**AUSTRALIAN CHILD HEALTH AND AIR POLLUTION STUDY**

**(ACHAPS)**

**FINAL REPORT**

**APPENDICES FOR PART C**

**December 17 2010**

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# Distribution of air pollutants for Panel Study

Table 1.1. Descriptive statistics for air pollutants by air quality monitor, ACHAPS Panel Study

| **Site** | **Air pollutant** | **N** | **Mean** | **Std Dev** | **Median** | **Minimum** | **Maximum** | **Quartile Range** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1** | PM10 24 hr | 364 | 15.3 | 10.32 | 13.38 | 2.91 | 119.21 | 10.01 |
| PM2.5 24 hr | 212 | 7.48 | 6.75 | 5.35 | 0.12 | 45.69 | 5.43 |
| O3 1 hr | 365 | 35.77 | 10.93 | 32.37 | 7.61 | 75.42 | 14.42 |
| O3 4 hr | 366 | 34.17 | 10.4 | 31.38 | 5.83 | 72.03 | 13.41 |
| O3 8 hr | 366 | 31.29 | 9.95 | 29.9 | 3.53 | 61.6 | 12.28 |
| NO21hr | 358 | 17.53 | 8.37 | 18.35 | 0.99 | 39.08 | 12.06 |
| NO224hr | 358 | 6.57 | 3.53 | 6.21 | 0.6 | 15.55 | 5.37 |
| CO 8 hr | 357 | 0.61 | 0.58 | 0.37 | 0.06 | 2.7 | 0.51 |
| SO2 1 hr | 0 | . | . | . | . | . | . |
| SO2 24 hr | 0 | . | . | . | . | . | . |
| Mean temperature | 94 | 20.35 | 3.37 | 20.78 | 11.78 | 28.41 | 4.37 |
| **10** | PM10 24 hr | 364 | 19.78 | 7.31 | 18.64 | 7.18 | 52.48 | 8 |
| PM2.5 24 hr | 0 | . | . | . | . | . | . |
| O3 1 hr | 0 | . | . | . | . | . | . |
| O3 4 hr | 0 | . | . | . | . | . | . |
| O3 8 hr | 0 | . | . | . | . | . | . |
| NO21hr | 362 | 26.65 | 10.1 | 25 | 7 | 69 | 14 |
| NO224hr | 0 | . | . | . | . | . | . |
| CO 8 hr | 365 | 0.52 | 0.38 | 0.4 | 0.07 | 2.73 | 0.33 |
| SO2 1 hr | 0 | . | . | . | . | . | . |
| SO2 24 hr | 0 | . | . | . | . | . | . |
| Mean temperature | 364 | 21.84 | 3.88 | 22.6 | 11.52 | 29.68 | 5.86 |
| **11** | PM10 24 hr | 365 | 17.4 | 7.13 | 16.58 | 2.68 | 53.41 | 7.51 |
| PM2.5 24 hr | 365 | 6.73 | 3.09 | 6.26 | 1.67 | 23.59 | 3.14 |
| O3 1 hr | 349 | 34.05 | 10.06 | 33 | 9 | 76 | 10 |
| O3 4 hr | 351 | 31.78 | 8.97 | 31 | 9.33 | 67 | 9.75 |
| O3 8 hr | 351 | 28.37 | 7.7 | 27.88 | 9.14 | 67 | 8.39 |
| NO21hr | 365 | 17.3 | 8.83 | 15 | 2 | 44 | 11 |
| NO224hr | 365 | 8.18 | 4.46 | 6.91 | 0.39 | 22.09 | 5.91 |
| CO 8 hr | 0 | . | . | . | . | . | . |
| SO2 1 hr | 0 | . | . | . | . | . | . |
| SO2 24 hr | 0 | . | . | . | . | . | . |
| Mean temperature | 365 | 20.06 | 3.92 | 20.93 | 9.5 | 27.97 | 6.3 |
| **12** | PM10 24 hr | 365 | 15.7 | 6.57 | 14.38 | 4.4 | 49.28 | 6.55 |
| PM2.5 24 hr | 364 | 5.01 | 2.5 | 4.54 | 0.2 | 17.87 | 2.88 |
| O3 1 hr | 364 | 20.6 | 5.98 | 20 | 6 | 42 | 8 |
| O3 4 hr | 365 | 19.07 | 5.5 | 18.75 | 5.25 | 38.5 | 7 |
| O3 8 hr | 366 | 17.57 | 4.78 | 17.13 | 7.63 | 31.38 | 6.13 |
| NO21hr | 365 | 16.45 | 7.71 | 15 | 1 | 42 | 11 |
| NO224hr | 365 | 6.33 | 3.81 | 5.29 | 0.13 | 22.96 | 4.96 |
| CO 8 hr | 0 | . | . | . | . | . | . |
| SO2 1 HR | 364 | 1.66 | 1.94 | 1 | 0 | 12 | 2 |
| SO2 24 HR | 364 | 0.57 | 0.58 | 0.38 | 0 | 2.71 | 1 |
| Mean temperature | 365 | 19.21 | 3.89 | 19.93 | 8.68 | 26.84 | 5.8 |
| **13** | PM10 24 hr | 364 | 13.81 | 7.08 | 12.24 | 2.69 | 51.51 | 8.37 |
| PM2.5 24 hr | 344 | 5.58 | 2.81 | 4.8 | 1.75 | 19.8 | 3.48 |
| O3 1 hr | 364 | 34.87 | 8.4 | 33 | 13 | 62 | 11 |
| O3 4 hr | 365 | 33.06 | 7.75 | 31.75 | 9 | 58.5 | 9.75 |
| O3 8 hr | 365 | 30.99 | 7.1 | 29.88 | 9 | 54.38 | 9.38 |
| NO21hr | 352 | 13.35 | 9.81 | 10 | 1 | 43 | 14 |
| NO224hr | 352 | 5.36 | 3.76 | 4.12 | 0.35 | 19.78 | 4.26 |
| CO 8 hr | 212 | 0.28 | 0.43 | 0.1 | 0.01 | 2.24 | 0.25 |
| SO2 1 HR | 0 | . | . | . | . | . | . |
| SO2 24 HR | 0 | . | . | . | . | . | . |
| Mean temperature | 364 | 18.5 | 4.94 | 19.49 | 5.39 | 28.46 | 6.83 |
| **14** | PM10 24 hr | 363 | 17.74 | 7.2 | 16.21 | 6.18 | 56.67 | 8.71 |
| PM2.5 24 hr | 365 | 7.62 | 2.4 | 7.29 | 2.83 | 21.18 | 2.87 |
| O3 1 hr | 365 | 30.58 | 8.08 | 30 | 14 | 67 | 7 |
| O3 4 hr | 366 | 28.61 | 7.02 | 28 | 13.25 | 59 | 7.25 |
| O3 8 hr | 366 | 25.9 | 6.28 | 25.19 | 12.13 | 53.38 | 7.63 |
| NO21hr | 365 | 19.58 | 8.14 | 20 | 2 | 57 | 11 |
| NO224hr | 365 | 7.53 | 3.71 | 7.13 | 0.9 | 19.13 | 5.17 |
| CO 8 hr | 366 | 0.36 | 0.34 | 0.23 | 0.01 | 1.68 | 0.35 |
| SO2 1 HR | 365 | 4.49 | 6.89 | 1 | 0 | 40 | 5 |
| SO2 24 HR | 365 | 0.64 | 0.86 | 0.33 | 0 | 5.58 | 0.92 |
| Mean temperature | 365 | 17.77 | 4.3 | 16.87 | 10.49 | 32.09 | 5.18 |
| **15** | PM10 24 hr | 0 | . | . | . | . | . | . |
| PM2.5 24 hr | 365 | 7.49 | 2.73 | 6.89 | 2.49 | 19.93 | 3.31 |
| O3 1 hr | 365 | 34.58 | 8.81 | 33.7 | 16 | 80.8 | 8.6 |
| O3 4 hr | 366 | 32.85 | 7.84 | 32.48 | 15.17 | 74.7 | 8.25 |
| O3 8 hr | 366 | 31.24 | 6.86 | 31.41 | 13.59 | 61.19 | 8.45 |
| NO21hr | 365 | 12.14 | 8.36 | 10.8 | 0.2 | 35.3 | 12.9 |
| NO224hr | 365 | 3.34 | 2.61 | 2.79 | 0.02 | 12.54 | 3.4 |
| CO 8 hr | 0 | . | . | . | . | . | . |
| SO2 1 HR | 0 | . | . | . | . | . | . |
| SO2 24 HR | 0 | . | . | . | . | . | . |
| Mean temperature | 347 | 18.59 | 3.51 | 18.15 | 12.03 | 31.91 | 3.99 |
| **16** | PM10 24 hr | 365 | 15.44 | 5.53 | 14.49 | 4.81 | 40.3 | 7.1 |
| PM2.5 24 hr | 365 | 7.34 | 2.35 | 6.9 | 3.49 | 21.63 | 2.72 |
| O3 1 hr | 0 | . | . | . | . | . | . |
| O3 4 hr | 0 | . | . | . | . | . | . |
| O3 8 hr | 0 | . | . | . | . | . | . |
| NO21hr | 365 | 18.48 | 8.17 | 19 | 1 | 53 | 11 |
| NO224hr | 365 | 6.94 | 3.97 | 6.54 | 0.06 | 17.83 | 5.71 |
| CO 8 hr | 364 | 0.4 | 0.36 | 0.26 | 0.01 | 2 | 0.4 |
| SO2 1 HR | 0 | . | . | . | . | . | . |
| SO2 24 HR | 0 | . | . | . | . | . | . |
| Mean temperature | 357 | 18.14 | 4.03 | 17.22 | 11.37 | 32.16 | 4.56 |
| **17** | PM10 24 hr | 356 | 20.41 | 12.83 | 17.8 | 1.23 | 124.82 | 10.4 |
| PM2.5 24 hr | 366 | 7.98 | 2.55 | 7.73 | 2.83 | 21.63 | 3.19 |
| O3 1 hr | 366 | 30.04 | 8.06 | 29 | 16 | 77 | 8 |
| O3 4 hr | 366 | 28.59 | 7.47 | 27.5 | 14.75 | 69.75 | 7.75 |
| O3 8 hr | 366 | 26.81 | 7.15 | 26 | 13.5 | 62 | 7.71 |
| NO21hr | 366 | 20.24 | 9.54 | 23 | 0 | 40 | 16 |
| NO224hr | 366 | 8.6 | 4.97 | 8.26 | 0 | 21.7 | 7.87 |
| CO 8 hr | 0 | . | . | . | . | . | . |
| SO2 1 HR | 0 | . | . | . | . | . | . |
| SO2 24 HR | 0 | . | . | . | . | . | . |
| Mean temperature | 360 | 17.87 | 5.51 | 17.45 | 7.13 | 35.36 | 7.63 |
| **18** | PM10 24 hr | 361 | 15.5 | 7.71 | 13.42 | 2.73 | 49.87 | 8.98 |
| PM2.5 24 hr | 0 | . | . | . | . | . | . |
| O3 1 hr | 362 | 31.96 | 9.29 | 30 | 16 | 76 | 7 |
| O3 4 hr | 363 | 30.57 | 8.35 | 28.75 | 14.25 | 63.25 | 7.75 |
| O3 8 hr | 366 | 28.82 | 7.87 | 27.63 | 12.38 | 65.88 | 7.88 |
| NO21hr | 358 | 13.72 | 7.48 | 14 | 1 | 35 | 12 |
| NO224hr | 357 | 3.77 | 2.25 | 3.43 | 0 | 11.57 | 3.22 |
| CO 8 hr | 0 | . | . | . | . | . | . |
| SO2 1 HR | 0 | . | . | . | . | . | . |
| SO2 24 HR | 0 | . | . | . | . | . | . |
| Mean temperature | 361 | 17.13 | 5.88 | 16.12 | 7.37 | 35.46 | 8.59 |
| **19** | PM10 24 hr | 366 | 16.04 | 8.64 | 13.5 | 4.22 | 73.99 | 9.1 |
| PM2.5 24 hr | 0 | . | . | . | . | . | . |
| O3 1 hr | 366 | 30.92 | 8.74 | 29 | 11 | 78 | 7 |
| O3 4 hr | 366 | 30.24 | 8.35 | 28.75 | 11 | 74.25 | 7.5 |
| O3 8 hr | 366 | 28.82 | 7.87 | 27.63 | 12.38 | 65.88 | 7.88 |
| NO21hr | 357 | 11.72 | 6.74 | 11 | 0 | 39 | 11 |
| NO224hr | 357 | 3.77 | 2.25 | 3.43 | 0 | 11.57 | 3.22 |
| CO 8 hr | 292 | 0.08 | 0.09 | 0.05 | 0.01 | 0.64 | 0.07 |
| SO2 1 HR | 0 | . | . | . | . | . | . |
| SO2 24 HR | 0 | . | . | . | . | . | . |
| Mean temperature | 366 | 17.59 | 6.3 | 16.96 | 6.6 | 36.25 | 9.24 |
| **2** | PM10 24 hr | 365 | 19.41 | 10.18 | 16.87 | 4.77 | 96.57 | 11.45 |
| PM2.5 24 hr | 365 | 5.95 | 7.77 | 4.48 | 0.92 | 131.87 | 3.5 |
| O3 1 hr | 365 | 31.87 | 12.08 | 29 | 6.12 | 127 | 10.18 |
| O3 4 hr | 366 | 29.66 | 10.95 | 27.6 | 5.1 | 112.5 | 9.27 |
| O3 8 hr | 366 | 26.98 | 9.75 | 25.33 | 5.71 | 90.63 | 8.93 |
| NO21hr | 365 | 24.53 | 9.25 | 25 | 4 | 56 | 12.5 |
| NO224hr | 365 | 12.38 | 5.41 | 11.51 | 2.65 | 30.84 | 6.85 |
| CO 8 hr | 366 | 0.39 | 0.28 | 0.3 | 0.07 | 2.17 | 0.29 |
| SO2 1 HR | 357 | 4.82 | 4.96 | 3.58 | 0 | 47.03 | 4.02 |
| SO2 24 HR | 357 | 1.15 | 1 | 0.98 | 0 | 4.91 | 1.41 |
| Mean temperature | 364 | 16 | 5.07 | 15.85 | 5.96 | 31.06 | 6.82 |
| **20** | PM10 24 hr | 366 | 21.44 | 14.55 | 17.01 | 5.11 | 166.7 | 13.02 |
| PM2.5 24 hr | 0 | . | . | . | . | . | . |
| O3 1 hr | 0 | . | . | . | . | . | . |
| O3 4 hr | 0 | . | . | . | . | . | . |
| O3 8 hr | 0 | . | . | . | . | . | . |
| NO21hr | 0 | . | . | . | . | . | . |
| NO224hr | 0 | . | . | . | . | . | . |
| CO 8 hr | 0 | . | . | . | . | . | . |
| SO2 1 HR | 366 | 64.35 | 90.56 | 29 | 0 | 594 | 99 |
| SO2 24 HR | 366 | 8.74 | 11.06 | 3.77 | 0 | 59.74 | 12.65 |
| Mean temperature | 366 | 18.48 | 6.2 | 18.14 | 6.72 | 33.3 | 9.55 |
| **21** | PM10 24 hr | 256 | 19.55 | 8.35 | 18.48 | 5.31 | 78.89 | 8.45 |
| PM2.5 24 hr | 0 | . | . | . | . | . | . |
| O3 1 hr | 237 | 25.93 | 7.09 | 26 | 5 | 46 | 10 |
| O3 4 hr | 237 | 24.33 | 6.85 | 24.33 | 5 | 42 | 9 |
| O3 8 hr | 237 | 22.53 | 6.53 | 22 | 3.75 | 38.75 | 8.7 |
| NO21hr | 254 | 16.46 | 7.47 | 17 | 1 | 33 | 12 |
| NO224hr | 254 | 7.99 | 4.8 | 7.13 | 0.47 | 19.42 | 7.96 |
| CO 8 hr | 272 | 0.55 | 0.33 | 0.45 | 0.1 | 1.94 | 0.35 |
| SO2 1 HR | 254 | 6.62 | 6.06 | 5 | 0 | 33 | 8 |
| SO2 24 HR | 254 | 1.84 | 1.61 | 1.43 | 0 | 8.83 | 2.01 |
| Mean temperature | 263 | 16.33 | 4.1 | 15.7 | 8.2 | 24.8 | 7.2 |
| **22** | PM10 24 hr | 257 | 14.33 | 6.09 | 12.96 | 5.27 | 56.48 | 6.21 |
| PM2.5 24 hr | 269 | 8.96 | 3.57 | 8.37 | 3.44 | 26.45 | 4.34 |
| O3 1 hr | 264 | 25.83 | 8.69 | 26 | 0 | 53 | 9 |
| O3 4 hr | 265 | 24.13 | 7.95 | 24.25 | 0.33 | 48 | 8.5 |
| O3 8 hr | 265 | 21.87 | 6.94 | 22.13 | 1.29 | 41.75 | 8.17 |
| NO21hr | 251 | 15.85 | 6.69 | 16 | 2 | 31 | 10 |
| NO224hr | 251 | 7.69 | 3.39 | 7.57 | 0.95 | 16 | 5.43 |
| CO 8 hr | 0 | . | . | . | . | . | . |
| SO2 1 HR | 267 | 7.63 | 6.85 | 6 | 0 | 37 | 9 |
| SO2 24 HR | 267 | 2.05 | 1.74 | 1.5 | 0 | 12.14 | 2.01 |
| Mean temperature | 273 | 15.53 | 4.36 | 14.8 | 7 | 25.2 | 7.5 |
| **23** | PM10 24 hr | 270 | 18.01 | 8.07 | 16.76 | 3.64 | 59.89 | 8.79 |
| PM2.5 24 hr | 260 | 8.89 | 3.22 | 8.56 | 3.03 | 22.03 | 4.5 |
| O3 1 hr | 264 | 25.44 | 8.21 | 25 | 0 | 54 | 10 |
| O3 4 hr | 265 | 23.72 | 7.74 | 23.75 | 0.33 | 49 | 10 |
| O3 8 hr | 265 | 21.22 | 7.11 | 20.63 | 0.43 | 42 | 9.75 |
| NO21hr | 225 | 18.15 | 5.63 | 18 | 5 | 31 | 8 |
| NO224hr | 225 | 9.07 | 3.54 | 8.91 | 2.39 | 19 | 5.43 |
| CO 8 hr | 0 | . | . | . | . | . | . |
| SO2 1 HR | 251 | 8.04 | 7.28 | 7 | 0 | 51 | 8 |
| SO2 24 HR | 251 | 2.23 | 1.74 | 1.9 | 0 | 10.05 | 2.13 |
| Mean temperature | 271 | 16.08 | 4.37 | 15.6 | 8.6 | 26 | 7.4 |
| **25** | PM10 24 hr | 263 | 16.59 | 7.49 | 15.18 | 4.78 | 78.33 | 8.05 |
| PM2.5 24 hr | 263 | 5.4 | 3.03 | 4.59 | 0.9 | 15.72 | 4.47 |
| O3 1 hr | 273 | 28.7 | 7.37 | 29 | 3 | 58 | 8 |
| O3 4 hr | 273 | 26.92 | 6.82 | 26.75 | 4.25 | 54.25 | 7.75 |
| O3 8 hr | 273 | 24.57 | 6.34 | 24.25 | 5.57 | 47.13 | 8.03 |
| NO21hr | 251 | 19.71 | 8.09 | 20 | 0 | 41 | 12 |
| NO224hr | 251 | 9.03 | 4.14 | 8.39 | 0 | 20.09 | 6.59 |
| CO 8 hr | 266 | 0.41 | 0.22 | 0.36 | 0.03 | 1.2 | 0.31 |
| SO2 1 HR | 206 | 4.05 | 4.06 | 3 | 0 | 21 | 5 |
| SO2 24 HR | 206 | 1.39 | 1.36 | 1 | 0 | 8.5 | 1.63 |
| Mean temperature | 274 | 16.18 | 3.77 | 15.6 | 8.4 | 23.7 | 6.4 |
| **26** | PM10 24 hr | 274 | 18.37 | 7.04 | 16.79 | 6.44 | 40.52 | 9.48 |
| PM2.5 24 hr | 274 | 8.8 | 3.37 | 8.03 | 3.75 | 21.78 | 4.11 |
| O3 1 hr | 251 | 26.57 | 7.1 | 26 | 0 | 63 | 8 |
| O3 4 hr | 251 | 24.68 | 6.76 | 25 | 0.5 | 56 | 8.33 |
| O3 8 hr | 251 | 21.65 | 6.41 | 21.83 | 5.13 | 44.88 | 8.13 |
| NO21hr | 256 | 21.05 | 6.81 | 22 | 1 | 39 | 10 |
| NO224hr | 256 | 11.52 | 5.06 | 11.22 | 1 | 27.29 | 8.01 |
| CO 8 hr | 0 | . | . | . | . | . | . |
| SO2 1 HR | 0 | . | . | . | . | . | . |
| SO2 24 HR | 0 | . | . | . | . | . | . |
| Mean temperature | 274 | 16.05 | 4.13 | 15.5 | 8.8 | 25 | 7.4 |
| **27** | PM10 24 hr | 274 | 16.73 | 6.63 | 16.15 | 5.19 | 40.21 | 9.45 |
| PM2.5 24 hr | 274 | 9.53 | 3.41 | 8.95 | 3.85 | 20.67 | 4.98 |
| O3 1 hr | 266 | 28.58 | 12.35 | 27 | 0 | 98 | 10 |
| O3 4 hr | 267 | 26.19 | 11.28 | 25 | 0.25 | 89 | 10.25 |
| O3 8 hr | 267 | 22.48 | 9.1 | 22 | 0.88 | 56.25 | 10.5 |
| NO21hr | 266 | 21.59 | 6.95 | 21.5 | 4 | 42 | 11 |
| NO224hr | 266 | 11.69 | 4.16 | 11.71 | 3 | 21.96 | 6.24 |
| CO 8 hr | 265 | 0.66 | 0.48 | 0.5 | 0.1 | 2.34 | 0.58 |
| SO2 1 HR | 0 | . | . | . | . | . | . |
| SO2 24 HR | 0 | . | . | . | . | . | . |
| Mean temperature | 271 | 15.33 | 4.93 | 14.5 | 6.5 | 26.2 | 8.8 |
| **28** | PM10 24 hr | 274 | 16.8 | 5.78 | 15.9 | 7.02 | 43.15 | 7.12 |
| PM2.5 24 hr | 0 | . | . | . | . | . | . |
| O3 1 hr | 269 | 24.95 | 6.64 | 25 | 7 | 50 | 8 |
| O3 4 hr | 269 | 22.97 | 6.32 | 23 | 6.75 | 43.75 | 8.25 |
| O3 8 hr | 270 | 20.06 | 6.24 | 19.75 | 4 | 36.38 | 8.38 |
| NO21hr | 226 | 21.81 | 7.83 | 23 | 5 | 40 | 13 |
| NO224hr | 226 | 12.1 | 5.46 | 11.18 | 3.22 | 25.83 | 8.96 |
| CO 8 hr | 272 | 0.48 | 0.33 | 0.36 | 0.07 | 1.53 | 0.48 |
| SO2 1 HR | 0 | . | . | . | . | . | . |
| SO2 24 HR | 0 | . | . | . | . | . | . |
| Mean temperature | 273 | 16.43 | 4.12 | 15.6 | 8.8 | 25.1 | 7.2 |
| **3** | PM10 24 hr | 365 | 18.72 | 8.57 | 16.66 | 5.95 | 81.71 | 9.13 |
| PM2.5 24 hr | 365 | 6.6 | 5.09 | 5.18 | 1.14 | 58.44 | 4.18 |
| O3 1 hr | 362 | 31.85 | 12.83 | 29 | 7 | 121 | 11 |
| O3 4 hr | 364 | 29.82 | 11.81 | 27.5 | 6 | 115 | 10.31 |
| O3 8 hr | 364 | 26.96 | 10.85 | 24.8 | 5 | 99 | 10.28 |
| NO21hr | 365 | 23.47 | 8.45 | 24 | 2 | 51.85 | 12 |
| NO224hr | 365 | 11.55 | 5 | 11.17 | 0.81 | 25.52 | 6.65 |
| CO 8 hr | 365 | 0.64 | 0.43 | 0.5 | 0.05 | 2.73 | 0.43 |
| SO2 1 HR | 365 | 2.52 | 2.26 | 2 | 0 | 22.31 | 2.57 |
| SO2 24 HR | 365 | 0.83 | 0.75 | 0.69 | 0 | 3.95 | 0.95 |
| Mean temperature | 365 | 16.75 | 5.29 | 16.42 | 6.46 | 31.55 | 7.1 |
| **4** | PM10 24 hr | 347 | 17.18 | 8.31 | 15.36 | 5.94 | 77.38 | 8.79 |
| PM2.5 24 hr | 0 | . | . | . | . | . | . |
| O3 1 hr | 0 | . | . | . | . | . | . |
| O3 4 hr | 0 | . | . | . | . | . | . |
| O3 8 hr | 0 | . | . | . | . | . | . |
| NO21hr | 356 | 25.07 | 8.69 | 25.61 | 5 | 52 | 13 |
| NO224hr | 0 | . | . | . | . | . | . |
| CO 8 hr | 358 | 0.42 | 0.44 | 0.3 | 0.01 | 2.9 | 0.35 |
| SO2 1 HR | 0 | . | . | . | . | . | . |
| SO2 24 HR | 0 | . | . | . | . | . | . |
| Mean temperature | 363 | 16.38 | 5.31 | 15.98 | 6.37 | 31.78 | 7.24 |
| **5** | PM10 24 hr | 345 | 15.79 | 8.6 | 13.68 | 4.92 | 87.23 | 8.09 |
| PM2.5 24 hr | 0 | . | . | . | . | . | . |
| O3 1 hr | 348 | 32.85 | 12.1 | 30 | 5.05 | 117 | 11.11 |
| O3 4 hr | 351 | 30.97 | 11.47 | 28.75 | 4.52 | 110.75 | 11.45 |
| O3 8 hr | 351 | 28.31 | 10.57 | 26.35 | 5.89 | 95.5 | 10.23 |
| NO21hr | 339 | 22.02 | 7.29 | 22 | 4 | 47.12 | 11.53 |
| NO224hr | 339 | 10.78 | 4.29 | 10.39 | 1.83 | 24.16 | 6.58 |
| CO 8 hr | 351 | 0.47 | 0.33 | 0.36 | 0.1 | 1.8 | 0.31 |
| SO2 1 HR | 348 | 1.7 | 1.45 | 1 | 0 | 8.44 | 1.01 |
| SO2 24 HR | 348 | 0.45 | 0.51 | 0.31 | 0 | 4.62 | 0.51 |
| Mean temperature | 365 | 16.57 | 4.99 | 16.37 | 6.19 | 31.85 | 6.72 |
| **6** | PM10 24 hr | 355 | 17.57 | 11.13 | 15.84 | 3.6 | 151.47 | 9.58 |
| PM2.5 24 hr | 0 | . | . | . | . | . | . |
| O3 1 hr | 364 | 29.38 | 10.47 | 27 | 8 | 94 | 8 |
| O3 4 hr | 366 | 27.37 | 9.44 | 26 | 6.75 | 82.25 | 7.25 |
| O3 8 hr | 366 | 24.9 | 8.21 | 23.88 | 5.25 | 68.75 | 7.25 |
| NO21hr | 364 | 14.83 | 6.66 | 15 | 1 | 37 | 10 |
| NO224hr | 364 | 6.52 | 3.28 | 6.37 | 0.04 | 18.29 | 5.29 |
| CO 8 hr | 0 | . | . | . | . | . | . |
| SO2 1 HR | 356 | 8.45 | 9.22 | 6 | 0 | 92 | 8 |
| SO2 24 HR | 356 | 2.53 | 1.92 | 2.09 | 0 | 12.8 | 2.22 |
| Mean temperature | 362 | 14.89 | 5.01 | 14.83 | 5.13 | 26.92 | 7.41 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **7** | PM10 24 hr | 365 | 21.03 | 12.57 | 18.51 | 5.62 | 141.08 | 13.85 |
| PM2.5 24 hr | 0 | . | . | . | . | . | . |
| O3 1 hr | 365 | 34.07 | 12 | 31 | 7.48 | 83.51 | 10.59 |
| O3 4 hr | 366 | 32.18 | 11.37 | 30 | 5.59 | 76.8 | 10.5 |
| O3 8 hr | 366 | 29.41 | 10.37 | 28 | 4.14 | 69.24 | 9.81 |
| NO21hr | 362 | 17.66 | 7.15 | 18 | 2 | 42.96 | 10.36 |
| NO224hr | 362 | 7.43 | 3.73 | 7.09 | 0.65 | 19.26 | 5.21 |
| CO 8 hr | 341 | 0.44 | 0.49 | 0.24 | 0.01 | 2.8 | 0.44 |
| SO2 1 HR | 0 | . | . | . | . | . | . |
| SO2 24 HR | 0 | . | . | . | . | . | . |
| Mean temperature | 365 | 15.25 | 5.34 | 14.96 | 4.27 | 28.66 | 7.34 |
| **8** | PM10 24 hr | 345 | 15.79 | 8.6 | 13.68 | 4.92 | 87.23 | 8.09 |
| PM2.5 24 hr | 0 | . | . | . | . | . | . |
| O3 1 hr | 348 | 32.85 | 12.1 | 30 | 5.05 | 117 | 11.11 |
| O3 4 hr | 351 | 30.97 | 11.47 | 28.75 | 4.52 | 110.75 | 11.45 |
| O3 8 hr | 351 | 28.31 | 10.57 | 26.35 | 5.89 | 95.5 | 10.23 |
| NO21hr | 339 | 22.02 | 7.29 | 22 | 4 | 47.12 | 11.53 |
| NO224hr | 339 | 10.78 | 4.29 | 10.39 | 1.83 | 24.16 | 6.58 |
| CO 8 hr | 351 | 0.47 | 0.33 | 0.36 | 0.1 | 1.8 | 0.31 |
| SO2 1 HR | 348 | 1.7 | 1.45 | 1 | 0 | 8.44 | 1.01 |
| SO2 24 HR | 348 | 0.45 | 0.51 | 0.31 | 0 | 4.62 | 0.51 |
| Mean temperature | 345 | 15.82 | 5.35 | 15.67 | 5.63 | 30.97 | 6.72 |
| **9** | PM10 24 hr | 365 | 20.83 | 13.2 | 18.52 | 3.38 | 130.85 | 12.6 |
| PM2.5 24 hr | 0 | . | . | . | . | . | . |
| O3 1 hr | 365 | 32.08 | 10.4 | 30 | 10 | 88 | 9.09 |
| O3 4 hr | 366 | 30.56 | 9.55 | 29.01 | 9 | 76.33 | 9.58 |
| O3 8 hr | 366 | 28.71 | 8.89 | 27.5 | 5.38 | 65.83 | 9.57 |
| NO21hr | 365 | 15.46 | 7.83 | 15.89 | 1 | 36.55 | 12.95 |
| NO224hr | 365 | 6.16 | 3.92 | 5.39 | 0.41 | 18.13 | 5.61 |
| CO 8 hr | 327 | 0.31 | 0.24 | 0.25 | 0.01 | 1.66 | 0.21 |
| SO2 1 HR | 364 | 5.67 | 8.02 | 3 | 0 | 82.74 | 7 |
| SO2 24 HR | 364 | 0.97 | 1.06 | 0.63 | 0 | 8.5 | 1.35 |
| Mean temperature | 362 | 15.59 | 4.58 | 15.49 | 6.06 | 30.35 | 6.13 |

