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Interaction of radon and smoking on lung cancer risk

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The aim of the presentation is an evaluation of interaction of effects of radon and smoking on lung cancer risk. In occupational studies among uranium mines, smoking has not been considered in all original studies in early presentations. This issue was investigated later by nested case-control studies. The present analysis is based on two Czech studies of uranium miners. One cohort study of Dr Josef Ševc of 10 000 miners with 1029 lung cancer cases and another cohort study of Dr Vladimír Řeřicha of 23 000 miners with 826 lung cancer cases. The effect from radon and smoking is considered in two models –(1) additive and (2) multiplicative. Alternatively, the evaluation is based on geometric mixture model using a mixture parameter θ between 0 for the additive and 1 for the multiplicative models. The interaction is closer to the additive interaction, particularly in the combined study with a higher statistical power to distinguish the two models.

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