.03-1.37)	0.99 (0.34-2.85)
Ever other organic solvents	9/26	1.43 (0.63-3.22)	12/35	1.68 (0.84-3.36)	1.96 (0.15-25.82)	
Ever vs. Never other organic solvents in stratum of ELF		1.21 (0.52-2.84)		1.47 (0.72-3.01)		
Never toluene	543/1700	1.00 (ref)	597/1693	1.19 (1.03-1.38)	1.19 (1.03-1.37)	0.94 (0.37-2.35)
Ever toluene	12/38	1.24 (0.62-2.47)	15/48	1.38 (0.74-2.56)	0.50 (0.11-2.30)	
Ever vs. Never toluene in stratum of ELF		1.12 (0.55-2.32)		1.24 (0.66-2.35)		
Other						
Never animal dust	582/1930	1.00 (ref)	677/2019	1.22 (1.06-1.39)	1.21 (1.06-1.39)	0.54 (0.28-1.07)
Ever animal dust	30/85	1.27 (0.81-1.99)	21/79	0.83 (0.50-1.40)	0.75 (0.32-1.75)	
Ever vs. Never animal dust in stratum of ELF		1.29 (0.80-2.06)		0.71 (0.42-1.21)		
Never asbestos	550/1716	1.00 (ref)	581/1624	1.18 (1.02-1.36)	1.19 (1.03-1.37)	1.02 (0.64-1.65)
Ever asbestos	38/172	1.04 (0.70-1.56)	75/280	1.26 (0.92-1.72)	1.27 (0.75-2.16)	
Ever vs. Never asbestos in stratum of ELF		0.87 (0.57-1.34)		1.08 (0.78-1.51)		

Never benzo(a)pyrene	98/251	1.00 (ref)	71/197	0.79 (0.54-1.17)	0.80 (0.52-1.19)	2.03 (1.22-3.39)
Ever benzo(a)pyrene	76/285	0.76 (0.51-1.13)	142/346	1.23 (0.86-1.75)	1.58 (1.09-2.27)	
Ever vs. Never benzo(a)pyrene in stratum of ELF		0.87 (0.55-1.36)		1.51 (0.98-2.33)		
Never diesel exhaust emissions	552/1767	1.00 (ref)	613/1778	1.19 (1.04-1.38)	1.19 (1.03-1.37)	1.03 (0.59-1.80)
Ever diesel exhaust emissions	29/164	0.89 (0.58-1.38)	39/178	1.09 (0.74-1.62)	1.21 (0.65-2.24)	
Ever vs. Never diesel exhaust emissions in stratum of ELF		0.86 (0.54-1.37)		0.94 (0.64-1.40)		
Never formaldehyde	569/1858	1.00 (ref)	616/1843	1.19 (1.03-1.37)	1.19 (1.04-1.38)	1.04 (0.57-1.87)
Ever formaldehyde	27/85	0.91 (0.57-1.45)	48/123	1.13 (0.78-1.63)	1.31 (0.62-2.76)	
Ever vs. Never formaldehyde in stratum of ELF		0.86 (0.53-1.38)		0.85 (0.57-1.25)		
Never gasoline exhaust emissions	578/1812	1.00 (ref)	649/1844	1.18 (1.03-1.36)	1.17 (1.02-1.35)	1.09 (0.60-1.98)
Ever gasoline exhaust emissions	25/153	0.73 (0.46-1.16)	35/175	0.94 (0.63-1.41)	1.03 (0.53-1.98)	
Ever vs. Never gasoline exhaust emissions in stratum of ELF		0.70 (0.43-1.13)		0.82 (0.55-1.24)		
Never oil mist	587/1879	1.00 (ref)	660/1942	1.18 (1.03-1.35)	1.18 (1.03-1.36)	0.81 (0.35-1.88)
Ever oil mist	15/47	1.72 (0.92-3.21)	19/52	1.64 (0.93-2.90)	1.27 (0.15-11.09)	
Ever vs. Never oil mist in stratum of ELF		1.67 (0.86-3.24)		1.58 (0.88-2.85)		
Never polycyclic aromatic hydrocarbons	99/260	1.00 (ref)	72/204	0.81 (0.55-1.18)	0.79 (0.53-1.19)	2.02 (1.21-3.37)
Ever polycyclic aromatic hydrocarbons	76/292	0.77 (0.52-1.13)	143/350	1.25 (0.88-1.78)	1.57 (1.09-2.26)	
Ever vs. Never polycyclic aromatic hydrocarbons in stratum of ELF		0.87 (0.56-1.36)		1.51 (0.98-2.31)		
Never quartz	584/1904	1.00 (ref)	645/1917	1.20 (1.05-1.38)	1.19 (1.04-1.37)	0.72 (0.41-1.26)
Ever quartz	31/108	1.47 (0.94-2.31)	52/170	1.27 (0.89-1.81)	1.05 (0.51-2.18)	
Ever vs. Never quartz in stratum of ELF		1.58 (0.97-2.56)		1.09 (0.76-1.56)		
Never wood dust	609/1991	1.00 (ref)	688/2034	1.20 (1.05-1.37)	1.19 (1.04-1.37)	0.66 (0.23-1.87)
Ever wood dust	7/32	1.23 (0.52-2.91)	14/68	0.96 (0.52-1.77)	0.62 (0.06-7.00)	
Ever vs. Never wood dust in stratum of ELF		1.32 (0.54-3.25)		0.82 (0.44-1.52)		