Table 1.2. Summary statistics for air pollutants by State/Territory and season, ACHAPS Panel Study

| **State** | **Season** | **Air pollutant** | **N** | **Mean** | **Std Dev** | **Median** | **Minimum** | **Maximum** | **Quartile Range** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ACT | Autumn | |  | | --- | | PM10 24 hr | | PM2.5 24 hr | | O3 1 hr | | O3 4 hr | | O3 8 hr | | NO2 1 hr | | NO2 24 hr | | CO 8 hr | | SO2 1 hr | | SO2 24 hr | | Mean daily temperature | | |  | | --- | | 92 | | 67 | | 92 | | 92 | | 92 | | 92 | | 92 | | 92 | | 0 | | 0 | | 35 | | |  | | --- | | 18.33 | | 9.74 | | 32.87 | | 31.52 | | 27.97 | | 17.94 | | 6.78 | | 0.78 | | . | | . | | 18.10 | | |  | | --- | | 14.69 | | 8.39 | | 8.96 | | 8.64 | | 8.32 | | 7.68 | | 2.92 | | 0.66 | | . | | . | | 3.34 | | |  | | --- | | 15.81 | | 6.99 | | 31.38 | | 29.85 | | 26.70 | | 18.31 | | 6.88 | | 0.54 | | . | | . | | 18.12 | | |  | | --- | | 4.62 | | 0.12 | | 7.61 | | 7.26 | | 3.53 | | 2.13 | | 0.97 | | 0.10 | | . | | . | | 11.78 | | |  | | --- | | 119.21 | | 42.45 | | 56.13 | | 52.22 | | 51.18 | | 37.77 | | 14.80 | | 2.70 | | . | | . | | 25.57 | | |  | | --- | | 11.93 | | 11.23 | | 11.50 | | 10.30 | | 9.98 | | 8.99 | | 4.25 | | 0.75 | | . | | . | | 4.73 | |
|  | Spring | |  | | --- | | PM10 24 hr | | PM2.5 24 hr | | O3 1 hr | | O3 4 hr | | O3 8 hr | | NO2 1 hr | | NO2 24 hr | | CO 8 hr | | SO2 1 hr | | SO2 24 hr | | Mean daily temperature | | |  | | --- | | 91 | | 72 | | 91 | | 91 | | 91 | | 91 | | 91 | | 91 | | 0 | | 0 | | 0 | | |  | | --- | | 14.08 | | 5.68 | | 38.80 | | 37.31 | | 34.92 | | 18.02 | | 6.42 | | 0.42 | | . | | . | | . | | |  | | --- | | 6.62 | | 3.36 | | 9.78 | | 9.33 | | 8.57 | | 8.96 | | 3.53 | | 0.29 | | . | | . | | . | | |  | | --- | | 13.49 | | 5.36 | | 36.93 | | 34.92 | | 33.22 | | 18.72 | | 6.03 | | 0.33 | | . | | . | | . | | |  | | --- | | 2.91 | | 0.86 | | 22.65 | | 20.83 | | 19.23 | | 0.99 | | 0.60 | | 0.06 | | . | | . | | . | | |  | | --- | | 32.45 | | 15.33 | | 69.77 | | 68.07 | | 61.60 | | 39.08 | | 14.73 | | 1.30 | | . | | . | | . | | |  | | --- | | 9.10 | | 3.78 | | 12.24 | | 11.65 | | 10.71 | | 11.85 | | 5.05 | | 0.41 | | . | | . | | . | |
|  | Summer | |  | | --- | | PM10 24 hr | | PM2.5 24 hr | | O3 1 hr | | O3 4 hr | | O3 8 hr | | NO2 1 hr | | NO2 24 hr | | CO 8 hr | | SO2 1 hr | | SO2 24 hr | | Mean daily temperature | | |  | | --- | | 89 | | 52 | | 90 | | 91 | | 91 | | 86 | | 86 | | 91 | | 0 | | 0 | | 59 | | |  | | --- | | 16.29 | | 6.30 | | 42.73 | | 40.42 | | 37.46 | | 14.69 | | 5.25 | | 0.30 | | . | | . | | 21.69 | | |  | | --- | | 8.77 | | 6.45 | | 13.01 | | 12.07 | | 10.54 | | 8.68 | | 2.69 | | 0.15 | | . | | . | | 2.61 | | |  | | --- | | 14.18 | | 4.94 | | 42.88 | | 40.67 | | 36.38 | | 14.16 | | 5.34 | | 0.27 | | . | | . | | 21.64 | | |  | | --- | | 4.82 | | 1.25 | | 19.17 | | 17.80 | | 17.55 | | 0.99 | | 0.78 | | 0.09 | | . | | . | | 16.78 | | |  | | --- | | 66.20 | | 45.69 | | 75.42 | | 72.03 | | 60.79 | | 38.96 | | 12.24 | | 1.26 | | . | | . | | 28.41 | | |  | | --- | | 8.36 | | 2.95 | | 19.91 | | 20.67 | | 17.99 | | 13.45 | | 4.02 | | 0.16 | | . | | . | | 3.27 | |
|  | Winter | |  | | --- | | PM10 24 hr | | PM2.5 24 hr | | O3 1 hr | | O3 4 hr | | O3 8 hr | | NO2 1 hr | | NO2 24 hr | | CO 8 hr | | SO2 1 hr | | SO2 24 hr | | Mean daily temperature | | |  | | --- | | 92 | | 21 | | 92 | | 92 | | 92 | | 89 | | 89 | | 83 | | 0 | | 0 | | 0 | | |  | | --- | | 12.54 | | 9.33 | | 28.84 | | 27.54 | | 24.93 | | 19.34 | | 7.79 | | 0.99 | | . | | . | | . | | |  | | --- | | 8.47 | | 8.13 | | 4.83 | | 5.33 | | 6.46 | | 7.53 | | 4.32 | | 0.75 | | . | | . | | . | | |  | | --- | | 10.98 | | 6.52 | | 29.72 | | 28.46 | | 26.47 | | 20.62 | | 6.83 | | 0.87 | | . | | . | | . | | |  | | --- | | 2.91 | | 1.52 | | 8.24 | | 5.83 | | 3.96 | | 2.00 | | 0.65 | | 0.09 | | . | | . | | . | | |  | | --- | | 56.55 | | 27.77 | | 40.01 | | 39.24 | | 38.34 | | 31.23 | | 15.55 | | 2.63 | | . | | . | | . | | |  | | --- | | 10.65 | | 10.17 | | 4.33 | | 5.86 | | 9.29 | | 9.23 | | 8.20 | | 1.30 | | . | | . | | . | |
| NSW | Autumn | |  | | --- | | PM10 24 hr | | PM2.5 24 hr | | O3 1 hr | | O3 4 hr | | O3 8 hr | | NO2 1 hr | | NO2 24 hr | | CO 8 hr | | SO2 1 hr | | SO2 24 hr | | Mean daily temperature | | |  | | --- | | 615 | | 455 | | 604 | | 605 | | 606 | | 579 | | 579 | | 363 | | 344 | | 344 | | 644 | | |  | | --- | | 17.36 | | 8.66 | | 26.43 | | 24.32 | | 21.23 | | 19.43 | | 10.26 | | 0.58 | | 6.56 | | 1.84 | | 16.68 | | |  | | --- | | 5.98 | | 3.73 | | 8.21 | | 7.63 | | 6.54 | | 6.93 | | 4.48 | | 0.36 | | 6.22 | | 1.56 | | 3.09 | | |  | | --- | | 16.63 | | 8.18 | | 26.00 | | 24.25 | | 21.25 | | 19.00 | | 10.00 | | 0.45 | | 5.00 | | 1.43 | | 16.40 | | |  | | --- | | 5.64 | | 1.27 | | 0.00 | | 0.25 | | 0.88 | | 3.00 | | 1.00 | | 0.03 | | 0.00 | | 0.00 | | 9.90 | | |  | | --- | | 45.55 | | 21.78 | | 71.00 | | 59.00 | | 47.13 | | 42.00 | | 25.83 | | 2.26 | | 33.00 | | 10.05 | | 23.90 | | |  | | --- | | 7.74 | | 4.87 | | 8.00 | | 7.42 | | 7.61 | | 11.00 | | 5.91 | | 0.49 | | 7.00 | | 2.00 | | 4.80 | |
|  | Spring | |  | | --- | | PM10 24 hr | | PM2.5 24 hr | | O3 1 hr | | O3 4 hr | | O3 8 hr | | NO2 1 hr | | NO2 24 hr | | CO 8 hr | | SO2 1 hr | | SO2 24 hr | | Mean daily temperature | | |  | | --- | | 210 | | 150 | | 208 | | 208 | | 208 | | 196 | | 196 | | 120 | | 109 | | 109 | | 209 | | |  | | --- | | 21.79 | | 9.35 | | 33.41 | | 31.83 | | 29.60 | | 21.76 | | 10.19 | | 0.42 | | 7.44 | | 2.25 | | 15.64 | | |  | | --- | | 9.52 | | 4.10 | | 5.40 | | 5.05 | | 4.79 | | 7.43 | | 4.67 | | 0.21 | | 7.64 | | 1.90 | | 3.44 | | |  | | --- | | 19.66 | | 8.96 | | 33.00 | | 31.75 | | 29.88 | | 22.00 | | 10.03 | | 0.40 | | 6.00 | | 1.95 | | 14.70 | | |  | | --- | | 3.64 | | 1.60 | | 0.00 | | 0.50 | | 6.88 | | 1.00 | | 0.73 | | 0.09 | | 0.00 | | 0.00 | | 9.60 | | |  | | --- | | 78.89 | | 26.45 | | 52.00 | | 47.25 | | 42.00 | | 40.00 | | 24.00 | | 1.11 | | 51.00 | | 8.83 | | 24.60 | | |  | | --- | | 11.34 | | 4.56 | | 6.00 | | 6.25 | | 6.08 | | 9.00 | | 6.09 | | 0.31 | | 8.00 | | 2.03 | | 5.30 | |
|  | Summer | |  | | --- | | PM10 24 hr | | PM2.5 24 hr | | O3 1 hr | | O3 4 hr | | O3 8 hr | | NO2 1 hr | | NO2 24 hr | | CO 8 hr | | SO2 1 hr | | SO2 24 hr | | Mean daily temperature | | |  | | --- | | 418 | | 287 | | 404 | | 406 | | 406 | | 352 | | 352 | | 231 | | 208 | | 208 | | 407 | | |  | | --- | | 18.12 | | 7.99 | | 24.94 | | 23.04 | | 21.05 | | 12.25 | | 6.03 | | 0.32 | | 5.64 | | 1.42 | | 21.29 | | |  | | --- | | 6.61 | | 2.73 | | 11.76 | | 10.15 | | 7.90 | | 4.64 | | 2.57 | | 0.13 | | 6.04 | | 1.32 | | 1.92 | | |  | | --- | | 16.81 | | 7.55 | | 22.00 | | 20.75 | | 19.60 | | 12.00 | | 5.83 | | 0.30 | | 3.00 | | 1.05 | | 21.40 | | |  | | --- | | 6.54 | | 2.12 | | 0.00 | | 0.33 | | 1.29 | | 1.00 | | 1.00 | | 0.10 | | 0.00 | | 0.00 | | 15.60 | | |  | | --- | | 45.58 | | 22.03 | | 98.00 | | 89.00 | | 56.25 | | 31.00 | | 16.45 | | 0.66 | | 31.00 | | 6.22 | | 26.20 | | |  | | --- | | 9.40 | | 3.13 | | 11.00 | | 8.50 | | 7.13 | | 6.00 | | 3.34 | | 0.23 | | 7.00 | | 1.64 | | 2.60 | |
|  | Winter | |  | | --- | | PM10 24 hr | | PM2.5 24 hr | | O3 1 hr | | O3 4 hr | | O3 8 hr | | NO2 1 hr | | NO2 24 hr | | CO 8 hr | | SO2 1 hr | | SO2 24 hr | | Mean daily temperature | | |  | | --- | | 625 | | 448 | | 608 | | 608 | | 608 | | 602 | | 602 | | 361 | | 317 | | 317 | | 639 | | |  | | --- | | 14.89 | | 7.87 | | 25.50 | | 23.80 | | 20.98 | | 22.30 | | 11.63 | | 0.64 | | 7.34 | | 2.16 | | 12.03 | | |  | | --- | | 7.07 | | 3.79 | | 5.55 | | 5.87 | | 6.26 | | 6.57 | | 4.72 | | 0.44 | | 6.41 | | 1.79 | | 2.12 | | |  | | --- | | 13.49 | | 7.45 | | 27.00 | | 25.00 | | 22.38 | | 23.00 | | 11.74 | | 0.53 | | 5.00 | | 1.78 | | 11.80 | | |  | | --- | | 4.78 | | 0.90 | | 0.00 | | 0.33 | | 0.43 | | 0.00 | | 0.00 | | 0.03 | | 0.00 | | 0.00 | | 6.50 | | |  | | --- | | 78.33 | | 20.60 | | 36.00 | | 34.75 | | 33.25 | | 41.00 | | 27.29 | | 2.34 | | 36.00 | | 12.14 | | 17.70 | | |  | | --- | | 7.78 | | 5.03 | | 6.00 | | 7.50 | | 9.20 | | 8.00 | | 6.61 | | 0.53 | | 9.00 | | 2.05 | | 3.30 | |
| QLD | Autumn | |  | | --- | | PM10 24 hr | | PM2.5 24 hr | | O3 1 hr | | O3 4 hr | | O3 8 hr | | NO2 1 hr | | NO2 24 hr | | CO 8 hr | | SO2 1 hr | | SO2 24 hr | | Mean daily temperature | | |  | | --- | | 404 | | 276 | | 274 | | 274 | | 274 | | 366 | | 276 | | 145 | | 92 | | 92 | | 404 | | |  | | --- | | 16.48 | | 5.30 | | 29.43 | | 27.41 | | 24.93 | | 17.49 | | 6.42 | | 0.36 | | 2.12 | | 1.16 | | 21.74 | | |  | | --- | | 5.99 | | 2.39 | | 10.32 | | 9.67 | | 8.61 | | 8.65 | | 3.99 | | 0.29 | | 1.62 | | 0.31 | | 2.66 | | |  | | --- | | 15.73 | | 4.85 | | 29.00 | | 27.50 | | 25.14 | | 16.00 | | 5.34 | | 0.36 | | 1.00 | | 1.00 | | 21.65 | | |  | | --- | | 4.70 | | 1.37 | | 6.00 | | 5.25 | | 7.75 | | 2.00 | | 0.48 | | 0.01 | | 1.00 | | 0.96 | | 14.99 | | |  | | --- | | 41.31 | | 19.80 | | 70.00 | | 67.00 | | 67.00 | | 42.00 | | 19.78 | | 1.28 | | 8.00 | | 2.71 | | 28.78 | | |  | | --- | | 8.14 | | 2.95 | | 14.00 | | 14.25 | | 12.13 | | 13.00 | | 4.46 | | 0.38 | | 2.00 | | 0.21 | | 3.60 | |
|  | Spring | |  | | --- | | PM10 24 hr | | PM2.5 24 hr | | O3 1 hr | | O3 4 hr | | O3 8 hr | | NO2 1 hr | | NO2 24 hr | | CO 8 hr | | SO2 1 hr | | SO2 24 hr | | Mean daily temperature | | |  | | --- | | 363 | | 272 | | 273 | | 273 | | 273 | | 355 | | 265 | | 149 | | 91 | | 91 | | 363 | | |  | | --- | | 18.60 | | 6.04 | | 34.73 | | 32.85 | | 30.34 | | 20.14 | | 6.99 | | 0.31 | | 1.59 | | 0.35 | | 20.13 | | |  | | --- | | 8.76 | | 3.03 | | 11.33 | | 10.48 | | 9.43 | | 9.70 | | 3.07 | | 0.22 | | 2.17 | | 0.50 | | 2.87 | | |  | | --- | | 17.26 | | 5.45 | | 34.00 | | 32.50 | | 30.38 | | 19.00 | | 6.58 | | 0.29 | | 0.00 | | 0.00 | | 20.31 | | |  | | --- | | 4.41 | | 0.20 | | 14.00 | | 12.75 | | 11.75 | | 2.00 | | 1.00 | | 0.01 | | 0.00 | | 0.00 | | 11.12 | | |  | | --- | | 51.51 | | 13.98 | | 72.00 | | 60.25 | | 54.38 | | 61.00 | | 17.13 | | 1.30 | | 9.00 | | 1.91 | | 26.85 | | |  | | --- | | 10.45 | | 4.35 | | 17.00 | | 16.75 | | 14.75 | | 13.00 | | 4.13 | | 0.27 | | 3.00 | | 0.58 | | 4.05 | |
|  | Summer | |  | | --- | | PM10 24 hr | | PM2.5 24 hr | | O3 1 hr | | O3 4 hr | | O3 8 hr | | NO2 1 hr | | NO2 24 hr | | CO 8 hr | | SO2 1 hr | | SO2 24 hr | | Mean daily temperature | | |  | | --- | | 419 | | 250 | | 256 | | 260 | | 260 | | 356 | | 266 | | 128 | | 90 | | 90 | | 419 | | |  | | --- | | 16.89 | | 5.55 | | 26.97 | | 24.57 | | 22.36 | | 10.70 | | 3.59 | | 0.21 | | 0.51 | | 0.08 | | 23.84 | | |  | | --- | | 6.28 | | 2.05 | | 11.83 | | 10.46 | | 9.12 | | 5.44 | | 1.86 | | 0.16 | | 0.89 | | 0.17 | | 2.13 | | |  | | --- | | 16.32 | | 5.12 | | 26.00 | | 22.88 | | 21.69 | | 10.00 | | 3.35 | | 0.20 | | 0.00 | | 0.00 | | 23.90 | | |  | | --- | | 4.55 | | 1.75 | | 9.00 | | 8.00 | | 7.71 | | 1.00 | | 0.13 | | 0.01 | | 0.00 | | 0.00 | | 17.00 | | |  | | --- | | 43.93 | | 14.06 | | 76.00 | | 62.33 | | 51.88 | | 28.00 | | 10.04 | | 0.78 | | 4.00 | | 0.75 | | 29.68 | | |  | | --- | | 7.10 | | 2.15 | | 18.00 | | 15.88 | | 14.13 | | 7.50 | | 2.66 | | 0.17 | | 1.00 | | 0.08 | | 2.91 | |
|  | Winter | |  | | --- | | PM10 24 hr | | PM2.5 24 hr | | O3 1 hr | | O3 4 hr | | O3 8 hr | | NO2 1 hr | | NO2 24 hr | | CO 8 hr | | SO2 1 hr | | SO2 24 hr | | Mean daily temperature | | |  | | --- | | 367 | | 275 | | 274 | | 274 | | 275 | | 367 | | 275 | | 155 | | 91 | | 91 | | 367 | | |  | | --- | | 16.45 | | 6.21 | | 27.83 | | 26.70 | | 24.61 | | 25.35 | | 9.48 | | 0.80 | | 2.42 | | 0.68 | | 14.33 | | |  | | --- | | 8.65 | | 3.71 | | 6.30 | | 6.25 | | 5.76 | | 11.06 | | 4.85 | | 0.56 | | 2.24 | | 0.58 | | 2.83 | | |  | | --- | | 14.63 | | 5.23 | | 28.50 | | 27.75 | | 25.63 | | 26.00 | | 9.30 | | 0.74 | | 2.00 | | 0.50 | | 14.56 | | |  | | --- | | 2.68 | | 1.67 | | 10.00 | | 9.50 | | 7.63 | | 3.00 | | 1.09 | | 0.01 | | 0.00 | | 0.00 | | 5.39 | | |  | | --- | | 53.41 | | 23.59 | | 51.00 | | 46.33 | | 39.43 | | 69.00 | | 22.96 | | 2.73 | | 12.00 | | 2.21 | | 21.18 | | |  | | --- | | 9.96 | | 4.27 | | 9.00 | | 9.25 | | 8.88 | | 14.00 | | 7.26 | | 0.84 | | 2.00 | | 1.00 | | 3.75 | |
| SA | Autumn | |  | | --- | | PM10 24 hr | | PM2.5 24 hr | | O3 1 hr | | O3 4 hr | | O3 8 hr | | NO2 1 hr | | NO2 24 hr | | CO 8 hr | | SO2 1 hr | | SO2 24 hr | | Mean daily temperature | | |  | | --- | | 368 | | 92 | | 276 | | 276 | | 276 | | 272 | | 268 | | 74 | | 92 | | 92 | | 368 | | |  | | --- | | 18.04 | | 7.55 | | 27.72 | | 26.79 | | 25.36 | | 15.51 | | 5.43 | | 0.06 | | 65.28 | | 9.08 | | 18.63 | | |  | | --- | | 9.29 | | 2.49 | | 5.89 | | 5.56 | | 5.36 | | 8.57 | | 4.22 | | 0.05 | | 91.53 | | 11.33 | | 4.01 | | |  | | --- | | 15.39 | | 7.40 | | 27.00 | | 26.00 | | 24.56 | | 15.00 | | 4.20 | | 0.05 | | 32.00 | | 4.40 | | 17.85 | | |  | | --- | | 5.41 | | 3.84 | | 17.00 | | 14.75 | | 13.50 | | 0.00 | | 0.00 | | 0.01 | | 0.00 | | 0.00 | | 10.16 | | |  | | --- | | 62.17 | | 20.84 | | 60.00 | | 56.00 | | 47.25 | | 40.00 | | 21.70 | | 0.25 | | 594.00 | | 43.38 | | 32.30 | | |  | | --- | | 10.86 | | 2.84 | | 6.00 | | 6.00 | | 5.88 | | 12.00 | | 4.26 | | 0.06 | | 100.50 | | 14.18 | | 4.84 | |
|  | Spring | |  | | --- | | PM10 24 hr | | PM2.5 24 hr | | O3 1 hr | | O3 4 hr | | O3 8 hr | | NO2 1 hr | | NO2 24 hr | | CO 8 hr | | SO2 1 hr | | SO2 24 hr | | Mean daily temperature | | |  | | --- | | 364 | | 91 | | 270 | | 270 | | 273 | | 266 | | 273 | | 61 | | 91 | | 91 | | 364 | | |  | | --- | | 19.07 | | 8.26 | | 34.15 | | 33.14 | | 31.81 | | 13.86 | | 4.75 | | 0.05 | | 72.19 | | 9.79 | | 17.81 | | |  | | --- | | 12.80 | | 2.49 | | 7.27 | | 6.64 | | 5.93 | | 8.54 | | 3.62 | | 0.03 | | 92.03 | | 10.89 | | 4.64 | | |  | | --- | | 16.13 | | 8.16 | | 32.00 | | 31.25 | | 30.13 | | 12.00 | | 3.63 | | 0.04 | | 31.00 | | 4.67 | | 16.59 | | |  | | --- | | 5.54 | | 3.69 | | 20.00 | | 20.00 | | 22.00 | | 2.00 | | 0.25 | | 0.01 | | 2.00 | | 2.00 | | 10.22 | | |  | | --- | | 166.70 | | 13.77 | | 63.00 | | 60.75 | | 54.50 | | 40.00 | | 18.48 | | 0.14 | | 365.00 | | 59.74 | | 30.97 | | |  | | --- | | 10.51 | | 3.37 | | 7.00 | | 6.50 | | 5.63 | | 13.00 | | 3.13 | | 0.05 | | 112.00 | | 14.46 | | 7.31 | |
|  | Summer | |  | | --- | | PM10 24 hr | | PM2.5 24 hr | | O3 1 hr | | O3 4 hr | | O3 8 hr | | NO2 1 hr | | NO2 24 hr | | CO 8 hr | | SO2 1 hr | | SO2 24 hr | | Mean daily temperature | | |  | | --- | | 349 | | 91 | | 272 | | 273 | | 273 | | 267 | | 263 | | 65 | | 91 | | 91 | | 353 | | |  | | --- | | 22.99 | | 8.17 | | 34.25 | | 32.53 | | 30.74 | | 11.73 | | 4.03 | | 0.04 | | 56.46 | | 6.86 | | 23.64 | | |  | | --- | | 13.44 | | 2.81 | | 12.99 | | 11.88 | | 10.92 | | 8.88 | | 3.10 | | 0.04 | | 92.74 | | 10.59 | | 4.70 | | |  | | --- | | 20.73 | | 7.76 | | 32.50 | | 31.00 | | 29.38 | | 9.00 | | 3.04 | | 0.03 | | 12.00 | | 2.00 | | 23.35 | | |  | | --- | | 1.23 | | 3.21 | | 11.00 | | 11.00 | | 12.38 | | 0.00 | | 0.00 | | 0.01 | | 0.00 | | 0.00 | | 13.37 | | |  | | --- | | 124.82 | | 21.63 | | 78.00 | | 74.25 | | 65.88 | | 39.00 | | 14.00 | | 0.30 | | 452.00 | | 52.61 | | 36.25 | | |  | | --- | | 12.99 | | 3.58 | | 18.00 | | 16.75 | | 14.50 | | 13.00 | | 3.96 | | 0.02 | | 73.00 | | 9.08 | | 7.49 | |
|  | Winter | |  | | --- | | PM10 24 hr | | PM2.5 24 hr | | O3 1 hr | | O3 4 hr | | O3 8 hr | | NO2 1 hr | | NO2 24 hr | | CO 8 hr | | SO2 1 hr | | SO2 24 hr | | Mean daily temperature | | |  | | --- | | 368 | | 92 | | 276 | | 276 | | 276 | | 276 | | 276 | | 92 | | 92 | | 92 | | 368 | | |  | | --- | | 13.52 | | 7.94 | | 27.87 | | 26.83 | | 24.74 | | 19.79 | | 7.34 | | 0.16 | | 63.47 | | 9.22 | | 11.23 | | |  | | --- | | 8.09 | | 2.36 | | 3.14 | | 3.39 | | 3.87 | | 7.15 | | 4.58 | | 0.12 | | 86.64 | | 11.35 | | 2.59 | | |  | | --- | | 11.79 | | 7.72 | | 28.00 | | 27.00 | | 25.13 | | 21.00 | | 6.52 | | 0.12 | | 36.50 | | 4.83 | | 10.97 | | |  | | --- | | 4.81 | | 2.83 | | 16.00 | | 14.25 | | 13.88 | | 3.00 | | 0.56 | | 0.02 | | 0.00 | | 0.00 | | 6.60 | | |  | | --- | | 85.86 | | 16.45 | | 34.00 | | 33.00 | | 32.63 | | 38.00 | | 19.88 | | 0.64 | | 560.00 | | 57.37 | | 20.88 | | |  | | --- | | 5.66 | | 2.87 | | 4.00 | | 4.75 | | 5.47 | | 10.00 | | 5.50 | | 0.17 | | 83.50 | | 15.34 | | 2.95 | |
| VIC | Autumn | |  | | --- | | PM10 24 hr | | PM2.5 24 hr | | O3 1 hr | | O3 4 hr | | O3 8 hr | | NO2 1 hr | | NO2 24 hr | | CO 8 hr | | SO2 1 hr | | SO2 24 hr | | Mean daily temperature | | |  | | --- | | 702 | | 184 | | 643 | | 644 | | 644 | | 735 | | 643 | | 627 | | 543 | | 543 | | 728 | | |  | | --- | | 19.43 | | 5.85 | | 29.30 | | 27.51 | | 24.81 | | 22.08 | | 10.13 | | 0.46 | | 4.22 | | 1.20 | | 16.84 | | |  | | --- | | 10.62 | | 3.96 | | 8.77 | | 8.31 | | 7.33 | | 8.17 | | 4.74 | | 0.38 | | 5.17 | | 1.32 | | 3.00 | | |  | | --- | | 17.16 | | 5.04 | | 27.06 | | 25.94 | | 23.63 | | 21.55 | | 9.62 | | 0.37 | | 2.65 | | 0.80 | | 16.52 | | |  | | --- | | 4.77 | | 0.92 | | 9.00 | | 7.50 | | 5.88 | | 1.95 | | 0.86 | | 0.01 | | 0.00 | | 0.00 | | 9.54 | | |  | | --- | | 130.85 | | 21.86 | | 68.32 | | 62.90 | | 55.91 | | 51.85 | | 30.84 | | 2.63 | | 44.00 | | 9.91 | | 28.54 | | |  | | --- | | 12.35 | | 3.89 | | 9.43 | | 8.69 | | 7.02 | | 11.49 | | 6.12 | | 0.42 | | 4.04 | | 1.38 | | 3.09 | |
|  | Spring | |  | | --- | | PM10 24 hr | | PM2.5 24 hr | | O3 1 hr | | O3 4 hr | | O3 8 hr | | NO2 1 hr | | NO2 24 hr | | CO 8 hr | | SO2 1 hr | | SO2 24 hr | | Mean daily temperature | | |  | | --- | | 728 | | 182 | | 637 | | 637 | | 637 | | 711 | | 629 | | 630 | | 546 | | 546 | | 728 | | |  | | --- | | 17.51 | | 5.49 | | 33.77 | | 32.29 | | 30.05 | | 19.44 | | 8.25 | | 0.34 | | 3.82 | | 0.83 | | 15.30 | | |  | | --- | | 8.45 | | 3.08 | | 9.06 | | 8.29 | | 7.47 | | 8.85 | | 4.30 | | 0.21 | | 6.79 | | 1.13 | | 3.69 | | |  | | --- | | 15.77 | | 4.62 | | 32.00 | | 30.67 | | 28.88 | | 19.00 | | 7.74 | | 0.30 | | 2.00 | | 0.43 | | 14.71 | | |  | | --- | | 3.38 | | 1.54 | | 17.00 | | 13.25 | | 10.38 | | 1.00 | | 0.04 | | 0.01 | | 0.00 | | 0.00 | | 7.73 | | |  | | --- | | 97.43 | | 18.43 | | 82.00 | | 73.75 | | 70.38 | | 56.00 | | 25.22 | | 1.44 | | 88.00 | | 9.70 | | 28.61 | | |  | | --- | | 9.12 | | 3.04 | | 7.00 | | 7.75 | | 7.00 | | 12.00 | | 6.18 | | 0.21 | | 3.00 | | 0.98 | | 4.08 | |
|  | Summer | |  | | --- | | PM10 24 hr | | PM2.5 24 hr | | O3 1 hr | | O3 4 hr | | O3 8 hr | | NO2 1 hr | | NO2 24 hr | | CO 8 hr | | SO2 1 hr | | SO2 24 hr | | Mean daily temperature | | |  | | --- | | 686 | | 180 | | 593 | | 605 | | 605 | | 673 | | 583 | | 569 | | 505 | | 505 | | 701 | | |  | | --- | | 22.86 | | 8.89 | | 39.53 | | 36.57 | | 33.99 | | 15.98 | | 6.73 | | 0.30 | | 4.61 | | 1.03 | | 21.40 | | |  | | --- | | 13.65 | | 11.54 | | 16.97 | | 15.58 | | 13.41 | | 8.42 | | 3.87 | | 0.23 | | 7.44 | | 1.11 | | 3.93 | | |  | | --- | | 19.94 | | 6.14 | | 37.00 | | 34.75 | | 32.38 | | 15.00 | | 6.24 | | 0.25 | | 2.00 | | 0.74 | | 20.73 | | |  | | --- | | 5.62 | | 0.95 | | 14.00 | | 9.00 | | 9.00 | | 1.00 | | 0.41 | | 0.01 | | 0.00 | | 0.00 | | 13.23 | | |  | | --- | | 151.47 | | 131.87 | | 127.00 | | 115.00 | | 99.00 | | 52.00 | | 22.59 | | 2.69 | | 92.00 | | 8.50 | | 31.85 | | |  | | --- | | 11.79 | | 6.02 | | 25.00 | | 22.50 | | 20.25 | | 11.00 | | 5.05 | | 0.23 | | 4.06 | | 1.21 | | 5.70 | |
|  | Winter | |  | | --- | | PM10 24 hr | | PM2.5 24 hr | | O3 1 hr | | O3 4 hr | | O3 8 hr | | NO2 1 hr | | NO2 24 hr | | CO 8 hr | | SO2 1 hr | | SO2 24 hr | | Mean daily temperature | | |  | | --- | | 736 | | 184 | | 644 | | 644 | | 644 | | 736 | | 644 | | 633 | | 544 | | 544 | | 734 | | |  | | --- | | 13.89 | | 4.89 | | 26.51 | | 24.89 | | 22.16 | | 24.47 | | 11.99 | | 0.69 | | 4.03 | | 1.21 | | 10.34 | | |  | | --- | | 5.95 | | 2.69 | | 5.36 | | 5.53 | | 5.85 | | 7.24 | | 5.11 | | 0.50 | | 4.43 | | 1.48 | | 2.53 | | |  | | --- | | 12.68 | | 4.06 | | 27.00 | | 25.75 | | 22.88 | | 25.00 | | 11.48 | | 0.53 | | 3.00 | | 0.81 | | 9.99 | | |  | | --- | | 3.60 | | 1.14 | | 5.05 | | 4.52 | | 4.14 | | 2.00 | | 0.65 | | 0.03 | | 0.00 | | 0.00 | | 4.27 | | |  | | --- | | 60.85 | | 14.08 | | 48.00 | | 38.33 | | 37.71 | | 51.00 | | 27.52 | | 2.90 | | 30.00 | | 12.80 | | 17.33 | | |  | | --- | | 6.40 | | 2.98 | | 6.00 | | 6.67 | | 7.56 | | 9.00 | | 7.22 | | 0.65 | | 4.00 | | 1.39 | | 3.37 | |
| WA | Autumn | |  | | --- | | PM10 24 hr | | PM2.5 24 hr | | O3 1 hr | | O3 4 hr | | O3 8 hr | | NO2 1 hr | | NO2 24 hr | | CO 8 hr | | SO2 1 hr | | SO2 24 hr | | Mean daily temperature | | |  | | --- | | 184 | | 276 | | 184 | | 184 | | 184 | | 276 | | 276 | | 184 | | 92 | | 92 | | 276 | | |  | | --- | | 16.51 | | 7.44 | | 31.98 | | 29.97 | | 27.48 | | 19.09 | | 7.01 | | 0.46 | | 4.91 | | 0.63 | | 18.94 | | |  | | --- | | 5.02 | | 2.30 | | 9.34 | | 7.70 | | 6.62 | | 8.82 | | 4.12 | | 0.36 | | 7.37 | | 0.78 | | 3.94 | | |  | | --- | | 16.10 | | 6.96 | | 30.00 | | 28.75 | | 26.29 | | 19.00 | | 6.62 | | 0.36 | | 2.00 | | 0.42 | | 18.74 | | |  | | --- | | 6.33 | | 3.49 | | 15.00 | | 14.25 | | 12.50 | | 0.60 | | 0.05 | | 0.01 | | 0.00 | | 0.00 | | 11.18 | | |  | | --- | | 32.87 | | 17.66 | | 80.80 | | 74.70 | | 61.19 | | 53.00 | | 19.13 | | 1.78 | | 40.00 | | 4.21 | | 32.16 | | |  | | --- | | 6.52 | | 2.61 | | 7.60 | | 6.95 | | 7.19 | | 11.00 | | 5.65 | | 0.43 | | 4.50 | | 0.65 | | 4.27 | |
|  | Spring | |  | | --- | | PM10 24 hr | | PM2.5 24 hr | | O3 1 hr | | O3 4 hr | | O3 8 hr | | NO2 1 hr | | NO2 24 hr | | CO 8 hr | | SO2 1 hr | | SO2 24 hr | | Mean daily temperature | | |  | | --- | | 182 | | 273 | | 182 | | 182 | | 182 | | 273 | | 273 | | 180 | | 91 | | 91 | | 265 | | |  | | --- | | 16.58 | | 7.81 | | 35.83 | | 33.90 | | 31.91 | | 16.27 | | 5.40 | | 0.26 | | 5.80 | | 0.79 | | 17.05 | | |  | | --- | | 6.51 | | 2.81 | | 7.80 | | 6.87 | | 6.12 | | 8.95 | | 3.48 | | 0.22 | | 8.08 | | 1.01 | | 2.86 | | |  | | --- | | 14.99 | | 7.15 | | 34.00 | | 32.48 | | 31.52 | | 17.00 | | 5.00 | | 0.21 | | 2.00 | | 0.38 | | 16.65 | | |  | | --- | | 7.08 | | 3.26 | | 23.00 | | 22.00 | | 19.50 | | 0.20 | | 0.02 | | 0.01 | | 0.00 | | 0.00 | | 11.66 | | |  | | --- | | 37.78 | | 19.93 | | 66.00 | | 56.65 | | 49.64 | | 57.00 | | 16.71 | | 1.61 | | 37.00 | | 5.58 | | 27.62 | | |  | | --- | | 9.26 | | 3.35 | | 7.30 | | 7.82 | | 6.99 | | 12.00 | | 5.24 | | 0.18 | | 8.00 | | 1.25 | | 3.10 | |
|  | Summer | |  | | --- | | PM10 24 hr | | PM2.5 24 hr | | O3 1 hr | | O3 4 hr | | O3 8 hr | | NO2 1 hr | | NO2 24 hr | | CO 8 hr | | SO2 1 hr | | SO2 24 hr | | Mean daily temperature | | |  | | --- | | 179 | | 270 | | 180 | | 182 | | 182 | | 270 | | 270 | | 182 | | 90 | | 90 | | 270 | | |  | | --- | | 19.74 | | 7.78 | | 31.03 | | 28.66 | | 26.48 | | 12.57 | | 3.89 | | 0.19 | | 6.24 | | 0.96 | | 21.38 | | |  | | --- | | 7.99 | | 2.48 | | 10.87 | | 9.74 | | 8.53 | | 7.33 | | 2.46 | | 0.11 | | 7.30 | | 1.00 | | 3.75 | | |  | | --- | | 18.46 | | 7.62 | | 29.10 | | 26.63 | | 24.58 | | 12.00 | | 3.54 | | 0.15 | | 4.00 | | 0.71 | | 20.67 | | |  | | --- | | 4.81 | | 3.21 | | 14.00 | | 13.25 | | 12.13 | | 0.30 | | 0.03 | | 0.06 | | 0.00 | | 0.00 | | 13.63 | | |  | | --- | | 56.67 | | 21.18 | | 67.00 | | 59.33 | | 53.38 | | 35.00 | | 12.57 | | 0.79 | | 36.00 | | 4.83 | | 32.09 | | |  | | --- | | 9.50 | | 3.15 | | 15.65 | | 14.00 | | 11.85 | | 9.00 | | 3.48 | | 0.14 | | 9.00 | | 1.25 | | 4.53 | |
|  | Winter | |  | | --- | | PM10 24 hr | | PM2.5 24 hr | | O3 1 hr | | O3 4 hr | | O3 8 hr | | NO2 1 hr | | NO2 24 hr | | CO 8 hr | | SO2 1 hr | | SO2 24 hr | | Mean daily temperature | | |  | | --- | | 183 | | 276 | | 184 | | 184 | | 184 | | 276 | | 276 | | 184 | | 92 | | 92 | | 258 | | |  | | --- | | 13.59 | | 6.92 | | 31.48 | | 30.39 | | 28.42 | | 18.91 | | 7.39 | | 0.61 | | 1.05 | | 0.20 | | 15.10 | | |  | | --- | | 4.53 | | 2.30 | | 4.77 | | 4.89 | | 5.62 | | 8.62 | | 4.39 | | 0.42 | | 1.44 | | 0.30 | | 1.96 | | |  | | --- | | 13.33 | | 6.61 | | 32.00 | | 30.50 | | 28.88 | | 21.50 | | 7.34 | | 0.53 | | 1.00 | | 0.08 | | 15.32 | | |  | | --- | | 6.13 | | 2.49 | | 19.00 | | 17.75 | | 16.00 | | 1.00 | | 0.06 | | 0.04 | | 0.00 | | 0.00 | | 10.49 | | |  | | --- | | 40.30 | | 21.63 | | 45.50 | | 45.05 | | 44.61 | | 35.30 | | 17.04 | | 2.00 | | 8.00 | | 1.71 | | 19.68 | | |  | | --- | | 5.09 | | 2.72 | | 6.75 | | 6.76 | | 8.64 | | 13.70 | | 7.73 | | 0.61 | | 1.00 | | 0.27 | | 2.98 | |

