Measures of exposure to secondhand smoke: recent developments

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ABSTRACT

About a third of the world’s population is exposed to secondhand smoke (SHS), despite reductions in smoking prevalence in many countries. Accurate, cost-effective measures of exposure are needed in investigations of the health risks associated with SHS, and in studies of interventions to extend smoke-free environments. There have been important developments in the use of questionnaires, air quality monitoring and biomarkers, but still, there is no single, gold standard assessment of exposure to SHS. Choice of measure depends on circumstances, including cost, scale and time window.

It is more than 25 years since the US Surgeon General’s report on the health consequences of involuntary smoking, but many people around the world are still exposed to secondhand smoke (SHS). According to one estimate, in 2004 approximately 40% of children, and 34% of adult non-smokers, were exposed to SHS worldwide, and there were about 603 000 SHS-attributable deaths from heart disease, chest infections and cancer. In the Southeast Asian region in 2009, the proportion of youth (13–15 years) exposed to SHS in public places ranged from 57% (India) to 78% (Indonesia). Three papers in this issue of the journal set out to summarise the current state of knowledge in the field of SHS exposure assessment. Some things have not changed. There is, for instance, still no ‘gold standard’ in the measurement of SHS. All approaches have advantages and disadvantages, and the right measure will depend on circumstances. Questionnaires remain the only way of gathering information on extended periods of exposure, and are likely to be the most cost-effective measure in studies of very large populations. Accurate, cost-effective measures of exposure are needed in investigations of the health risks associated with SHS, and in studies of interventions to extend smoke-free environments.

There is evidently some variation in exposures indoors (for instance, higher intensities are observed in Asia and the Middle East than in Europe) but overall, the relation between living with a smoker and personal exposure to SHS appears to be broadly similar, wherever one lives. We have also seen the full range of measures of exposure applied in studies of comprehensive smoke-free interventions. The findings are generally very encouraging. In New Zealand, an investigation using repeated saliva cotinine measures found that legislation had reduced exposure to SHS in hotel bars by 90%. Other countries have reported striking reductions in the population at large.

There are still challenges, but we should take heart from the considerable progress that has been made in both the science and control of exposures to SHS.

Contributors AW was responsible for all aspects of preparing this paper.

Competing interests None.

Provenance and peer review Commissioned; internally peer reviewed.

REFERENCES