

Zimoch, I., Paciej, J. Spatial Risk Assessment of Health Hazards from *Legionella* spp. Presence in Hot Water Systems in Silesia Province. *Ochrona Srodowiska* 2014, Vol. 36, No. 4, pp. 23–28.

Abstract: Considering the risk from microbiological hazards associated with *Legionella* spp. contamination of hot water systems, the results of hot water quality control in the period 2010–2013 were presented for multi-family residential buildings and health care facilities in Silesia Province. The risk assessment included the *Legionella* spp. presence and the water temperature. A method for the assessment of health risk caused by *Legionella* spp. was demonstrated together with the evaluation of hazardous operating conditions of certain water supply systems. Population density as a spatial variable as well as water contamination level with *Legionella* spp. were taken into account in these procedures. The microbiological contamination analysis for individual object groups demonstrated that *Legionella* spp. colonization of the hot water systems was by 20% more common in health care units than in multi-family residential buildings. It was demonstrated that probability of health hazards due to water contamination with *Legionella* spp. in Silesia Province is 0.188 while the spatial risk allowed classification of this region in the 'controlled risk' category. Therefore, appropriate surveillance is required for all facilities in order to ensure efficient prevention measures that would allow minimizing potential adverse effects of health risks due to microbiological contamination of the hot water systems.

Keywords: Legionnaires' disease, multi-family residential building, health care facility, risk analysis, risk matrix.