

THE BURDEN OF DISEASE RELATED TO INDOOR AIR EXPOSURE: A COMPARISON OF TWO METHODS

Dr Dieneke Schram-Bijkerk, *National Institute for Public Health and the Environment, the Netherlands*

Dr Elise van Kempen, *National Institute for Public Health and the Environment, the Netherlands*

Dr Anne Knol, *National Institute for Public Health and the Environment, the Netherlands*

Background and Aims: Recently, two European projects estimated the burden of disease related to exposure to indoor air pollutants –EBoDE and EnVIE. EBoDE's calculations were based on population exposure and exposure-response functions derived from epidemiological studies ('exposure-based approach'). EnVIE's calculations were based on (expert judgments of) the fractions of a disease burden that can be attributed to various risk factors ('outcome-based approach'). Our aim was to compare estimates from both approaches for exposure to environmental tobacco smoke (ETS), radon, dampness, CO and VOC's in the Netherlands.

Methods: We have reviewed the calculations as carried out in the two projects and compared the calculation processes and outcomes of both approaches.

Results: For ETS, the estimates were similar. Approximately half of the total burden of disease attributable to the 5 included risk factors could be attributed to ETS. In the exposure-based approach, radon was the second most important cause of disease burden, followed by dampness. In the outcome-based approach, dampness was more important than radon. The outcome-based approach only included radon from soils, which is the most important source of indoor radon in many European countries, but not in the Netherlands. This explains the difference with the outcome-based approach, in which total radon was included. For dampness, the lower estimate in the exposure-based approach can probably be explained by difficulties in identifying exposure-response functions which cover all possible effects. This problem was overcome in the outcome-based approach, in which experts estimated the attributable fraction. Contributions of CO and VOC's to the total burden of disease were relatively low in both approaches.

Conclusions: The two approaches used provided partly different results. This study illustrates that results should always be interpreted within the context of input data, methodology and assumptions used.