Table 1.3. Correlation between air pollutants and temperature by State/Territory, ACHAPS Panel Study

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pearson Correlation Coefficients**  **Prob > |r| under H0: Rho=0**  **Number of Observations** | | | | | | | | | | |
| **ACT** | **PM10 24 hr** | **PM2.5 24 hr** | **O3 1 hr** | **O3 4 hr** | **O3 8 hr** | **NO2 1 hr** | **CO 8 hr** | **SO2 1 hr** | **SO2 24 hr** | **Mean daily temperature** |
| **PM10 24 hr** | 1 | 0.6382 | 0.31928 | 0.30668 | 0.24057 | 0.29748 | 0.2925 | . | . | 0.40198 |
|  | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | . | . | <.0001 |
| 364 | 211 | 364 | 364 | 364 | 357 | 355 | 0 | 0 | 94 |
| **PM2.5 24 hr** | 0.6382 | 1 | 0.12209 | 0.10526 | -0.00173 | 0.28855 | 0.67322 | . | . | 0.09555 |
| <.0001 |  | 0.0761 | 0.1265 | 0.9801 | <.0001 | <.0001 | . | . | 0.5229 |
| 211 | 212 | 212 | 212 | 212 | 206 | 211 | 0 | 0 | 47 |
| **O3 1 hr** | 0.31928 | 0.12209 | 1 | 0.98751 | 0.94109 | 0.22103 | -0.27127 | . | . | 0.67825 |
| <.0001 | 0.0761 |  | <.0001 | <.0001 | <.0001 | <.0001 | . | . | <.0001 |
| 364 | 212 | 365 | 365 | 365 | 358 | 356 | 0 | 0 | 94 |
| **O3 4 hr** | 0.30668 | 0.10526 | 0.98751 | 1 | 0.96705 | 0.21 | -0.29076 | . | . | 0.66675 |
| <.0001 | 0.1265 | <.0001 |  | <.0001 | <.0001 | <.0001 | . | . | <.0001 |
| 364 | 212 | 365 | 366 | 366 | 358 | 357 | 0 | 0 | 94 |
| **O3 8 hr** | 0.24057 | -0.00173 | 0.94109 | 0.96705 | 1 | 0.15218 | -0.3982 | . | . | 0.69652 |
| <.0001 | 0.9801 | <.0001 | <.0001 |  | 0.0039 | <.0001 | . | . | <.0001 |
| 364 | 212 | 365 | 366 | 366 | 358 | 357 | 0 | 0 | 94 |
| **NO2 1 hr** | 0.29748 | 0.28855 | 0.22103 | 0.21 | 0.15218 | 1 | 0.43585 | . | . | 0.28531 |
| <.0001 | <.0001 | <.0001 | <.0001 | 0.0039 |  | <.0001 | . | . | 0.0064 |
| 357 | 206 | 358 | 358 | 358 | 358 | 349 | 0 | 0 | 90 |
| **CO 8 hr** | 0.2925 | 0.67322 | -0.27127 | -0.29076 | -0.3982 | 0.43585 | 1 | . | . | 0.10629 |
| <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 |  | . | . | 0.3079 |
| 355 | 211 | 356 | 357 | 357 | 349 | 357 | 0 | 0 | 94 |
| **SO2 1 hr** | . | . | . | . | . | . | . | . | . | . |
| . | . | . | . | . | . | . | . | . | . |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **SO2 24 hr** | . | . | . | . | . | . | . | . | . | . |
| . | . | . | . | . | . | . | . | . | . |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Mean daily temperature** | 0.40198 | 0.09555 | 0.67825 | 0.66675 | 0.69652 | 0.28531 | 0.10629 | . | . | 1 |
| <.0001 | 0.5229 | <.0001 | <.0001 | <.0001 | 0.0064 | 0.3079 | . | . |  |
| 94 | 47 | 94 | 94 | 94 | 90 | 94 | 0 | 0 | 94 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pearson Correlation Coefficients**  **Prob > |r| under H0: Rho=0**  **Number of Observations** | | | | | | | | | | |
| **NSW** | **PM10 24 hr** | **PM2.5 24 hr** | **O3 1 hr** | **O3 4 hr** | **O3 8 hr** | **NO2 1 hr** | **CO 8 hr** | **SO2 1 hr** | **SO2 24 hr** | **Mean daily temperature** |
| **PM10 24 hr** | 1 | 0.68884 | 0.20324 | 0.19156 | 0.17613 | 0.13193 | 0.16602 | 0.08547 | 0.08932 | 0.22972 |
|  | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | 0.0089 | 0.0063 | <.0001 |
| 1868 | 1321 | 1775 | 1778 | 1779 | 1686 | 1048 | 935 | 935 | 1850 |
| **PM2.5 24 hr** | 0.68884 | 1 | 0.15512 | 0.10825 | 0.00416 | 0.29414 | 0.52755 | 0.26917 | 0.212 | -0.0004 |
| <.0001 |  | <.0001 | <.0001 | 0.8811 | <.0001 | <.0001 | <.0001 | <.0001 | 0.9884 |
| 1321 | 1340 | 1293 | 1295 | 1295 | 1233 | 522 | 705 | 705 | 1334 |
| **O3 1 hr** | 0.20324 | 0.15512 | 1 | 0.97728 | 0.89903 | 0.15284 | -0.15463 | 0.01969 | -0.01655 | 0.11573 |
| <.0001 | <.0001 |  | <.0001 | <.0001 | <.0001 | <.0001 | 0.548 | 0.6136 | <.0001 |
| 1775 | 1293 | 1824 | 1824 | 1824 | 1678 | 1029 | 933 | 933 | 1806 |
| **O3 4 hr** | 0.19156 | 0.10825 | 0.97728 | 1 | 0.95148 | 0.12563 | -0.19246 | -0.02251 | -0.05818 | 0.09304 |
| <.0001 | <.0001 | <.0001 |  | <.0001 | <.0001 | <.0001 | 0.4921 | 0.0755 | <.0001 |
| 1778 | 1295 | 1824 | 1827 | 1827 | 1679 | 1030 | 934 | 934 | 1809 |
| **O3 8 hr** | 0.17613 | 0.00416 | 0.89903 | 0.95148 | 1 | 0.00932 | -0.30385 | -0.07402 | -0.10452 | 0.12017 |
| <.0001 | 0.8811 | <.0001 | <.0001 |  | 0.7028 | <.0001 | 0.0237 | 0.0014 | <.0001 |
| 1779 | 1295 | 1824 | 1827 | 1828 | 1680 | 1031 | 934 | 934 | 1810 |
| **NO2 1 hr** | 0.13193 | 0.29414 | 0.15284 | 0.12563 | 0.00932 | 1 | 0.48311 | 0.26466 | 0.30474 | -0.50288 |
| <.0001 | <.0001 | <.0001 | <.0001 | 0.7028 |  | <.0001 | <.0001 | <.0001 | <.0001 |
| 1686 | 1233 | 1678 | 1679 | 1680 | 1729 | 983 | 891 | 891 | 1720 |
| **CO 8 hr** | 0.16602 | 0.52755 | -0.15463 | -0.19246 | -0.30385 | 0.48311 | 1 | 0.36634 | 0.39465 | -0.38887 |
| <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 |  | <.0001 | <.0001 | <.0001 |
| 1048 | 522 | 1029 | 1030 | 1031 | 983 | 1075 | 459 | 459 | 1062 |
| **SO2 1 hr** | 0.08547 | 0.26917 | 0.01969 | -0.02251 | -0.07402 | 0.26466 | 0.36634 | 1 | 0.85651 | -0.1437 |
| 0.0089 | <.0001 | 0.548 | 0.4921 | 0.0237 | <.0001 | <.0001 |  | <.0001 | <.0001 |
| 935 | 705 | 933 | 934 | 934 | 891 | 459 | 978 | 978 | 967 |
| **SO2 24 hr** | 0.08932 | 0.212 | -0.01655 | -0.05818 | -0.10452 | 0.30474 | 0.39465 | 0.85651 | 1 | -0.19637 |
| 0.0063 | <.0001 | 0.6136 | 0.0755 | 0.0014 | <.0001 | <.0001 | <.0001 |  | <.0001 |
| 935 | 705 | 933 | 934 | 934 | 891 | 459 | 978 | 978 | 967 |
| **Mean daily temperature** | 0.22972 | -0.0004 | 0.11573 | 0.09304 | 0.12017 | -0.50288 | -0.38887 | -0.1437 | -0.19637 | 1 |
| <.0001 | 0.9884 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 |  |
| 1850 | 1334 | 1806 | 1809 | 1810 | 1720 | 1062 | 967 | 967 | 1899 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pearson Correlation Coefficients**  **Prob > |r| under H0: Rho=0**  **Number of Observations** | | | | | | | | | | |
| **QLD** | **PM10 24 hr** | **PM2.5 24 hr** | **O3 1 hr** | **O3 4 hr** | **O3 8 hr** | **NO2 1 hr** | **CO 8 hr** | **SO2 1 hr** | **SO2 24 hr** | **Mean daily temperature** |
| **PM10 24 hr** | 1 | 0.79929 | 0.27969 | 0.26791 | 0.23324 | 0.41571 | 0.36363 | 0.19585 | 0.00369 | 0.23966 |
|  | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | 0.0002 | 0.944 | <.0001 |
| 1553 | 1073 | 1077 | 1078 | 1079 | 1444 | 576 | 364 | 364 | 1553 |
| **PM2.5 24 hr** | 0.79929 | 1 | 0.4016 | 0.39484 | 0.35563 | 0.42444 | 0.42211 | 0.27859 | 0.08261 | 0.08434 |
| <.0001 |  | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | 0.1161 | 0.0057 |
| 1073 | 1073 | 1056 | 1057 | 1058 | 1061 | 208 | 363 | 363 | 1073 |
| **O3 1 hr** | 0.27969 | 0.4016 | 1 | 0.98661 | 0.95216 | 0.14133 | -0.12539 | 0.39289 | 0.20215 | 0.14864 |
| <.0001 | <.0001 |  | <.0001 | <.0001 | <.0001 | 0.0684 | <.0001 | 0.0001 | <.0001 |
| 1077 | 1056 | 1077 | 1077 | 1077 | 1065 | 212 | 364 | 364 | 1077 |
| **O3 4 hr** | 0.26791 | 0.39484 | 0.98661 | 1 | 0.97939 | 0.15612 | -0.0768 | 0.38217 | 0.16193 | 0.0978 |
| <.0001 | <.0001 | <.0001 |  | <.0001 | <.0001 | 0.2656 | <.0001 | 0.0019 | 0.0013 |
| 1078 | 1057 | 1077 | 1081 | 1081 | 1066 | 212 | 364 | 364 | 1078 |
| **O3 8 hr** | 0.23324 | 0.35563 | 0.95216 | 0.97939 | 1 | 0.11865 | -0.07588 | 0.34644 | 0.12142 | 0.06483 |
| <.0001 | <.0001 | <.0001 | <.0001 |  | 0.0001 | 0.2714 | <.0001 | 0.0205 | 0.0332 |
| 1079 | 1058 | 1077 | 1081 | 1082 | 1067 | 212 | 364 | 364 | 1079 |
| **NO2 1 hr** | 0.41571 | 0.42444 | 0.14133 | 0.15612 | 0.11865 | 1 | 0.61638 | 0.34806 | 0.31444 | -0.30515 |
| <.0001 | <.0001 | <.0001 | <.0001 | 0.0001 |  | <.0001 | <.0001 | <.0001 | <.0001 |
| 1444 | 1061 | 1065 | 1066 | 1067 | 1444 | 569 | 364 | 364 | 1444 |
| **CO 8 hr** | 0.36363 | 0.42211 | -0.12539 | -0.0768 | -0.07588 | 0.61638 | 1 | . | . | -0.33515 |
| <.0001 | <.0001 | 0.0684 | 0.2656 | 0.2714 | <.0001 |  | . | . | <.0001 |
| 576 | 208 | 212 | 212 | 212 | 569 | 577 | 0 | 0 | 576 |
| **SO2 1 hr** | 0.19585 | 0.27859 | 0.39289 | 0.38217 | 0.34644 | 0.34806 | . | 1 | 0.74984 | -0.14579 |
| 0.0002 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | . |  | <.0001 | 0.0053 |
| 364 | 363 | 364 | 364 | 364 | 364 | 0 | 364 | 364 | 364 |
| **SO2 24 hr** | 0.00369 | 0.08261 | 0.20215 | 0.16193 | 0.12142 | 0.31444 | . | 0.74984 | 1 | -0.08653 |
| 0.944 | 0.1161 | 0.0001 | 0.0019 | 0.0205 | <.0001 | . | <.0001 |  | 0.0993 |
| 364 | 363 | 364 | 364 | 364 | 364 | 0 | 364 | 364 | 364 |
| **Mean daily temperature** | 0.23966 | 0.08434 | 0.14864 | 0.0978 | 0.06483 | -0.30515 | -0.33515 | -0.14579 | -0.08653 | 1 |
| <.0001 | 0.0057 | <.0001 | 0.0013 | 0.0332 | <.0001 | <.0001 | 0.0053 | 0.0993 |  |
| 1553 | 1073 | 1077 | 1078 | 1079 | 1444 | 576 | 364 | 364 | 1553 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pearson Correlation Coefficients**  **Prob > |r| under H0: Rho=0**  **Number of Observations** | | | | | | | | | | |
| **SA** | **PM10 24 hr** | **PM2.5 24 hr** | **O3 1 hr** | **O3 4 hr** | **O3 8 hr** | **NO2 1 hr** | **CO 8 hr** | **SO2 1 hr** | **SO2 24 hr** | **Mean daily temperature** |
| **PM10 24 hr** | 1 | 0.63323 | 0.28606 | 0.27618 | 0.27216 | 0.19167 | -0.18389 | 0.05428 | 0.07147 | 0.53123 |
|  | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | 0.0016 | 0.3003 | 0.1724 | <.0001 |
| 1449 | 356 | 1080 | 1080 | 1083 | 1067 | 292 | 366 | 366 | 1449 |
| **PM2.5 24 hr** | 0.63323 | 1 | 0.35834 | 0.33474 | 0.29678 | 0.35898 | . | . | . | 0.22269 |
| <.0001 |  | <.0001 | <.0001 | <.0001 | <.0001 | . | . | . | <.0001 |
| 356 | 366 | 366 | 366 | 366 | 366 | 0 | 0 | 0 | 360 |
| **O3 1 hr** | 0.28606 | 0.35834 | 1 | 0.98711 | 0.92494 | 0.14734 | -0.17446 | . | . | 0.54699 |
| <.0001 | <.0001 |  | <.0001 | <.0001 | <.0001 | 0.0028 | . | . | <.0001 |
| 1080 | 366 | 1094 | 1094 | 1094 | 1081 | 292 | 0 | 0 | 1084 |
| **O3 4 hr** | 0.27618 | 0.33474 | 0.98711 | 1 | 0.95353 | 0.10662 | -0.19563 | . | . | 0.54127 |
| <.0001 | <.0001 | <.0001 |  | <.0001 | 0.0004 | 0.0008 | . | . | <.0001 |
| 1080 | 366 | 1094 | 1095 | 1095 | 1081 | 292 | 0 | 0 | 1084 |
| **O3 8 hr** | 0.27216 | 0.29678 | 0.92494 | 0.95353 | 1 | 0.0248 | -0.27026 | . | . | 0.55476 |
| <.0001 | <.0001 | <.0001 | <.0001 |  | 0.4153 | <.0001 | . | . | <.0001 |
| 1083 | 366 | 1094 | 1095 | 1098 | 1081 | 292 | 0 | 0 | 1087 |
| **NO2 1 hr** | 0.19167 | 0.35898 | 0.14734 | 0.10662 | 0.0248 | 1 | 0.54068 | . | . | -0.0834 |
| <.0001 | <.0001 | <.0001 | 0.0004 | 0.4153 |  | <.0001 | . | . | 0.0063 |
| 1067 | 366 | 1081 | 1081 | 1081 | 1081 | 285 | 0 | 0 | 1071 |
| **CO 8 hr** | -0.18389 | . | -0.17446 | -0.19563 | -0.27026 | 0.54068 | 1 | . | . | -0.47123 |
| 0.0016 | . | 0.0028 | 0.0008 | <.0001 | <.0001 |  | . | . | <.0001 |
| 292 | 0 | 292 | 292 | 292 | 285 | 292 | 0 | 0 | 292 |
| **SO2 1 hr** | 0.05428 | . | . | . | . | . | . | 1 | 0.88178 | 0.12933 |
| 0.3003 | . | . | . | . | . | . |  | <.0001 | 0.0133 |
| 366 | 0 | 0 | 0 | 0 | 0 | 0 | 366 | 366 | 366 |
| **SO2 24 hr** | 0.07147 | . | . | . | . | . | . | 0.88178 | 1 | 0.08238 |
| 0.1724 | . | . | . | . | . | . | <.0001 |  | 0.1156 |
| 366 | 0 | 0 | 0 | 0 | 0 | 0 | 366 | 366 | 366 |
| **Mean daily temperature** | 0.53123 | 0.22269 | 0.54699 | 0.54127 | 0.55476 | -0.0834 | -0.47123 | 0.12933 | 0.08238 | 1 |
| <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | 0.0063 | <.0001 | 0.0133 | 0.1156 |  |
| 1449 | 360 | 1084 | 1084 | 1087 | 1071 | 292 | 366 | 366 | 1453 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pearson Correlation Coefficients**  **Prob > |r| under H0: Rho=0**  **Number of Observations** | | | | | | | | | | |
| **VIC** | **PM10 24 hr** | **PM2.5 24 hr** | **O3 1 hr** | **O3 4 hr** | **O3 8 hr** | **NO2 1 hr** | **CO 8 hr** | **SO2 1 hr** | **SO2 24 hr** | **Mean daily temperature** |
| **PM10 24 hr** | 1 | 0.73284 | 0.45461 | 0.43047 | 0.40683 | 0.16526 | 0.15901 | 0.16114 | 0.14085 | 0.40377 |
|  | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 |
| 2852 | 730 | 2502 | 2503 | 2503 | 2822 | 2424 | 2123 | 2123 | 2842 |
| **PM2.5 24 hr** | 0.73284 | 1 | 0.35105 | 0.30828 | 0.27336 | 0.13761 | 0.25653 | 0.2037 | 0.21326 | 0.19115 |
| <.0001 |  | <.0001 | <.0001 | <.0001 | 0.0002 | <.0001 | <.0001 | <.0001 | <.0001 |
| 730 | 730 | 727 | 728 | 728 | 730 | 729 | 722 | 722 | 729 |
| **O3 1 hr** | 0.45461 | 0.35105 | 1 | 0.98778 | 0.95171 | 0.10091 | -0.14343 | 0.05532 | -0.0298 | 0.61185 |
| <.0001 | <.0001 |  | <.0001 | <.0001 | <.0001 | <.0001 | 0.0106 | 0.1687 | <.0001 |
| 2502 | 727 | 2517 | 2517 | 2517 | 2496 | 2089 | 2135 | 2135 | 2508 |
| **O3 4 hr** | 0.43047 | 0.30828 | 0.98778 | 1 | 0.97047 | 0.07638 | -0.16532 | 0.03018 | -0.06444 | 0.61033 |
| <.0001 | <.0001 | <.0001 |  | <.0001 | 0.0001 | <.0001 | 0.1632 | 0.0029 | <.0001 |
| 2503 | 728 | 2517 | 2530 | 2530 | 2497 | 2100 | 2136 | 2136 | 2511 |
| **O3 8 hr** | 0.40683 | 0.27336 | 0.95171 | 0.97047 | 1 | 0.00813 | -0.23497 | 0.01862 | -0.09509 | 0.64318 |
| <.0001 | <.0001 | <.0001 | <.0001 |  | 0.6846 | <.0001 | 0.3896 | <.0001 | <.0001 |
| 2503 | 728 | 2517 | 2530 | 2530 | 2497 | 2100 | 2136 | 2136 | 2511 |
| **NO2 1 hr** | 0.16526 | 0.13761 | 0.10091 | 0.07638 | 0.00813 | 1 | 0.5086 | 0.01474 | 0.0394 | -0.14232 |
| <.0001 | 0.0002 | <.0001 | 0.0001 | 0.6846 |  | <.0001 | 0.4977 | 0.0697 | <.0001 |
| 2822 | 730 | 2496 | 2497 | 2497 | 2855 | 2418 | 2120 | 2120 | 2845 |
| **CO 8 hr** | 0.15901 | 0.25653 | -0.14343 | -0.16532 | -0.23497 | 0.5086 | 1 | 0.07381 | 0.26496 | -0.30849 |
| <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 |  | 0.0021 | <.0001 | <.0001 |
| 2424 | 729 | 2089 | 2100 | 2100 | 2418 | 2459 | 1742 | 1742 | 2441 |
| **SO2 1 hr** | 0.16114 | 0.2037 | 0.05532 | 0.03018 | 0.01862 | 0.01474 | 0.07381 | 1 | 0.7728 | -0.00196 |
| <.0001 | <.0001 | 0.0106 | 0.1632 | 0.3896 | 0.4977 | 0.0021 |  | <.0001 | 0.9279 |
| 2123 | 722 | 2135 | 2136 | 2136 | 2120 | 1742 | 2138 | 2138 | 2129 |
| **SO2 24 hr** | 0.14085 | 0.21326 | -0.0298 | -0.06444 | -0.09509 | 0.0394 | 0.26496 | 0.7728 | 1 | -0.09786 |
| <.0001 | <.0001 | 0.1687 | 0.0029 | <.0001 | 0.0697 | <.0001 | <.0001 |  | <.0001 |
| 2123 | 722 | 2135 | 2136 | 2136 | 2120 | 1742 | 2138 | 2138 | 2129 |
| **Mean daily temperature** | 0.40377 | 0.19115 | 0.61185 | 0.61033 | 0.64318 | -0.14232 | -0.30849 | -0.00196 | -0.09786 | 1 |
| <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | 0.9279 | <.0001 |  |
| 2842 | 729 | 2508 | 2511 | 2511 | 2845 | 2441 | 2129 | 2129 | 2891 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pearson Correlation Coefficients**  **Prob > |r| under H0: Rho=0**  **Number of Observations** | | | | | | | | | | |
| **WA** | **PM10 24 hr** | **PM2.5 24 hr** | **O3 1 hr** | **O3 4 hr** | **O3 8 hr** | **NO2 1 hr** | **CO 8 hr** | **SO2 1 hr** | **SO2 24 hr** | **Mean daily temperature** |
| **PM10 24 hr** | 1 | 0.72287 | 0.26191 | 0.18594 | 0.11624 | 0.01308 | -0.13568 | 0.42244 | 0.49723 | 0.50473 |
|  | <.0001 | <.0001 | 0.0004 | 0.0268 | 0.7247 | 0.0002 | <.0001 | <.0001 | <.0001 |
| 728 | 728 | 363 | 363 | 363 | 728 | 726 | 363 | 363 | 720 |
| **PM2.5 24 hr** | 0.72287 | 1 | 0.32415 | 0.26959 | 0.20195 | 0.15467 | 0.28552 | 0.2867 | 0.35324 | 0.24365 |
| <.0001 |  | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 |
| 728 | 1095 | 730 | 730 | 730 | 1095 | 728 | 365 | 365 | 1069 |
| **O3 1 hr** | 0.26191 | 0.32415 | 1 | 0.97585 | 0.9 | 0.19824 | -0.0561 | 0.3248 | 0.23 | 0.40343 |
| <.0001 | <.0001 |  | <.0001 | <.0001 | <.0001 | 0.2851 | <.0001 | <.0001 | <.0001 |
| 363 | 730 | 730 | 730 | 730 | 730 | 365 | 365 | 365 | 712 |
| **O3 4 hr** | 0.18594 | 0.26959 | 0.97585 | 1 | 0.95478 | 0.1615 | -0.04612 | 0.23962 | 0.13094 | 0.34215 |
| 0.0004 | <.0001 | <.0001 |  | <.0001 | <.0001 | 0.379 | <.0001 | 0.0123 | <.0001 |
| 363 | 730 | 730 | 732 | 732 | 730 | 366 | 365 | 365 | 712 |
| **O3 8 hr** | 0.11624 | 0.20195 | 0.9 | 0.95478 | 1 | 0.02938 | -0.13177 | 0.11293 | 0.0028 | 0.30044 |
| 0.0268 | <.0001 | <.0001 | <.0001 |  | 0.4279 | 0.0116 | 0.031 | 0.9575 | <.0001 |
| 363 | 730 | 730 | 732 | 732 | 730 | 366 | 365 | 365 | 712 |
| **NO2 1 hr** | 0.01308 | 0.15467 | 0.19824 | 0.1615 | 0.02938 | 1 | 0.44762 | 0.43283 | 0.38251 | -0.08292 |
| 0.7247 | <.0001 | <.0001 | <.0001 | 0.4279 |  | <.0001 | <.0001 | <.0001 | 0.0067 |
| 728 | 1095 | 730 | 730 | 730 | 1095 | 728 | 365 | 365 | 1069 |
| **CO 8 hr** | -0.13568 | 0.28552 | -0.0561 | -0.04612 | -0.13177 | 0.44762 | 1 | -0.19062 | -0.13895 | -0.33503 |
| 0.0002 | <.0001 | 0.2851 | 0.379 | 0.0116 | <.0001 |  | 0.0002 | 0.0078 | <.0001 |
| 726 | 728 | 365 | 366 | 366 | 728 | 730 | 365 | 365 | 720 |
| **SO2 1 hr** | 0.42244 | 0.2867 | 0.3248 | 0.23962 | 0.11293 | 0.43283 | -0.19062 | 1 | 0.90908 | 0.43856 |
| <.0001 | <.0001 | <.0001 | <.0001 | 0.031 | <.0001 | 0.0002 |  | <.0001 | <.0001 |
| 363 | 365 | 365 | 365 | 365 | 365 | 365 | 365 | 365 | 365 |
| **SO2 24 hr** | 0.49723 | 0.35324 | 0.23 | 0.13094 | 0.0028 | 0.38251 | -0.13895 | 0.90908 | 1 | 0.42288 |
| <.0001 | <.0001 | <.0001 | 0.0123 | 0.9575 | <.0001 | 0.0078 | <.0001 |  | <.0001 |
| 363 | 365 | 365 | 365 | 365 | 365 | 365 | 365 | 365 | 365 |
| **Mean daily temperature** | 0.50473 | 0.24365 | 0.40343 | 0.34215 | 0.30044 | -0.08292 | -0.33503 | 0.43856 | 0.42288 | 1 |
| <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | 0.0067 | <.0001 | <.0001 | <.0001 |  |
| 720 | 1069 | 712 | 712 | 712 | 1069 | 720 | 365 | 365 | 1069 |

