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| **Supplementary Table 3.** Descriptive statistics for air toxic measures among controls residing within 3km of air monitoring stations in California (1984-2013). | | | | | | | | | | | | | | | | | | |
| **Agent** |  | **Mean (Standard Deviation)** | |  | **Inter-Quartile Range** |  | **Minimum** |  | **10th Percentile** |  | **25th Percentile** |  | **75th Percentile** |  | **90th Percentile** |  | **Maximum** |
| 1,3-Butadiene (ppbV) |  | 0.230 | (0.147) |  | 0.176 |  | 0.022 |  | 0.078 |  | 0.125 |  | 0.301 |  | 0.428 |  | 0.982 |
| Benzene (ppbV) |  | 0.967 | (0.736) |  | 0.661 |  | 0.140 |  | 0.363 |  | 0.496 |  | 1.157 |  | 1.891 |  | 6.105 |
| Carbon monoxide (ppmV) |  | 0.987 | (0.584) |  | 0.672 |  | 0.002 |  | 0.414 |  | 0.563 |  | 1.234 |  | 1.807 |  | 4.614 |
| Dichloromethane (ppbV) |  | 0.572 | (0.463) |  | 0.449 |  | 0.050 |  | 0.129 |  | 0.243 |  | 0.692 |  | 1.044 |  | 6.183 |
| Ethyl benzene (ppbV) |  | 0.308 | (0.154) |  | 0.177 |  | 0.100 |  | 0.135 |  | 0.188 |  | 0.365 |  | 0.471 |  | 1.300 |
| Meta/Para-xylene (ppbV) |  | 1.013 | (0.533) |  | 0.591 |  | 0.132 |  | 0.451 |  | 0.638 |  | 1.229 |  | 1.805 |  | 3.791 |
| Nitric oxide (ppmV) |  | 28.136 | (21.537) |  | 26.005 |  | 0.304 |  | 7.182 |  | 12.293 |  | 38.298 |  | 61.405 |  | 141.767 |
| Nitrogen oxides (ppbV) |  | 53.788 | (31.778) |  | 41.940 |  | 3.137 |  | 20.728 |  | 29.347 |  | 71.286 |  | 103.316 |  | 202.484 |
| Nitrogen dioxide (ppbV) |  | 25.385 | (11.556) |  | 17.157 |  | 1.350 |  | 12.545 |  | 16.519 |  | 33.676 |  | 42.269 |  | 65.760 |
| Ortho-xylene (ppbV) |  | 0.372 | (0.245) |  | 0.239 |  | 0.053 |  | 0.157 |  | 0.214 |  | 0.452 |  | 0.647 |  | 1.984 |
| Lead (ng/m3) |  | 15.712 | (13.097) |  | 11.658 |  | 2.417 |  | 5.524 |  | 7.500 |  | 19.158 |  | 29.681 |  | 87.611 |
| Perchloroethylene (ppbV) |  | 0.135 | (0.155) |  | 0.108 |  | 0.006 |  | 0.031 |  | 0.050 |  | 0.158 |  | 0.296 |  | 1.813 |
| Styrene (ppbV) |  | 0.128 | (0.106) |  | 0.101 |  | 0.050 |  | 0.052 |  | 0.060 |  | 0.160 |  | 0.253 |  | 1.378 |
| Toluene (ppbV) |  | 2.206 | (1.326) |  | 1.513 |  | 0.252 |  | 0.960 |  | 1.295 |  | 2.808 |  | 3.805 |  | 10.830 |
| Benzo(a)pyrene (ng/m3) |  | 0.158 | (0.139) |  | 0.121 |  | 0.025 |  | 0.048 |  | 0.071 |  | 0.192 |  | 0.299 |  | 1.495 |
| Benzo(b)fluoranthene (ng/m3) |  | 0.236 | (0.216) |  | 0.164 |  | 0.028 |  | 0.074 |  | 0.107 |  | 0.271 |  | 0.500 |  | 2.357 |