[a] Conditional logistic regression models were stratified by country-region, sex, and five-year age groups, and adjusted for level of education. The 50th percentile of ELF among the control distribution was 0.46 μT-years.

[b] *p* values for interaction (multiplicative scale) were as follows: solvent (0.38), aliphatic and alicyclic hydrocarbons (0.92), aromatic hydrocarbons (0.21), other organic solvents (0.98), toluene (0.89), animal dust (0.08), asbestos (0.92), benzo(a)pyrene (0.007), diesel exhaust emissions (0.93), formaldehyde (0.91), gasoline engine exhaust (0.77), oil mist (0.63), polycyclic aromatic hydrocarbons (0.007), quartz (0.25), wood dust (0.43).

Supplementary Table S4. Adjusted ORs (95% CIs) for Glioma in Relation to Categorical Indicators of Cumulative Occupational ELF (1-4 Year Exposure Time Window) and Cumulative Metal (5-year lag) Exposure, Exposed Only Analysis, INTEROCC study, 2000-2004, Australia, Canada, France, Germany, Israel, New Zealand, and United Kingdom[a].

Metal Exposure	Low ELF (<50th percentile)		High ELF (≥50th percentile)		High vs. Low ELF in stratum of metal	Interaction Term (multiplicative)[b]
	Cases/ Controls	OR (95% CI)	Cases/ Controls	OR (95% CI)	OR (95% CI)	OR (95% CI)
Low cadmium	-	-	-	-	-	-
High cadmium	-	-	-	-	-	
High vs. Low cadmium in stratum of ELF		-		-		
Low chromium	14/37	1.00 (ref)	64/78	1.88 (0.87-4.07)	1.70 (0.69-4.18)	0.79 (0.28-2.20)
High chromium	24/39	1.54 (0.65-3.63)	63/63	2.28 (1.07-4.85)	1.64 (0.74-3.65)	
High vs. Low chromium in stratum of ELF		2.34 (0.74-7.37)		1.30 (0.74-2.27)		
Low iron	19/66	1.00 (ref)	74/107	2.41 (1.29-4.50)	2.07 (1.04-4.12)	0.54 (0.24-1.24)
High iron	34/66	1.94 (0.96-3.91)	94/120	2.53 (1.37-4.66)	1.53 (0.85-2.75)	
High vs. Low iron in stratum of ELF		2.18 (0.90-5.24)		1.01 (0.63-1.63)		
Low lead	14/36	1.00 (ref)	41/63	1.56 (0.72-3.39)	1.61 (0.56-4.63)	1.20 (0.42-3.41)
High lead	15/42	0.79 (0.33-1.90)	63/85	1.47 (0.73-2.99)	2.13 (0.92-4.94)	
High vs. Low lead in stratum of ELF		0.55 (0.18-1.65)		0.93 (0.52-1.66)		
Low nickel	17/53	1.00 (ref)	69/83	2.00 (1.02-3.94)	1.90 (0.89-4.05)	0.63 (0.26-1.53)
High nickel	31/56	1.49 (0.71-3.14)	79/97	1.86 (0.97-3.58)	1.79 (0.92-3.50)	
High vs. Low nickel in stratum of ELF		1.46 (0.56-3.83)		0.87 (0.52-1.45)		
Low welding fumes	17/49	1.00 (ref)	62/65	2.45 (1.22-4.90)	2.26 (1.06-4.81)	0.71 (0.25-1.99)