# Air Pollution and Health Outcomes: Mixed Models

Table 2.1. Air pollution and health outcomes, All air pollutants with interaction terms, MIXED-GLIMMIX models

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Evening PEF** | **Evening FEV1** | **Morning PEF** | **Morning FEV1** |
| CO8hrmax | lag0 | 0.5490 (-13.762 to 14.8604), p=0.94 | 0.0228 (-0.0756 to 0.1212), p=0.65 |  |  |
| CO8hrmax | lag1 | 5.3164 (-8.8404 to 19.4732), p=0.46 | 0.0443 (-0.0526 to 0.1413), p=0.37 | 1.9066 (-8.6810 to 12.4943), p=0.72 | -0.0319 (-0.1088 to 0.0450), p=0.42 |
| CO8hrmax | lag2 | 0.5428 (-13.935 to 15.0201), p=0.94 | -0.0027 (-0.1016 to 0.0962), p=0.96 | -5.4271 (-15.771 to 4.9173), p=0.30 | -0.0295 (-0.1052 to 0.0463), p=0.45 |
| CO8hrmax | lag3 |  |  | 4.8370 (-4.6149 to 14.2889), p=0.32 | 0.0140 (-0.0552 to 0.0832), p=0.69 |
| NO21hr | lag0 | 0.0586 (-0.3451 to 0.4623), p=0.78 | -0.0003 (-0.0030 to 0.0024), p=0.81 |  |  |
| NO21hr | lag1 | 0.0155 (-0.3831 to 0.4140), p=0.94 | 0.0011 (-0.0015 to 0.0038), p=0.41 | 0.2165 (-0.0772 to 0.5101), p=0.15 | 0.0016 (-0.0006 to 0.0037), p=0.15 |
| NO21hr | lag2 | 0.1877 (-0.2250 to 0.6003), p=0.37 | 0.0009 (-0.0019 to 0.0037), p=0.52 | -0.3102 (-0.6241 to 0.0038), p=0.053 | -0.0030 (-0.0052 to -0.0008), p=0.007 |
| NO21hr | lag3 |  |  | 0.3541 (0.0439 to 0.6642), p=0.025 | 0.0017 (-0.0005 to 0.0039), p=0.13 |
| NO224hr | lag0 | 0.2562 (-0.5916 to 1.1041), p=0.55 | 0.0022 (-0.0035 to 0.0078), p=0.45 |  |  |
| NO224hr | lag1 | -0.2076 (-1.0393 to 0.6242), p=0.62 | 0.0008 (-0.0047 to 0.0064), p=0.77 | 0.0037 (-0.6227 to 0.6301), p=0.99 | -0.0026 (-0.0070 to 0.0019), p=0.26 |
| NO224hr | lag2 | 0.3475 (-0.4809 to 1.1759), p=0.41 | 0.0016 (-0.0040 to 0.0073), p=0.57 | -0.0702 (-0.7089 to 0.5685), p=0.83 | -0.0026 (-0.0071 to 0.0019), p=0.26 |
| NO224hr | lag3 |  |  | 0.2670 (-0.3603 to 0.8943), p=0.40 | 0.0017 (-0.0028 to 0.0061), p=0.46 |
| O31hr | lag0 | -0.1139 (-0.4480 to 0.2201), p=0.50 | -0.0005 (-0.0027 to 0.0018), p=0.68 |  |  |
| O31hr | lag1 | -0.0409 (-0.3590 to 0.2772), p=0.80 | -0.0009 (-0.0031 to 0.0012), p=0.39 | 0.1636 (-0.0668 to 0.3939), p=0.16 | 0.0007 (-0.0009 to 0.0023), p=0.39 |
| O31hr | lag2 | 0.1639 (-0.1568 to 0.4847), p=0.32 | 0.0009 (-0.0013 to 0.0030), p=0.42 | -0.0331 (-0.2679 to 0.2018), p=0.78 | -0.0005 (-0.0021 to 0.0011), p=0.57 |
| O31hr | lag3 |  |  | -0.1207 (-0.3520 to 0.1106), p=0.31 | -0.0003 (-0.0018 to 0.0013), p=0.75 |
| O34hrmax | lag0 | -0.2039 (-0.5728 to 0.1649), p=0.28 | -0.0012 (-0.0037 to 0.0013), p=0.34 |  |  |
| O34hrmax | lag1 | -0.0249 (-0.3744 to 0.3247), p=0.89 | -0.0007 (-0.0030 to 0.0016), p=0.56 | 0.1664 (-0.0902 to 0.4230), p=0.20 | 0.0007 (-0.0011 to 0.0025), p=0.43 |
| O34hrmax | lag2 | 0.2023 (-0.1484 to 0.5530), p=0.26 | 0.0009 (-0.0015 to 0.0032), p=0.46 | 0.0000 (-0.2594 to 0.2595), p=1.00 | -0.0003 (-0.0020 to 0.0015), p=0.75 |
| O34hrmax | lag3 |  |  | -0.1383 (-0.3921 to 0.1156), p=0.29 | -0.0003 (-0.0020 to 0.0014), p=0.74 |
| O38hrmax | lag0 | -0.2220 (-0.6396 to 0.1956), p=0.30 | -0.0018 (-0.0046 to 0.0010), p=0.20 |  |  |
| O38hrmax | lag1 | 0.0069 (-0.3950 to 0.4088), p=0.97 | -0.0004 (-0.0031 to 0.0023), p=0.77 | 0.1783 (-0.1197 to 0.4764), p=0.24 | 0.0008 (-0.0013 to 0.0028), p=0.46 |
| O38hrmax | lag2 | 0.2517 (-0.1579 to 0.6613), p=0.23 | 0.0012 (-0.0016 to 0.0040), p=0.40 | 0.0006 (-0.3077 to 0.3089), p=1.00 | -0.0000 (-0.0021 to 0.0021), p=0.98 |
| O38hrmax | lag3 |  |  | -0.1043 (-0.4105 to 0.2019), p=0.50 | -0.0006 (-0.0027 to 0.0015), p=0.58 |
| SO21hr | lag0 | 0.2848 (-0.0329 to 0.6026), p=0.079 | 0.0011 (-0.0011 to 0.0033), p=0.31 |  |  |
| SO21hr | lag1 | -0.0750 (-0.3208 to 0.1708), p=0.55 | 0.0007 (-0.0010 to 0.0025), p=0.40 | 0.0362 (-0.1621 to 0.2345), p=0.72 | 0.0002 (-0.0011 to 0.0015), p=0.76 |
| SO21hr | lag2 | -0.0810 (-0.3682 to 0.2062), p=0.58 | -0.0014 (-0.0034 to 0.0006), p=0.18 | 0.1137 (-0.0906 to 0.3179), p=0.28 | 0.0005 (-0.0009 to 0.0018), p=0.47 |
| SO21hr | lag3 |  |  | -0.1482 (-0.3499 to 0.0536), p=0.15 | 0.0001 (-0.0013 to 0.0014), p=0.94 |
| SO224hr | lag0 | 1.6181 (0.1404 to 3.0958), p=0.032 | 0.0052 (-0.0049 to 0.0154), p=0.31 |  |  |
| SO224hr | lag1 | -1.0652 (-2.5482 to 0.4179), p=0.16 | 0.0022 (-0.0081 to 0.0125), p=0.68 | -0.6026 (-1.7145 to 0.5094), p=0.29 | -0.0044 (-0.0119 to 0.0031), p=0.25 |
| SO224hr | lag2 | 0.4314 (-1.1946 to 2.0575), p=0.60 | -0.0009 (-0.0122 to 0.0104), p=0.87 | 1.2686 (0.0857 to 2.4514), p=0.036 | 0.0078 (0.0000 to 0.0157), p=0.050 |
| SO224hr | lag3 |  |  | -1.0547 (-2.2404 to 0.1310), p=0.081 | -0.0048 (-0.0127 to 0.0032), p=0.24 |
| pm1024hr | lag0 | -0.0619 (-0.3833 to 0.2595), p=0.71 | 0.0004 (-0.0018 to 0.0025), p=0.74 |  |  |
| pm1024hr | lag1 | 0.1204 (-0.2078 to 0.4487), p=0.47 | 0.0008 (-0.0013 to 0.0030), p=0.46 | 0.1880 (-0.0564 to 0.4324), p=0.13 | 0.0011 (-0.0006 to 0.0028), p=0.21 |
| pm1024hr | lag2 | -0.0279 (-0.3741 to 0.3183), p=0.87 | -0.0001 (-0.0025 to 0.0022), p=0.91 | -0.0155 (-0.2834 to 0.2523), p=0.91 | 0.0001 (-0.0018 to 0.0020), p=0.94 |
| pm1024hr | lag3 |  |  | -0.0899 (-0.3755 to 0.1957), p=0.54 | -0.0006 (-0.0026 to 0.0014), p=0.57 |
| pm2524hr | lag0 | -0.2076 (-1.7232 to 1.3080), p=0.79 | -0.0022 (-0.0119 to 0.0076), p=0.66 |  |  |
| pm2524hr | lag1 | 0.8534 (-0.5868 to 2.2936), p=0.25 | 0.0058 (-0.0036 to 0.0151), p=0.23 | 0.1960 (-0.8843 to 1.2762), p=0.72 | 0.0024 (-0.0056 to 0.0103), p=0.56 |
| pm2524hr | lag2 | 0.3709 (-1.0164 to 1.7583), p=0.60 | 0.0001 (-0.0091 to 0.0092), p=0.99 | 0.2315 (-0.8657 to 1.3286), p=0.68 | 0.0037 (-0.0043 to 0.0118), p=0.37 |
| pm2524hr | lag3 |  |  | -0.8327 (-1.9529 to 0.2874), p=0.15 | -0.0035 (-0.0116 to 0.0046), p=0.40 |

Table 2.2. Air pollution and health outcomes, All air pollutants with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Night cough** | **Night wheeze** | **Night shortness of breath** | **Any night symptoms** | **Any night reliever medications use** |
| **CO 8hr max** | | | | | | |
| CO8hrmax | lag1 | 1.6304 (0.9819 to 2.7073), p=0.059 | 1.8501 (0.9353 to 3.6594), p=0.077 | 2.3444 (1.0130 to 5.4260), p=0.047 | 1.5380 (0.9296 to 2.5445), p=0.094 | 1.1206 (0.5303 to 2.3680), p=0.77 |
| CO8hrmax | lag2 | 1.9233 (1.1552 to 3.2020), p=0.012 | 1.8100 (0.9163 to 3.5751), p=0.088 | 1.9437 (0.8032 to 4.7034), p=0.14 | 1.9502 (1.1704 to 3.2498), p=0.010 | 0.7411 (0.3443 to 1.5955), p=0.44 |
| CO8hrmax | lag3 | 1.0988 (0.6760 to 1.7862), p=0.70 | 1.0803 (0.5623 to 2.0754), p=0.82 | 1.5933 (0.6735 to 3.7691), p=0.29 | 1.0118 (0.6273 to 1.6320), p=0.96 | 1.0453 (0.5199 to 2.1016), p=0.90 |
| **NO2 1hr** | | | | | | |
| NO21hr | lag1 | 1.0164 (0.9984 to 1.0347), p=0.074 | 1.0116 (0.9868 to 1.0371), p=0.36 | 1.0304 (0.9961 to 1.0660), p=0.083 | 1.0165 (0.9996 to 1.0338), p=0.056 | 1.0102 (0.9828 to 1.0383), p=0.47 |
| NO21hr | lag2 | 1.0282 (1.0096 to 1.0473), p=0.003 | 1.0180 (0.9923 to 1.0445), p=0.17 | 1.0104 (0.9746 to 1.0474), p=0.57 | 1.0244 (1.0067 to 1.0424), p=0.007 | 0.9968 (0.9689 to 1.0255), p=0.83 |
| NO21hr | lag3 | 1.0257 (1.0066 to 1.0451), p=0.008 | 1.0201 (0.9934 to 1.0474), p=0.14 | 1.0110 (0.9725 to 1.0509), p=0.58 | 1.0227 (1.0047 to 1.0410), p=0.013 | 1.0110 (0.9824 to 1.0404), p=0.45 |
| **NO2 24hr** | | | | | | |
| NO224hr | lag1 | 1.0504 (1.0175 to 1.0844), p=0.002 | 1.0640 (1.0186 to 1.1114), p=0.005 | 1.0771 (1.0183 to 1.1392), p=0.010 | 1.0442 (1.0126 to 1.0768), p=0.006 | 1.0459 (0.9973 to 1.0969), p=0.064 |
| NO224hr | lag2 | 1.0599 (1.0261 to 1.0948), p=0.0004 | 1.0545 (1.0083 to 1.1028), p=0.020 | 1.0545 (0.9923 to 1.1207), p=0.087 | 1.0577 (1.0250 to 1.0915), p=0.0005 | 1.0358 (0.9867 to 1.0873), p=0.16 |
| NO224hr | lag3 | 1.0757 (1.0407 to 1.1118), p=0.0000 | 1.0581 (1.0124 to 1.1057), p=0.012 | 1.0283 (0.9658 to 1.0947), p=0.38 | 1.0682 (1.0349 to 1.1026), p=0.0000 | 1.0439 (0.9943 to 1.0959), p=0.083 |
| **O3 1hr** | | | | | | |
| O31hr | lag1 | 0.9935 (0.9783 to 1.0089), p=0.40 | 0.9805 (0.9598 to 1.0017), p=0.071 | 0.9598 (0.9277 to 0.9929), p=0.018 | 0.9924 (0.9786 to 1.0064), p=0.28 | 0.9945 (0.9715 to 1.0181), p=0.64 |
| O31hr | lag2 | 0.9999 (0.9840 to 1.0161), p=0.99 | 0.9753 (0.9523 to 0.9988), p=0.039 | 0.9675 (0.9326 to 1.0038), p=0.078 | 1.0005 (0.9859 to 1.0153), p=0.95 | 0.9927 (0.9684 to 1.0176), p=0.56 |
| O31hr | lag3 | 0.9946 (0.9782 to 1.0114), p=0.53 | 0.9636 (0.9404 to 0.9874), p=0.003 | 0.9613 (0.9256 to 0.9984), p=0.041 | 0.9892 (0.9742 to 1.0045), p=0.17 | 0.9891 (0.9635 to 1.0154), p=0.41 |
| **O3 4hr max** | | | | | | |
| O34hrmax | lag1 | 0.9931 (0.9770 to 1.0095), p=0.41 | 0.9751 (0.9533 to 0.9975), p=0.029 | 0.9558 (0.9223 to 0.9905), p=0.013 | 0.9911 (0.9765 to 1.0060), p=0.24 | 0.9932 (0.9688 to 1.0183), p=0.59 |
| O34hrmax | lag2 | 0.9990 (0.9821 to 1.0162), p=0.91 | 0.9703 (0.9460 to 0.9951), p=0.019 | 0.9616 (0.9248 to 0.9998), p=0.049 | 0.9985 (0.9830 to 1.0143), p=0.85 | 0.9919 (0.9660 to 1.0185), p=0.55 |
| O34hrmax | lag3 | 0.9941 (0.9766 to 1.0119), p=0.51 | 0.9604 (0.9359 to 0.9855), p=0.002 | 0.9581 (0.9204 to 0.9972), p=0.036 | 0.9892 (0.9732 to 1.0054), p=0.19 | 0.9844 (0.9575 to 1.0120), p=0.27 |
| **O3 8hr max** | | | | | | |
| O38hrmax | lag1 | 0.9906 (0.9728 to 1.0087), p=0.31 | 0.9619 (0.9383 to 0.9862), p=0.002 | 0.9519 (0.9162 to 0.9890), p=0.011 | 0.9882 (0.9722 to 1.0043), p=0.15 | 0.9899 (0.9632 to 1.0174), p=0.47 |
| O38hrmax | lag2 | 0.9949 (0.9762 to 1.0140), p=0.60 | 0.9562 (0.9299 to 0.9832), p=0.002 | 0.9537 (0.9139 to 0.9952), p=0.029 | 0.9933 (0.9763 to 1.0107), p=0.45 | 0.9846 (0.9560 to 1.0141), p=0.30 |
| O38hrmax | lag3 | 0.9926 (0.9732 to 1.0125), p=0.46 | 0.9530 (0.9263 to 0.9805), p=0.0009 | 0.9536 (0.9129 to 0.9960), p=0.032 | 0.9883 (0.9707 to 1.0062), p=0.20 | 0.9750 (0.9454 to 1.0055), p=0.11 |
| **SO2 1hr** | | | | | | |
| SO21hr | lag1 | 1.0048 (0.9915 to 1.0184), p=0.48 | 1.0027 (0.9795 to 1.0264), p=0.82 | 0.9401 (0.8725 to 1.0129), p=0.10 | 1.0055 (0.9928 to 1.0184), p=0.40 | 1.0255 (1.0033 to 1.0482), p=0.024 |
| SO21hr | lag2 | 0.9939 (0.9797 to 1.0084), p=0.41 | 0.9995 (0.9743 to 1.0252), p=0.97 | 0.9192 (0.8480 to 0.9964), p=0.041 | 0.9974 (0.9839 to 1.0111), p=0.71 | 1.0195 (0.9977 to 1.0417), p=0.080 |
| SO21hr | lag3 | 1.0046 (0.9904 to 1.0190), p=0.52 | 0.9966 (0.9697 to 1.0241), p=0.80 | 0.9199 (0.8452 to 1.0013), p=0.054 | 1.0042 (0.9904 to 1.0181), p=0.56 | 0.9509 (0.8986 to 1.0062), p=0.081 |
| **SO2 24hr** | | | | | | |
| SO224hr | lag1 | 0.9787 (0.9053 to 1.0582), p=0.59 | 0.9786 (0.8575 to 1.1168), p=0.75 | 0.8482 (0.6143 to 1.1711), p=0.32 | 0.9843 (0.9142 to 1.0597), p=0.67 | 1.1044 (0.9660 to 1.2627), p=0.15 |
| SO224hr | lag2 | 0.9506 (0.8750 to 1.0327), p=0.23 | 1.0062 (0.8813 to 1.1488), p=0.93 | 0.8827 (0.6656 to 1.1706), p=0.39 | 0.9785 (0.9054 to 1.0575), p=0.58 | 1.0571 (0.9146 to 1.2217), p=0.45 |
| SO224hr | lag3 | 0.9948 (0.9184 to 1.0776), p=0.90 | 0.9068 (0.7682 to 1.0704), p=0.25 | 0.6063 (0.4053 to 0.9069), p=0.015 | 0.9850 (0.9110 to 1.0652), p=0.71 | 0.8244 (0.6575 to 1.0336), p=0.094 |
| **PM10 24hr** | | | | | | |
| pm1024hr | lag1 | 1.0187 (1.0047 to 1.0329), p=0.009 | 1.0190 (0.9988 to 1.0396), p=0.065 | 1.0034 (0.9725 to 1.0354), p=0.83 | 1.0131 (0.9994 to 1.0269), p=0.060 | 1.0013 (0.9776 to 1.0255), p=0.92 |
| pm1024hr | lag2 | 1.0180 (1.0041 to 1.0322), p=0.011 | 1.0238 (1.0036 to 1.0444), p=0.021 | 1.0166 (0.9862 to 1.0479), p=0.29 | 1.0163 (1.0029 to 1.0298), p=0.017 | 0.9813 (0.9542 to 1.0092), p=0.19 |
| pm1024hr | lag3 | 1.0173 (1.0024 to 1.0325), p=0.023 | 1.0151 (0.9938 to 1.0368), p=0.17 | 1.0112 (0.9772 to 1.0464), p=0.52 | 1.0138 (0.9996 to 1.0282), p=0.057 | 0.9948 (0.9679 to 1.0225), p=0.71 |
| **PM2.5 24hr** | | | | | | |
| pm2524hr | lag1 | 1.0285 (0.9539 to 1.1088), p=0.46 | 1.0401 (0.9333 to 1.1592), p=0.48 | 0.9944 (0.8520 to 1.1606), p=0.94 | 1.0180 (0.9493 to 1.0918), p=0.62 | 0.9286 (0.8274 to 1.0421), p=0.21 |
| pm2524hr | lag2 | 1.0767 (0.9998 to 1.1596), p=0.051 | 1.0222 (0.9145 to 1.1425), p=0.70 | 1.0503 (0.8938 to 1.2343), p=0.55 | 1.0553 (0.9844 to 1.1313), p=0.13 | 0.9342 (0.8334 to 1.0472), p=0.24 |
| pm2524hr | lag3 | 1.0718 (0.9928 to 1.1570), p=0.076 | 0.9851 (0.8803 to 1.1025), p=0.79 | 1.0302 (0.8824 to 1.2027), p=0.71 | 1.0418 (0.9703 to 1.1186), p=0.26 | 0.9544 (0.8537 to 1.0669), p=0.41 |