| Benzo(g,h,i)perylene (ng/m3) |  | 0.457 | (0.283) |  | 0.345 |  | 0.040 |  | 0.169 |  | 0.253 |  | 0.598 |  | 0.822 |  | 2.585 |
| Benzo(k)fluoranthene (ng/m3) |  | 0.099 | (0.086) |  | 0.066 |  | 0.025 |  | 0.035 |  | 0.046 |  | 0.113 |  | 0.200 |  | 1.027 |
| Dibenz(a,h)anthracene (ng/m3) |  | 0.039 | (0.027) |  | 0.015 |  | 0.025 |  | 0.025 |  | 0.026 |  | 0.042 |  | 0.055 |  | 0.692 |
| Indeno(1,2,3-cd)pyrene (ng/m3) |  | 0.273 | (0.207) |  | 0.199 |  | 0.027 |  | 0.090 |  | 0.135 |  | 0.334 |  | 0.533 |  | 3.189 |
| Acetaldehyde (ppbV) |  | 1.231 | (0.553) |  | 0.683 |  | 0.300 |  | 0.626 |  | 0.817 |  | 1.500 |  | 1.948 |  | 4.248 |
| Carbon tetrachloride (ppbV) |  | 0.097 | (0.014) |  | 0.011 |  | 0.072 |  | 0.085 |  | 0.088 |  | 0.099 |  | 0.125 |  | 0.146 |
| Chloroform (ppbV) |  | 0.035 | (0.013) |  | 0.015 |  | 0.011 |  | 0.022 |  | 0.027 |  | 0.042 |  | 0.053 |  | 0.126 |
| Chromium (ng/m3) |  | 4.969 | (3.435) |  | 2.727 |  | 1.182 |  | 2.227 |  | 3.115 |  | 5.842 |  | 7.211 |  | 31.318 |
| Formaldehyde (ppbV) |  | 2.848 | (1.129) |  | 1.330 |  | 0.811 |  | 1.530 |  | 2.074 |  | 3.404 |  | 4.395 |  | 17.805 |
| Nickel (ng/m3) |  | 4.639 | (2.466) |  | 2.528 |  | 1.167 |  | 2.238 |  | 2.950 |  | 5.478 |  | 7.217 |  | 19.182 |
| Ortho-dichlorobenzene (ppbV) |  | 0.114 | (0.040) |  | 0.076 |  | 0.050 |  | 0.057 |  | 0.074 |  | 0.150 |  | 0.150 |  | 0.276 |
| Ozone (ppmV) |  | 0.039 | (0.011) |  | 0.014 |  | 0.011 |  | 0.026 |  | 0.032 |  | 0.046 |  | 0.054 |  | 0.093 |
| PM10 (ng/m3) |  | 34.617 | (14.123) |  | 18.812 |  | 7.704 |  | 19.109 |  | 23.571 |  | 42.383 |  | 54.048 |  | 105.955 |
| PM2.5 (ng/m3) |  | 17.520 | (5.716) |  | 8.994 |  | 3.149 |  | 10.407 |  | 12.960 |  | 21.954 |  | 25.130 |  | 42.399 |
| Phosphorus (ng/m3) |  | 63.997 | (50.310) |  | 26.276 |  | 2.762 |  | 26.500 |  | 39.571 |  | 65.848 |  | 117.483 |  | 395.625 |
| Para-dichlorobenzene (ppbV) |  | 0.143 | (0.034) |  | 0.032 |  | 0.100 |  | 0.104 |  | 0.118 |  | 0.150 |  | 0.176 |  | 0.519 |
| Sulfur (ng/m3) |  | 877.935 | (328.042) |  | 519.040 |  | 210.917 |  | 515.200 |  | 608.182 |  | 1127.220 |  | 1336.840 |  | 2229.470 |
| Strontium (ng/m3) |  | 13.831 | (6.540) |  | 8.458 |  | 1.410 |  | 6.278 |  | 9.000 |  | 17.458 |  | 22.818 |  | 47.000 |
| Trichloroethylene (ppbV) |  | 0.061 | (0.107) |  | 0.034 |  | 0.010 |  | 0.012 |  | 0.015 |  | 0.049 |  | 0.151 |  | 0.949 |

