

Quasi-Experimental Designs in Environmental Epidemiology: Applications to the Health Impacts of Energy Policy Changes

Hill E^{1,2}, Wallis M²

¹ University of Rochester, ² Oregon State University

Energy policies dictate how energy is produced, distributed, and consumed but the legislation itself does not necessarily fully investigate its potential population health impacts. These health impacts are often difficult to quantify in traditional epidemiological studies due to spatiotemporal confounding. However, as these policy changes are made, their health impacts can be accessed via econometric-based quasi-experimental designs. Two of the speakers in this symposium are economists doing environmental health research while the other two are environmental epidemiologists using econometric quasi-experimental designs in their own work. All of these talks will highlight the benefits of implementing quasi-experimental designs and demonstrate how these designs can lead to better causal inferences. Each talk will assess a different hazard from the energy sector with air, water, or physical emissions that may affect a significant segment of a population and highlight the importance of taking account local place characteristics in these analyses. Key methodological topics that will be covered include defining treatment status, selecting counterfactual populations, and implementing multistage models. Although these talks primarily leverage health data from the United States, these methods and study questions are applicable to settings around the world.

This symposium encompasses the relationship of place to the health impacts of air and water. Our symposium commences with two presentations on air quality, and another one on water quality. The connecting theme throughout these presentations is the impact of who chooses to live in these places and how accounting for these local population dynamics can impact health. Energy policy is a key area of environmental epidemiology where changes to regulations or practices likely impacts groups who are unrepresentative of the general population. This symposium will be of immense interest to audiences from any countries considering changing their energy policies.