

ASSOCIATION BETWEEN VEHICULAR DENSITY AND HOSPITALIZATION BY RESPIRATORY DISEASES AMONG THE ELDERLY IN THE CITY OF SAO PAULO, BRAZIL

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Background and aims: Traffic-related air pollution has been associated with respiratory disease (RD) in the elderly in different developed countries. In Brazil, this is the first study to look at the impact of this exposure on the respiratory health of this population subgroup.

Methods: Hospital admissions by RD (ICD-10: J00-J06; J10-J16; J18; J20-J22, J30-J39 and J40-J47) of people aged 65 and over, from public and private hospitals of the city of Sao Paulo in the period 2004-2006, were geocoded according to their residence addresses. Vehicular density (VD) was calculated for micro-areas of 500m² of the city and was used as the indicator of exposure to traffic-related air pollution. The number of resident people, household density (HD) and the Human Development Index (HDI) were available for these micro-areas. Admission rates for the elderly were calculated for the micro-areas and VD, HD and HDI were categorized into quartiles. Multiple logistic regression models with the admission rates as the dichotomous dependent variable (equal or greater than the lower quartile Q1) and VD, HD and HDI as independent variables were used.

Results: 132,976 admissions of elderly people were analyzed in 3,367 micro-areas of Sao Paulo. Having the first quartile of VD as baseline and allowing for HD and HDI, the adjusted OR for elderly admissions were: 2.16(95%CI:1.70-2.75); 2.28(95%CI:1.77-2.93); 1.43(95%CI:1.1-1.82). Similar associations were observed when the type of fuel (gasoline or diesel) was considered separately. Hospitalization by RD decreased with increasing HDI ($p < 0.001$).

Conclusion: These findings indicate that mobile sources of air pollution have great influence on hospitalization by RD among the elderly people in the city.