Table 2.3. Air pollution and health outcomes, All air pollutants with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day cough** | **Day wheeze** | **Day shortness of breath** | **Day runny nose** | **Day eye irritation** | **Day fever** | **Any day symptoms** |
| **CO 8hr max** | | | | | | | | |
| CO8hrmax | lag0 | 1.5407 (0.9323 to 2.5461), p=0.092 | 2.7767 (1.5451 to 4.9897), p=0.0006 | 1.3386 (0.6802 to 2.6343), p=0.40 | 1.2845 (0.7714 to 2.1388), p=0.34 | 0.4708 (0.1950 to 1.1365), p=0.094 | 0.8095 (0.3938 to 1.6642), p=0.57 | 1.5834 (1.0025 to 2.5008), p=0.049 |
| CO8hrmax | lag1 | 1.2686 (0.7630 to 2.1092), p=0.36 | 1.6562 (0.9086 to 3.0192), p=0.100 | 1.1589 (0.5752 to 2.3351), p=0.68 | 1.1641 (0.6912 to 1.9608), p=0.57 | 0.6731 (0.2932 to 1.5450), p=0.35 | 0.7040 (0.3427 to 1.4459), p=0.34 | 1.2596 (0.7916 to 2.0044), p=0.33 |
| CO8hrmax | lag2 | 1.5223 (0.9179 to 2.5245), p=0.10 | 1.4512 (0.7972 to 2.6416), p=0.22 | 1.1550 (0.5763 to 2.3149), p=0.68 | 1.2208 (0.7202 to 2.0693), p=0.46 | 0.9836 (0.4286 to 2.2574), p=0.97 | 0.8661 (0.4185 to 1.7924), p=0.70 | 1.1934 (0.7480 to 1.9040), p=0.46 |
| **NO2 1hr** | | | | | | | | |
| NO21hr | lag0 | 1.0150 (0.9984 to 1.0318), p=0.077 | 1.0356 (1.0130 to 1.0586), p=0.002 | 1.0212 (0.9949 to 1.0483), p=0.11 | 1.0008 (0.9840 to 1.0179), p=0.93 | 0.9863 (0.9605 to 1.0129), p=0.31 | 0.9998 (0.9762 to 1.0239), p=0.98 | 1.0052 (0.9910 to 1.0197), p=0.47 |
| NO21hr | lag1 | 1.0144 (0.9976 to 1.0316), p=0.094 | 1.0230 (1.0007 to 1.0458), p=0.043 | 1.0208 (0.9927 to 1.0497), p=0.15 | 1.0040 (0.9866 to 1.0216), p=0.66 | 0.9895 (0.9636 to 1.0161), p=0.44 | 0.9862 (0.9626 to 1.0105), p=0.26 | 1.0045 (0.9899 to 1.0192), p=0.55 |
| NO21hr | lag2 | 1.0186 (1.0013 to 1.0362), p=0.035 | 1.0040 (0.9816 to 1.0269), p=0.73 | 1.0101 (0.9828 to 1.0382), p=0.47 | 0.9893 (0.9719 to 1.0069), p=0.23 | 0.9985 (0.9715 to 1.0262), p=0.91 | 0.9921 (0.9679 to 1.0169), p=0.53 | 0.9995 (0.9847 to 1.0145), p=0.94 |
| **NO2 24hr** | | | | | | | | |
| NO224hr | lag0 | 1.0535 (1.0219 to 1.0861), p=0.0008 | 1.1107 (1.0681 to 1.1550), p=0.0000 | 1.0594 (1.0134 to 1.1075), p=0.011 | 1.0153 (0.9835 to 1.0481), p=0.35 | 0.9825 (0.9325 to 1.0352), p=0.51 | 1.0112 (0.9689 to 1.0552), p=0.61 | 1.0387 (1.0109 to 1.0673), p=0.006 |
| NO224hr | lag1 | 1.0387 (1.0071 to 1.0713), p=0.016 | 1.0730 (1.0320 to 1.1155), p=0.0004 | 1.0557 (1.0075 to 1.1063), p=0.023 | 1.0141 (0.9815 to 1.0477), p=0.40 | 0.9792 (0.9302 to 1.0308), p=0.42 | 0.9799 (0.9385 to 1.0232), p=0.36 | 1.0212 (0.9933 to 1.0499), p=0.14 |
| NO224hr | lag2 | 1.0494 (1.0170 to 1.0829), p=0.003 | 1.0402 (1.0002 to 1.0818), p=0.049 | 1.0426 (0.9950 to 1.0925), p=0.080 | 0.9966 (0.9641 to 1.0303), p=0.84 | 0.9971 (0.9456 to 1.0513), p=0.91 | 0.9878 (0.9454 to 1.0320), p=0.58 | 1.0202 (0.9921 to 1.0491), p=0.16 |
| **O3 1hr** | | | | | | | | |
| O31hr | lag0 | 0.9899 (0.9762 to 1.0039), p=0.16 | 0.9980 (0.9789 to 1.0175), p=0.84 | 1.0118 (0.9889 to 1.0352), p=0.31 | 1.0023 (0.9881 to 1.0166), p=0.76 | 0.9985 (0.9750 to 1.0225), p=0.90 | 0.9910 (0.9712 to 1.0111), p=0.38 | 0.9948 (0.9833 to 1.0065), p=0.38 |
| O31hr | lag1 | 0.9923 (0.9778 to 1.0070), p=0.30 | 0.9855 (0.9661 to 1.0053), p=0.15 | 1.0096 (0.9842 to 1.0357), p=0.46 | 0.9981 (0.9833 to 1.0132), p=0.81 | 0.9988 (0.9755 to 1.0227), p=0.92 | 0.9922 (0.9718 to 1.0130), p=0.46 | 0.9945 (0.9824 to 1.0067), p=0.37 |
| O31hr | lag2 | 0.9942 (0.9791 to 1.0096), p=0.46 | 0.9830 (0.9622 to 1.0042), p=0.12 | 0.9978 (0.9720 to 1.0243), p=0.87 | 0.9954 (0.9800 to 1.0110), p=0.56 | 1.0025 (0.9760 to 1.0297), p=0.86 | 0.9922 (0.9709 to 1.0141), p=0.48 | 0.9907 (0.9782 to 1.0034), p=0.15 |
| **O3 4hr max** | | | | | | | | |
| O34hrmax | lag0 | 0.9891 (0.9745 to 1.0039), p=0.15 | 0.9959 (0.9758 to 1.0165), p=0.70 | 1.0126 (0.9886 to 1.0372), p=0.30 | 1.0022 (0.9872 to 1.0174), p=0.78 | 1.0034 (0.9788 to 1.0287), p=0.79 | 0.9923 (0.9715 to 1.0137), p=0.48 | 0.9940 (0.9818 to 1.0064), p=0.34 |
| O34hrmax | lag1 | 0.9910 (0.9756 to 1.0066), p=0.26 | 0.9804 (0.9601 to 1.0012), p=0.065 | 1.0103 (0.9838 to 1.0374), p=0.45 | 0.9974 (0.9817 to 1.0133), p=0.75 | 1.0010 (0.9764 to 1.0262), p=0.94 | 0.9930 (0.9715 to 1.0150), p=0.53 | 0.9939 (0.9811 to 1.0069), p=0.36 |
| O34hrmax | lag2 | 0.9910 (0.9749 to 1.0074), p=0.28 | 0.9826 (0.9607 to 1.0049), p=0.13 | 0.9987 (0.9714 to 1.0267), p=0.93 | 0.9951 (0.9788 to 1.0117), p=0.56 | 1.0042 (0.9763 to 1.0330), p=0.77 | 0.9934 (0.9708 to 1.0166), p=0.57 | 0.9884 (0.9751 to 1.0020), p=0.094 |
| **O3 8hr max** | | | | | | | | |
| O38hrmax | lag0 | 0.9869 (0.9711 to 1.0029), p=0.11 | 0.9944 (0.9729 to 1.0164), p=0.61 | 1.0138 (0.9880 to 1.0403), p=0.30 | 1.0064 (0.9902 to 1.0230), p=0.44 | 1.0071 (0.9799 to 1.0350), p=0.61 | 0.9923 (0.9698 to 1.0153), p=0.51 | 0.9953 (0.9821 to 1.0086), p=0.49 |
| O38hrmax | lag1 | 0.9850 (0.9684 to 1.0020), p=0.083 | 0.9737 (0.9518 to 0.9961), p=0.022 | 1.0065 (0.9781 to 1.0357), p=0.66 | 0.9971 (0.9802 to 1.0144), p=0.74 | 1.0023 (0.9749 to 1.0305), p=0.87 | 0.9928 (0.9697 to 1.0165), p=0.55 | 0.9919 (0.9781 to 1.0059), p=0.25 |
| O38hrmax | lag2 | 0.9825 (0.9648 to 1.0006), p=0.057 | 0.9755 (0.9518 to 0.9998), p=0.048 | 0.9929 (0.9628 to 1.0240), p=0.65 | 0.9942 (0.9762 to 1.0126), p=0.54 | 1.0078 (0.9771 to 1.0394), p=0.62 | 0.9900 (0.9654 to 1.0151), p=0.43 | 0.9839 (0.9693 to 0.9989), p=0.035 |
| **SO2 1hr** | | | | | | | | |
| SO21hr | lag0 | 0.9993 (0.9875 to 1.0113), p=0.91 | 0.9736 (0.9327 to 1.0162), p=0.22 | 0.9806 (0.9377 to 1.0256), p=0.39 | 1.0092 (0.9961 to 1.0225), p=0.17 | 0.9634 (0.9140 to 1.0156), p=0.17 | 1.0007 (0.9767 to 1.0252), p=0.96 | 1.0034 (0.9938 to 1.0130), p=0.49 |
| SO21hr | lag1 | 0.9974 (0.9856 to 1.0093), p=0.66 | 0.9900 (0.9584 to 1.0225), p=0.54 | 0.9922 (0.9491 to 1.0373), p=0.73 | 1.0051 (0.9925 to 1.0178), p=0.43 | 0.9995 (0.9669 to 1.0332), p=0.98 | 1.0017 (0.9838 to 1.0199), p=0.86 | 0.9975 (0.9873 to 1.0079), p=0.63 |
| SO21hr | lag2 | 0.9939 (0.9810 to 1.0069), p=0.35 | 0.9577 (0.9194 to 0.9976), p=0.038 | 0.9866 (0.9482 to 1.0266), p=0.51 | 1.0068 (0.9928 to 1.0210), p=0.34 | 0.9208 (0.8535 to 0.9933), p=0.033 | 0.9765 (0.9462 to 1.0078), p=0.14 | 0.9925 (0.9809 to 1.0042), p=0.21 |
| **SO2 24hr** | | | | | | | | |
| SO224hr | lag0 | 1.0047 (0.9405 to 1.0733), p=0.89 | 0.8608 (0.7185 to 1.0313), p=0.10 | 0.9327 (0.7679 to 1.1330), p=0.48 | 1.0551 (0.9808 to 1.1351), p=0.15 | 0.9959 (0.8530 to 1.1627), p=0.96 | 0.9275 (0.8004 to 1.0749), p=0.32 | 1.0250 (0.9693 to 1.0838), p=0.39 |
| SO224hr | lag1 | 0.9634 (0.8934 to 1.0389), p=0.33 | 0.8705 (0.7374 to 1.0275), p=0.10 | 0.9225 (0.7358 to 1.1567), p=0.48 | 1.0413 (0.9654 to 1.1232), p=0.29 | 0.9675 (0.8120 to 1.1529), p=0.71 | 0.9665 (0.8599 to 1.0862), p=0.57 | 0.9860 (0.9256 to 1.0503), p=0.66 |
| SO224hr | lag2 | 0.9907 (0.9191 to 1.0678), p=0.81 | 0.7680 (0.6165 to 0.9568), p=0.019 | 0.9026 (0.7501 to 1.0860), p=0.28 | 1.0825 (0.9979 to 1.1743), p=0.056 | 0.8742 (0.6405 to 1.1932), p=0.40 | 0.8463 (0.7231 to 0.9905), p=0.038 | 0.9889 (0.9251 to 1.0572), p=0.74 |
| **PM10 24hr** | | | | | | | | |
| pm1024hr | lag0 | 1.0058 (0.9922 to 1.0197), p=0.40 | 1.0211 (1.0034 to 1.0392), p=0.019 | 1.0070 (0.9850 to 1.0294), p=0.54 | 1.0040 (0.9888 to 1.0194), p=0.61 | 0.9847 (0.9603 to 1.0097), p=0.23 | 1.0054 (0.9851 to 1.0261), p=0.60 | 0.9990 (0.9869 to 1.0112), p=0.87 |
| pm1024hr | lag1 | 1.0092 (0.9943 to 1.0243), p=0.23 | 1.0082 (0.9885 to 1.0284), p=0.42 | 1.0222 (0.9987 to 1.0463), p=0.064 | 0.9992 (0.9823 to 1.0165), p=0.93 | 0.9980 (0.9726 to 1.0241), p=0.88 | 0.9982 (0.9759 to 1.0211), p=0.88 | 1.0048 (0.9919 to 1.0179), p=0.47 |
| pm1024hr | lag2 | 1.0177 (1.0028 to 1.0327), p=0.019 | 1.0137 (0.9936 to 1.0341), p=0.18 | 1.0118 (0.9874 to 1.0367), p=0.35 | 0.9984 (0.9817 to 1.0154), p=0.85 | 1.0034 (0.9778 to 1.0296), p=0.80 | 1.0086 (0.9873 to 1.0304), p=0.43 | 1.0070 (0.9944 to 1.0198), p=0.28 |
| **PM 2.5 24hr** | | | | | | | | |
| pm2524hr | lag0 | 1.0409 (0.9753 to 1.1109), p=0.23 | 1.0096 (0.9198 to 1.1082), p=0.84 | 0.9747 (0.8678 to 1.0948), p=0.67 | 1.0873 (1.0143 to 1.1656), p=0.018 | 0.9982 (0.8895 to 1.1201), p=0.98 | 0.9002 (0.8026 to 1.0096), p=0.072 | 1.0285 (0.9707 to 1.0897), p=0.34 |
| pm2524hr | lag1 | 1.0188 (0.9516 to 1.0908), p=0.59 | 0.9512 (0.8642 to 1.0470), p=0.31 | 0.9956 (0.8768 to 1.1304), p=0.95 | 1.0375 (0.9657 to 1.1147), p=0.31 | 1.0968 (0.9787 to 1.2293), p=0.11 | 0.9341 (0.8336 to 1.0466), p=0.24 | 1.0053 (0.9467 to 1.0676), p=0.86 |
| pm2524hr | lag2 | 1.0460 (0.9759 to 1.1210), p=0.20 | 0.9668 (0.8778 to 1.0649), p=0.49 | 1.0152 (0.8952 to 1.1512), p=0.81 | 1.0210 (0.9490 to 1.0985), p=0.58 | 1.0759 (0.9562 to 1.2106), p=0.22 | 0.9723 (0.8707 to 1.0858), p=0.62 | 1.0229 (0.9624 to 1.0873), p=0.47 |

Table 2.4. Air pollution and health outcomes, All air pollutants with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day time reliever use for symptoms** | **Day time preventer use for symptoms** | **Any day time medication use for symptoms** |
| **CO 8hr max** | | | | |
| CO8hrmax | lag0 | 1.2503 (0.6416 to 2.4365), p=0.51 | 1.2708 (0.4472 to 3.6110), p=0.65 | 1.3906 (0.7427 to 2.6037), p=0.30 |
| CO8hrmax | lag1 | 1.1383 (0.5806 to 2.2318), p=0.71 | 1.5484 (0.5742 to 4.1751), p=0.39 | 1.4509 (0.7824 to 2.6907), p=0.24 |
| CO8hrmax | lag2 | 1.4964 (0.7654 to 2.9257), p=0.24 | 1.2664 (0.4780 to 3.3549), p=0.63 | 1.8111 (0.9774 to 3.3557), p=0.059 |
| **NO2 1hr** | | | | |
| NO21hr | lag0 | 1.0117 (0.9879 to 1.0361), p=0.34 | 1.0088 (0.9739 to 1.0450), p=0.63 | 1.0097 (0.9878 to 1.0321), p=0.39 |
| NO21hr | lag1 | 1.0065 (0.9829 to 1.0306), p=0.59 | 1.0173 (0.9816 to 1.0543), p=0.35 | 1.0096 (0.9878 to 1.0320), p=0.39 |
| NO21hr | lag2 | 1.0034 (0.9796 to 1.0278), p=0.78 | 0.9905 (0.9542 to 1.0282), p=0.62 | 1.0051 (0.9832 to 1.0274), p=0.65 |
| **NO2 24hr** | | | | |
| NO224hr | lag0 | 1.0537 (1.0110 to 1.0983), p=0.013 | 1.0339 (0.9714 to 1.1005), p=0.29 | 1.0480 (1.0080 to 1.0897), p=0.018 |
| NO224hr | lag1 | 1.0480 (1.0058 to 1.0920), p=0.025 | 1.0430 (0.9797 to 1.1104), p=0.19 | 1.0473 (1.0079 to 1.0883), p=0.018 |
| NO224hr | lag2 | 1.0478 (1.0049 to 1.0925), p=0.029 | 1.0410 (0.9763 to 1.1100), p=0.22 | 1.0570 (1.0166 to 1.0990), p=0.005 |
| **O3 1hr** | | | | |
| O31hr | lag0 | 0.9887 (0.9682 to 1.0096), p=0.29 | 1.0157 (0.9871 to 1.0452), p=0.29 | 0.9925 (0.9732 to 1.0123), p=0.46 |
| O31hr | lag1 | 0.9959 (0.9752 to 1.0171), p=0.70 | 1.0217 (0.9912 to 1.0531), p=0.16 | 0.9999 (0.9802 to 1.0200), p=0.99 |
| O31hr | lag2 | 0.9854 (0.9638 to 1.0074), p=0.19 | 0.9848 (0.9530 to 1.0177), p=0.36 | 0.9840 (0.9631 to 1.0053), p=0.14 |
| **O3 4hr max** | | | | |
| O34hrmax | lag0 | 0.9884 (0.9669 to 1.0104), p=0.30 | 1.0180 (0.9879 to 1.0490), p=0.24 | 0.9929 (0.9725 to 1.0137), p=0.50 |
| O34hrmax | lag1 | 0.9916 (0.9698 to 1.0139), p=0.46 | 1.0163 (0.9847 to 1.0489), p=0.31 | 0.9961 (0.9753 to 1.0174), p=0.72 |
| O34hrmax | lag2 | 0.9814 (0.9586 to 1.0047), p=0.12 | 0.9846 (0.9515 to 1.0188), p=0.37 | 0.9801 (0.9581 to 1.0027), p=0.084 |
| **O3 8hr max** | | | | |
| O38hrmax | lag0 | 0.9858 (0.9628 to 1.0095), p=0.24 | 1.0145 (0.9824 to 1.0477), p=0.38 | 0.9900 (0.9681 to 1.0123), p=0.38 |
| O38hrmax | lag1 | 0.9838 (0.9601 to 1.0080), p=0.19 | 1.0048 (0.9709 to 1.0399), p=0.79 | 0.9887 (0.9663 to 1.0117), p=0.33 |
| O38hrmax | lag2 | 0.9751 (0.9501 to 1.0008), p=0.058 | 0.9820 (0.9460 to 1.0194), p=0.34 | 0.9748 (0.9507 to 0.9996), p=0.046 |
| **SO2 1hr** | | | | |
| SO21hr | lag0 | 0.9820 (0.9503 to 1.0147), p=0.28 | 0.9921 (0.9530 to 1.0328), p=0.70 | 1.8111 (0.9774 to 3.3557), p=0.059 |
| SO21hr | lag1 | 0.9951 (0.9655 to 1.0255), p=0.75 | 1.0178 (0.9888 to 1.0475), p=0.23 | 1.0074 (0.9847 to 1.0306), p=0.53 |
| SO21hr | lag2 | 0.9978 (0.9669 to 1.0297), p=0.89 | 0.9441 (0.8827 to 1.0097), p=0.093 | 0.9933 (0.9613 to 1.0265), p=0.69 |
| **SO2 24hr** | | | | |
| SO224hr | lag0 | 0.9259 (0.7974 to 1.0751), p=0.31 | 0.9962 (0.8375 to 1.1849), p=0.97 | 0.9470 (0.8321 to 1.0779), p=0.41 |
| SO224hr | lag1 | 0.9469 (0.8104 to 1.1063), p=0.49 | 1.0256 (0.8695 to 1.2097), p=0.76 | 0.9740 (0.8558 to 1.1085), p=0.69 |
| SO224hr | lag2 | 0.9250 (0.7760 to 1.1025), p=0.38 | 0.9632 (0.7259 to 1.2781), p=0.79 | 0.9059 (0.7555 to 1.0862), p=0.29 |
| **PM 10 24hr** | | | | |
| pm1024hr | lag0 | 1.0031 (0.9832 to 1.0235), p=0.76 | 1.0060 (0.9797 to 1.0331), p=0.66 | 0.9963 (0.9771 to 1.0160), p=0.71 |
| pm1024hr | lag1 | 1.0124 (0.9909 to 1.0345), p=0.26 | 1.0206 (0.9913 to 1.0508), p=0.17 | 1.0103 (0.9899 to 1.0311), p=0.33 |
| pm1024hr | lag2 | 1.0110 (0.9887 to 1.0338), p=0.34 | 1.0335 (1.0012 to 1.0669), p=0.042 | 1.0132 (0.9922 to 1.0347), p=0.22 |
| **PM 2.5 24hr** | | | | |
| pm2524hr | lag0 | 0.9464 (0.8549 to 1.0478), p=0.29 | 0.9475 (0.8186 to 1.0967), p=0.47 | 0.9734 (0.8870 to 1.0682), p=0.57 |
| pm2524hr | lag1 | 0.9671 (0.8738 to 1.0703), p=0.52 | 1.0494 (0.9014 to 1.2216), p=0.53 | 1.0170 (0.9263 to 1.1166), p=0.72 |
| pm2524hr | lag2 | 0.9250 (0.8329 to 1.0273), p=0.15 | 0.9841 (0.8408 to 1.1518), p=0.84 | 0.9771 (0.8879 to 1.0752), p=0.63 |

# Ozone: Warm Season Models

Table 3.1. Air pollution and health outcomes, Ozone warm season with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Evening PEF** | **Evening FEV1** | **Morning PEF** | **Morning FEV1** |
| O31hr | lag0 | -0.0889 (-0.3522 to 0.1743), p=0.51 | -0.0003 (-0.0022 to 0.0016), p=0.75 |  |  |
| O31hr | lag1 | -0.0390 (-0.2803 to 0.2023), p=0.75 | -0.0006 (-0.0024 to 0.0012), p=0.52 | -0.0073 (-0.2975 to 0.2829), p=0.96 | 0.0000 (-0.0018 to 0.0019), p=0.96 |
| O31hr | lag2 | 0.1515 (-0.0980 to 0.4011), p=0.23 | 0.0005 (-0.0013 to 0.0024), p=0.55 | 0.0033 (-0.2891 to 0.2957), p=0.98 | -0.0004 (-0.0023 to 0.0014), p=0.64 |
| O31hr | lag3 |  |  | -0.0792 (-0.3745 to 0.2161), p=0.60 | 0.0001 (-0.0017 to 0.0019), p=0.88 |
| O34hr | lag0 | -0.1657 (-0.4680 to 0.1366), p=0.28 | -0.0009 (-0.0031 to 0.0012), p=0.40 |  |  |
| O34hr | lag1 | -0.0091 (-0.2811 to 0.2628), p=0.95 | -0.0001 (-0.0022 to 0.0020), p=0.93 | 0.0170 (-0.3116 to 0.3456), p=0.92 | 0.0001 (-0.0020 to 0.0021), p=0.94 |
| O34hr | lag2 | 0.1953 (-0.0849 to 0.4755), p=0.17 | 0.0003 (-0.0017 to 0.0023), p=0.78 | -0.0026 (-0.3302 to 0.3251), p=0.99 | -0.0005 (-0.0025 to 0.0016), p=0.64 |
| O34hr | lag3 |  |  | -0.0512 (-0.3788 to 0.2763), p=0.76 | 0.0003 (-0.0017 to 0.0023), p=0.75 |
| O38hr | lag0 | -0.1718 (-0.5828 to 0.2392), p=0.41 | -0.0014 (-0.0041 to 0.0013), p=0.31 |  |  |
| O38hr | lag1 | 0.0495 (-0.3137 to 0.4128), p=0.79 | 0.0005 (-0.0020 to 0.0031), p=0.69 | 0.0559 (-0.3518 to 0.4635), p=0.79 | 0.0005 (-0.0021 to 0.0030), p=0.71 |
| O38hr | lag2 | 0.2832 (-0.0611 to 0.6275), p=0.11 | 0.0005 (-0.0021 to 0.0032), p=0.69 | -0.0586 (-0.4664 to 0.3491), p=0.78 | -0.0006 (-0.0032 to 0.0019), p=0.63 |
| O38hr | lag3 |  |  | 0.0419 (-0.3708 to 0.4546), p=0.84 | 0.0003 (-0.0022 to 0.0028), p=0.83 |

Table 3.2. Air pollution and health outcomes, Ozone warm season with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Night cough** | **Night wheeze** | **Night shortness of breath** | **Any night symptoms** | **Any night reliever medications use** |
| **O3 1hr** | | | | | | |
| O31hr | lag1 | 0.9984 (0.9779 to 1.0195), p=0.88 | 0.9745 (0.9443 to 1.0057), p=0.11 | 0.9517 (0.9023 to 1.0039), p=0.069 | 0.9961 (0.9774 to 1.0151), p=0.69 | 0.9997 (0.9673 to 1.0331), p=0.98 |
| O31hr | lag2 | 1.0088 (0.9871 to 1.0309), p=0.43 | 0.9874 (0.9528 to 1.0233), p=0.49 | 0.9623 (0.9069 to 1.0211), p=0.20 | 1.0142 (0.9942 to 1.0346), p=0.17 | 1.0004 (0.9668 to 1.0352), p=0.98 |
| O31hr | lag3 | 1.0086 (0.9864 to 1.0313), p=0.45 | 0.9520 (0.9182 to 0.9870), p=0.008 | 0.9597 (0.9019 to 1.0212), p=0.19 | 0.9995 (0.9793 to 1.0201), p=0.96 | 1.0055 (0.9666 to 1.0460), p=0.79 |
| **O3 4hr** | | | | | | |
| O34hr | lag1 | 0.9980 (0.9756 to 1.0208), p=0.86 | 0.9691 (0.9364 to 1.0029), p=0.073 | 0.9471 (0.8941 to 1.0031), p=0.064 | 0.9943 (0.9741 to 1.0150), p=0.59 | 0.9988 (0.9634 to 1.0355), p=0.95 |
| O34hr | lag2 | 1.0098 (0.9861 to 1.0340), p=0.42 | 0.9837 (0.9464 to 1.0226), p=0.41 | 0.9594 (0.9001 to 1.0227), p=0.20 | 1.0134 (0.9917 to 1.0356), p=0.23 | 1.0024 (0.9652 to 1.0410), p=0.90 |
| O34hr | lag3 | 1.0107 (0.9866 to 1.0355), p=0.39 | 0.9466 (0.9097 to 0.9849), p=0.007 | 0.9546 (0.8926 to 1.0209), p=0.17 | 1.0013 (0.9793 to 1.0238), p=0.91 | 1.0086 (0.9654 to 1.0537), p=0.70 |
| **O3 8hr** | | | | | | |
| O38hr | lag1 | 0.9968 (0.9701 to 1.0242), p=0.82 | 0.9573 (0.9192 to 0.9971), p=0.036 | 0.9512 (0.8906 to 1.0159), p=0.14 | 0.9932 (0.9693 to 1.0176), p=0.58 | 0.9975 (0.9559 to 1.0410), p=0.91 |
| O38hr | lag2 | 1.0068 (0.9787 to 1.0357), p=0.64 | 0.9768 (0.9342 to 1.0214), p=0.30 | 0.9711 (0.9028 to 1.0446), p=0.43 | 1.0111 (0.9857 to 1.0371), p=0.39 | 0.9972 (0.9532 to 1.0432), p=0.90 |
| O38hr | lag3 | 1.0154 (0.9867 to 1.0449), p=0.30 | 0.9369 (0.8942 to 0.9817), p=0.006 | 0.9568 (0.8852 to 1.0342), p=0.27 | 1.0051 (0.9793 to 1.0317), p=0.70 | 1.0093 (0.9589 to 1.0623), p=0.72 |

Table 3.3. Air pollution and health outcomes, Ozone warm season with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day cough** | **Day wheeze** | **Day shortness of breath** | **Day runny nose** | **Day eye irritation** | **Day fever** | **Any day symptoms** |
| **O3 1hr** | | | | | | | | |
| O31hr | lag0 | 0.9863 (0.9676 to 1.0054), p=0.16 | 0.9993 (0.9717 to 1.0276), p=0.96 | 1.0250 (0.9912 to 1.0601), p=0.15 | 1.0111 (0.9905 to 1.0321), p=0.29 | 0.9846 (0.9509 to 1.0194), p=0.38 | 1.0030 (0.9736 to 1.0334), p=0.84 | 0.9982 (0.9824 to 1.0142), p=0.82 |
| O31hr | lag1 | 0.9974 (0.9771 to 1.0180), p=0.80 | 0.9864 (0.9586 to 1.0150), p=0.35 | 0.9918 (0.9552 to 1.0298), p=0.67 | 1.0022 (0.9809 to 1.0239), p=0.84 | 0.9957 (0.9622 to 1.0305), p=0.81 | 1.0186 (0.9883 to 1.0497), p=0.23 | 1.0020 (0.9854 to 1.0188), p=0.82 |
| O31hr | lag2 | 1.0002 (0.9788 to 1.0221), p=0.98 | 0.9831 (0.9522 to 1.0150), p=0.29 | 0.9827 (0.9459 to 1.0209), p=0.37 | 1.0140 (0.9917 to 1.0368), p=0.22 | 1.0223 (0.9808 to 1.0655), p=0.30 | 1.0141 (0.9808 to 1.0486), p=0.41 | 1.0002 (0.9830 to 1.0176), p=0.99 |
| **O3 4hr** | | | | | | | | |
| O34hr | lag0 | 0.9845 (0.9641 to 1.0054), p=0.14 | 0.9968 (0.9674 to 1.0272), p=0.84 | 1.0269 (0.9903 to 1.0649), p=0.15 | 1.0125 (0.9902 to 1.0353), p=0.28 | 0.9897 (0.9534 to 1.0273), p=0.58 | 1.0071 (0.9750 to 1.0403), p=0.67 | 0.9977 (0.9805 to 1.0152), p=0.80 |
| O34hr | lag1 | 0.9956 (0.9736 to 1.0181), p=0.70 | 0.9841 (0.9544 to 1.0147), p=0.30 | 0.9889 (0.9494 to 1.0301), p=0.59 | 1.0027 (0.9797 to 1.0261), p=0.82 | 0.9987 (0.9622 to 1.0365), p=0.94 | 1.0224 (0.9896 to 1.0562), p=0.18 | 1.0008 (0.9829 to 1.0191), p=0.93 |
| O34hr | lag2 | 0.9973 (0.9740 to 1.0211), p=0.82 | 0.9839 (0.9508 to 1.0182), p=0.35 | 0.9824 (0.9421 to 1.0244), p=0.40 | 1.0173 (0.9930 to 1.0422), p=0.16 | 1.0244 (0.9794 to 1.0715), p=0.29 | 1.0195 (0.9832 to 1.0571), p=0.30 | 0.9988 (0.9801 to 1.0179), p=0.90 |
| **O3 8hr** | | | | | | | | |
| O38hr | lag0 | 0.9826 (0.9585 to 1.0074), p=0.17 | 0.9988 (0.9648 to 1.0341), p=0.95 | 1.0372 (0.9933 to 1.0830), p=0.098 | 1.0226 (0.9958 to 1.0500), p=0.099 | 0.9899 (0.9479 to 1.0337), p=0.65 | 1.0202 (0.9817 to 1.0603), p=0.31 | 1.0017 (0.9814 to 1.0224), p=0.87 |
| O38hr | lag1 | 0.9909 (0.9652 to 1.0173), p=0.50 | 0.9820 (0.9480 to 1.0173), p=0.31 | 0.9858 (0.9398 to 1.0341), p=0.56 | 1.0059 (0.9790 to 1.0336), p=0.67 | 0.9966 (0.9543 to 1.0408), p=0.88 | 1.0352 (0.9964 to 1.0755), p=0.076 | 1.0018 (0.9807 to 1.0234), p=0.87 |
| O38hr | lag2 | 0.9898 (0.9626 to 1.0178), p=0.47 | 0.9821 (0.9440 to 1.0218), p=0.37 | 0.9775 (0.9293 to 1.0282), p=0.38 | 1.0270 (0.9979 to 1.0568), p=0.069 | 1.0301 (0.9789 to 1.0840), p=0.25 | 1.0279 (0.9859 to 1.0717), p=0.20 | 0.9988 (0.9767 to 1.0214), p=0.92 |

Table 3.4. Air pollution and health outcomes, Ozone warm season with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day time reliever use for symptoms** | **Day time preventer use for symptoms** | **Any day time medication use for symptoms** |
| **O3 1hr** | | | | |
| O31hr | lag0 | 0.9968 (0.9672 to 1.0273), p=0.83 | 1.0196 (0.9781 to 1.0628), p=0.36 | 1.0020 (0.9735 to 1.0313), p=0.89 |
| O31hr | lag1 | 1.0018 (0.9716 to 1.0329), p=0.91 | 1.0171 (0.9736 to 1.0625), p=0.45 | 1.0132 (0.9836 to 1.0437), p=0.38 |
| O31hr | lag2 | 0.9844 (0.9522 to 1.0176), p=0.35 | 0.9863 (0.9390 to 1.0361), p=0.58 | 0.9846 (0.9529 to 1.0172), p=0.35 |
| **O3 4hr** | | | | |
| O34hr | lag0 | 0.9969 (0.9649 to 1.0301), p=0.85 | 1.0222 (0.9772 to 1.0693), p=0.34 | 1.0031 (0.9723 to 1.0349), p=0.84 |
| O34hr | lag1 | 0.9986 (0.9662 to 1.0322), p=0.94 | 1.0164 (0.9697 to 1.0654), p=0.50 | 1.0126 (0.9807 to 1.0455), p=0.44 |
| O34hr | lag2 | 0.9818 (0.9468 to 1.0182), p=0.32 | 0.9905 (0.9387 to 1.0452), p=0.73 | 0.9831 (0.9485 to 1.0189), p=0.35 |
| **O3 8hr** | | | | |
| O38hr | lag0 | 1.0036 (0.9663 to 1.0423), p=0.85 | 1.0248 (0.9732 to 1.0792), p=0.35 | 1.0066 (0.9707 to 1.0438), p=0.72 |
| O38hr | lag1 | 0.9933 (0.9559 to 1.0321), p=0.73 | 1.0077 (0.9560 to 1.0622), p=0.77 | 1.0099 (0.9735 to 1.0478), p=0.60 |
| O38hr | lag2 | 0.9725 (0.9315 to 1.0154), p=0.21 | 0.9933 (0.9335 to 1.0571), p=0.83 | 0.9791 (0.9386 to 1.0214), p=0.33 |

# SO2: Models Excluding Port Pirie

Table 4.1. Air pollution and health outcomes, SO2 (Port Pirie excluded) with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Evening PEF** | **Evening FEV1** | **Morning PEF** | **Morning FEV1** |
| SO21hr | lag0 | 0.1918 (-0.5797 to 0.9633), p=0.63 | -0.0010 (-0.0063 to 0.0043), p=0.72 |  |  |
| SO21hr | lag1 | -0.1427 (-0.8951 to 0.6096), p=0.71 | 0.0014 (-0.0039 to 0.0066), p=0.61 | 0.2526 (-0.2815 to 0.7868), p=0.35 | 0.0015 (-0.0020 to 0.0051), p=0.40 |
| SO21hr | lag2 | 0.0179 (-0.7337 to 0.7695), p=0.96 | -0.0007 (-0.0059 to 0.0046), p=0.81 | 0.1762 (-0.3372 to 0.6896), p=0.50 | 0.0014 (-0.0020 to 0.0047), p=0.43 |
| SO21hr | lag3 |  |  | -0.6132 (-1.1394 to -0.0871), p=0.022 | -0.0034 (-0.0069 to 0.0001), p=0.057 |
| SO224h | lag0 | 0.3566 (-2.9728 to 3.6860), p=0.83 | -0.0110 (-0.0339 to 0.0119), p=0.35 |  |  |
| SO224h | lag1 | -0.8262 (-4.0907 to 2.4383), p=0.62 | 0.0088 (-0.0140 to 0.0316), p=0.45 | 0.3566 (-1.9700 to 2.6832), p=0.76 | -0.0022 (-0.0177 to 0.0134), p=0.78 |
| SO224h | lag2 | -0.1299 (-3.5071 to 3.2473), p=0.94 | -0.0031 (-0.0266 to 0.0204), p=0.80 | 0.7237 (-1.6062 to 3.0536), p=0.54 | 0.0067 (-0.0086 to 0.0221), p=0.39 |
| SO224h | lag3 |  |  | -2.3497 (-4.7141 to 0.0146), p=0.051 | -0.0139 (-0.0297 to 0.0018), p=0.083 |

