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# МАТЕРИАЛЫ IV КОНГРЕССА ПЕДИАТРОВ СТРАН СНГ

## «РЕБЁНОК И ОБЩЕСТВО: ПРОБЛЕМЫ ЗДОРОВЬЯ, РАЗВИТИЯ И ПИТАНИЯ»

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**PREVALENCE OF THE RESPIRATORY DISEASES  
IN PRESCHOOL CHILDREN DEPENDING ON THE ENVIRONMENTAL CONTAMINATION WITH  
LOW CONCENTRATIONS OF POLLUTANTS**

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Environmental pollution in modern cities in some way may affect the increase of the diseases incidence of urbanized population. Under the condition of prolonged exposure to pollutants in situation of even a slight excess of their maximum allowable concentrations, the child's organism is more vulnerable than an adult's one.

The aim of research was to establish the existence of a possible relationship between environmental contamination with low pollutants concentrations and the prevalence of respiratory diseases in preschool children.

The georadiochemical mapping the urban area was done depending on the levels in the soil of 17 heavy metals (Pb, Cd, Hg, Cu, Zn, etc.) and technogenic radionuclides  $^{134}\text{Cs}$ ,  $^{137}\text{Cs}$ ,  $^{90}\text{Sr}$ . The complex ecological characteristics was determined due to carrying out a cluster analysis of air and soil zones of the city, which were identified as, respectively, "clean" (C) and "polluted" (P) regions. The research was conducted as longitudinal cohort (over 5 years) study of prevalence of the respiratory diseases in 3348 preschool children, including pre-admission and attendance of the day care centers. Epidemiological risk assessment was carried out by epidemiological risk rating according to Fletcher RH et al. In children the immunological screening of the first level was performed by conventional methods.

Prior to attendance of the day care centers the prevalence of various respiratory diseases in preschool children did not differ in subgroups from C and P districts. Substantial increase in the prevalence of this pathology was observed in a few years after living and children's visiting of the day care centers situated in zones with a coefficient of contamination higher than plus one sigma deviation. Thus, the prevalence of adenotonsillitis in this subgroup and among children from C zones of the city was respectively 12.1% and 3.9% ( $p < 0.001$ ), the cohort with frequent and prolonged respiratory episodes - respectively 21.8% and 12.6% ( $p < 0.05$ ), the recurrent bronchitis prevalence - respectively 3.1% and 0.8% ( $p < 0.05$ ). Thus, the relative risk of adenotonsillitis in preschool children attending day care centers and living in P zones was 3.1 times higher (95% CI: 1,3-7,6), risk of frequent and prolonged episodes of respiratory disorders - 1.7 times higher (95% CI: 1,1-2,8) and relative risk of recurrent bronchitis - 3.9 times higher (95% CI: 0,5-28,5) compared with their peers from the conventionally clean area due to the investigated pollutants air and soil content. In addition, due to primary screening of the immunological indices some changes were revealed in these children in comparison with normal ranges.

The prevalence of respiratory disorders in children of preschool age is significantly higher under the condition of their living and attending day care centers in environmentally contaminated area of the city, characterized by low intensive combined air and soil complex pollution.