High welding fumes	14/40	1.06 (0.43-2.59)	69/97	1.84 (0.93-3.63)	1.86 (0.86-4.04)	
High vs. Low welding fumes in stratum of ELF		0.96 (0.26-3.56)		0.76 (0.44-1.31)		

[a] Conditional logistic regression models were stratified by country-region, sex, and five-year age groups, and adjusted for level of education. The 50th percentile of ELF among the control distribution was 0.46 μT-years. The 50th percentiles of cumulative metal exposure among the control distribution were: 162.40 μg/m^3 cadmium, 746.25 μg/m^3 chromium, 132.03 mg/m^3 iron, 233.62 μmol/l blood lead, 589.90 μg/m^3 nickel, and 301.50 mg/m^3 welding fumes.

[b] *p* values for interaction (multiplicative scale) were as follows: chromium (0.65), iron (0.15), lead (0.73), nickel (0.30), welding fumes (0.51).

Supplementary Table S5. Adjusted ORs (95% CIs) for Meningioma in Relation to Categorical Indicators of Cumulative Occupational ELF (1-4 Year Exposure Time Window) and Cumulative Metal (5-year lag) Exposure, Exposed Only Analysis, INTEROCC study, 2000-2004, Australia, Canada, France, Germany, Israel, New Zealand, and United Kingdom[a].

Metal Exposure	Low ELF (<50th percentile)		High ELF (≥50th percentile)		High vs. Low ELF in stratum of metal	Interaction Term (multiplicative)[b]
	Cases/ Controls	OR (95% CI)	Cases/ Controls	OR (95% CI)	OR (95% CI)	OR (95% CI)
Low cadmium	-	-	-	-	-	-
High cadmium	-	-	-	-	-	
High vs. Low cadmium in stratum of ELF		-		-		
Low chromium	6/24	1.00 (ref)	15/45	1.15 (0.37-3.61)	1.32 (0.36-4.85)	1.04 (0.24-4.53)
High chromium	9/21	1.51 (0.44-5.13)	27/45	1.79 (0.61-5.28)	0.78 (0.25-2.40)	
High vs. Low chromium in stratum of ELF		5.65 (0.59-54.64)		1.39 (0.50-3.87)		
Low iron	7/43	1.00 (ref)	34/75	2.62 (1.03-6.64)	2.79 (0.94-8.28)	0.28 (0.08-0.94)
High iron	17/48	2.50 (0.88-7.09)	29/82	1.83 (0.68-4.93)	0.74 (0.31-1.79)	
High vs. Low iron in stratum of ELF		5.55 (0.95-32.44)		0.70 (0.34-1.45)		
Low lead	-	-	-	-	-	-
High lead	-	-	-	-	-	
High vs. Low lead in stratum of ELF		-		-		
Low nickel	9/39	1.00 (ref)	24/50	1.79 (0.71-4.52)	1.80 (0.62-5.23)	0.69 (0.19-2.60)
High nickel	10/36	1.27 (0.42-3.85)	26/66	1.58 (0.62-4.02)	1.05 (0.38-2.91)	
High vs. Low nickel in stratum of ELF		2.81 (0.47-16.90)		0.70 (0.31-1.58)		
Low welding fumes	-	-	-	-	-	-
High welding fumes	-	-	-	-	-	
High vs. Low welding fumes in stratum of ELF		-		-		

