

Commentary

Complexity and rigour in assessing the health dimensions of sectoral policies and programmes

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The preceding paper by Kjellstrom et al. uses transportation as an example to consider the performance of two approaches (referred to as comparative risk assessment (CRA) and health impact assessment (HIA) in previous applications) in quantifying the health effects of sectoral policies and programmes. CRA, which was used in *The world health report 2002* (1), has gained attention for its attempts to unify the methods and assumptions used for the diverse risk factors that have traditionally been assessed in individual scientific and social science disciplines. Health impact assessment is a broad and generic framework that brings the health dimension into evaluations of policies and programmes across sectors. Comparison of the two approaches raises a number of important issues that should be considered when evaluating the health implications of sectoral policies and programmes, such as those in agriculture, energy, and transportation.

First, the assessment illustrates the importance of the “baseline” used for health effect assessments. One of the important features of CRA has been its focus on distributions of exposure to risks, and the fact that it compares them with alternative — or counterfactual — exposure distributions that are defined consistently across risk factors (2, 3). The counterfactual exposure distributions used in risk assessment can be extremely ambitious and include distributions that would remove or minimize the hazards associated with risk factor exposure, such as populations in which every person is physically active or reductions in concentrations of urban particulate matter to ambient levels expected from dusts only. Estimates from comparative risk assessments thus provide alternative visions of population health associated with changes in risk factor exposure — regardless of the source of change — that then can guide preventative policies and intervention research.

Removal of all associated health effects is not an option when assessing the health dimensions of sectoral policies and programmes, such as those in transportation. The mere existence of such sectors results in health effects in the form of both benefits and hazards. For example, transportation policies and programmes may change the level or distribution of disease and injuries due to air pollution, road traffic accidents, and physical (in)activity. At the same time, they may provide health benefits via increased access to employment, better quality nutrition, and better access to education and health care delivery systems. Therefore, although the **total** number of road traffic accidents and deaths provides an illustration of their public health importance — and should motivate the instigation of interventions to address them — it is less meaningful when assessing specific sectoral policies and programmes. Rather, in such circumstances, the baselines

and counterfactuals should include alternative, operationalizable policy/programme options (including the status quo) (4).

Second, the example of transportation should show that the health implications of sectoral policies are heterogeneous across settings. For example, the effects of fuel taxes on the number of miles driven or on air pollution may depend on the public transportation infrastructure; similarly, reductions in numbers of road traffic accidents that result from lowering speed limits may be influenced by road conditions as well as patterns of binge consumption of alcohol. This contrasts with factors such as specific carcinogens or high blood pressure, for which quantitative hazard estimates may be transferred from one population to another with a relatively high degree of validity. As a result, assessments of the health effects of sectoral policies often should take place on the small scale and should account for the crucial role of co-factors.

Third, the discussion of the two approaches should emphasize the fact that disease and health determinants occur along a continuum of complex and multi-factorial layers of causality (2, 5). Distal transportation policies can be assessed based on the specific technologies and methods that they induce (e.g. demand for public transportation or for diesel versus natural-gas engines, speed limits, etc.) or on more proximal health determinants (e.g. ambient concentration of respirable particles). The relation between the more proximal factors (e.g. ambient concentration of lead or respirable particles) and health outcomes may be extrapolated more easily from one population to another. The mediated effects also mean that the broad, distal, sectoral determinants of health can be divided into a number of more specific, proximal, risk-factor based effects, each assessed relative to a different counterfactual distribution, based on existing data from other populations.

Fourth, the paper raises the important issue of the scope of analysis. Sectoral policies and programmes always are coupled with broader goals of social and economic development. Furthermore, their health effects would vary across different population subgroups based on factors such as age, sex, socioeconomic status, and geographical location (6). Although the results of risk and other forms of HIA at times are reported in aggregate form, analysis can, and should, be conducted on population subgroups to illustrate the equity implications of exposures and policies. The inclusion of the broader social consequences of sectoral policies and programmes has parallels in the centuries’ old debate on the divisions between health and welfare. No single analytical tool can resolve this debate. We can, however, attempt to describe the health and welfare effects of policies and programmes by using multiple systematic quantitative and qualitative methods

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— as has been done in the case of lead exposure (7). Risk assessment is one such tool.

Societies benefit in numerous ways from new infrastructure and technological innovations in sectors such as agriculture, energy, and transportation. Systematic assessment of the magnitude and distribution of the health effects of sectoral policies and programmes provides a powerful tool for increasing their contributions to health and welfare of societies. Attention to mediated causal relations and multi-causality not

only results in more rigorous health effect assessment, but also would generate a larger menu of interventions across layers of causality. With increased awareness of the role of health in inducing economic and social development (8), a window of opportunity exists to make such assessments a visible and permanent part of policy analysis and programme design. This can be successful only if our methods and tools are chosen based not on their titles, but on their suitability for the analytical problems that we face. ■

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