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### **Supplemental Material**

#### **Health Effects of Asian Dust: A Systematic Review and Meta-Analysis**

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**Table S1.** Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies. The criteria used for the quality assessment was marked for each outcome category (mortality/hospital admission vs symptoms/ dysfunctions) of the studies.

**Figure S1.** Number of studies by publication year. The number of studies in 2019 is between January and August.

**Figure S2.** Random-effects pooled estimates (percent changes) of all-cause mortality for Asian dust days vs. non-Asian dust days, stratified by age group (elderly vs non-elderly) in each lag time. The age cut-off of elderly was 65 or 75 years depending on the original study (see Excel Table S2). Solid squares represent the pooled point estimates, and the whiskers represent the corresponding 95% confidence interval (CI). The vertical dotted line represents a percent change of 0. Note: CI, confidence interval.

**Figure S3.** Random-effects pooled estimates (percent changes) of mortality for Asian dust days vs. non-Asian dust days, limiting the studies to those with time-series and case-crossover designs stratified by outcome and lag time (see Excel Table S3). Solid squares represent the pooled point estimates, and the whiskers represent the corresponding 95% confidence interval (CI). Arrowheads indicate where the CI extends outside the range allocated. The vertical dotted line represents a percent change of 0. Note: CI, confidence interval.

**Figure S4.** Sensitivity analysis for mortality by three outcomes before and after excluding studies with largely overlapping periods in the same study location (leave-one-out approach). Two studies were conducted in Taipei, Taiwan, for 1995-2000 (Chen et al. 2004) and 1994-2001 (Chan and Ng 2011). The other two studies were conducted in Seoul, the Republic of Korea, during 2001-2009 for both (Lee et al. 2013; Lee et al. 2014). The former study (Lee et al. 2013) reported the pooled estimate across seven cities in the Republic of Korea, including Seoul 2001-2009 (see Excel Table S1). Solid squares represent the pooled point estimates (percent changes), and the whiskers represent the corresponding 95% CIs. The vertical dotted line represents a percent change of 0. Note: CI, confidence interval.

**Figure S5.** Random-effects pooled estimates (percent changes) of hospital admissions for respiratory diseases associated with Asian dust exposure, stratified by sex and lag time (see Excel Table S5). Solid squares represent the pooled point estimates, and the whiskers represent the corresponding 95% CIs. Arrowheads indicate where the CI extends outside the range allocated. The vertical dotted line represents a percent change of 0. Note: CI, confidence interval.

**Figure S6.** Random-effects pooled estimates (percent changes) of hospital admissions associated with Asian dust exposure, limiting the studies to those with time-series and case-crossover designs stratified by outcome and lag time (see Excel Table S6). Solid squares represent the pooled point estimates, and the whiskers represent the corresponding 95% CIs. The vertical dotted line represents a percent change of 0. Note: CI, confidence interval.

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**Figure S8.** Sensitivity analysis for the pooled associations between hospital admissions (asthma and pneumonia) and Asian dust exposure before and after excluding studies with largely overlapping periods in the same study location (leave-one-out approach). Two studies for asthma were conducted in Taipei, Taiwan, for 1996-2001 (Yang et al. 2005b) and 1995-2002 (Bell et al. 2008). The other two studies for pneumonia were also conducted in Taipei, Taiwan, for 1996-2001 (Cheng et al. 2008) and 1995-2002 (Bell et al. 2008) (see Excel Table S4). Solid squares represent the pooled point estimates, and the whiskers represent the corresponding 95% CIs. The vertical dotted line represents a percent change of 0. Note: CI, confidence interval.

## References

**Additional File-** Excel Document