[a] Conditional logistic regression models were stratified by country-region, sex, and five-year age groups, and adjusted for level of education. The 50th percentile of ELF among the control distribution was 0.46 μT-years. The 50th percentiles of cumulative metal exposure among the control distribution were: 162.40 $\mu g/m^3$ cadmium, 746.25 $\mu g/m^3$ chromium, 132.03 mg/m^3 iron, 233.62 μmol/l blood lead, 589.90 $\mu g/m^3$ nickel, and 301.50 mg/m^3 welding fumes.

[b] *p* values for interaction (multiplicative scale) were as follows: chromium (0.96), iron (0.04), nickel (0.59).

Supplementary Table S6. Adjusted ORs (95% CIs) for Glioma in Relation to Categorical Indicators of Cumulative Occupational ELF (1-4 Year Exposure Time Window) and Cumulative Solvent or Other Chemical (5-year lag) Exposures, Exposed Only Analysis, INTEROCC study, 2000-2004, Australia, Canada, France, Germany, Israel, New Zealand, and United Kingdom[a].

Chemical Exposure	Low ELF (<50th percentile)		High ELF (≥50th percentile)		High vs. Low ELF in stratum of chemical	Interaction Term (multiplicative)[b]
	Cases/ Controls	OR (95% CI)	Cases/ Controls	OR (95% CI)	OR (95% CI)	OR (95% CI)
Solvents						
Low aliphatic and alicyclic hydrocarbons	-	-	-	-	-	-
High aliphatic and alicyclic hydrocarbons	-	-	-	-	-	
High vs. Low aliphatic and alicyclic hydrocarbons in stratum of ELF		-		-		
Low aromatic hydrocarbons	12/28	1.00 (ref)	36/45	1.58 (0.66-3.80)	1.66 (0.57-4.81)	1.22 (0.39-3.85)
High aromatic hydrocarbons	17/39	0.92 (0.34-2.48)	47/52	1.77 (0.76-4.15)	1.86 (0.84-4.10)	
High vs. Low aromatic hydrocarbons in stratum of ELF		0.48 (0.07-3.22)		0.99 (0.47-2.11)		
Low other organic solvents	-	-	-	-	-	-
High other organic solvents	-	-	-	-	-	
High vs. Low other organic solvents in stratum of ELF		-		-		
Low toluene	-	-	-	-	-	-
High toluene	-	-	-	-	-	
High vs. Low toluene in stratum of ELF		-		-		
Other						
Low animal dust	10/17	1.00 (ref)	16/19	1.02 (0.33-3.16)	0.90 (0.26-3.18)	1.03 (0.20-5.44)
High animal dust	16/23	1.04 (0.26-4.20)	14/22	0.91 (0.27-3.08)	0.73 (0.24-2.25)	
High vs. Low animal dust in stratum of ELF		3.31 (0.19-59.23)		1.20 (0.85-1.68)		
Low asbestos	21/75	1.00 (ref)	91/140	2.19 (1.22-3.93)	1.94 (1.01-3.72)	0.87 (0.41-1.86)
High asbestos	41/98	1.39 (0.71-2.71)	100/130	2.65 (1.45-4.85)	1.93 (1.17-3.18)	
High vs. Low asbestos in stratum of ELF		1.73 (0.79-3.82)		1.22 (0.76-1.94)		
Low benzo(a)pyrene	45/174	1.00 (ref)	87/170	1.96 (1.27-3.02)	1.67 (1.05-2.67)	0.72 (0.40-1.29)
High benzo(a)pyrene	60/139	1.79 (1.11-2.87)	134/206	2.53 (1.66-3.85)	1.51 (0.99-2.31)	
High vs. Low benzo(a)pyrene in stratum of ELF		1.98 (1.14-3.44)		1.19 (0.80-1.77)		

