**Introduction** Previous studies in developed countries have documented associations between air pollution and risk of some neoplasms. We explored the association of traffic-related air pollution with hospitalisations for cancer groups.

**Methods** Our analysis included all individuals admitted to public or private hospitals in São Paulo from 2004 to 2006 with a main diagnosis of primary invasive cancer. Only the first individual admission was considered, from which age, sex, diagnosis and home address were extracted. We calculated total, gasoline and diesel vehicles traffic density, from traffic counts data, for 4964 geographical units with a population of 20 or more inhabitants, formed by a grid of 500 by 500 m. We used logistic regression models adjusted by the Human Development Index of the area for groups of cancer.

**Results** There was an increased risk of hospitalisation for respiratory neoplasms in adults and for haematologic neoplasms in children and adolescents associated with living in areas with higher total traffic density and traffic density for vehicles powered by gasoline and diesel, with a clear dose-response gradient. The Rate ratios of these neoplasms for the highest category of exposure to total density traffic were, respectively, 3.51 (95% CI 2.26 to 4.87) and 2.35 (95% CI 1.59 to 3.49).

**Conclusion** Our study suggests an association between traffic air pollution and hospital admissions for respiratory and haematologic cancers. The adjustment for potential confounding variables, the use of more sophisticated exposure assessment models and of incidence data are needed to more directly investigate the cause and effect relationship.