



The Social and Economic Costs of Climate Change on Children's Health

Monday, May 11, 2015

Woodrow Wilson International Center for Scholars
Program Summary

On May 11th, The Children's Environmental Health Network (CEHN), the Center for Environmental Policy at American University's School of Public Affairs, and the Woodrow Wilson International Center for Scholars co-hosted a half day forum: *The Social and Economic Costs of Climate Change on Children's Health: What Do We Know and What Can We Do?* The forum included two panels of experts that discussed – with over 60 attendees from multiple sectors and backgrounds – the impacts of climate change on children's health and offered recommendations for preparing for, and mitigating these impacts.

The discussion began with welcoming remarks and introductions from Sandeep Bathala, Environmental Change and Security Program, Maternal Health Initiative, at the Wilson Center, Dr. Daniel Fiorino, Director, Center for Environmental Policy at American University's School of Public Affairs, and William K. Reilly, former Administrator of the U.S. Environmental Protection Agency (EPA), and Senior Advisor to TPG Global.

Session 1: Impacts of Climate Change on Children's Health

Ms. Nsedu Obot Witherspoon, Executive Director of CEHN, introduced and moderated the first panel, "Impacts of Climate Change on Children's Health." To provide context and background, Dr. Sylvia Brandt, an economist from the University of Massachusetts, Department of Resource Economics, gave a [presentation](#) on measuring the economic impacts of climate change on children's health using asthma as a case study. Ms. Witherspoon then led the panel discussion with Dr. Brandt, Dr. Pat Breyse (National Center for Environmental Health/Agency for Toxic Substances and Disease Registry), Lisa

Palmer (Woodrow Wilson Center), and Dr. Leonardo Trasande (New York University School of Medicine). Key points from Dr. Brandt's presentation and the panel discussion are outlined below.

- **The economic models used to calculate the costs of chronic childhood diseases are often incomplete and thus may gravely underestimate the true individual and societal costs of childhood illness associated with climate change (in this case, asthma was used as an example).**

There are several potential problems with calculating the societal and health costs of a child with asthma. Some values, such as the lost wages of a mother who must stay home from work to care for a sick child, or medical costs (e.g., hospitalizations and doctors' visits), can be calculated in a straightforward manner. However, calculating other values can be more difficult, such as the lost productivity due to "presenteeism" (parents of sick children who show up to work but are exhausted, distracted or anxious), or the penalty for a mother who has dropped out of the workforce to care for a sick child and then returns to work at a lower wage than she otherwise would have earned had she stayed in the workforce. It is difficult to capture the true full cost of caregivers' time and effort without these and other often-omitted valuations. Medical costs are not always straightforward either. The costs of co-morbid ailments (e.g., ear-infections, bronchitis, etc.) can be difficult to factor into calculations, if factored in at all, and medical costs miss those families who are not able to, or not willing to, pay for medicine or equipment for their children's treatment.

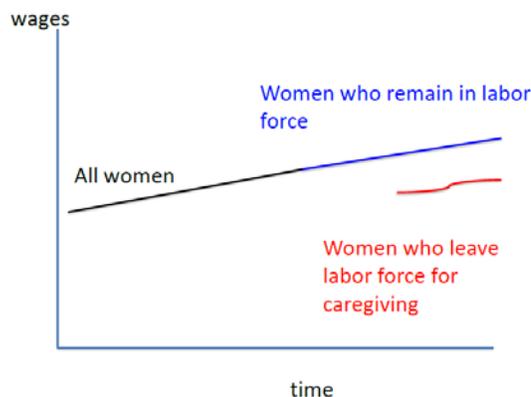


Figure 1 Impacts of dropping out of the workforce on female workers (courtesy of Sylvia Brandt, May 2015)

Finally, how do we value the impacts of illness on quality of life? For a child diagnosed with asthma, even on symptom-free days, the child is still living with a chronic illness. Dr. Brandt's research findings estimate the quality of life impact on a child with asthma at over \$100 per month.

- **Accurately calculating the disease burden associated with or attributable to climate change is also complicated (asthma again used as the example).**

Climate change increases ground level ozone levels and changes ragweed distribution, both of which are asthma triggers. Therefore, climate change leads to increased asthma exacerbations and ultimately, increased asthma burden. It is also important to recognize that more frequent

extreme heat events associated with climate change are associated with low birth weight in newborns, which is associated with increased risk for asthma. As asthma prevalence increases due to these extreme heat events, so do asthma exacerbations, which contribute to the asthma burden.