Low diesel exhaust emissions	29/58	1.00 (ref)	44/78	0.95 (0.51-1.76)	1.14 (0.56-2.35)	1.67 (0.74-3.75)
High diesel exhaust emissions	41/80	0.96 (0.51-1.81)	61/79	1.52 (0.84-2.77)	2.09 (1.15-3.79)	
High vs. Low diesel exhaust emissions in stratum of ELF		1.10 (0.51-2.34)		1.62 (0.88-2.99)		
Low formaldehyde	6/22	1.00 (ref)	19/27	2.33 (0.72-7.63)	3.76 (0.70-20.30)	0.42 (0.09-2.01)
High formaldehyde	10/19	1.80 (0.52-6.31)	12/25	1.77 (0.51-6.15)	0.89 (0.26-3.02)	
High vs. Low formaldehyde in stratum of ELF		1.27 (0.23-6.85)		0.68 (0.23-2.03)		
Low gasoline exhaust emissions	34/61	1.00 (ref)	41/72	0.90 (0.48-1.68)	1.08 (0.55-2.10)	1.58 (0.68-3.70)
High gasoline exhaust emissions	32/69	0.81 (0.43-1.53)	57/82	1.15 (0.64-2.06)	1.80 (0.94-3.42)	
High vs. Low gasoline exhaust emissions in stratum of ELF		1.02 (0.48-2.18)		1.40 (0.73-2.71)		
Low oil mist	-	-	-	-	-	-
High oil mist	-	-	-	-	-	
High vs. Low oil mist in stratum of ELF		-		-		
Low polycyclic aromatic hydrocarbons	44/175	1.00 (ref)	94/173	2.15 (1.40-3.29)	1.92 (1.21-3.04)	0.63 (0.35-1.12)
High polycyclic aromatic hydrocarbons	61/141	1.78 (1.11-2.85)	130/208	2.40 (1.57-3.65)	1.40 (0.92-2.14)	
High vs. Low polycyclic aromatic hydrocarbons in stratum of ELF		1.87 (1.09-3.20)		1.04 (0.71-1.53)		
Low quartz	22/37	1.00 (ref)	38/65	1.05 (0.53-2.10)	1.56 (0.67-3.59)	1.41 (0.55-3.59)
High quartz	38/48	1.18 (0.54-2.54)	55/56	1.70 (0.54-5.33)	1.65 (0.81-3.38)	
High vs. Low quartz in stratum of ELF		1.70 (0.54-5.33)		1.63 (0.79-3.37)		
Low wood dust	-	-	-	-	-	-
High wood dust	-	-	-	-	-	
High vs. Low wood dust in stratum of ELF		-		-		

[a] Conditional logistic regression models were stratified by country-region, sex, and five-year age groups, and adjusted for level of education. The 50th percentile of ELF among the control distribution was 0.46 μT-years. The 50th percentiles of cumulative solvent exposure among the control distribution were: 4497.85 ppm aliphatic and alicyclic hydrocarbons, 4713.60 ppm aromatic hydrocarbons, 2911.58 ppm other organic solvents, 3916.67 ppm toluene. The 50th percentiles of other cumulative exposures among the control distribution were: 8.71 mg/m^3 animal dust, 46.29 f/cm^3 asbestos, 2.28 μg/m^3 benzo(a)pyrene, 43.60 mg/m^3 diesel exhaust emissions, 20.0 ppm formaldehyde, 3223.49 mg/m^3 gasoline exhaust emissions, 1505.00 mg/m^3 oil mist, 24.39 μg/m^3 polycyclic aromatic hydrocarbons, 30.96 mg/m^3 quartz, 412.81 mg/m^3 wood dust.

