

Climate change and rural child health: a review of the evidence

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ABSTRACT

Children, representing a third of the world's population, are amongst the most vulnerable to climate change (IPCC, 2007). There have been several published reviews on this topic but none have evaluated the scientific evidence in a systematic way. The evidence base for direct "climate" effects on population health is slowly expanding, particularly regarding the role of weather events and climate variability on key causes of child mortality: malaria, diarrhoea and undernutrition. However, due to the complexity of the pathways of effect between climate and child health there is a dearth of studies that provide a comprehensive framework to study this important development issue. This paper outlines the conceptual framework for analysing how climate change is likely to affect child health considering both direct and indirect mechanisms and reviews the best available evidence from a range of disciplines (epidemiology, public health, integrated assessment, demography, climate science).

Outline of paper

Children, representing a third of the world's population, are amongst the most vulnerable to climate change (IPCC, 2007). There have been several published reviews on this topic but none have evaluated the scientific evidence in a systematic way.

The evidence base for direct "climate" effects on population health is slowly expanding, particularly regarding the role of weather events and climate variability on key causes of child mortality: malaria, diarrhoea and undernutrition. However, due to the complexity of the pathways of effect between climate and child health there is a dearth of studies that provide a comprehensive framework to study this important development issue. This chapter outlines the conceptual framework for analysing how climate change is likely to affect child health considering both direct and indirect mechanisms (for example, the impact of climate change on livelihoods and poverty), and the best available evidence from a range of disciplines (epidemiology, public health, integrated assessment, demography, climate science). Using the framework as a guide for the range of pathways of these effects this chapter provides an assessment of current evidence, discusses research gaps and highlights the equity issue of this debate.

An important part of the conceptual framework is to disaggregate the various complex effects of climate change on the different time scales:

- Recent past – including the attribution of health effects to observed climate change.
- Future (near term) impacts of climate change over the next few decades – with a focus on health and development decision making (adaptation policy) [now to 2030-2040s]. Decisions regarding carbon emissions will make little difference to global mean temperature change up to this point.
- Future (long term) impacts of climate change, where benefits of mitigation/stabilization of climate change will become apparent, and potentially very serious consequences of climate change may occur in the absence of mitigation [beyond 2040s]

The Intergovernmental Panel on Climate Change (IPCC) has shown that biological and social systems are already responding to climate change (IPCC, 1997, 2007a). Since 1900, the global mean temperature has increased by 0.7°C (Stern, 2006). In addition to warming and drying, raised levels of greenhouse gases are also likely to increase the frequency and intensity of extreme events.

The review will be restricted to impacts in low income countries. We will focus on the implications of climate change for the bottom billion.

We will systematically review the evidence for:

- Climate impacts on child rural health, i.e. epidemiological studies of climate, environmental, social determinants of child rural health outcomes
- Climate impacts for effects on main determinants of child rural health (i.e. livelihoods, disasters)
- Climate policies and impacts on child rural health: energy policies (indoor fuel use), adaptation policies.

Adaptation strategies, like other public health interventions, have the potential to increase inequalities if they are not equitably distributed.

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