

## Publication

## Acute effects of ambient air pollution on lower respiratory infections in Hanoi children : an eight-year time series study

**JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 4101912**Author(s)** Nhung, Nguyen Thi Trang; Schindler, Christian; Dien, Tran Minh; Probst-Hensch, Nicole; Perez, Laura; Künzli, Nino**Author(s) at UniBasel** [Schindler, Christian](#) ; [Probst Hensch, Nicole](#) ; [Perez, Laura](#) ; [Künzli, Nino](#) ;**Year** 2018**Title** Acute effects of ambient air pollution on lower respiratory infections in Hanoi children : an eight-year time series study**Journal** Environment International**Volume** 110**Pages / Article-Number** 139-148**Mesh terms** Adolescent; Air Pollutants, analysis; Air Pollution, adverse effects; Child; Child Health Services; Child, Preschool; Female; Hospitalization; Humans; Infant; Infant, Newborn; Male; Ozone, analysis; Respiratory Tract Infections, etiology; Seasons; Vietnam, epidemiology

Lower respiratory diseases are the most frequent causes of hospital admission in children worldwide, particularly in developing countries. Daily levels of air pollution are associated with lower respiratory diseases, as documented in many time-series studies. However, investigations in low-and-middle-income countries, such as Vietnam, remain sparse.; This study investigated the short-term association of ambient air pollution with daily counts of hospital admissions due to pneumonia, bronchitis and asthma among children aged 0-17 in Hanoi, Vietnam. We explored the impact of age, gender and season on these associations.; Daily ambient air pollution concentrations and hospital admission counts were extracted from electronic databases received from authorities in Hanoi for the years 2007-2014. The associations between outdoor air pollution levels and hospital admissions were estimated for time lags of zero up to seven days using Quasi-Poisson regression models, adjusted for seasonal variations, meteorological variables, holidays, influenza epidemics and day of week.; All ambient air pollutants were positively associated with pneumonia hospitalizations. Significant associations were found for most pollutants except for ozone and sulfur dioxide in children aged 0-17. Increments of an interquartile range (21.9 $\mu$ g/m<sup>3</sup>) in the 7-day-average level of NO<sub>2</sub> were associated with a 6.1% (95%CI 2.5% to 9.8%) increase in pneumonia hospitalizations. These associations remained stable in two-pollutant models. All pollutants other than CO were positively associated with hospitalizations for bronchitis and asthma. Associations were stronger in infants than in children aged 1-5.; Strong associations between hospital admissions for lower respiratory infections and daily levels of air pollution confirm the need to adopt sustainable clean air policies in Vietnam to protect children's health.

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