

## **Review of the effect of transport noise interventions on human health: policy implications and future research**

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### **ABSTRACT**

A systematic literature review (1980-2014) of evidence on the effects of transport noise interventions on human health was performed in the framework of preparation of the WHO Environmental noise guidelines for the European Region. Sources considered were roadways, railways, and air traffic; health outcomes were sleep disturbance, annoyance, cognitive impairment of children and cardiovascular diseases. While evidence was thinly spread across different sources, outcomes and intervention types, the results of 43 individual transport source studies showed that interventions invariably lead to a measureable change in health outcomes. For road traffic noise (and some aircraft noise) studies, the changes in annoyance outcomes were either in line with those derived from relevant exposure-response functions, or exhibited excess response. This paper will discuss the implications of these findings for noise policy and management. It will also raise system-wide issues that need to be considered in evaluations of transport noise interventions. It will also provide guidance for future studies of interventions with a suggested protocol for their conduct, including repeat measures of outcomes and confounders, not merely of change in noise levels.