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| **Supplementary Table 4.** Descriptive statistics for air toxic measures among controls residing within 4km of air monitoring stations in California (1984-2013). | | | | | | | | | | | | | | | | | | |
| **Agent** |  | **Mean (Standard Deviation)** | |  | **Inter-Quartile Range** |  | **Minimum** |  | **10th Percentile** |  | **25th Percentile** |  | **75th Percentile** |  | **90th Percentile** |  | **Maximum** |
| 1,3-Butadiene (ppbV) |  | 0.229 | (0.146) |  | 0.180 |  | 0.022 |  | 0.078 |  | 0.123 |  | 0.304 |  | 0.420 |  | 1.013 |
| Benzene (ppbV) |  | 0.971 | (0.744) |  | 0.691 |  | 0.140 |  | 0.357 |  | 0.487 |  | 1.178 |  | 1.965 |  | 6.206 |
| Carbon monoxide (ppmV) |  | 0.986 | (0.573) |  | 0.675 |  | 0.002 |  | 0.412 |  | 0.565 |  | 1.241 |  | 1.787 |  | 4.614 |
| Dichloromethane (ppbV) |  | 0.578 | (0.490) |  | 0.462 |  | 0.050 |  | 0.128 |  | 0.238 |  | 0.700 |  | 1.050 |  | 6.518 |
| Ethyl benzene (ppbV) |  | 0.306 | (0.151) |  | 0.184 |  | 0.100 |  | 0.133 |  | 0.183 |  | 0.367 |  | 0.467 |  | 1.300 |
| Meta/Para-xylene (ppbV) |  | 0.995 | (0.524) |  | 0.576 |  | 0.126 |  | 0.445 |  | 0.629 |  | 1.205 |  | 1.742 |  | 3.791 |
| Nitric oxide (ppmV) |  | 27.760 | (21.020) |  | 24.349 |  | 0.199 |  | 7.309 |  | 12.659 |  | 37.008 |  | 60.277 |  | 141.767 |
| Nitrogen oxides (ppbV) |  | 53.616 | (30.920) |  | 39.155 |  | 3.137 |  | 21.156 |  | 30.149 |  | 69.304 |  | 101.446 |  | 202.484 |
| Nitrogen dioxide (ppbV) |  | 25.650 | (11.379) |  | 16.978 |  | 1.350 |  | 12.878 |  | 16.941 |  | 33.918 |  | 42.049 |  | 65.760 |
| Ortho-xylene (ppbV) |  | 0.368 | (0.241) |  | 0.239 |  | 0.053 |  | 0.155 |  | 0.211 |  | 0.450 |  | 0.650 |  | 1.984 |
| Lead (ng/m3) |  | 16.009 | (13.511) |  | 12.479 |  | 2.417 |  | 5.414 |  | 7.474 |  | 19.952 |  | 31.800 |  | 93.071 |
| Perchloroethylene (ppbV) |  | 0.134 | (0.154) |  | 0.109 |  | 0.006 |  | 0.030 |  | 0.049 |  | 0.157 |  | 0.298 |  | 1.837 |
| Styrene (ppbV) |  | 0.127 | (0.106) |  | 0.102 |  | 0.050 |  | 0.052 |  | 0.058 |  | 0.160 |  | 0.255 |  | 1.378 |
| Toluene (ppbV) |  | 2.177 | (1.328) |  | 1.523 |  | 0.236 |  | 0.931 |  | 1.264 |  | 2.786 |  | 3.796 |  | 10.830 |
| Benzo(a)pyrene (ng/m3) |  | 0.161 | (0.149) |  | 0.122 |  | 0.025 |  | 0.047 |  | 0.070 |  | 0.192 |  | 0.304 |  | 1.510 |