Table 4.2. Air pollution and health outcomes, SO2 (Port Pirie excluded) with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Night cough** | **Night wheeze** | **Night shortness of breath** | **Any night symptoms** | **Any night reliever medications use** |
| **SO2 1hr** | | | | | | |
| SO21hr | lag1 | 1.0124 (0.9764 to 1.0498), p=0.50 | 1.0082 (0.9575 to 1.0615), p=0.76 | 0.9844 (0.9039 to 1.0720), p=0.72 | 1.0118 (0.9774 to 1.0473), p=0.51 | 1.0161 (0.9617 to 1.0735), p=0.57 |
| SO21hr | lag2 | 1.0049 (0.9677 to 1.0435), p=0.80 | 1.0219 (0.9697 to 1.0769), p=0.42 | 1.0093 (0.9299 to 1.0955), p=0.82 | 1.0236 (0.9881 to 1.0603), p=0.20 | 1.0237 (0.9705 to 1.0798), p=0.39 |
| SO21hr | lag3 | 1.0068 (0.9682 to 1.0470), p=0.73 | 0.9771 (0.9179 to 1.0400), p=0.47 | 0.9577 (0.8710 to 1.0530), p=0.37 | 1.0019 (0.9648 to 1.0405), p=0.92 | 0.9901 (0.9274 to 1.0570), p=0.76 |
| **SO2 24hr** | | | | | | |
| SO224h | lag1 | 0.9884 (0.8380 to 1.1657), p=0.89 | 1.0129 (0.7995 to 1.2833), p=0.92 | 0.9029 (0.6232 to 1.3081), p=0.59 | 0.9933 (0.8484 to 1.1629), p=0.93 | 1.0070 (0.7790 to 1.3018), p=0.96 |
| SO224h | lag2 | 0.9977 (0.8422 to 1.1819), p=0.98 | 1.1035 (0.8710 to 1.3981), p=0.41 | 0.9723 (0.6733 to 1.4040), p=0.88 | 1.0977 (0.9359 to 1.2874), p=0.25 | 1.1241 (0.8728 to 1.4476), p=0.36 |
| SO224h | lag3 | 0.9648 (0.8115 to 1.1471), p=0.69 | 0.8261 (0.6334 to 1.0774), p=0.16 | 0.8321 (0.5652 to 1.2248), p=0.35 | 0.9370 (0.7928 to 1.1075), p=0.45 | 0.9228 (0.6884 to 1.2372), p=0.59 |

Table 4.3. Air pollution and health outcomes, SO2 (Port Pirie excluded) with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day cough** | **Day wheeze** | **Day shortness of breath** | **Day runny nose** | **Day eye irritation** | **Day fever** | **Any day symptoms** |
| **SO2 1hr** | | | | | | | | |
| SO21hr | lag0 | 1.0405 (1.0053 to 1.0769), p=0.024 | 0.9830 (0.9338 to 1.0347), p=0.51 | 0.9991 (0.9412 to 1.0606), p=0.98 | 1.0323 (0.9976 to 1.0683), p=0.068 | 1.0182 (0.9571 to 1.0831), p=0.57 | 0.9693 (0.9198 to 1.0215), p=0.24 | 1.0289 (0.9992 to 1.0596), p=0.056 |
| SO21hr | lag1 | 1.0155 (0.9786 to 1.0538), p=0.42 | 1.0175 (0.9667 to 1.0710), p=0.51 | 1.0075 (0.9416 to 1.0780), p=0.83 | 1.0428 (1.0047 to 1.0823), p=0.027 | 1.0504 (0.9845 to 1.1206), p=0.14 | 0.9889 (0.9396 to 1.0408), p=0.67 | 1.0437 (1.0105 to 1.0780), p=0.010 |
| SO21hr | lag2 | 1.0191 (0.9809 to 1.0588), p=0.33 | 0.9577 (0.9018 to 1.0170), p=0.16 | 1.0187 (0.9581 to 1.0832), p=0.55 | 1.0311 (0.9949 to 1.0685), p=0.093 | 0.9865 (0.9096 to 1.0698), p=0.74 | 0.9717 (0.9194 to 1.0270), p=0.31 | 1.0030 (0.9720 to 1.0350), p=0.85 |
| **SO2 24hr** | | | | | | | | |
| SO224h | lag0 | 1.1816 (1.0145 to 1.3764), p=0.032 | 0.9593 (0.7620 to 1.2077), p=0.72 | 1.0304 (0.7973 to 1.3317), p=0.82 | 1.1779 (1.0117 to 1.3714), p=0.035 | 1.2340 (0.9427 to 1.6153), p=0.13 | 0.8708 (0.6914 to 1.0967), p=0.24 | 1.1261 (0.9890 to 1.2821), p=0.073 |
| SO224h | lag1 | 1.0290 (0.8720 to 1.2142), p=0.74 | 1.0108 (0.7985 to 1.2797), p=0.93 | 1.0140 (0.7497 to 1.3714), p=0.93 | 1.2176 (1.0312 to 1.4377), p=0.020 | 1.1907 (0.8882 to 1.5962), p=0.24 | 0.9202 (0.7279 to 1.1634), p=0.49 | 1.1629 (1.0085 to 1.3408), p=0.038 |
| SO224h | lag2 | 1.0072 (0.8499 to 1.1936), p=0.93 | 0.7745 (0.5939 to 1.0100), p=0.059 | 1.0773 (0.8155 to 1.4233), p=0.60 | 1.1474 (0.9785 to 1.3455), p=0.090 | 0.9007 (0.6366 to 1.2745), p=0.55 | 0.8416 (0.6589 to 1.0749), p=0.17 | 0.9714 (0.8444 to 1.1174), p=0.68 |

Table 4.4. Air pollution and health outcomes, SO2 (Port Pirie excluded) with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day time reliever use for symptoms** | **Day time preventer use for symptoms** | **Any day time medication use for symptoms** |
| **SO2 1hr** | | | | |
| SO21hr | lag0 | 1.0154 (0.9661 to 1.0673), p=0.55 | 1.0256 (0.9538 to 1.1029), p=0.49 | 1.0133 (0.9655 to 1.0636), p=0.59 |
| SO21hr | lag1 | 1.0312 (0.9813 to 1.0837), p=0.22 | 1.0792 (1.0057 to 1.1581), p=0.034 | 1.0366 (0.9877 to 1.0879), p=0.14 |
| SO21hr | lag2 | 1.0283 (0.9766 to 1.0827), p=0.29 | 1.0382 (0.9607 to 1.1220), p=0.34 | 1.0203 (0.9696 to 1.0735), p=0.44 |
| **SO2 24hr** | | | | |
| SO224h | lag0 | 1.0602 (0.8468 to 1.3274), p=0.61 | 1.0686 (0.7697 to 1.4836), p=0.69 | 1.0622 (0.8531 to 1.3225), p=0.59 |
| SO224h | lag1 | 1.0977 (0.8741 to 1.3786), p=0.42 | 1.2795 (0.9223 to 1.7751), p=0.14 | 1.1418 (0.9143 to 1.4259), p=0.24 |
| SO224h | lag2 | 1.0278 (0.8115 to 1.3017), p=0.82 | 0.9953 (0.7033 to 1.4084), p=0.98 | 0.9925 (0.7860 to 1.2532), p=0.95 |

# SO2: Two Pollutant Models with PM10

Table 5.1. Air pollution and health outcomes, SO2 with PM10 and interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Evening PEF** | **Evening FEV1** | **Morning PEF** | **Morning FEV1** |
| SO21hr | lag0 | 0.2929 (-0.0282 to 0.6140), p=0.074 | 0.0012 (-0.0010 to 0.0034), p=0.28 |  |  |
| SO21hr | lag1 | -0.0408 (-0.3117 to 0.2301), p=0.77 | 0.0006 (-0.0013 to 0.0024), p=0.53 | 0.0257 (-0.1738 to 0.2252), p=0.80 | 0.0002 (-0.0012 to 0.0015), p=0.83 |
| SO21hr | lag2 | -0.0282 (-0.2986 to 0.2423), p=0.84 | -0.0013 (-0.0031 to 0.0006), p=0.19 | -0.0263 (-0.2469 to 0.1942), p=0.81 | -0.0011 (-0.0026 to 0.0004), p=0.14 |
| SO21hr | lag3 |  |  | -0.1879 (-0.3893 to 0.0134), p=0.067 | -0.0011 (-0.0024 to 0.0003), p=0.12 |
| SO224h | lag0 | 1.6946 (0.1918 to 3.1973), p=0.027 | 0.0057 (-0.0046 to 0.0161), p=0.28 |  |  |
| SO224h | lag1 | -0.7056 (-2.2275 to 0.8163), p=0.36 | 0.0050 (-0.0054 to 0.0154), p=0.34 | -0.7361 (-1.8649 to 0.3926), p=0.20 | -0.0051 (-0.0127 to 0.0025), p=0.18 |
| SO224h | lag2 | 0.1860 (-1.2380 to 1.6100), p=0.80 | -0.0023 (-0.0121 to 0.0075), p=0.64 | 0.5679 (-0.5765 to 1.7123), p=0.33 | 0.0022 (-0.0056 to 0.0100), p=0.57 |
| SO224h | lag3 |  |  | -0.8858 (-2.0003 to 0.2287), p=0.12 | -0.0051 (-0.0126 to 0.0024), p=0.18 |

Table 5.2. Air pollution and health outcomes, SO2 with PM10 and interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Night cough** | **Night wheeze** | **Night shortness of breath** | **Any night symptoms** | **Any night reliever medications use** |
| **SO2 1hr** | | | | | | |
| SO21hr | lag1 | 1.0031 (0.9890 to 1.0174), p=0.67 | 1.0038 (0.9807 to 1.0274), p=0.75 | 0.9839 (0.9109 to 1.0627), p=0.68 | 1.0043 (0.9911 to 1.0176), p=0.53 | 1.0247 (1.0021 to 1.0478), p=0.032 |
| SO21hr | lag2 | 0.9894 (0.9728 to 1.0061), p=0.21 | 1.0109 (0.9854 to 1.0371), p=0.41 | 0.9956 (0.9508 to 1.0426), p=0.85 | 0.9980 (0.9831 to 1.0130), p=0.79 | 1.0237 (1.0027 to 1.0453), p=0.027 |
| SO21hr | lag3 | 1.0035 (0.9913 to 1.0159), p=0.57 | 1.0061 (0.9836 to 1.0290), p=0.60 | 0.9624 (0.8912 to 1.0393), p=0.33 | 1.0043 (0.9924 to 1.0163), p=0.48 | 0.9947 (0.9681 to 1.0220), p=0.70 |
| **SO2 24hr** | | | | | | |
| SO224h | lag1 | 0.9575 (0.8802 to 1.0415), p=0.31 | 0.9869 (0.8635 to 1.1278), p=0.85 | 0.8515 (0.6110 to 1.1866), p=0.34 | 0.9694 (0.8967 to 1.0480), p=0.43 | 1.0990 (0.9583 to 1.2604), p=0.18 |
| SO224h | lag2 | 0.9232 (0.8468 to 1.0065), p=0.070 | 1.0045 (0.8726 to 1.1564), p=0.95 | 0.8943 (0.6734 to 1.1877), p=0.44 | 0.9606 (0.8880 to 1.0391), p=0.32 | 1.0742 (0.9452 to 1.2208), p=0.27 |
| SO224h | lag3 | 1.0093 (0.9435 to 1.0797), p=0.79 | 0.9434 (0.8040 to 1.1070), p=0.48 | 0.6138 (0.4186 to 0.9000), p=0.012 | 1.0071 (0.9430 to 1.0756), p=0.83 | 0.9099 (0.7890 to 1.0494), p=0.19 |

Table 5.3. Air pollution and health outcomes, SO2 with PM10 and interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day cough** | **Day wheeze** | **Day shortness of breath** | **Day runny nose** | **Day eye irritation** | **Day fever** | **Any day symptoms** |
| **SO2 1hr** | | | | | | | | |
| SO21hr | lag0 | 0.9979 (0.9856 to 1.0104), p=0.74 | 0.9674 (0.9236 to 1.0132), p=0.16 | 0.9847 (0.9426 to 1.0288), p=0.49 | 1.0071 (0.9933 to 1.0210), p=0.32 | 0.9847 (0.9446 to 1.0266), p=0.47 | 0.9997 (0.9749 to 1.0251), p=0.98 | 1.0026 (0.9929 to 1.0125), p=0.60 |
| SO21hr | lag1 | 1.0019 (0.9894 to 1.0146), p=0.76 | 0.9798 (0.9406 to 1.0207), p=0.33 | 0.9960 (0.9583 to 1.0352), p=0.84 | 1.0117 (0.9998 to 1.0238), p=0.054 | 1.0054 (0.9750 to 1.0367), p=0.73 | 1.0046 (0.9863 to 1.0233), p=0.62 | 1.0064 (0.9965 to 1.0164), p=0.20 |
| SO21hr | lag2 | 0.9974 (0.9846 to 1.0104), p=0.70 | 0.9531 (0.9085 to 0.9999), p=0.049 | 0.9808 (0.9404 to 1.0229), p=0.37 | 1.0061 (0.9926 to 1.0198), p=0.37 | 0.9768 (0.9254 to 1.0311), p=0.40 | 0.9859 (0.9618 to 1.0107), p=0.26 | 0.9984 (0.9875 to 1.0093), p=0.77 |
| **SO2 24hr** | | | | | | | | |
| SO224h | lag0 | 0.9905 (0.9247 to 1.0610), p=0.79 | 0.8314 (0.6833 to 1.0116), p=0.065 | 0.9515 (0.7846 to 1.1538), p=0.61 | 1.0352 (0.9587 to 1.1177), p=0.38 | 0.9724 (0.8243 to 1.1471), p=0.74 | 0.9166 (0.7852 to 1.0700), p=0.27 | 1.0145 (0.9581 to 1.0743), p=0.62 |
| SO224h | lag1 | 0.9580 (0.8904 to 1.0308), p=0.25 | 0.8131 (0.6681 to 0.9896), p=0.039 | 0.9332 (0.7625 to 1.1421), p=0.50 | 1.0434 (0.9686 to 1.1240), p=0.26 | 0.9731 (0.8213 to 1.1530), p=0.75 | 1.0067 (0.8991 to 1.1272), p=0.91 | 0.9900 (0.9319 to 1.0517), p=0.74 |
| SO224h | lag2 | 0.9984 (0.9358 to 1.0652), p=0.96 | 0.7317 (0.5829 to 0.9186), p=0.007 | 0.9127 (0.7592 to 1.0973), p=0.33 | 1.0463 (0.9730 to 1.1251), p=0.22 | 0.9396 (0.7610 to 1.1601), p=0.56 | 0.8811 (0.7705 to 1.0076), p=0.064 | 0.9951 (0.9400 to 1.0534), p=0.87 |

Table 5.4. Air pollution and health outcomes, SO2 with PM10 and interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day time reliever use for symptoms** | **Day time preventer use for symptoms** | **Any day time medication use for symptoms** |
| **SO2 1hr** | | | | |
| SO21hr | lag0 | 0.9791 (0.9362 to 1.0241), p=0.36 | 0.9936 (0.9608 to 1.0276), p=0.71 | 0.9854 (0.9577 to 1.0140), p=0.31 |
| SO21hr | lag1 | 1.0074 (0.9813 to 1.0343), p=0.58 | 1.0095 (0.9805 to 1.0395), p=0.52 | 1.0139 (0.9941 to 1.0341), p=0.17 |
| SO21hr | lag2 | 0.9912 (0.9621 to 1.0213), p=0.56 | 0.9950 (0.9643 to 1.0267), p=0.75 | 0.9994 (0.9748 to 1.0246), p=0.96 |
| **SO2 24hr** | | | | |
| SO224h | lag0 | 0.9141 (0.7824 to 1.0679), p=0.26 | 0.9901 (0.8301 to 1.1810), p=0.91 | 0.9432 (0.8260 to 1.0770), p=0.39 |
| SO224h | lag1 | 0.9859 (0.8576 to 1.1333), p=0.84 | 1.0009 (0.8529 to 1.1744), p=0.99 | 1.0038 (0.8932 to 1.1280), p=0.95 |
| SO224h | lag2 | 0.8813 (0.7428 to 1.0455), p=0.15 | 0.9213 (0.7732 to 1.0978), p=0.36 | 0.9301 (0.8198 to 1.0552), p=0.26 |

# NO2: Two Pollutant Models with Ozone

Table 6.1. Air pollution and health outcomes, NO2 and 1hr ozone with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Evening PEF** | **Evening FEV1** | **Morning PEF** | **Morning FEV1** |
| **NO2 1hr** | | | | | |
| NO21hr | lag0 | 0.0614 (-0.3823 to 0.5051), p=0.79 | -0.0002 (-0.0032 to 0.0027), p=0.89 |  |  |
| NO21hr | lag1 | 0.1370 (-0.3030 to 0.5769), p=0.54 | 0.0013 (-0.0016 to 0.0042), p=0.38 | 0.2729 (-0.0492 to 0.5951), p=0.097 | 0.0022 (-0.0000 to 0.0045), p=0.050 |
| NO21hr | lag2 | 0.0327 (-0.4360 to 0.5013), p=0.89 | -0.0002 (-0.0033 to 0.0030), p=0.92 | -0.4042 (-0.7318 to -0.0767), p=0.016 | -0.0025 (-0.0047 to -0.0002), p=0.031 |
| NO21hr | lag3 |  |  | 0.3025 (-0.0521 to 0.6571), p=0.094 | 0.0007 (-0.0017 to 0.0032), p=0.56 |
| **NO2 24 hr** | | | | | |
| NO224h | lag0 | 0.3493 (-0.6369 to 1.3355), p=0.49 | 0.0007 (-0.0058 to 0.0073), p=0.83 |  |  |
| NO224h | lag1 | 0.2638 (-0.7250 to 1.2526), p=0.60 | 0.0035 (-0.0031 to 0.0101), p=0.30 | 0.0434 (-0.6808 to 0.7677), p=0.91 | -0.0016 (-0.0066 to 0.0034), p=0.53 |
| NO224h | lag2 | 0.2870 (-0.6955 to 1.2694), p=0.57 | 0.0006 (-0.0060 to 0.0073), p=0.85 | -0.3414 (-1.0614 to 0.3786), p=0.35 | -0.0027 (-0.0077 to 0.0022), p=0.28 |
| NO224h | lag3 |  |  | -0.1246 (-0.8626 to 0.6134), p=0.74 | -0.0031 (-0.0082 to 0.0020), p=0.24 |

Table 6.2. Air pollution and health outcomes, NO2 and 1hr ozone with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Night cough** | **Night wheeze** | **Night shortness of breath** | **Any night symptoms** | **Any night reliever medications use** |
| **NO2 1hr** | | | | | | |
| NO21hr | lag1 | 1.0020 (0.9801 to 1.0244), p=0.86 | 1.0107 (0.9798 to 1.0426), p=0.50 | 0.9928 (0.9440 to 1.0441), p=0.78 | 1.0049 (0.9849 to 1.0254), p=0.63 | 0.9988 (0.9637 to 1.0350), p=0.95 |
| NO21hr | lag2 | 1.0141 (0.9926 to 1.0361), p=0.20 | 1.0120 (0.9815 to 1.0435), p=0.45 | 0.9642 (0.9166 to 1.0142), p=0.16 | 1.0112 (0.9915 to 1.0312), p=0.27 | 0.9920 (0.9580 to 1.0272), p=0.65 |
| NO21hr | lag3 | 1.0121 (0.9905 to 1.0342), p=0.28 | 1.0104 (0.9785 to 1.0434), p=0.53 | 0.9772 (0.9278 to 1.0292), p=0.38 | 1.0115 (0.9915 to 1.0320), p=0.26 | 1.0061 (0.9715 to 1.0419), p=0.73 |
| **NO2 24h** | | | | | | |
| NO224h | lag1 | 1.0146 (0.9705 to 1.0608), p=0.52 | 1.0634 (0.9990 to 1.1319), p=0.054 | 1.0011 (0.9112 to 1.0999), p=0.98 | 1.0100 (0.9690 to 1.0526), p=0.64 | 1.0137 (0.9459 to 1.0864), p=0.70 |
| NO224h | lag2 | 1.0326 (0.9882 to 1.0790), p=0.15 | 1.0369 (0.9746 to 1.1032), p=0.25 | 0.9828 (0.8944 to 1.0798), p=0.72 | 1.0254 (0.9846 to 1.0678), p=0.23 | 1.0084 (0.9417 to 1.0798), p=0.81 |
| NO224h | lag3 | 1.0447 (1.0015 to 1.0898), p=0.042 | 1.0409 (0.9805 to 1.1051), p=0.19 | 0.9494 (0.8657 to 1.0412), p=0.27 | 1.0301 (0.9906 to 1.0712), p=0.14 | 1.0203 (0.9541 to 1.0911), p=0.56 |

Table 6.3. Air pollution and health outcomes, NO2 and 1hr ozone with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day cough** | **Day wheeze** | **Day shortness of breath** | **Day runny nose** | **Day eye irritation** | **Day fever** | **Any day symptoms** |
| **NO2 1hr** | | | | | | | | |
| NO21hr | lag0 | 1.0046 (0.9851 to 1.0246), p=0.64 | 1.0155 (0.9872 to 1.0445), p=0.29 | 1.0161 (0.9817 to 1.0517), p=0.36 | 0.9896 (0.9699 to 1.0096), p=0.31 | 0.9833 (0.9526 to 1.0149), p=0.30 | 0.9888 (0.9595 to 1.0189), p=0.46 | 0.9942 (0.9778 to 1.0108), p=0.49 |
| NO21hr | lag1 | 1.0037 (0.9853 to 1.0225), p=0.69 | 1.0070 (0.9799 to 1.0347), p=0.62 | 1.0138 (0.9804 to 1.0483), p=0.42 | 0.9950 (0.9763 to 1.0141), p=0.61 | 0.9804 (0.9516 to 1.0102), p=0.19 | 0.9798 (0.9523 to 1.0081), p=0.16 | 0.9920 (0.9765 to 1.0078), p=0.32 |
| NO21hr | lag2 | 1.0048 (0.9859 to 1.0241), p=0.62 | 0.9917 (0.9647 to 1.0194), p=0.55 | 0.9835 (0.9514 to 1.0167), p=0.33 | 0.9822 (0.9635 to 1.0013), p=0.068 | 0.9832 (0.9540 to 1.0133), p=0.27 | 0.9769 (0.9488 to 1.0059), p=0.12 | 0.9921 (0.9762 to 1.0082), p=0.34 |
| **NO2 24hr** | | | | | | | | |
| NO224h | lag0 | 1.0216 (0.9811 to 1.0638), p=0.30 | 1.0722 (1.0130 to 1.1348), p=0.016 | 1.0434 (0.9762 to 1.1152), p=0.21 | 0.9929 (0.9518 to 1.0358), p=0.74 | 0.9731 (0.9076 to 1.0432), p=0.44 | 0.9719 (0.9137 to 1.0338), p=0.37 | 1.0033 (0.9688 to 1.0391), p=0.85 |
| NO224h | lag1 | 1.0128 (0.9737 to 1.0535), p=0.53 | 1.0360 (0.9807 to 1.0944), p=0.21 | 1.0245 (0.9608 to 1.0925), p=0.46 | 0.9913 (0.9516 to 1.0326), p=0.67 | 0.9467 (0.8835 to 1.0144), p=0.12 | 0.9545 (0.8987 to 1.0137), p=0.13 | 0.9908 (0.9579 to 1.0249), p=0.59 |
| NO224h | lag2 | 1.0191 (0.9807 to 1.0589), p=0.34 | 0.9961 (0.9448 to 1.0501), p=0.88 | 1.0200 (0.9585 to 1.0856), p=0.53 | 0.9764 (0.9385 to 1.0158), p=0.24 | 0.9597 (0.8982 to 1.0254), p=0.22 | 0.9661 (0.9114 to 1.0241), p=0.25 | 0.9916 (0.9594 to 1.0248), p=0.62 |

Table 6.4. Air pollution and health outcomes, NO2 and 1hr ozone with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day time reliever use for symptoms** | **Day time preventer use for symptoms** | **Any day time medication use for symptoms** |
| **NO2 1hr** | | | | |
| NO21hr | lag0 | 1.0057 (0.9761 to 1.0363), p=0.71 | 0.9720 (0.9286 to 1.0174), p=0.22 | 1.0000 (0.9722 to 1.0286), p=1.00 |
| NO21hr | lag1 | 1.0071 (0.9787 to 1.0363), p=0.63 | 0.9877 (0.9463 to 1.0310), p=0.57 | 1.0052 (0.9782 to 1.0329), p=0.71 |
| NO21hr | lag2 | 0.9924 (0.9643 to 1.0213), p=0.60 | 0.9732 (0.9310 to 1.0174), p=0.23 | 0.9944 (0.9677 to 1.0218), p=0.69 |
| **NO2 24hr** | | | | |
| NO224h | lag0 | 1.0448 (0.9842 to 1.1090), p=0.15 | 0.9640 (0.8805 to 1.0554), p=0.43 | 1.0356 (0.9778 to 1.0968), p=0.23 |
| NO224h | lag1 | 1.0330 (0.9752 to 1.0943), p=0.27 | 1.0174 (0.9335 to 1.1090), p=0.69 | 1.0315 (0.9761 to 1.0901), p=0.27 |
| NO224h | lag2 | 1.0282 (0.9725 to 1.0871), p=0.33 | 1.0067 (0.9238 to 1.0972), p=0.88 | 1.0350 (0.9812 to 1.0918), p=0.21 |

Table 6.5. Air pollution and health outcomes, NO2 and 4hr ozone with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Evening PEF** | **Evening FEV1** | **Morning PEF** | **Morning FEV1** |
| **NO2 1hr** | | | | | |
| NO21hr | lag0 | 0.0639 (-0.3788 to 0.5066), p=0.78 | -0.0002 (-0.0031 to 0.0028), p=0.90 |  |  |
| NO21hr | lag1 | 0.1481 (-0.2911 to 0.5873), p=0.51 | 0.0014 (-0.0016 to 0.0043), p=0.36 | 0.2795 (-0.0421 to 0.6011), p=0.088 | 0.0023 (0.0000 to 0.0045), p=0.048 |
| NO21hr | lag2 | 0.0275 (-0.4410 to 0.4959), p=0.91 | -0.0002 (-0.0034 to 0.0030), p=0.90 | -0.3963 (-0.7236 to -0.0690), p=0.018 | -0.0025 (-0.0047 to -0.0002), p=0.032 |
| NO21hr | lag3 |  |  | 0.2962 (-0.0585 to 0.6509), p=0.10 | 0.0007 (-0.0018 to 0.0032), p=0.57 |
| **NO2 24 hr** | | | | | |
| NO224h | lag0 | 0.3326 (-0.6544 to 1.3197), p=0.51 | 0.0006 (-0.0059 to 0.0072), p=0.85 |  |  |
| NO224h | lag1 | 0.2695 (-0.7189 to 1.2579), p=0.59 | 0.0035 (-0.0030 to 0.0101), p=0.29 | 0.0538 (-0.6714 to 0.7791), p=0.88 | -0.0015 (-0.0066 to 0.0035), p=0.55 |
| NO224h | lag2 | 0.2753 (-0.7067 to 1.2573), p=0.58 | 0.0005 (-0.0061 to 0.0072), p=0.87 | -0.3356 (-1.0556 to 0.3844), p=0.36 | -0.0027 (-0.0077 to 0.0023), p=0.28 |
| NO224h | lag3 |  |  | -0.1388 (-0.8768 to 0.5992), p=0.71 | -0.0031 (-0.0082 to 0.0020), p=0.23 |

Table 6.6. Air pollution and health outcomes, NO2 and 4hr ozone with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Night cough** | **Night wheeze** | **Night shortness of breath** | **Any night symptoms** | **Any night reliever medications use** |
| **NO2 1hr** | | | | | | |
| NO21hr | lag1 | 1.0014 ( 0.9796 to 1.0237), p=0.90 | 1.0110 ( 0.9803 to 1.0427), p=0.49 | 0.9914 ( 0.9429 to 1.0423), p=0.73 | 1.0046 ( 0.9847 to 1.0250), p=0.65 | 0.9985 ( 0.9637 to 1.0345), p=0.93 |
| NO21hr | lag2 | 1.0138 ( 0.9924 to 1.0357), p=0.21 | 1.0127 ( 0.9821 to 1.0442), p=0.42 | 0.9647 ( 0.9170 to 1.0148), p=0.16 | 1.0111 ( 0.9915 to 1.0311), p=0.27 | 0.9920 ( 0.9581 to 1.0272), p=0.65 |
| NO21hr | lag3 | 1.0121 ( 0.9905 to 1.0342), p=0.28 | 1.0108 ( 0.9789 to 1.0439), p=0.51 | 0.9778 ( 0.9283 to 1.0300), p=0.40 | 1.0116 ( 0.9916 to 1.0320), p=0.26 | 1.0062 ( 0.9716 to 1.0420), p=0.73 |
| **NO2 24hr** | | | | | | |
| NO224h | lag1 | 1.0134 ( 0.9693 to 1.0596), p=0.56 | 1.0605 ( 0.9964 to 1.1288), p=0.065 | 0.9950 ( 0.9054 to 1.0935), p=0.92 | 1.0086 ( 0.9678 to 1.0512), p=0.68 | 1.0122 ( 0.9446 to 1.0846), p=0.73 |
| NO224h | lag2 | 1.0321 ( 0.9878 to 1.0785), p=0.16 | 1.0361 ( 0.9737 to 1.1025), p=0.26 | 0.9814 ( 0.8930 to 1.0785), p=0.70 | 1.0250 ( 0.9842 to 1.0674), p=0.23 | 1.0079 ( 0.9413 to 1.0793), p=0.82 |
| NO224h | lag3 | 1.0447 ( 1.0015 to 1.0898), p=0.042 | 1.0400 ( 0.9796 to 1.1042), p=0.20 | 0.9483 ( 0.8647 to 1.0401), p=0.26 | 1.0300 ( 0.9904 to 1.0710), p=0.14 | 1.0203 ( 0.9541 to 1.0910), p=0.56 |

