**Supplementary Materials**

**An evaluation of the air quality warning system for vulnerable and susceptible individuals in Korea: an interrupted time series analysis**

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Supplementary Material 2. Immediate and gradual changes for incidence of environmental diseasesa after implementation of the Air Quality Warning System in multivariate analysisb by age.

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| --- | --- | --- | --- | --- | --- | --- |
| Environmental  diseases\* | **<15 Years** | | **15-60 Years** | | **>60 Years** | |
| Immediate Effects | Gradual Effects | Immediate Effects | Gradual Effects | Immediate Effects | Gradual Effects |
| RR\* (95% CI) | RR (95% CI) | RR (95% CI) | RR (95% CI) | RR (95% CI) | RR (95% CI) |
| **Incidence Rate** | |  |  |  |  |  |
| COPD | 1.66 (0.31-8.99) | 1.04 (0.92-1.16) | 0.51 (0.19-1.88) | 0.97 (0.85-1.12) | 0.11 (0.00-2.63) | **0.80 (0.67-0.95)**‡ |
| Asthma | 0.43 (0.08-2.19) | **0.87 (0.81-0.95)**‡ | **0.60 (0.39-0.92)**‡ | **0.97 (0.94-0.99)**‡ | 0.44 (0.01-3.75) | **0.58 (0.45-0.75)**‡ |
| Cardiovascular disease | 0.84 (0.64-1.10) | 1.01 (0.99-1.02) | **0.05 (0.01-0.17)**‡ | 1.07 (0.95-1.20) | 0.14 (0.02-1.23) | 1.04 (0.86-1.24) |
| Stroke | 2.76 (0.17-4.52) | 1.01 (0.93-1.09) | 0.45 (0.05-3.69) | 0.99 (0.88-1.12) | **0.04 (0.01-0.24)**‡ | 0.87 (0.65-1.15) |
| Digestive disease\* | - | 0.56 (0.33-0.95) | - | 1.46 (0.20-10.81) | - | 0.20 (0.04-1.02) |
| **Exacerbation Rate** | |  |  |  |  |  |
| COPD | 1.30 (0.96-1.76) | 0.99 (0.98-1.01) | 1.19 (0.97-1.45) | 0.99 (0.99-1.00) | 1.20 (0.63-2.29) | 0.98 (0.95-1.04) |
| Asthma | 1.16 (0.49-2.70) | 0.96 (0.92-1.01) | 1.12 (0.73-1.73) | 0.99 (0.97-1.01) | 1.23 (0.81-1.88) | 0.98 (0.95-1.01) |
| Cardiovascular disease | 0.97 (0.83-1.13) | 1.00 (0.99-1.01) | 0.86 (0.74-1.01) | 1.00 (0.99-1.01) | 1.22 (0.86-1.74) | 1.01 (0.99-1.03) |
| Stroke | 3.97 (0.32-48.79) | 1.01 (0.91-1.12) | 1.56 (0.77-3.15) | 1.00 (0.98-1.02) | 1.16 (0.34-3.98) | 1.00 (0.94-1.07) |
| Digestive disease\* | 0.72 (0.43-1.20) | 1.00 (0.97-1.03) | 0.09 (0.01-1.65) | 1.04 (0.88-1.23) | **0.17 (0.03-0.83)**‡ | 1.04 (0.97-1.12) |

†: p<.01, ‡: p<.001

\*Environmental disease: COPD, ASTHMA, Heart Failure, Stroke. RR: Relative Risk, Digestive disease: Control disease for study excluding peptic ulcer diseases.

a. Age standardized based on the Korea Standard Population in 2005.

b. Adjusted for seasonality, temperature, humidity, time trend, CO, SO2, NO2, PM10, and O3.