| Benzo(b)fluoranthene (ng/m3) |  | 0.238 | (0.220) |  | 0.166 |  | 0.025 |  | 0.075 |  | 0.107 |  | 0.273 |  | 0.515 |  | 2.519 |
| Benzo(g,h,i)perylene (ng/m3) |  | 0.456 | (0.283) |  | 0.346 |  | 0.040 |  | 0.173 |  | 0.253 |  | 0.599 |  | 0.816 |  | 2.585 |
| Benzo(k)fluoranthene (ng/m3) |  | 0.099 | (0.088) |  | 0.067 |  | 0.025 |  | 0.035 |  | 0.046 |  | 0.114 |  | 0.207 |  | 1.098 |
| Dibenz(a,h)anthracene (ng/m3) |  | 0.039 | (0.027) |  | 0.015 |  | 0.025 |  | 0.025 |  | 0.026 |  | 0.041 |  | 0.057 |  | 0.692 |
| Indeno(1,2,3-cd)pyrene (ng/m3) |  | 0.272 | (0.208) |  | 0.198 |  | 0.027 |  | 0.090 |  | 0.134 |  | 0.332 |  | 0.539 |  | 3.189 |
| Acetaldehyde (ppbV) |  | 1.218 | (0.563) |  | 0.681 |  | 0.286 |  | 0.617 |  | 0.795 |  | 1.476 |  | 1.948 |  | 4.248 |
| Carbon tetrachloride (ppbV) |  | 0.097 | (0.015) |  | 0.012 |  | 0.072 |  | 0.085 |  | 0.088 |  | 0.100 |  | 0.125 |  | 0.146 |
| Chloroform (ppbV) |  | 0.035 | (0.012) |  | 0.014 |  | 0.010 |  | 0.022 |  | 0.027 |  | 0.041 |  | 0.051 |  | 0.126 |
| Chromium (ng/m3) |  | 4.965 | (3.289) |  | 2.548 |  | 1.182 |  | 2.364 |  | 3.257 |  | 5.805 |  | 7.087 |  | 32.000 |
| Formaldehyde (ppbV) |  | 2.816 | (1.131) |  | 1.336 |  | 0.744 |  | 1.505 |  | 2.025 |  | 3.361 |  | 4.335 |  | 17.805 |
| Nickel (ng/m3) |  | 4.649 | (2.427) |  | 2.534 |  | 1.077 |  | 2.208 |  | 2.966 |  | 5.500 |  | 7.211 |  | 19.500 |
| Ortho-dichlorobenzene (ppbV) |  | 0.113 | (0.040) |  | 0.077 |  | 0.050 |  | 0.057 |  | 0.073 |  | 0.150 |  | 0.150 |  | 0.276 |
| Ozone (ppmV) |  | 0.039 | (0.011) |  | 0.014 |  | 0.009 |  | 0.026 |  | 0.032 |  | 0.046 |  | 0.054 |  | 0.100 |
| PM10 (ng/m3) |  | 34.512 | (13.859) |  | 18.369 |  | 7.704 |  | 19.300 |  | 23.781 |  | 42.150 |  | 53.714 |  | 105.955 |
| PM2.5 (ng/m3) |  | 17.528 | (5.583) |  | 8.778 |  | 3.149 |  | 10.555 |  | 13.104 |  | 21.882 |  | 24.980 |  | 43.716 |
| Phosphorus (ng/m3) |  | 60.647 | (44.844) |  | 24.826 |  | 2.762 |  | 25.684 |  | 39.091 |  | 63.917 |  | 110.077 |  | 395.625 |
| Para-dichlorobenzene (ppbV) |  | 0.142 | (0.034) |  | 0.033 |  | 0.100 |  | 0.100 |  | 0.117 |  | 0.150 |  | 0.173 |  | 0.519 |
| Sulfur (ng/m3) |  | 858.320 | (329.921) |  | 512.109 |  | 200.545 |  | 502.963 |  | 598.800 |  | 1110.910 |  | 1333.750 |  | 2229.470 |
| Strontium (ng/m3) |  | 13.617 | (6.325) |  | 7.780 |  | 1.289 |  | 6.150 |  | 9.175 |  | 16.955 |  | 22.000 |  | 47.000 |
| Trichloroethylene (ppbV) |  | 0.063 | (0.112) |  | 0.034 |  | 0.010 |  | 0.011 |  | 0.015 |  | 0.048 |  | 0.160 |  | 1.021 |

