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**Title:** Regional distinctions regarding COPD prevalence in Russian Arctic: Results of national population study

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**Body:** The problem of COPD in Russian Arctic where respiratory diseases have shown higher premature mortality seem to be neglected despite the economic importance of the region for Russia. The aim of the study is to explore whether there are regional distinctions regarding the prevalence of COPD in Russian Arctic. Methods Data from National multi-centre population based study with randomly selected subjects aged 35-64 (N=3771; RR=81%)-selected regions - Yakutsk (Russian Arctic), Chelyabinsk (industrial) and Vologda (midland Russia) were analysed. Chi-squared tests and odds ratios (OR) were utilized; multiple logistic regression was employed to analyse the association between COPD, smoking patterns and regional distinctions. Results The prevalence of COPD was 21.9%: 23.1% among men, 21.1% among women and only 50.9% had a respiratory diagnose ( $p<0,001$ ). Yakutsk had the highest rates of COPD: 28.9% - 28.6% in men and 29.1% in women compared to the other regions ( $p<0,001$ ). Chances of COPD were significantly higher among heavy smokers– 10.5 times among men (OR 5=10.5; 95%CI 5.4-19) and 5 times among women (OR=95%CI 2.8-8.8). The odds of COPD in Yakut people were significantly higher– 2.2 times in men (OR=2.2, 95%CI 1.6–3) ( $p<0,001$ ) and 3.5 times in women (OR=3.5, 95%CI 2.7-4.6) ( $p<0.001$ ) compared to people in Vologda. The status of hyperborean had the highest significant contribution to chances of COPD– comparable only with heavy smoking status. Conclusion Russian arctic regions have higher prevalence of COPD, with biggest contribution of smoking and environmental factors. Integrated preventive programs will need to address the regional inequalities.