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**THE EFFECT OF POLLUTION ON THE ENVIRONMENTAL HEALTH OF  
CHILDREN IN LARGE INDUSTRIAL CITIES**

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**Relevance.** It is known that the structure of total morbidity increasingly occupies disease occurrence in which the main role belongs to exogenous factors related to environmental pollution.

**Aim:** Defining relationships between unfavorable changes in the health of children surveyed. Zaporizhia and the level of pollution in the areas of residence of children, social-hygienic characteristics of their conditions of life.

**Materials and methods.** To determine the links between unfavorable changes in the health of children surveyed and the level of air pollution in areas of residence of children, social-hygienic characteristics of their conditions of life were used synthesis method of cluster approximation regression and neural networks. With that implements the algorithm distribution of the original sample is studied and tested, formed the study sample on which was conducted mathematical modeling. Index strain was used as an effective, source, the construction of mathematical models and neural network carrying information content of all other evaluation parameters were considered as a factor, input (all other indicators of health, environmental, biomedical, social and domestic factors). Parameters cluster-regression model was used to construct a multilayer neural network. For neural network models for each of the 48 signs that remained after exclusion often useless traits were determined the performance of relative informativeness (IJ), which in turn were used to decide the importance of these features.

**Results.** Analysis and evaluation of the data shows that the most important IJ (1,000) compared to other options within the sample is physical activity of the child, namely sports. In the second place, if they unite, the factors that characterize on one hand, the health of the child's parents, on the other hand, a child burdened heredity: the presence of chronic diseases in the mother (IJ - 0,656) and father (IJ - 0.622). Third place belongs to the area of residence of the child (IJ - 0,555).

The first ten factors which belongs weighty role in shaping the integral indicator of the health of children. Zaporizhia is also (as you decrease the value IJ): availability of occupational hazards in the mother before birth (IJ - 0,540); the value of the average profit of 1 family member (IJ - 0,478); smoking father (IJ - 0,433); smoking mother during pregnancy (IJ - 0,389); education of the mother at the time of childbirth (IJ - 0,345); completeness family (IJ - 0,322). In the analysis also included such features as the child's age (IJ - 0,198) and gender (IJ - 0,499).

**Conclusions.** Based on the parameters of the mathematical models - cluster partial regression and neural network were defined quantitative impact and contribution of each of the factors studied (total 59 factors) in the event of violations of children's health Zaporozhia. Based the results of the study and analysis of contemporary scientific literature were developed and scientifically substantiated the main directions and measures for the preservation and strengthening of health of children.