[b] *p* values for interaction (multiplicative scale) were as follows: aromatic hydrocarbons (0.74), animal dust (0.97), asbestos (0.72), benzo(a)pyrene (0.27), diesel exhaust emissions (0.22), formaldehyde (0.28), gasoline engine exhaust (0.29), polycyclic aromatic hydrocarbons (0.12), quartz (0.47).

Supplementary Table S7. Adjusted ORs (95% CIs) for Meningioma in Relation to Categorical Indicators of Cumulative Occupational ELF (1-4 Year Exposure Time Window) and Cumulative Solvent or Other Chemical (5-year lag) Exposures, Exposed Only Analysis, INTEROCC study, 2000-2004, Australia, Canada, France, Germany, Israel, New Zealand, and United Kingdom[a].

Chemical Exposure	Low ELF (<50th percentile)		High ELF (≥50th percentile)		High vs. Low ELF in stratum of chemical	Interaction Term (multiplicative)[b]
	Cases/ Controls	OR (95% CI)	Cases/ Controls	OR (95% CI)	OR (95% CI)	OR (95% CI)
Solvents						
Low aliphatic and alicyclic hydrocarbons	-	-	-	-	-	-
High aliphatic and alicyclic hydrocarbons	-	-	-	-	-	
High vs. Low aliphatic and alicyclic hydrocarbons in stratum of ELF		-		-		
Low aromatic hydrocarbons	8/17	1.00 (ref)	16/33	1.20 (0.42-3.46)	0.81 (0.23-2.91)	2.54 (0.49-13.23)
High aromatic hydrocarbons	6/23	0.48 (0.10-2.26)	15/29	1.47 (0.44-4.90)	3.23 (0.59-17.60)	
High vs. Low aromatic hydrocarbons in stratum of ELF		0.70 (0.07-6.74)		1.02 (0.35-2.99)		
Low other organic solvents	-	-	-	-	-	-
High other organic solvents	-	-	-	-	-	
High vs. Low other organic solvents in stratum of ELF		-		-		
Low toluene	-	-	-	-	-	-
High toluene	-	-	-	-	-	
High vs. Low toluene in stratum of ELF		-		-		
Other						
Low animal dust	7/15	1.00 (ref)	8/15	1.39 (0.35-5.61)	1.14 (0.21-6.29)	0.34 (0.05-2.27)
High animal dust	13/20	1.72 (0.44-6.70)	8/23	0.83 (0.24-2.90)	0.45 (0.10-2.07)	
High vs. Low animal dust in stratum of ELF		1.82 (0.28-11.72)		0.43 (0.09-2.08)		
Low asbestos	15/47	1.00 (ref)	27/85	0.97 (0.46-2.05)	0.79 (0.35-1.80)	1.71 (0.58-5.07)
High asbestos	16/48	0.75 (0.29-1.91)	40/78	1.24 (0.58-2.66)	1.56 (0.69-3.49)	
High vs. Low asbestos in stratum of ELF		0.26 (0.05-1.40)		1.70 (0.83-3.48)		
Low benzo(a)pyrene	39/131	1.00 (ref)	68/127	2.20 (1.33-3.66)	2.02 (1.16-3.52)	0.51 (0.25-1.04)
High benzo(a)pyrene	35/104	1.33 (0.75-2.37)	70/169	1.50 (0.90-2.51)	0.94 (0.51-1.71)	
High vs. Low benzo(a)pyrene in stratum of ELF		1.49 (0.76-2.92)		0.65 (0.40-1.07)		