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| **Supplementary Table 5.** Odds ratios and 95% confidence intervals for the relationship between one interquartile range increase in exposure to ambient air toxics and teratomas.a, b, c | | | | | | | | | | | | | | |
| **Agent** | **Case N** | **Control N** |  | **First trimester** | | |  | **Second trimester** | | |  | **Entire pregnancy** | | |
| **OR** | **LCL** | **UCL** | **OR** | **LCL** | **UCL** | **OR** | **LCL** | **UCL** |
| *Factor 1: Traffic-related air pollutants* | | | | | | | | | | | | | | |
| Benzene | 18 | 21762 |  | **0.46** | 0.20 | 1.04 |  | **0.77** | 0.40 | 1.46 |  | **0.47** | 0.20 | 1.13 |
| 1,3-Butadiene | 19 | 21770 | **0.65** | 0.31 | 1.35 | **1.19** | 0.71 | 2.01 | **0.84** | 0.38 | 1.88 |
| Dichloromethane | 17 | 20308 | **0.70** | 0.35 | 1.42 | **0.58** | 0.25 | 1.36 | **0.58** | 0.23 | 1.44 |
| Ethyl benzene | 17 | 18508 | **0.61** | 0.29 | 1.26 | **0.83** | 0.45 | 1.52 | **0.42** | 0.14 | 1.24 |
| Meta/Para-xylene | 16 | 17007 | **0.84** | 0.46 | 1.56 | **1.20** | 0.78 | 1.85 | **1.08** | 0.64 | 1.82 |
| Ortho-xylene | 19 | 19402 | **0.49** | 0.23 | 1.06 | **0.87** | 0.51 | 1.49 | **0.62** | 0.31 | 1.24 |
| Lead | 15 | 15839 | **0.42** | 0.16 | 1.13 | **0.34** | 0.11 | 1.03 | **0.27** | 0.08 | 0.90 |
| Perchloroethylene | 18 | 20057 | **0.63** | 0.32 | 1.25 | **1.06** | 0.92 | 1.23 | **0.88** | 0.56 | 1.39 |
| Styrene | 13 | 13205 | **0.63** | 0.29 | 1.37 | **1.04** | 0.74 | 1.47 | **0.77** | 0.37 | 1.59 |
| Toluene | 19 | 19602 | **0.44** | 0.19 | 1.02 | **0.77** | 0.40 | 1.46 | **0.48** | 0.21 | 1.13 |
| Carbon monoxide | 57 | 65064 | **0.74** | 0.51 | 1.09 | **0.87** | 0.62 | 1.22 | **0.92** | 0.64 | 1.31 |
| Nitric oxide | 54 | 64220 | **0.88** | 0.67 | 1.17 | **1.02** | 0.80 | 1.29 | **1.06** | 0.78 | 1.43 |
| Nitrogen dioxide | 52 | 64729 | **0.79** | 0.51 | 1.21 | **0.95** | 0.63 | 1.43 | **0.91** | 0.59 | 1.41 |
| Nitrogen oxides | 54 | 63593 | **0.83** | 0.59 | 1.16 | **0.98** | 0.73 | 1.32 | **0.99** | 0.70 | 1.41 |
| *Factor 2: Polycyclic aromatic hydrocarbons* | | | | | | | | | | | | | | |
| Benzo(a)pyrene | 14 | 16477 |  | **0.60** | 0.25 | 1.41 |  | **1.09** | 0.87 | 1.38 |  | **1.04** | 0.65 | 1.67 |
| Benzo(b)fluoranthene | 16 | 19188 | **0.64** | 0.31 | 1.33 | **1.00** | 0.74 | 1.36 | **0.72** | 0.38 | 1.36 |