Table 6.7. Air pollution and health outcomes, NO2 and 4hr ozone with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day cough** | **Day wheeze** | **Day shortness of breath** | **Day runny nose** | **Day eye irritation** | **Day fever** | **Any day symptoms** |
| **NO2 1hr** | | | | | | | | |
| NO21hr | lag0 | 1.0044 (0.9849 to 1.0242), p=0.66 | 1.0158 (0.9877 to 1.0447), p=0.27 | 1.0166 (0.9824 to 1.0520), p=0.34 | 0.9898 (0.9702 to 1.0098), p=0.32 | 0.9821 (0.9516 to 1.0136), p=0.26 | 0.9877 (0.9586 to 1.0177), p=0.42 | 0.9941 (0.9778 to 1.0106), p=0.48 |
| NO21hr | lag1 | 1.0037 (0.9853 to 1.0225), p=0.69 | 1.0075 (0.9804 to 1.0352), p=0.59 | 1.0142 (0.9809 to 1.0486), p=0.41 | 0.9952 (0.9765 to 1.0142), p=0.62 | 0.9796 (0.9508 to 1.0093), p=0.18 | 0.9791 (0.9517 to 1.0074), p=0.15 | 0.9921 (0.9766 to 1.0078), p=0.32 |
| NO21hr | lag2 | 1.0049 (0.9860 to 1.0242), p=0.61 | 0.9919 (0.9649 to 1.0197), p=0.56 | 0.9836 (0.9515 to 1.0168), p=0.33 | 0.9822 (0.9635 to 1.0013), p=0.068 | 0.9833 (0.9541 to 1.0134), p=0.27 | 0.9771 (0.9490 to 1.0061), p=0.12 | 0.9922 (0.9763 to 1.0083), p=0.34 |
| **NO2 24hr** | | | | | | | | |
| NO224h | lag0 | 1.0202 (0.9797 to 1.0623), p=0.33 | 1.0720 (1.0129 to 1.1345), p=0.016 | 1.0439 (0.9767 to 1.1157), p=0.21 | 0.9926 (0.9515 to 1.0355), p=0.73 | 0.9720 (0.9067 to 1.0421), p=0.42 | 0.9705 (0.9122 to 1.0324), p=0.34 | 1.0026 (0.9681 to 1.0383), p=0.89 |
| NO224h | lag1 | 1.0125 (0.9734 to 1.0531), p=0.54 | 1.0362 (0.9809 to 1.0945), p=0.20 | 1.0249 (0.9611 to 1.0929), p=0.45 | 0.9913 (0.9517 to 1.0326), p=0.67 | 0.9461 (0.8830 to 1.0138), p=0.12 | 0.9541 (0.8984 to 1.0133), p=0.13 | 0.9908 (0.9578 to 1.0249), p=0.59 |
| NO224h | lag2 | 1.0191 (0.9807 to 1.0590), p=0.33 | 0.9959 (0.9446 to 1.0500), p=0.88 | 1.0201 (0.9584 to 1.0856), p=0.53 | 0.9762 (0.9383 to 1.0156), p=0.23 | 0.9603 (0.8988 to 1.0260), p=0.23 | 0.9666 (0.9119 to 1.0245), p=0.25 | 0.9916 (0.9594 to 1.0248), p=0.62 |

Table 6.8. Air pollution and health outcomes, NO2 and 4hr ozone with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day time reliever use for symptoms** | **Day time preventer use for symptoms** | **Any day time medication use for symptoms** |
| **NO2 1hr** | | | | |
| NO21hr | lag0 | 1.0051 (0.9757 to 1.0354), p=0.74 | 0.9724 (0.9292 to 1.0175), p=0.23 | 0.9996 (0.9720 to 1.0280), p=0.98 |
| NO21hr | lag1 | 1.0069 (0.9785 to 1.0360), p=0.64 | 0.9875 (0.9461 to 1.0307), p=0.57 | 1.0050 (0.9781 to 1.0327), p=0.72 |
| NO21hr | lag2 | 0.9924 (0.9643 to 1.0213), p=0.60 | 0.9727 (0.9304 to 1.0169), p=0.22 | 0.9944 (0.9677 to 1.0218), p=0.68 |
| **NO2 24hr** | | | | |
| NO224h | lag0 | 1.0432 (0.9829 to 1.1073), p=0.16 | 0.9664 (0.8829 to 1.0578), p=0.46 | 1.0347 (0.9770 to 1.0958), p=0.24 |
| NO224h | lag1 | 1.0327 (0.9749 to 1.0939), p=0.27 | 1.0182 (0.9342 to 1.1098), p=0.68 | 1.0313 (0.9759 to 1.0898), p=0.27 |
| NO224h | lag2 | 1.0282 (0.9726 to 1.0871), p=0.33 | 1.0067 (0.9237 to 1.0972), p=0.88 | 1.0351 (0.9812 to 1.0918), p=0.21 |

Table 6.9. Air pollution and health outcomes, NO2 and 8hr ozone with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Evening PEF** | **Evening FEV1** | **Morning PEF** | **Morning FEV1** |
| **NO2 1hr** | | | | | |
| NO21hr | lag0 | 0.0534 (-0.3885 to 0.4952), p=0.81 | -0.0002 (-0.0032 to 0.0027), p=0.87 |  |  |
| NO21hr | lag1 | 0.1247 (-0.3144 to 0.5638), p=0.58 | 0.0012 (-0.0017 to 0.0041), p=0.43 | 0.2831 (-0.0380 to 0.6042), p=0.084 | 0.0023 (0.0001 to 0.0045), p=0.045 |
| NO21hr | lag2 | -0.0133 (-0.4876 to 0.4610), p=0.96 | -0.0003 (-0.0034 to 0.0029), p=0.87 | -0.3986 (-0.7269 to -0.0702), p=0.017 | -0.0024 (-0.0047 to -0.0002), p=0.033 |
| NO21hr | lag3 |  |  | 0.3112 (-0.0439 to 0.6663), p=0.086 | 0.0007 (-0.0018 to 0.0031), p=0.59 |
| **NO2 24 hr** | | | | | |
| NO224h | lag0 | 0.1645 (-0.8381 to 1.1671), p=0.75 | 0.0001 (-0.0065 to 0.0067), p=0.98 |  |  |
| NO224h | lag1 | 0.1651 (-0.8363 to 1.1666), p=0.75 | 0.0034 (-0.0032 to 0.0100), p=0.31 | 0.1216 (-0.6110 to 0.8543), p=0.74 | -0.0013 (-0.0064 to 0.0037), p=0.61 |
| NO224h | lag2 | 0.1322 (-0.8630 to 1.1273), p=0.79 | 0.0001 (-0.0066 to 0.0068), p=0.97 | -0.3357 (-1.0620 to 0.3905), p=0.36 | -0.0026 (-0.0076 to 0.0024), p=0.31 |
| NO224h | lag3 |  |  | -0.1235 (-0.8672 to 0.6201), p=0.74 | -0.0031 (-0.0082 to 0.0020), p=0.23 |

Table 6.10. Air pollution and health outcomes, NO2 and 8hr ozone with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Night cough** | **Night wheeze** | **Night shortness of breath** | **Any night symptoms** | **Any night reliever medications use** |
| **NO2 1hr** | | | | | | |
| NO21hr | lag1 | 1.0011 (0.9794 to 1.0232), p=0.92 | 1.0115 (0.9808 to 1.0431), p=0.47 | 0.9882 (0.9401 to 1.0388), p=0.64 | 1.0043 (0.9845 to 1.0246), p=0.67 | 0.9990 (0.9644 to 1.0348), p=0.96 |
| NO21hr | lag2 | 1.0141 (0.9927 to 1.0359), p=0.20 | 1.0140 (0.9834 to 1.0455), p=0.38 | 0.9642 (0.9166 to 1.0142), p=0.16 | 1.0115 (0.9920 to 1.0315), p=0.25 | 0.9932 (0.9591 to 1.0284), p=0.70 |
| NO21hr | lag3 | 1.0131 (0.9916 to 1.0352), p=0.23 | 1.0131 (0.9810 to 1.0461), p=0.43 | 0.9727 (0.9245 to 1.0234), p=0.29 | 1.0114 (0.9915 to 1.0317), p=0.26 | 1.0070 (0.9724 to 1.0428), p=0.70 |
| **NO2 24hr** | | | | | | |
| NO224h | lag1 | 1.0134 (0.9692 to 1.0596), p=0.56 | 1.0519 (0.9881 to 1.1197), p=0.11 | 0.9772 (0.8888 to 1.0743), p=0.63 | 1.0054 (0.9647 to 1.0479), p=0.80 | 1.0106 (0.9430 to 1.0830), p=0.77 |
| NO224h | lag2 | 1.0327 (0.9884 to 1.0791), p=0.15 | 1.0312 (0.9692 to 1.0973), p=0.33 | 0.9723 (0.8853 to 1.0678), p=0.56 | 1.0235 (0.9829 to 1.0657), p=0.26 | 1.0078 (0.9411 to 1.0792), p=0.82 |
| NO224h | lag3 | 1.0455 (1.0022 to 1.0905), p=0.039 | 1.0378 (0.9774 to 1.1019), p=0.22 | 0.9434 (0.8609 to 1.0338), p=0.21 | 1.0289 (0.9895 to 1.0698), p=0.15 | 1.0208 (0.9545 to 1.0917), p=0.55 |

Table 6.11. Air pollution and health outcomes, NO2 and 8hr ozone with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day cough** | **Day wheeze** | **Day shortness of breath** | **Day runny nose** | **Day eye irritation** | **Day fever** | **Any day symptoms** |
| **NO2 1hr** | | | | | | | | |
| NO21hr | lag0 | 1.0035 (0.9842 to 1.0233), p=0.72 | 1.0161 (0.9882 to 1.0449), p=0.26 | 1.0167 (0.9827 to 1.0519), p=0.34 | 0.9891 (0.9696 to 1.0089), p=0.28 | 0.9817 (0.9514 to 1.0131), p=0.25 | 0.9869 (0.9579 to 1.0167), p=0.39 | 0.9934 (0.9772 to 1.0098), p=0.43 |
| NO21hr | lag1 | 1.0034 (0.9851 to 1.0221), p=0.72 | 1.0086 (0.9816 to 1.0363), p=0.54 | 1.0147 (0.9814 to 1.0491), p=0.39 | 0.9950 (0.9763 to 1.0139), p=0.60 | 0.9793 (0.9505 to 1.0090), p=0.17 | 0.9791 (0.9516 to 1.0073), p=0.14 | 0.9920 (0.9766 to 1.0077), p=0.32 |
| NO21hr | lag2 | 1.0048 (0.9861 to 1.0240), p=0.62 | 0.9930 (0.9659 to 1.0208), p=0.62 | 0.9845 (0.9524 to 1.0178), p=0.36 | 0.9835 (0.9648 to 1.0026), p=0.090 | 0.9834 (0.9542 to 1.0135), p=0.28 | 0.9781 (0.9500 to 1.0071), p=0.14 | 0.9928 (0.9770 to 1.0088), p=0.38 |
| **NO2 24hr** | | | | | | | | |
| NO224h | lag0 | 1.0177 (0.9774 to 1.0597), p=0.39 | 1.0729 (1.0137 to 1.1354), p=0.015 | 1.0411 (0.9742 to 1.1125), p=0.23 | 0.9943 (0.9532 to 1.0373), p=0.79 | 0.9729 (0.9075 to 1.0430), p=0.44 | 0.9680 (0.9098 to 1.0300), p=0.30 | 1.0019 (0.9675 to 1.0376), p=0.91 |
| NO224h | lag1 | 1.0113 (0.9723 to 1.0518), p=0.58 | 1.0375 (0.9822 to 1.0959), p=0.19 | 1.0225 (0.9590 to 1.0903), p=0.50 | 0.9920 (0.9524 to 1.0332), p=0.70 | 0.9465 (0.8833 to 1.0143), p=0.12 | 0.9526 (0.8970 to 1.0116), p=0.11 | 0.9905 (0.9577 to 1.0244), p=0.58 |
| NO224h | lag2 | 1.0189 (0.9806 to 1.0586), p=0.34 | 0.9965 (0.9451 to 1.0506), p=0.90 | 1.0191 (0.9576 to 1.0845), p=0.55 | 0.9773 (0.9395 to 1.0167), p=0.26 | 0.9607 (0.8992 to 1.0265), p=0.24 | 0.9669 (0.9123 to 1.0247), p=0.26 | 0.9921 (0.9600 to 1.0252), p=0.64 |

Table 6.12. Air pollution and health outcomes, NO2 and 8hr ozone with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day time reliever use for symptoms** | **Day time preventer use for symptoms** | **Any day time medication use for symptoms** |
| **NO2 1hr** | | | | |
| NO21hr | lag0 | 1.0049 (0.9757 to 1.0350), p=0.74 | 0.9737 (0.9308 to 1.0186), p=0.25 | 0.9998 (0.9723 to 1.0280), p=0.99 |
| NO21hr | lag1 | 1.0064 (0.9782 to 1.0354), p=0.66 | 0.9871 (0.9463 to 1.0296), p=0.54 | 1.0049 (0.9781 to 1.0324), p=0.72 |
| NO21hr | lag2 | 0.9909 (0.9631 to 1.0196), p=0.53 | 0.9701 (0.9289 to 1.0131), p=0.17 | 0.9934 (0.9669 to 1.0206), p=0.63 |
| **NO2 24hr** | | | | |
| NO224h | lag0 | 1.0406 (0.9805 to 1.1043), p=0.19 | 0.9687 (0.8858 to 1.0595), p=0.49 | 1.0335 (0.9760 to 1.0943), p=0.26 |
| NO224h | lag1 | 1.0319 (0.9744 to 1.0929), p=0.28 | 1.0209 (0.9373 to 1.1119), p=0.63 | 1.0314 (0.9762 to 1.0898), p=0.27 |
| NO224h | lag2 | 1.0276 (0.9721 to 1.0863), p=0.34 | 1.0073 (0.9250 to 1.0968), p=0.87 | 1.0350 (0.9813 to 1.0916), p=0.21 |

# NO2: Homes with Unflued Gas Heater Models

Table 7.1. Air pollution and health outcomes, NO2 and unflued gas heaters with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Evening PEF** | **Evening FEV1** | **Morning PEF** | **Morning FEV1** |
| NO21hr | lag0 | -0.6089 (-1.7861 to 0.5683), p=0.31 | -0.0041 (-0.0122 to 0.0040), p=0.32 |  |  |
| NO21hr | lag1 | -0.6411 (-1.8515 to 0.5693), p=0.30 | 0.0001 (-0.0081 to 0.0082), p=0.98 | 0.0833 (-0.6371 to 0.8038), p=0.82 | 0.0016 (-0.0037 to 0.0069), p=0.55 |
| NO21hr | lag2 | 0.0350 (-1.2237 to 1.2937), p=0.96 | 0.0017 (-0.0067 to 0.0101), p=0.70 | -1.0481 (-1.8306 to -0.2655), p=0.009 | -0.0046 (-0.0105 to 0.0013), p=0.12 |
| NO21hr | lag3 |  |  | -0.4617 (-1.2757 to 0.3524), p=0.27 | -0.0017 (-0.0079 to 0.0045), p=0.59 |
| NO224h | lag0 | -0.3496 (-2.5388 to 1.8397), p=0.75 | -0.0033 (-0.0179 to 0.0114), p=0.66 |  |  |
| NO224h | lag1 | -1.9496 (-4.2067 to 0.3074), p=0.090 | -0.0073 (-0.0223 to 0.0076), p=0.34 | 0.3852 (-1.0634 to 1.8337), p=0.60 | 0.0035 (-0.0071 to 0.0141), p=0.52 |
| NO224h | lag2 | 0.0713 (-2.3798 to 2.5224), p=0.95 | -0.0020 (-0.0180 to 0.0140), p=0.81 | -1.1664 (-2.6869 to 0.3542), p=0.13 | -0.0091 (-0.0204 to 0.0022), p=0.12 |
| NO224h | lag3 |  |  | -0.5003 (-2.0914 to 1.0908), p=0.54 | -0.0013 (-0.0132 to 0.0107), p=0.83 |

Table 7.2. Air pollution and health outcomes, NO2 and unflued gas heaters with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Night cough** | **Night wheeze** | **Night shortness of breath** | **Any night symptoms** | **Any night reliever medications use** |
| **NO2 1hr** | | | | | | |
| NO21hr | lag1 | 1.0056 (0.9538 to 1.0601), p=0.84 | 1.0724 (0.9939 to 1.1571), p=0.072 | 1.1189 (0.9586 to 1.3060), p=0.15 | 1.0071 (0.9587 to 1.0579), p=0.78 | 1.1016 (1.0204 to 1.1893), p=0.013 |
| NO21hr | lag2 | 1.0555 (1.0014 to 1.1126), p=0.044 | 1.0081 (0.9341 to 1.0879), p=0.84 | 1.0911 (0.9341 to 1.2744), p=0.27 | 1.0248 (0.9768 to 1.0752), p=0.32 | 1.0378 (0.9616 to 1.1200), p=0.34 |
| NO21hr | lag3 | 1.0752 (1.0190 to 1.1345), p=0.008 | 1.0269 (0.9539 to 1.1055), p=0.48 | 1.0080 (0.8321 to 1.2212), p=0.93 | 1.0516 (1.0011 to 1.1047), p=0.045 | 1.0366 (0.9550 to 1.1253), p=0.39 |
| **NO2 24hr** | | | | | | |
| NO224h | lag1 | 1.0402 (0.9579 to 1.1296), p=0.35 | 1.1939 (1.0525 to 1.3545), p=0.006 | 1.1178 (0.8883 to 1.4066), p=0.34 | 1.0434 (0.9649 to 1.1282), p=0.29 | 1.2156 (1.0699 to 1.3811), p=0.003 |
| NO224h | lag2 | 1.0787 (0.9949 to 1.1695), p=0.066 | 1.0907 (0.9636 to 1.2345), p=0.17 | 1.1103 (0.8574 to 1.4379), p=0.43 | 1.0467 (0.9695 to 1.1300), p=0.24 | 1.1289 (0.9976 to 1.2775), p=0.055 |
| NO224h | lag3 | 1.1339 (1.0443 to 1.2313), p=0.003 | 1.0977 (0.9657 to 1.2478), p=0.15 | 1.0123 (0.7499 to 1.3666), p=0.94 | 1.1113 (1.0274 to 1.2022), p=0.009 | 1.1144 (0.9699 to 1.2804), p=0.13 |

Table 7.3. Air pollution and health outcomes, NO2 and unflued gas heaters with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day cough** | **Day wheeze** | **Day shortness of breath** | **Day runny nose** | **Day eye irritation** | **Day fever** | **Any day symptoms** |
| **NO2 1hr** | | | | | | | | |
| NO21hr | lag0 | 1.0126 (0.9641 to 1.0635), p=0.62 | 1.0385 (0.9783 to 1.1024), p=0.21 | 1.1094 (1.0218 to 1.2045), p=0.013 | 1.0269 (0.9710 to 1.0860), p=0.35 | 0.9254 (0.8155 to 1.0501), p=0.23 | 1.0380 (0.9621 to 1.1200), p=0.34 | 0.9961 (0.9537 to 1.0404), p=0.86 |
| NO21hr | lag1 | 1.0080 (0.9586 to 1.0599), p=0.76 | 1.0610 (0.9994 to 1.1263), p=0.052 | 1.0978 (1.0109 to 1.1922), p=0.027 | 1.0335 (0.9782 to 1.0920), p=0.24 | 0.9555 (0.8535 to 1.0697), p=0.43 | 1.0224 (0.9506 to 1.0996), p=0.55 | 1.0015 (0.9584 to 1.0465), p=0.95 |
| NO21hr | lag2 | 1.0276 (0.9774 to 1.0803), p=0.29 | 0.9910 (0.9328 to 1.0529), p=0.77 | 1.0536 (0.9719 to 1.1422), p=0.20 | 1.0341 (0.9788 to 1.0925), p=0.23 | 0.9206 (0.7962 to 1.0645), p=0.26 | 1.0019 (0.9286 to 1.0810), p=0.96 | 0.9938 (0.9498 to 1.0397), p=0.79 |
| **NO2 24hr** | | | | | | | | |
| NO224h | lag0 | 1.0523 (0.9711 to 1.1404), p=0.21 | 1.1134 (1.0073 to 1.2307), p=0.036 | 1.1653 (1.0323 to 1.3154), p=0.013 | 1.0730 (0.9796 to 1.1752), p=0.13 | 0.9887 (0.7533 to 1.2977), p=0.93 | 1.0447 (0.9214 to 1.1845), p=0.49 | 1.0294 (0.9568 to 1.1076), p=0.44 |
| NO224h | lag1 | 1.0106 (0.9324 to 1.0955), p=0.80 | 1.1350 (1.0244 to 1.2576), p=0.016 | 1.1763 (1.0370 to 1.3343), p=0.012 | 1.0641 (0.9745 to 1.1620), p=0.17 | 1.0091 (0.8222 to 1.2384), p=0.93 | 1.0394 (0.9225 to 1.1711), p=0.53 | 1.0035 (0.9321 to 1.0802), p=0.93 |
| NO224h | lag2 | 1.0518 (0.9692 to 1.1414), p=0.23 | 1.0626 (0.9621 to 1.1737), p=0.23 | 1.1815 (1.0346 to 1.3493), p=0.014 | 1.0909 (0.9972 to 1.1934), p=0.057 | 0.9192 (0.7386 to 1.1439), p=0.45 | 0.9795 (0.8661 to 1.1076), p=0.74 | 1.0099 (0.9373 to 1.0881), p=0.80 |

Table 7.4. Air pollution and health outcomes, NO2 and unflued gas heaters with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day time reliever use for symptoms** | **Day time preventer use for symptoms** | **Any day time medication use for symptoms** |
| **NO2 1hr** | | | | |
| NO21hr | lag0 | 1.0099 ( 0.9375 to 1.0879), p=0.80 | 1.0257 ( 0.8944 to 1.1762), p=0.72 | 0.9920 ( 0.9241 to 1.0649), p=0.82 |
| NO21hr | lag1 | 1.0276 ( 0.9528 to 1.1083), p=0.48 | 1.1265 ( 1.0029 to 1.2654), p=0.045 | 1.0216 ( 0.9537 to 1.0943), p=0.54 |
| NO21hr | lag2 | 0.9795 ( 0.9069 to 1.0579), p=0.60 | 1.0509 ( 0.9356 to 1.1804), p=0.40 | 0.9832 ( 0.9167 to 1.0545), p=0.63 |
| **NO2 24hr** | | | | |
| NO224h | lag0 | 1.0532 ( 0.9381 to 1.1825), p=0.38 | 1.0138 ( 0.8062 to 1.2748), p=0.91 | 1.0140 ( 0.9082 to 1.1321), p=0.80 |
| NO224h | lag1 | 1.0735 ( 0.9547 to 1.2072), p=0.24 | 1.2068 ( 0.9964 to 1.4617), p=0.055 | 1.0822 ( 0.9707 to 1.2066), p=0.15 |
| NO224h | lag2 | 1.0510 ( 0.9344 to 1.1822), p=0.41 | 1.0965 ( 0.9113 to 1.3195), p=0.33 | 1.0670 ( 0.9572 to 1.1895), p=0.24 |

# PM10: Two Pollutant Models with Gaseous Air Pollutants

Table 8.1. Air pollution and health outcomes, PM10 and 1hr NO2 with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Evening PEF** | **Evening FEV1** | **Morning PEF** | **Morning FEV1** |
| PM1024hr | lag0 | -0.0322 (-0.4865 to 0.4221), p=0.89 | 0.0010 (-0.0020 to 0.0040), p=0.50 |  |  |
| PM1024hr | lag1 | -0.0569 (-0.5126 to 0.3987), p=0.81 | -0.0001 (-0.0031 to 0.0030), p=0.97 | 0.2559 (-0.0742 to 0.5860), p=0.13 | 0.0019 (-0.0005 to 0.0043), p=0.11 |
| PM1024hr | lag2 | -0.0603 (-0.5152 to 0.3945), p=0.79 | -0.0001 (-0.0031 to 0.0029), p=0.96 | -0.1348 (-0.4815 to 0.2120), p=0.45 | -0.0007 (-0.0032 to 0.0018), p=0.58 |
| PM1024hr | lag3 |  |  | -0.0427 (-0.3972 to 0.3117), p=0.81 | -0.0012 (-0.0038 to 0.0013), p=0.33 |

Table 8.2. Air pollution and health outcomes, PM10 and 1hr NO2 with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Night cough** | **Night wheeze** | **Night shortness of breath** | **Any night symptoms** | **Any night reliever medications use** |
| **PM10 24hr** | | | | | | |
| PM1024hr | lag1 | 1.0164 (0.9962 to 1.0370), p=0.11 | 1.0267 (1.0000 to 1.0543), p=0.050 | 0.9948 (0.9587 to 1.0324), p=0.78 | 1.0127 (0.9939 to 1.0318), p=0.19 | 0.9987 (0.9682 to 1.0301), p=0.93 |
| PM1024hr | lag2 | 1.0220 (1.0017 to 1.0428), p=0.033 | 1.0260 (0.9991 to 1.0536), p=0.058 | 1.0271 (0.9925 to 1.0629), p=0.13 | 1.0171 (0.9981 to 1.0364), p=0.078 | 0.9876 (0.9583 to 1.0179), p=0.42 |
| PM1024hr | lag3 | 1.0096 (0.9897 to 1.0299), p=0.35 | 1.0223 (0.9963 to 1.0491), p=0.093 | 1.0003 (0.9648 to 1.0372), p=0.99 | 1.0111 (0.9927 to 1.0299), p=0.24 | 0.9975 (0.9685 to 1.0274), p=0.87 |

Table 8.3. Air pollution and health outcomes, PM10 and 1hr NO2 with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day cough** | **Day wheeze** | **Day shortness of breath** | **Day runny nose** | **Day eye irritation** | **Day fever** | **Any day symptoms** |
| **PM10 24hr** | | | | | | | | |
| PM1024hr | lag0 | 1.0097 (0.9914 to 1.0284), p=0.30 | 1.0288 (1.0049 to 1.0534), p=0.018 | 1.0089 (0.9802 to 1.0383), p=0.55 | 1.0073 (0.9881 to 1.0269), p=0.46 | 0.9930 (0.9635 to 1.0233), p=0.65 | 1.0065 (0.9807 to 1.0329), p=0.63 | 1.0042 (0.9883 to 1.0204), p=0.61 |
| PM1024hr | lag1 | 1.0157 (0.9970 to 1.0347), p=0.10 | 1.0091 (0.9856 to 1.0331), p=0.45 | 1.0193 (0.9911 to 1.0482), p=0.18 | 0.9969 (0.9777 to 1.0165), p=0.76 | 1.0153 (0.9862 to 1.0453), p=0.31 | 1.0062 (0.9804 to 1.0326), p=0.64 | 1.0110 (0.9949 to 1.0273), p=0.18 |
| PM1024hr | lag2 | 1.0227 (1.0042 to 1.0416), p=0.016 | 1.0115 (0.9881 to 1.0355), p=0.34 | 1.0231 (0.9950 to 1.0520), p=0.11 | 0.9897 (0.9704 to 1.0093), p=0.30 | 1.0121 (0.9835 to 1.0417), p=0.41 | 1.0083 (0.9829 to 1.0344), p=0.52 | 1.0071 (0.9914 to 1.0231), p=0.38 |

Table 8.4. Air pollution and health outcomes, PM10 and 1hr NO2 with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day time reliever use for symptoms** | **Day time preventer use for symptoms** | **Any day time medication use for symptoms** |
| **PM10 24hr** | | | | |
| PM1024hr | lag0 | 1.0067 (0.9807 to 1.0334), p=0.61 | 1.0138 (0.9781 to 1.0508), p=0.45 | 0.9971 (0.9726 to 1.0222), p=0.82 |
| PM1024hr | lag1 | 1.0218 (0.9963 to 1.0479), p=0.095 | 1.0302 (0.9947 to 1.0670), p=0.096 | 1.0167 (0.9925 to 1.0415), p=0.18 |
| PM1024hr | lag2 | 1.0233 (0.9974 to 1.0498), p=0.078 | 1.0239 (0.9882 to 1.0609), p=0.19 | 1.0218 (0.9973 to 1.0468), p=0.081 |

Table 8.5. Air pollution and health outcomes, PM10 and 24hr NO2 with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Evening PEF** | **Evening FEV1** | **Morning PEF** | **Morning FEV1** |
| PM1024hr | lag0 | -0.1596 (-0.6289 to 0.3096), p=0.50 | 0.0001 (-0.0030 to 0.0032), p=0.96 |  |  |
| PM1024hr | lag1 | -0.1021 (-0.5604 to 0.3561), p=0.66 | -0.0003 (-0.0033 to 0.0028), p=0.87 | 0.3079 (-0.0302 to 0.6460), p=0.074 | 0.0027 (0.0003 to 0.0051), p=0.030 |
| PM1024hr | lag2 | -0.1057 (-0.5638 to 0.3524), p=0.65 | -0.0005 (-0.0035 to 0.0025), p=0.74 | -0.1284 (-0.4756 to 0.2188), p=0.47 | -0.0007 (-0.0031 to 0.0018), p=0.60 |
| PM1024hr | lag3 |  |  | -0.0208 (-0.3761 to 0.3345), p=0.91 | -0.0010 (-0.0035 to 0.0015), p=0.44 |

Table 8.6. Air pollution and health outcomes, PM10 and 24hr NO2 with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Night cough** | **Night wheeze** | **Night shortness of breath** | **Any night symptoms** | **Any night reliever medications use** |
| **PM10 24hr** | | | | | | |
| PM1024hr | lag1 | 1.0160 (0.9953 to 1.0371), p=0.13 | 1.0181 (0.9910 to 1.0460), p=0.19 | 0.9774 (0.9412 to 1.0150), p=0.24 | 1.0104 (0.9912 to 1.0299), p=0.29 | 0.9870 (0.9558 to 1.0192), p=0.42 |
| PM1024hr | lag2 | 1.0218 (1.0013 to 1.0426), p=0.037 | 1.0211 (0.9942 to 1.0487), p=0.13 | 1.0160 (0.9819 to 1.0513), p=0.36 | 1.0149 (0.9959 to 1.0342), p=0.12 | 0.9824 (0.9527 to 1.0130), p=0.26 |
| PM1024hr | lag3 | 1.0094 (0.9895 to 1.0297), p=0.36 | 1.0188 (0.9929 to 1.0454), p=0.16 | 0.9920 (0.9571 to 1.0282), p=0.66 | 1.0096 (0.9912 to 1.0282), p=0.31 | 0.9936 (0.9646 to 1.0235), p=0.67 |

Table 8.7. Air pollution and health outcomes, PM10 and 24hr NO2 with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day cough** | **Day wheeze** | **Day shortness of breath** | **Day runny nose** | **Day eye irritation** | **Day fever** | **Any day symptoms** |
| **PM10 24hr** | | | | | | | | |
| PM1024hr | lag0 | 1.0086 (0.9901 to 1.0274), p=0.37 | 1.0243 (0.9999 to 1.0492), p=0.051 | 1.0049 (0.9759 to 1.0347), p=0.75 | 1.0068 (0.9873 to 1.0266), p=0.50 | 1.0007 (0.9703 to 1.0321), p=0.96 | 1.0095 (0.9832 to 1.0366), p=0.48 | 1.0021 (0.9860 to 1.0184), p=0.80 |
| PM1024hr | lag1 | 1.0148 (0.9961 to 1.0337), p=0.12 | 1.0056 (0.9820 to 1.0297), p=0.65 | 1.0158 (0.9876 to 1.0448), p=0.27 | 0.9960 (0.9768 to 1.0155), p=0.68 | 1.0191 (0.9900 to 1.0491), p=0.20 | 1.0073 (0.9815 to 1.0337), p=0.58 | 1.0090 (0.9931 to 1.0253), p=0.27 |
| PM1024hr | lag2 | 1.0218 (1.0034 to 1.0405), p=0.020 | 1.0086 (0.9853 to 1.0325), p=0.47 | 1.0205 (0.9926 to 1.0492), p=0.15 | 0.9886 (0.9695 to 1.0081), p=0.25 | 1.0148 (0.9861 to 1.0444), p=0.31 | 1.0092 (0.9840 to 1.0351), p=0.48 | 1.0053 (0.9897 to 1.0212), p=0.51 |