Low diesel exhaust emissions	11/34	1.00 (ref)	15/53	0.88 (0.34-2.29)	0.83 (0.30-2.28)	1.80 (0.50-6.50)
High diesel exhaust emissions	13/53	1.11 (0.40-3.06)	22/52	1.76 (0.69-4.47)	1.66 (0.65-4.27)	
High vs. Low diesel exhaust emissions in stratum of ELF		1.12 (0.32-3.96)		1.60 (0.64-3.98)		
Low formaldehyde	9/22	1.00 (ref)	17/27	1.43 (0.47-4.32)	0.91 (0.23-3.71)	0.82 (0.18-3.63)
High formaldehyde	12/16	1.28 (0.38-4.38)	20/32	1.50 (0.54-4.13)	1.48 (0.39-5.64)	
High vs. Low formaldehyde in stratum of ELF		1.15 (0.28-4.73)		0.91 (0.33-2.47)		
Low gasoline exhaust emissions	11/31	1.00 (ref)	17/41	1.12 (0.43-2.89)	1.08 (0.39-3.00)	0.84 (0.22-3.18)
High gasoline exhaust emissions	11/39	1.01 (0.35-2.88)	16/55	0.95 (0.36-2.50)	1.22 (0.45-3.30)	
High vs. Low gasoline exhaust emissions in stratum of ELF		0.73 (0.19-2.90)		0.89 (0.36-2.17)		
Low oil mist	-	-	-	-	-	-
High oil mist	-	-	-	-	-	
High vs. Low oil mist in stratum of ELF		-		-		
Low polycyclic aromatic hydrocarbons	39/133	1.00 (ref)	73/126	2.20 (1.34-3.61)	2.20 (1.28-3.78)	0.50 (0.25-1.01)
High polycyclic aromatic hydrocarbons	35/104	1.30 (0.73-2.31)	66/174	1.43 (0.85-2.40)	1.00 (0.55-1.82)	
High vs. Low polycyclic aromatic hydrocarbons in stratum of ELF		1.49 (0.76-2.93)		0.63 (0.39-1.02)		
Low quartz	13/15	1.00 (ref)	20/26	0.80 (0.25-2.52)	0.49 (0.09-2.54)	1.60 (0.36-7.08)
High quartz	13/24	0.58 (0.18-1.91)	23/27	0.75 (0.25-2.20)	1.47 (0.53-4.08)	
High vs. Low quartz in stratum of ELF		0.78 (0.17-3.72)		0.92 (0.32-2.66)		
Low wood dust	-	-	-	-	-	-
High wood dust	-	-	-	-	-	
High vs. Low wood dust in stratum of ELF		-		-		

[a] Conditional logistic regression models were stratified by country-region, sex, and five-year age groups, and adjusted for level of education. The 50th percentile of ELF among the control distribution was 0.46 μT-years. The 50th percentiles of cumulative solvent exposure among the control distribution were: 4497.85 ppm aliphatic and alicyclic hydrocarbons, 4713.60 ppm aromatic hydrocarbons, 2911.58 ppm other organic solvents, 3916.67 ppm toluene. The 50th percentiles of other cumulative exposures among the control distribution were: 8.71 mg/m^3 animal dust, 46.29 f/cm^3 asbestos, 2.28 $\mu g/m^3$ benzo(a)pyrene, 43.60 mg/m^3 diesel exhaust emissions, 20.0 ppm formaldehyde, 3223.49 mg/m^3 gasoline exhaust emissions, 1505.00 mg/m^3 oil mist, 24.39 $\mu g/m^3$ polycyclic aromatic hydrocarbons, 30.96 mg/m^3 quartz, 412.81 mg/m^3 wood dust.

[b] *p* values for interaction (multiplicative scale) were as follows: aromatic hydrocarbons (0.27), animal dust (0.27), asbestos (0.33), benzo(a)pyrene (0.06), diesel exhaust emissions (0.37), formaldehyde (0.79), gasoline engine exhaust (0.80), polycyclic aromatic hydrocarbons (0.05), quartz (0.54).