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**Title:** Respiratory viruses are more prevalent among urban preschoolers

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**Body:** Aim: Examine if there is any difference in incidence of respiratory virus detection among daycare attending children, living in urban or rural environment and second-hand tobacco smoke exposed. Methods: The study population consisted of 233 preschool aged children, attending nursery: 120 children living in a rural area with low air-pollution (Viotia) and 113 in a metropolitan city (Athens). Urine cotinine was measured in the beginning of the study and 2 months later. The mean value was considered as a reliable index of tobacco smoke exposure. Nasal-pharyngeal swabs (NPS) were collected from 7<sup>th</sup> to 21<sup>st</sup> December 2010 and examined with RT-PCR for Adenovirus, Bocavirus, Coronavirus, Enteroviruses, Influenza (A, B, C) viruses, Metapneumovirus, Parainfluenza (1, 2, 3, 4) viruses, Rhinovirus, and RSV (A, B). Children were generally well during the study, only some had minor coryzal symptoms. We used logistic regression to investigate for differences in the viral distribution among the 2 groups and ordinal logistic regression for differences in the viral detection. Results: Children from rural area had less viruses isolated (OR:0.48, CI:0.25-0.88, p=0.018). The most prevalent virus was Bocavirus (26/120 and 44/113 respectively, p=0.005) followed by Rhinovirus (4/120 and 12/113 respectively, p=0.028). In multivariable analysis, the distribution of Bocavirus was related to the living area (OR:0.43, CI:0.21-0.85, p=0.015) but not to cotinine levels. The distribution of all other viruses was not affected either by the living area or cotinine levels. Conclusion: Urban living does favor the presence of respiratory viruses in NPS among preschool-aged children. No safe

risk-free level of exposure to secondhand smoke was confirmed.