Table 8.8. Air pollution and health outcomes, PM10 and 24hr NO2 with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day time reliever use for symptoms** | **Day time preventer use for symptoms** | **Any day time medication use for symptoms** |
| **PM10 24hr** | | | | |
| PM1024hr | lag0 | 0.9988 (0.9724 to 1.0259), p=0.93 | 1.0113 (0.9754 to 1.0485), p=0.54 | 0.9902 (0.9653 to 1.0157), p=0.45 |
| PM1024hr | lag1 | 1.0183 (0.9927 to 1.0444), p=0.16 | 1.0282 (0.9933 to 1.0645), p=0.11 | 1.0133 (0.9891 to 1.0381), p=0.28 |
| PM1024hr | lag2 | 1.0202 (0.9945 to 1.0465), p=0.12 | 1.0222 (0.9870 to 1.0586), p=0.22 | 1.0183 (0.9941 to 1.0431), p=0.14 |

Table 8.9. Air pollution and health outcomes, PM10 and 1hr ozone with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Evening PEF** | **Evening FEV1** | **Morning PEF** | **Morning FEV1** |
| PM1024hr | lag0 | -0.0801 (-0.4549 to 0.2947), p=0.68 | -0.0001 (-0.0026 to 0.0024), p=0.95 |  |  |
| PM1024hr | lag1 | -0.0212 (-0.4704 to 0.4280), p=0.93 | -0.0003 (-0.0033 to 0.0027), p=0.84 | 0.1000 (-0.1915 to 0.3915), p=0.50 | 0.0000 (-0.0020 to 0.0020), p=0.98 |
| PM1024hr | lag2 | 0.0553 (-0.3831 to 0.4938), p=0.80 | 0.0000 (-0.0029 to 0.0029), p=0.99 | -0.3674 (-0.7291 to -0.0057), p=0.046 | -0.0017 (-0.0042 to 0.0008), p=0.18 |
| PM1024hr | lag3 |  |  | 0.1716 (-0.1923 to 0.5354), p=0.36 | 0.0013 (-0.0012 to 0.0038), p=0.32 |

Table 8.10. Air pollution and health outcomes, PM10 and 1hr ozone with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Night cough** | **Night wheeze** | **Night shortness of breath** | **Any night symptoms** | **Any night reliever medications use** |
| **PM10 24hr** | | | | | | |
| PM1024hr | lag1 | 1.0012 (0.9814 to 1.0214), p=0.91 | 1.0184 (0.9942 to 1.0432), p=0.14 | 0.9905 (0.9507 to 1.0321), p=0.65 | 1.0000 (0.9819 to 1.0185), p=1.00 | 0.9958 (0.9638 to 1.0289), p=0.80 |
| PM1024hr | lag2 | 1.0116 (0.9892 to 1.0345), p=0.31 | 1.0290 (0.9995 to 1.0594), p=0.054 | 1.0195 (0.9798 to 1.0609), p=0.34 | 1.0071 (0.9867 to 1.0280), p=0.50 | 0.9869 (0.9516 to 1.0235), p=0.48 |
| PM1024hr | lag3 | 1.0002 (0.9779 to 1.0230), p=0.99 | 1.0271 (0.9991 to 1.0559), p=0.058 | 0.9831 (0.9396 to 1.0286), p=0.46 | 1.0014 (0.9815 to 1.0217), p=0.89 | 1.0026 (0.9685 to 1.0379), p=0.88 |

Table 8.11. Air pollution and health outcomes, PM10 and 1hr ozone with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day cough** | **Day wheeze** | **Day shortness of breath** | **Day runny nose** | **Day eye irritation** | **Day fever** | **Any day symptoms** |
| **PM10 24hr** | | | | | | | | |
| PM1024hr | lag0 | 1.0061 (0.9891 to 1.0233), p=0.48 | 1.0135 (0.9920 to 1.0355), p=0.22 | 0.9962 (0.9672 to 1.0260), p=0.80 | 0.9986 (0.9798 to 1.0178), p=0.88 | 0.9817 (0.9533 to 1.0109), p=0.22 | 0.9857 (0.9603 to 1.0119), p=0.28 | 0.9947 (0.9799 to 1.0097), p=0.49 |
| PM1024hr | lag1 | 1.0044 (0.9845 to 1.0247), p=0.67 | 0.9947 (0.9679 to 1.0222), p=0.70 | 1.0008 (0.9680 to 1.0346), p=0.96 | 0.9930 (0.9724 to 1.0141), p=0.51 | 0.9977 (0.9667 to 1.0296), p=0.88 | 0.9961 (0.9677 to 1.0253), p=0.79 | 0.9947 (0.9778 to 1.0118), p=0.54 |
| PM1024hr | lag2 | 1.0154 (0.9957 to 1.0355), p=0.13 | 0.9927 (0.9660 to 1.0201), p=0.60 | 1.0075 (0.9747 to 1.0414), p=0.66 | 0.9867 (0.9662 to 1.0077), p=0.21 | 1.0010 (0.9710 to 1.0319), p=0.95 | 1.0091 (0.9823 to 1.0365), p=0.51 | 0.9957 (0.9792 to 1.0124), p=0.61 |

Table 8.12. Air pollution and health outcomes, PM10 and 1hr ozone with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day time reliever use for symptoms** | **Day time preventer use for symptoms** | **Any day time medication use for symptoms** |
| **PM10 24hr** | | | | |
| PM1024hr | lag0 | 0.9980 (0.9749 to 1.0217), p=0.87 | 1.0004 (0.9688 to 1.0330), p=0.98 | 0.9926 (0.9697 to 1.0161), p=0.53 |
| PM1024hr | lag1 | 1.0172 (0.9885 to 1.0469), p=0.24 | 1.0257 (0.9858 to 1.0672), p=0.21 | 1.0100 (0.9823 to 1.0386), p=0.48 |
| PM1024hr | lag2 | 1.0093 (0.9806 to 1.0389), p=0.53 | 1.0273 (0.9870 to 1.0691), p=0.19 | 1.0059 (0.9782 to 1.0343), p=0.68 |

Table 8.13. Air pollution and health outcomes, PM10 and 4hr ozone with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Evening PEF** | **Evening FEV1** | **Morning PEF** | **Morning FEV1** |
| PM1024hr | lag0 | -0.0810 (-0.4555 to 0.2934), p=0.67 | -0.0001 (-0.0026 to 0.0024), p=0.95 |  |  |
| PM1024hr | lag1 | -0.0198 (-0.4684 to 0.4288), p=0.93 | -0.0003 (-0.0033 to 0.0027), p=0.85 | 0.1070 (-0.1840 to 0.3981), p=0.47 | 0.0000 (-0.0020 to 0.0021), p=0.96 |
| PM1024hr | lag2 | 0.0539 (-0.3844 to 0.4922), p=0.81 | 0.0000 (-0.0029 to 0.0029), p=1.00 | -0.3599 (-0.7212 to 0.0015), p=0.051 | -0.0017 (-0.0042 to 0.0008), p=0.19 |
| PM1024hr | lag3 |  |  | 0.1683 (-0.1956 to 0.5321), p=0.36 | 0.0013 (-0.0012 to 0.0038), p=0.32 |

Table .. Air pollution and health outcomes, PM10 and 4hr ozone with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Night cough** | **Night wheeze** | **Night shortness of breath** | **Any night symptoms** | **Any night reliever medications use** |
| **PM10 24hr** | | | | | | |
| PM1024hr | lag1 | 1.0011 (0.9812 to 1.0213), p=0.92 | 1.0177 (0.9937 to 1.0423), p=0.15 | 0.9894 (0.9498 to 1.0306), p=0.61 | 1.0000 (0.9819 to 1.0184), p=1.00 | 0.9957 (0.9639 to 1.0286), p=0.80 |
| PM1024hr | lag2 | 1.0115 (0.9891 to 1.0344), p=0.32 | 1.0288 (0.9994 to 1.0592), p=0.055 | 1.0190 (0.9792 to 1.0604), p=0.36 | 1.0070 (0.9866 to 1.0279), p=0.50 | 0.9870 (0.9517 to 1.0235), p=0.48 |
| PM1024hr | lag3 | 1.0002 (0.9779 to 1.0230), p=0.99 | 1.0267 (0.9987 to 1.0554), p=0.062 | 0.9823 (0.9387 to 1.0279), p=0.44 | 1.0013 (0.9814 to 1.0217), p=0.90 | 1.0026 (0.9685 to 1.0379), p=0.88 |

Table 8.15. Air pollution and health outcomes, PM10 and 4hr ozone with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day cough** | **Day wheeze** | **Day shortness of breath** | **Day runny nose** | **Day eye irritation** | **Day fever** | **Any day symptoms** |
| **PM10 24hr** | | | | | | | | |
| PM1024hr | lag0 | 1.0058 (0.9889 to 1.0229), p=0.51 | 1.0137 (0.9922 to 1.0357), p=0.21 | 0.9968 (0.9681 to 1.0264), p=0.83 | 0.9989 (0.9802 to 1.0180), p=0.91 | 0.9816 (0.9530 to 1.0111), p=0.22 | 0.9856 (0.9601 to 1.0118), p=0.28 | 0.9947 (0.9799 to 1.0097), p=0.49 |
| PM1024hr | lag1 | 1.0042 (0.9843 to 1.0245), p=0.68 | 0.9950 (0.9684 to 1.0225), p=0.72 | 1.0013 (0.9687 to 1.0351), p=0.94 | 0.9934 (0.9728 to 1.0144), p=0.53 | 0.9975 (0.9666 to 1.0295), p=0.88 | 0.9959 (0.9675 to 1.0252), p=0.78 | 0.9947 (0.9780 to 1.0118), p=0.54 |
| PM1024hr | lag2 | 1.0153 (0.9956 to 1.0354), p=0.13 | 0.9927 (0.9660 to 1.0201), p=0.60 | 1.0075 (0.9747 to 1.0414), p=0.66 | 0.9867 (0.9661 to 1.0077), p=0.21 | 1.0016 (0.9715 to 1.0325), p=0.92 | 1.0092 (0.9824 to 1.0366), p=0.51 | 0.9957 (0.9792 to 1.0124), p=0.61 |

Table 8.16. Air pollution and health outcomes, PM10 and 4hr ozone with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day time reliever use for symptoms** | **Day time preventer use for symptoms** | **Any day time medication use for symptoms** |
| **PM10 24hr** | | | | |
| PM1024hr | lag0 | 0.9977 (0.9746 to 1.0213), p=0.85 | 1.0015 (0.9698 to 1.0342), p=0.93 | 0.9924 (0.9694 to 1.0158), p=0.52 |
| PM1024hr | lag1 | 1.0170 (0.9882 to 1.0466), p=0.25 | 1.0266 (0.9866 to 1.0681), p=0.20 | 1.0099 (0.9822 to 1.0384), p=0.49 |
| PM1024hr | lag2 | 1.0093 (0.9805 to 1.0389), p=0.53 | 1.0276 (0.9873 to 1.0695), p=0.18 | 1.0058 (0.9782 to 1.0342), p=0.68 |

Table 8.17. Air pollution and health outcomes, PM10 and 8hr ozone with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Evening PEF** | **Evening FEV1** | **Morning PEF** | **Morning FEV1** |
| PM1024hr | lag0 | -0.1386 (-0.5181 to 0.2408), p=0.47 | -0.0003 (-0.0028 to 0.0022), p=0.80 |  |  |
| PM1024hr | lag1 | -0.0544 (-0.5075 to 0.3987), p=0.81 | -0.0003 (-0.0033 to 0.0026), p=0.82 | 0.1263 (-0.1661 to 0.4187), p=0.40 | 0.0001 (-0.0019 to 0.0021), p=0.89 |
| PM1024hr | lag2 | 0.0271 (-0.4167 to 0.4709), p=0.90 | -0.0001 (-0.0030 to 0.0029), p=0.97 | -0.3413 (-0.7038 to 0.0213), p=0.065 | -0.0016 (-0.0041 to 0.0009), p=0.21 |
| PM1024hr | lag3 |  |  | 0.1722 (-0.1935 to 0.5380), p=0.36 | 0.0013 (-0.0012 to 0.0038), p=0.32 |

Table 8.18. Air pollution and health outcomes, PM10 and 8hr ozone with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Night cough** | **Night wheeze** | **Night shortness of breath** | **Any night symptoms** | **Any night reliever medications use** |
| **PM10 24hr** | | | | | | |
| PM1024hr | lag1 | 1.0027 (0.9832 to 1.0226), p=0.79 | 1.0151 (0.9915 to 1.0393), p=0.21 | 0.9812 (0.9417 to 1.0223), p=0.36 | 1.0001 (0.9823 to 1.0182), p=0.99 | 0.9961 (0.9646 to 1.0286), p=0.81 |
| PM1024hr | lag2 | 1.0131 (0.9909 to 1.0359), p=0.25 | 1.0274 (0.9981 to 1.0576), p=0.067 | 1.0126 (0.9731 to 1.0537), p=0.54 | 1.0071 (0.9868 to 1.0278), p=0.49 | 0.9877 (0.9524 to 1.0242), p=0.50 |
| PM1024hr | lag3 | 1.0016 (0.9794 to 1.0243), p=0.89 | 1.0254 (0.9975 to 1.0541), p=0.074 | 0.9782 (0.9347 to 1.0238), p=0.34 | 1.0016 (0.9818 to 1.0218), p=0.88 | 1.0027 (0.9685 to 1.0381), p=0.88 |

Table 8.19. Air pollution and health outcomes, PM10 and 8hr ozone with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day cough** | **Day wheeze** | **Day shortness of breath** | **Day runny nose** | **Day eye irritation** | **Day fever** | **Any day symptoms** |
| **PM10 24hr** | | | | | | | | |
| PM1024hr | lag0 | 1.0053 (0.9885 to 1.0224), p=0.54 | 1.0150 (0.9936 to 1.0369), p=0.17 | 0.9965 (0.9680 to 1.0259), p=0.81 | 1.0012 (0.9826 to 1.0201), p=0.90 | 0.9824 (0.9536 to 1.0120), p=0.24 | 0.9860 (0.9606 to 1.0121), p=0.29 | 0.9956 (0.9809 to 1.0104), p=0.56 |
| PM1024hr | lag1 | 1.0042 (0.9844 to 1.0243), p=0.68 | 0.9971 (0.9706 to 1.0245), p=0.84 | 1.0001 (0.9677 to 1.0337), p=0.99 | 0.9951 (0.9747 to 1.0160), p=0.64 | 0.9980 (0.9670 to 1.0299), p=0.90 | 0.9958 (0.9676 to 1.0248), p=0.78 | 0.9954 (0.9788 to 1.0123), p=0.59 |
| PM1024hr | lag2 | 1.0153 (0.9957 to 1.0354), p=0.13 | 0.9941 (0.9674 to 1.0216), p=0.67 | 1.0066 (0.9739 to 1.0403), p=0.70 | 0.9883 (0.9678 to 1.0092), p=0.27 | 1.0021 (0.9720 to 1.0331), p=0.89 | 1.0093 (0.9827 to 1.0367), p=0.50 | 0.9964 (0.9800 to 1.0131), p=0.67 |

Table 8.20. Air pollution and health outcomes, PM10 and 8hr ozone with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day time reliever use for symptoms** | **Day time preventer use for symptoms** | **Any day time medication use for symptoms** |
| **PM10 24hr** | | | | |
| PM1024hr | lag0 | 0.9958 (0.9727 to 1.0193), p=0.72 | 0.9997 (0.9681 to 1.0323), p=0.99 | 0.9912 (0.9684 to 1.0144), p=0.45 |
| PM1024hr | lag1 | 1.0155 (0.9870 to 1.0449), p=0.29 | 1.0236 (0.9846 to 1.0642), p=0.24 | 1.0092 (0.9818 to 1.0375), p=0.51 |
| PM1024hr | lag2 | 1.0079 (0.9793 to 1.0374), p=0.59 | 1.0241 (0.9847 to 1.0650), p=0.23 | 1.0050 (0.9775 to 1.0333), p=0.72 |

Table 8.21. Air pollution and health outcomes, PM10 and 8hr CO with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Evening PEF** | **Evening FEV1** | **Morning PEF** | **Morning FEV1** |
| PM1024hr | lag0 | -0.1877 (-0.6581 to 0.2826), p=0.43 | -0.0001 (-0.0033 to 0.0032), p=0.97 |  |  |
| PM1024hr | lag1 | -0.1537 (-0.7169 to 0.4094), p=0.59 | -0.0014 (-0.0052 to 0.0025), p=0.49 | 0.3708 (-0.0045 to 0.7460), p=0.053 | 0.0028 (0.0001 to 0.0056), p=0.042 |
| PM1024hr | lag2 | -0.0218 (-0.5751 to 0.5314), p=0.94 | -0.0002 (-0.0040 to 0.0035), p=0.90 | -0.0382 (-0.4827 to 0.4063), p=0.87 | -0.0005 (-0.0037 to 0.0028), p=0.78 |
| PM1024hr | lag3 |  |  | 0.0252 (-0.4326 to 0.4829), p=0.91 | -0.0011 (-0.0044 to 0.0022), p=0.50 |

Table 8.22. Air pollution and health outcomes, PM10 and 8hr CO with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Night cough** | **Night wheeze** | **Night shortness of breath** | **Any night symptoms** | **Any night reliever medications use** |
| **PM10 24hr** | | | | | | |
| PM1024hr | lag1 | 1.0163 (0.9960 to 1.0370), p=0.12 | 1.0408 (1.0140 to 1.0682), p=0.003 | 1.0207 (0.9854 to 1.0572), p=0.25 | 1.0152 (0.9953 to 1.0355), p=0.14 | 0.9991 (0.9640 to 1.0355), p=0.96 |
| PM1024hr | lag2 | 1.0194 (0.9972 to 1.0420), p=0.087 | 1.0453 (1.0143 to 1.0774), p=0.004 | 1.0417 (1.0031 to 1.0819), p=0.034 | 1.0206 (0.9990 to 1.0426), p=0.062 | 0.9941 (0.9580 to 1.0316), p=0.75 |
| PM1024hr | lag3 | 1.0114 (0.9896 to 1.0336), p=0.31 | 1.0361 (1.0062 to 1.0670), p=0.018 | 1.0319 (0.9927 to 1.0726), p=0.11 | 1.0178 (0.9969 to 1.0391), p=0.095 | 0.9921 (0.9561 to 1.0294), p=0.67 |

Table 8.23. Air pollution and health outcomes, PM10 and 8hr CO with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day cough** | **Day wheeze** | **Day shortness of breath** | **Day runny nose** | **Day eye irritation** | **Day fever** | **Any day symptoms** |
| **PM10 24hr** | | | | | | | | |
| PM1024hr | lag0 | 0.9991 (0.9799 to 1.0187), p=0.93 | 1.0242 (1.0016 to 1.0473), p=0.036 | 1.0178 (0.9922 to 1.0441), p=0.17 | 1.0032 (0.9830 to 1.0239), p=0.76 | 0.9912 (0.9629 to 1.0204), p=0.55 | 1.0233 (0.9991 to 1.0480), p=0.060 | 0.9988 (0.9818 to 1.0160), p=0.89 |
| PM1024hr | lag1 | 1.0229 (1.0006 to 1.0456), p=0.044 | 1.0230 (0.9952 to 1.0515), p=0.11 | 1.0269 (0.9954 to 1.0594), p=0.094 | 0.9945 (0.9723 to 1.0172), p=0.63 | 1.0114 (0.9798 to 1.0440), p=0.49 | 1.0225 (0.9947 to 1.0511), p=0.11 | 1.0175 (0.9983 to 1.0371), p=0.073 |
| PM1024hr | lag2 | 1.0179 (0.9962 to 1.0402), p=0.11 | 1.0269 (1.0002 to 1.0543), p=0.049 | 1.0269 (0.9958 to 1.0588), p=0.090 | 0.9917 (0.9697 to 1.0142), p=0.47 | 0.9963 (0.9645 to 1.0292), p=0.82 | 1.0149 (0.9875 to 1.0431), p=0.29 | 1.0085 (0.9900 to 1.0272), p=0.37 |

Table 8.24. Air pollution and health outcomes, PM10 and 8hr CO with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day time reliever use for symptoms** | **Day time preventer use for symptoms** | **Any day time medication use for symptoms** |
| **PM10 24hr** | | | | |
| PM1024hr | lag0 | 1.0158 (0.9906 to 1.0418), p=0.22 | 1.0271 (0.9928 to 1.0627), p=0.12 | 1.0082 (0.9843 to 1.0327), p=0.51 |
| PM1024hr | lag1 | 1.0349 (1.0043 to 1.0664), p=0.025 | 1.0621 (1.0176 to 1.1086), p=0.006 | 1.0292 (1.0005 to 1.0587), p=0.046 |
| PM1024hr | lag2 | 1.0508 (1.0203 to 1.0823), p=0.001 | 1.0567 (1.0133 to 1.1020), p=0.010 | 1.0499 (1.0211 to 1.0795), p=0.0006 |

Table 8.25. Air pollution and health outcomes, PM10 and 1hr SO2 with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Evening PEF** | **Evening FEV1** | **Morning PEF** | **Morning FEV1** |
| PM1024hr | lag0 | -0.0118 (-0.5283 to 0.5048), p=0.96 | -0.0003 (-0.0038 to 0.0033), p=0.88 |  |  |
| PM1024hr | lag1 | 0.2130 (-0.4689 to 0.8949), p=0.54 | 0.0016 (-0.0031 to 0.0063), p=0.51 | 0.1153 (-0.2669 to 0.4974), p=0.55 | 0.0007 (-0.0019 to 0.0032), p=0.62 |
| PM1024hr | lag2 | -0.2673 (-0.9349 to 0.4002), p=0.43 | 0.0001 (-0.0045 to 0.0047), p=0.95 | -0.7972 (-1.3148 to -0.2796), p=0.003 | -0.0041 (-0.0076 to -0.0006), p=0.023 |
| PM1024hr | lag3 |  |  | 0.1646 (-0.3440 to 0.6732), p=0.53 | 0.0028 (-0.0006 to 0.0062), p=0.11 |

Table 8.26. Air pollution and health outcomes, PM10 and 1hr SO2 with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Night cough** | **Night wheeze** | **Night shortness of breath** | **Any night symptoms** | **Any night reliever medications use** |
| **PM10 24hr** | | | | | | |
| PM1024hr | lag1 | 1.0246 (1.0016 to 1.0482), p=0.036 | 0.9793 (0.9398 to 1.0204), p=0.32 | 0.9805 (0.9241 to 1.0402), p=0.51 | 1.0173 (0.9954 to 1.0396), p=0.12 | 0.9924 (0.9506 to 1.0361), p=0.73 |
| PM1024hr | lag2 | 1.0269 (0.9993 to 1.0552), p=0.056 | 1.0229 (0.9827 to 1.0648), p=0.27 | 1.0317 (0.9756 to 1.0912), p=0.27 | 1.0256 (0.9992 to 1.0528), p=0.058 | 0.9594 (0.9135 to 1.0077), p=0.098 |
| PM1024hr | lag3 | 1.0199 (0.9928 to 1.0478), p=0.15 | 0.9811 (0.9380 to 1.0261), p=0.40 | 1.0019 (0.9381 to 1.0701), p=0.95 | 1.0060 (0.9797 to 1.0329), p=0.66 | 0.9946 (0.9496 to 1.0416), p=0.82 |

Table 8.27. Air pollution and health outcomes, PM10 and 1hr SO2 with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day cough** | **Day wheeze** | **Day shortness of breath** | **Day runny nose** | **Day eye irritation** | **Day fever** | **Any day symptoms** |
| **PM1024hr** | | | | | | | | |
| PM1024hr | lag0 | 1.0156 (0.9919 to 1.0398), p=0.20 | 1.0153 (0.9820 to 1.0498), p=0.37 | 0.9926 (0.9506 to 1.0364), p=0.74 | 1.0244 (1.0007 to 1.0487), p=0.044 | 1.0262 (0.9800 to 1.0745), p=0.27 | 0.9971 (0.9599 to 1.0357), p=0.88 | 1.0124 (0.9922 to 1.0329), p=0.23 |
| PM1024hr | lag1 | 1.0176 (0.9899 to 1.0462), p=0.21 | 0.9953 (0.9581 to 1.0338), p=0.81 | 1.0028 (0.9563 to 1.0515), p=0.91 | 1.0395 (1.0106 to 1.0692), p=0.007 | 1.0481 (0.9972 to 1.1015), p=0.064 | 1.0082 (0.9680 to 1.0501), p=0.69 | 1.0257 (1.0018 to 1.0502), p=0.035 |
| PM1024hr | lag2 | 1.0134 (0.9854 to 1.0422), p=0.35 | 0.9999 (0.9585 to 1.0432), p=1.00 | 1.0183 (0.9668 to 1.0725), p=0.49 | 1.0223 (0.9953 to 1.0500), p=0.11 | 1.0600 (1.0020 to 1.1214), p=0.042 | 1.0238 (0.9820 to 1.0674), p=0.27 | 1.0137 (0.9912 to 1.0367), p=0.23 |

Table 8.28. Air pollution and health outcomes, PM10 and 1hr SO2 with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day time reliever use for symptoms** | **Day time preventer use for symptoms** | **Any day time medication use for symptoms** |
| **PM10 24hr** | | | | |
| PM1024hr | lag0 | 1.0193 (0.9821 to 1.0578), p=0.31 | 1.0111 (0.9588 to 1.0662), p=0.68 | 1.0031 (0.9673 to 1.0403), p=0.87 |
| PM1024hr | lag1 | 1.0281 (0.9868 to 1.0712), p=0.18 | 1.0318 (0.9764 to 1.0903), p=0.27 | 1.0108 (0.9711 to 1.0522), p=0.60 |
| PM1024hr | lag2 | 1.0124 (0.9682 to 1.0586), p=0.59 | 1.0447 (0.9896 to 1.1029), p=0.11 | 1.0043 (0.9629 to 1.0475), p=0.84 |

Table 8.29. Air pollution and health outcomes, PM10 and 24hr SO2 with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Evening PEF** | **Evening FEV1** | **Morning PEF** | **Morning FEV1** |
| PM1024hr | lag0 | -0.0552 (-0.5757 to 0.4652), p=0.84 | -0.0004 (-0.0040 to 0.0031), p=0.81 |  |  |
| PM1024hr | lag1 | 0.2011 (-0.4789 to 0.8810), p=0.56 | 0.0015 (-0.0032 to 0.0062), p=0.53 | 0.1253 (-0.2592 to 0.5098), p=0.52 | 0.0007 (-0.0019 to 0.0033), p=0.59 |
| PM1024hr | lag2 | -0.2763 (-0.9362 to 0.3837), p=0.41 | 0.0001 (-0.0044 to 0.0047), p=0.96 | -0.8187 (-1.3325 to -0.3048), p=0.002 | -0.0043 (-0.0078 to -0.0008), p=0.015 |
| PM1024hr | lag3 |  |  | 0.1926 (-0.3152 to 0.7004), p=0.46 | 0.0030 (-0.0004 to 0.0064), p=0.083 |

Table 8.30. Air pollution and health outcomes, PM10 and 24hr SO2 with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Night cough** | **Night wheeze** | **Night shortness of breath** | **Any night symptoms** | **Any night reliever medications use** |
| **PM10 24hr** | | | | | | |
| PM1024hr | lag1 | 1.0267 (1.0033 to 1.0507), p=0.025 | 0.9800 (0.9400 to 1.0217), p=0.34 | 0.9841 (0.9270 to 1.0448), p=0.60 | 1.0188 (0.9965 to 1.0416), p=0.098 | 0.9911 (0.9491 to 1.0349), p=0.68 |
| PM1024hr | lag2 | 1.0277 (1.0003 to 1.0559), p=0.047 | 1.0228 (0.9827 to 1.0645), p=0.27 | 1.0326 (0.9762 to 1.0922), p=0.26 | 1.0263 (1.0000 to 1.0533), p=0.050 | 0.9579 (0.9124 to 1.0058), p=0.084 |
| PM1024hr | lag3 | 1.0197 (0.9926 to 1.0476), p=0.16 | 0.9812 (0.9378 to 1.0266), p=0.41 | 1.0022 (0.9382 to 1.0706), p=0.95 | 1.0055 (0.9793 to 1.0325), p=0.68 | 0.9925 (0.9478 to 1.0392), p=0.75 |

Table .. Air pollution and health outcomes, PM10 and 24hr SO2 with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day cough** | **Day wheeze** | **Day shortness of breath** | **Day runny nose** | **Day eye irritation** | **Day fever** | **Any day symptoms** |
| **PM10 24hr** | | | | | | | | |
| PM1024hr | lag0 | 1.0158 (0.9919 to 1.0404), p=0.20 | 1.0183 (0.9843 to 1.0535), p=0.29 | 0.9907 (0.9484 to 1.0348), p=0.67 | 1.0223 (0.9985 to 1.0468), p=0.067 | 1.0252 (0.9789 to 1.0738), p=0.29 | 1.0006 (0.9628 to 1.0398), p=0.98 | 1.0117 (0.9913 to 1.0325), p=0.26 |
| PM1024hr | lag1 | 1.0180 (0.9903 to 1.0465), p=0.21 | 0.9962 (0.9588 to 1.0350), p=0.84 | 1.0025 (0.9557 to 1.0516), p=0.92 | 1.0369 (1.0082 to 1.0664), p=0.012 | 1.0481 (0.9970 to 1.1017), p=0.065 | 1.0097 (0.9693 to 1.0517), p=0.64 | 1.0253 (1.0015 to 1.0496), p=0.037 |
| PM1024hr | lag2 | 1.0122 (0.9845 to 1.0406), p=0.39 | 1.0009 (0.9595 to 1.0441), p=0.97 | 1.0164 (0.9672 to 1.0681), p=0.52 | 1.0199 (0.9927 to 1.0479), p=0.15 | 1.0547 (1.0004 to 1.1120), p=0.048 | 1.0261 (0.9833 to 1.0708), p=0.24 | 1.0119 (0.9893 to 1.0349), p=0.30 |

Table .. Air pollution and health outcomes, PM10 and 24hr SO2 with interaction terms, MIXED-GLIMMIX models, ACHAPS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Pollutant** | **Lag** | **Day time reliever use for symptoms** | **Day time preventer use for symptoms** | **Any day time medication use for symptoms** |
| **PM10 24hr** | | | | |
| PM1024hr | lag0 | 1.0206 (0.9829 to 1.0598), p=0.29 | 1.0112 (0.9595 to 1.0657), p=0.68 | 1.0046 (0.9682 to 1.0424), p=0.81 |
| PM1024hr | lag1 | 1.0287 (0.9872 to 1.0720), p=0.18 | 1.0305 (0.9754 to 1.0887), p=0.28 | 1.0111 (0.9713 to 1.0526), p=0.59 |
| PM1024hr | lag2 | 1.0122 (0.9684 to 1.0579), p=0.59 | 1.0476 (0.9907 to 1.1077), p=0.10 | 1.0052 (0.9634 to 1.0487), p=0.81 |