Thus, the practice of evaluating the health threats of climate change on children is often missing many pieces, and can easily undervalue the impact of child-health and climate protective policies.

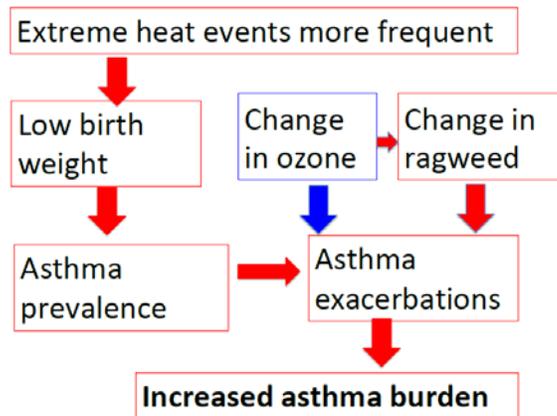


Figure 2 Extreme Heat Events (courtesy of Sylvia Brandt, May 2015)

- **The burden of disease and climate change health effects will disproportionately impact already vulnerable groups, such as low income populations and children.**

It is estimated that 88% of the burden of disease and climate change health effects will fall on children, a uniquely vulnerable group. Children face greater exposure to some toxicants than adults. They eat more food, drink more water, and breathe more air proportionate to their size than adults, and unique behaviors such as crawling and putting their hands and other objects into their mouths also increases their exposure to risk. Children are also often more vulnerable to these exposures than adults. Their organs and organ systems are still developing, so exposures they encounter in utero and early on in life can disrupt normal development and have detrimental health effects. In addition, children's ability to metabolize and excrete contaminants may not be as effective as it is in adults. Children also have many years of life ahead of them, providing a longer period during which to manifest disease symptoms from early-life exposures. Communities that are already disadvantaged or threatened by health/disease issues will also be disproportionately affected by climate change. In this way, climate change is an "existing threat multiplier." Extreme weather events and natural disasters especially highlight the particular devastation that vulnerable communities face, and the difficulties of rebuilding these communities. Already disadvantaged populations will feel the effects of climate change deeply, and cannot be expected to become more resilient without the appropriate support.

- **The social and economic costs of climate change are impacting children today.**

We need to recognize that we as a society are already paying for the health costs of climate change, as externalities borne disproportionately by the most vulnerable populations. Thus, messages need to emphasize that increasing regulation of greenhouse gasses will not introduce new costs, but will reverse this economic externality in addition to decreasing future costs. This is a children’s issue and a social justice issue. Education and outreach to the public, to health officials, to non-profits, to governments at all levels, to families and parents, and to other groups is crucial to dispel the notion that the health effects of climate change are only a concern for the future.

Session 2: What Can we do to Mitigate the Impacts of Climate Change on Children's Health

The second panel, “What Can We Do to Mitigate the Impacts of Climate Change on Children’s Health”, was moderated by Dr. Fiorino. Dr. Ruth Etzel, director of EPA’s Office of Children’s Health Protection, [provided an overview](#) of some EPA efforts and initiatives to mitigate the impacts of climate change on childrens’ heath. In addition to Dr. Etzel, panelists included Ms. Lisa Brown (National Association of County and City Health Officials), Ms. Leslie Fields (Sierra Club’s Environmental Justice and Community Partnerships), and Ms. Maaik Jansen (United Nations Environment Programme).

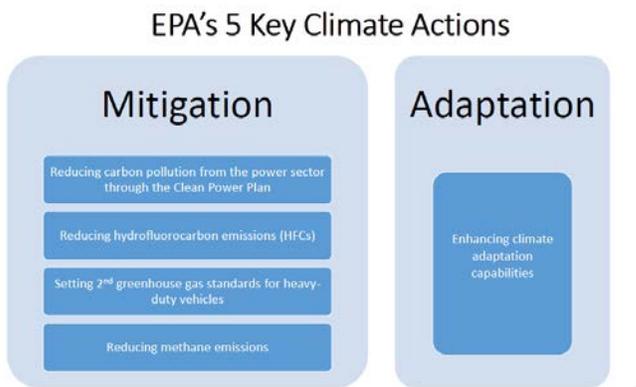


Figure 3 EPA's Climate Priorities (courtesy of Ruth Etzel, May 2015)

The President's Climate Action Plan



Figure 4 President Obama's Climate Action Plan (courtesy of Ruth Etzel, May 2015)

The panelists discussed actions and ideas that are already being implemented, or that can be implemented in the future, to address social and economic health costs of climate change.

