DETECTION AND ATTRIBUTION OF HEALTH EFFECTS TO GLOBAL CLIMATE CHANGE

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Background and Aims: There are frequent claims that climate change is already affecting human health. Attribution of health effects to environmental exposures is a standard part of environmental epidemiology. With respect to global climate change, the IPCC defines attribution as the evaluation of the relative contribution of causes to a change in a system affected by climate. We describe robust criteria for the attribution of health effects to observed climate change.
Methods: Published peer reviewed studies that claimed to quantify current health effects attributable to observed climate change were identified and reviewed. Studies were classified according to categories described in the IPCC Guidance Paper on Detection and Attribution and whether they met our criteria.
Results: Very few of the published studies met our criteria. Due to the complexity of the causation of disease patterns over time, it is unlikely that climate change attribution can be made with high confidence in the near term. Special caution should be made for claims regarding the health effects of individual extreme events.
Conclusions: At present, the attribution of changes in population health to observed climate change is dependent on the validity of two or three step attribution along a complex causal chain. Human forcing of the climate is only detectable on large spatial and temporal scales (at least 30 years) for which datasets on disease distribution are often not available, and the comparison of multiple studies (as has been done in the biological sciences) is not possible for health. However, we argue that robust associations between health and climate factors can be used to indirectly estimate the current attributable burden of observed global climate change.