# RESPIRATORY HOSPITALIZATIONS OF CHILDREN AND RESIDENTIAL EXPOSURE TO TRAFFIC AIR POLLUTION IN JERUSALEM

**Ronit Nirel**, *The Hebrew University of Jerusalem, Israel*

**Michal Bino Schiff**, *Hebrew University – Hadassah Braun School of Public Health and Community Medicine, Israel*

**Ora Paltiel**, *Hebrew University – Hadassah Braun School of Public Health and Community Medicine, Israel*

**Background and Aims:** Although previous research on adverse health effects related to outdoor air pollution in Israel has focused on coastal areas adjacent to power stations, Jerusalem, an inland city, reports violations of air quality standards due to traffic occurring on more than 5% of the days. This case-control study examined whether pediatric hospitalization for respiratory diseases in Jerusalem is related to long-term exposure to traffic-related air pollution.
**Methods:** Cases (N=4844) were Jerusalem residents aged 0-14 years hospitalised for respiratory illnesses between 2000 and 2006. These were compared to children admitted electively (N=2161) or urgently (N=3085) for nonrespiratory conditions. Using Geographic Information Systems, subjects' addresses were linked to traffic data obtained from municipal records. Individual exposures were based on the total length of main roads, traffic volume, and bus load within three buffers around each address (radii of 50, 150, and 300 meters). The association between hospitalisation and exposure to transport pollution was examined by logistic regressions controlling for gender, age (0-4, 5-14) and socio-economic status (SES, high-low).
**Results:** Children hospitalised for respiratory diseases were more likely to have any bus traffic passing within 50m of their home (odds ratio (OR): 1.15 and 1.13; 95% confidence intervals: 1.01-1.30 and 1.01-1.25 for the elective and emergency controls, respectively). Other models indicated statistically significant interactions between age, SES and exposure (p-values <0.03 for road length and bus load models), and significant gender-age-exposure terms. For example, associations of total road length within 150 meters of residence with respiratory hospitalisations were highest among younger girls of lower SES (ORs: 1.07, 1.11).
**Conclusions:** Findings suggest exposure to bus traffic within 50 m of residence contributes to childhood respiratory hospitalisation and increased risk of respiratory hospitalisation for younger girls of low SES living near main roads. Further research into varying risks among different subpopulations is needed.