| Benzo(g,h,i)perylene | 16 | 18355 | **0.55** | 0.24 | 1.27 | **1.10** | 0.70 | 1.72 | **0.82** | 0.39 | 1.75 |
| Benzo(k)fluoranthene | 16 | 19188 | **0.68** | 0.35 | 1.33 | **0.97** | 0.71 | 1.32 | **0.70** | 0.36 | 1.35 |
| Dibenz(a,h)anthracene | 16 | 18355 | **0.83** | 0.58 | 1.18 | **0.99** | 0.86 | 1.13 | **0.80** | 0.48 | 1.34 |
| Indeno(1,2,3-cd)pyrene | 16 | 18355 | **0.61** | 0.28 | 1.32 | **1.05** | 0.76 | 1.46 | **0.82** | 0.44 | 1.52 |
| *Pollutants not loaded on a factor* | | | | | | | | | | | | | | |
| Acetaldehyde | 17 | 20708 |  | **0.48** | 0.22 | 1.07 |  | **0.48** | 0.21 | 1.08 |  | **0.39** | 0.17 | 0.91 |
| Carbon tetrachloride | 11 | 14421 | **0.82** | 0.30 | 2.22 | **0.78** | 0.33 | 1.88 | **0.79** | 0.39 | 1.59 |
| Chloroform | 19 | 20498 | **0.79** | 0.44 | 1.42 | **0.82** | 0.46 | 1.46 | **0.73** | 0.39 | 1.35 |
| Chromium | 17 | 16339 | **0.63** | 0.30 | 1.34 | **0.67** | 0.33 | 1.37 | **0.63** | 0.30 | 1.33 |
| Formaldehyde | 17 | 20708 | **0.50** | 0.24 | 1.08 | **0.45** | 0.21 | 1.01 | **0.44** | 0.20 | 0.96 |
| Nickel | 17 | 16347 | **0.83** | 0.45 | 1.52 | **0.76** | 0.40 | 1.48 | **0.83** | 0.46 | 1.49 |
| Ortho-dichlorobenzene | 15 | 14606 | **0.63** | 0.20 | 2.01 | **0.97** | 0.34 | 2.77 | **1.21** | 0.40 | 3.65 |
| Phosphorus | 13 | 13249 | **1.02** | 0.76 | 1.36 | **0.83** | 0.50 | 1.36 | **0.96** | 0.68 | 1.35 |
| Para-dichlorobenzene | 15 | 14645 | **0.36** | 0.12 | 1.11 | **1.01** | 0.60 | 1.69 | **0.68** | 0.35 | 1.32 |
| Strontium | 17 | 15469 | **0.78** | 0.41 | 1.46 | **0.64** | 0.32 | 1.30 | **0.68** | 0.35 | 1.32 |
| Trichloroethylene | 18 | 20127 | **0.76** | 0.48 | 1.22 | **0.73** | 0.43 | 1.24 | **0.64** | 0.33 | 1.26 |
| Ozone | 63 | 75509 | **0.98** | 0.71 | 1.35 | **0.84** | 0.60 | 1.18 | **0.81** | 0.58 | 1.13 |
| PM10 | 48 | 58633 | **1.01** | 0.72 | 1.43 | **1.03** | 0.73 | 1.45 | **1.02** | 0.69 | 1.50 |
| PM2.5 | 27 | 33394 | **1.08** | 0.66 | 1.76 | **1.00** | 0.60 | 1.67 | **1.19** | 0.63 | 2.24 |
| Sulfur | 17 | 16098 | **0.60** | 0.30 | 1.22 | **0.70** | 0.36 | 1.35 | **0.51** | 0.21 | 1.23 |
| aOdds ratios adjusted for birth year, maternal age, maternal race, and neighborhood-level socioeconomic status | | | | | | | | | | | | | | |
| bCases and controls had to reside within 4km of air monitoring stations in California to be included in analysis  cOR=odds ratio; LCL=lower confidence limit; UCL=upper confidence limit | | | | | | | | | | | | | | |