

Guidelines for Modeling and Reporting Health Effects of Climate Change Mitigation Actions

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Abstract

Background:

Modeling suggests that climate change mitigation actions can have substantial human health benefits that accrue quickly and locally. Documenting the benefits can help drive more ambitious and health-protective climate change mitigation actions; however, documenting the adverse health effects can help to avoid them. Estimating the health effects of mitigation (HEM) actions can help policy makers prioritize investments based not only on mitigation potential but also on expected health benefits. To date, however, the wide range of incompatible approaches taken to developing and reporting HEM estimates has limited their comparability and usefulness to policymakers.

Objective:

The objective of this effort was to generate guidance for modeling studies on scoping, estimating, and reporting population health effects from climate change mitigation actions.

Methods:

An expert panel of HEM researchers was recruited to participate in developing guidance for conducting HEM studies. The primary literature and a synthesis of HEM studies were provided to the panel. Panel members then participated in a modified Delphi exercise to identify areas of consensus regarding HEM estimation. Finally, the panel met to review and discuss consensus findings, resolve remaining differences, and generate guidance regarding conducting HEM studies.

Results:

The panel generated a checklist of recommendations regarding stakeholder engagement: HEM modeling, including model structure, scope and scale, demographics, time horizons, counterfactuals, health response functions, and metrics; parameterization and reporting; approaches to uncertainty and sensitivity analysis; accounting for policy uptake; and discounting.

Discussion:

This checklist provides guidance for conducting and reporting HEM estimates to make them more comparable and useful for policymakers. Harmonization of HEM estimates has the potential to lead to advances in and improved synthesis of policy-relevant research that can inform evidence-based decision making and practice