- **Supporting and funding new, innovative, and collaborative research will help to break down silos.**

Support for research that cuts across disciplines and incorporates a wide variety of stakeholders and experts is vital to addressing the social and economic costs of climate change on children's health. Without data to show trends such as increased disease prevalence, or associations between extreme heat events, pre-term birth, and asthma prevalence, it is difficult to make a strong economic case for prevention and to educate policy makers about the issues that their constituents are facing. Continuing to produce economic analyses that show that the benefits of preventative health measures far outweigh the costs is crucial and can benefit from collaboration across sectors. Integrative research that allows economists, epidemiologists, clinicians, and health professionals and others to share their knowledge helps to not only better inform people on the costs of climate change, but helps to spur innovative solutions. Investigating environmental health outcomes that may be understudied, such as learning outcomes associated with increased temperatures in schools with no air conditioning, will also be a great asset to illuminate how children are currently being affected by climate change, and will help to predict future health outcomes as well.

- **Messages need to be targeted and employ storytelling techniques to help different audiences understand climate change impacts.**

Climate change research and news reporting often paints a bleak picture. Altering the messaging of climate change health effects and incorporating storytelling elements helps to improve public awareness of climate change, connect people personally to their communities, and publicize positive examples of climate change research and prevention methods. Highlighting the people and communities, especially children, that are or will be most affected by climate change can help strengthen their voices and give them a platform. There are many

different audiences that can be reached, if the messaging and storytelling around the issues are carefully crafted. Numbers and economics are often persuasive to policy makers or finance ministers, while the public may respond to positive messaging about supporting families and children.

- **Many solutions are already in place, and we need to build on these while identifying new ways to prevent and mitigate children’s health impacts and the social and economic costs caused or exacerbated by climate change.**

Many examples exist of initiatives and opportunities to address and tackle climate change, health effects, and creating resilient and healthy communities. The [San Luis Obispo Public Health Department in California initiated a climate change and health communications campaign](#) to educate the community about the public health effects of climate change – an example of a local solution. Action is happening at the national and international levels as well. In the next few months, the White House will be convening a summit featuring the Surgeon General, and the upcoming 2015 United Nations Climate Change Conference in Paris will aim to create a legally binding agreement to tackle climate change. At all levels of society, changes are being made by individuals, community groups, and government officials to combat the health effects that climate change will have on future generations.

While there is a great deal of work to be done, recognizing what has already been accomplished, understanding what is working, and then building on progress to date is vital to moving forward. Partnerships need to be created so that policy makers and government officials have access to the science, data, and community stories that they need to create health and climate protective policies. Identification of capacity-related vulnerabilities, such as the recent finding that most local health department directors do not feel prepared to address climate change,¹ as well as recognition of the unique vulnerabilities of children, minorities and disadvantaged communities, can help local officials and community members prioritize support, and create solutions.

- **There are reasons to be optimistic about the groundswell of a youth movement.**

All panelists mentioned their optimism around the growing tide of youth empowerment to combat climate change. Events like the People’s Climate March, where 400,000 people, including 50,000 college students, marched to demand that leaders take action on climate change, exemplify the level of public support in the US for combating climate change. As the next generation grows up learning about climate change and its health effects, and witnessing its effects in their own communities, the clear momentum of youth activity revolving around the issue will continue to grow.

¹ National Association of City and County Health Officials. Are We Ready? Report 2: Preparing for the Public Health Challenges of Climate Change. 2014.

Moving forward, an Agenda for Action should include:

- Making the economic case for prevention and reforming guidelines used to calculate economic benefits of pollution reduction;
- Supporting integrative research in which economic analysis is tied to epidemiological evidence and clinical experience;
- Connecting with a social justice argument and continuing to encourage youth involvement;
- Developing positive messaging about supporting families as part of a communications campaign for the general public;
- Providing adequate support to local health departments to ensure that officials are knowledgeable and have the resources necessary for preventive and responsive actions to climate change;
- Creating partnerships or a network within which data and other tools can be shared for effective policy development.