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Research Brief

Air Pollution and its Health Impacts in Africa

Overview

Poor air quality is a known health hazard, especially for infants and children. However, the extent of related health effects in the developing world is largely unknown due to a lack of monitoring and data collection of particulate matter levels (PM2.5). Using satellite-based measurements to overcome this challenge, a Stanford research team determined that air pollution was responsible for nearly a quarter of all infant deaths in sub-Saharan Africa from 2001 to 2015

Key Takeaways and Points for Policymakers

- Current estimates of infant deaths caused by air pollution are significantly underestimated.
- Even a modest reduction in air pollution in developing countries could lead to larger improvements in infant health than almost any other known health intervention, including vaccines and nutritional supplements.
- An improvement in air quality comparable to that achieved by the U.S. Clean Air Act could have reduced infant mortality by 4.6% and avoided 40,000 infant deaths in 2015 in Africa.
- Healthy households and poor households are affected similarly by exposure to dirty air. This finding contradicts the common premise that wealth insulates households from environmental harm. One possible explanation is that the pollutant is small enough to penetrate buildings, meaning even wealthier households cannot escape exposure.

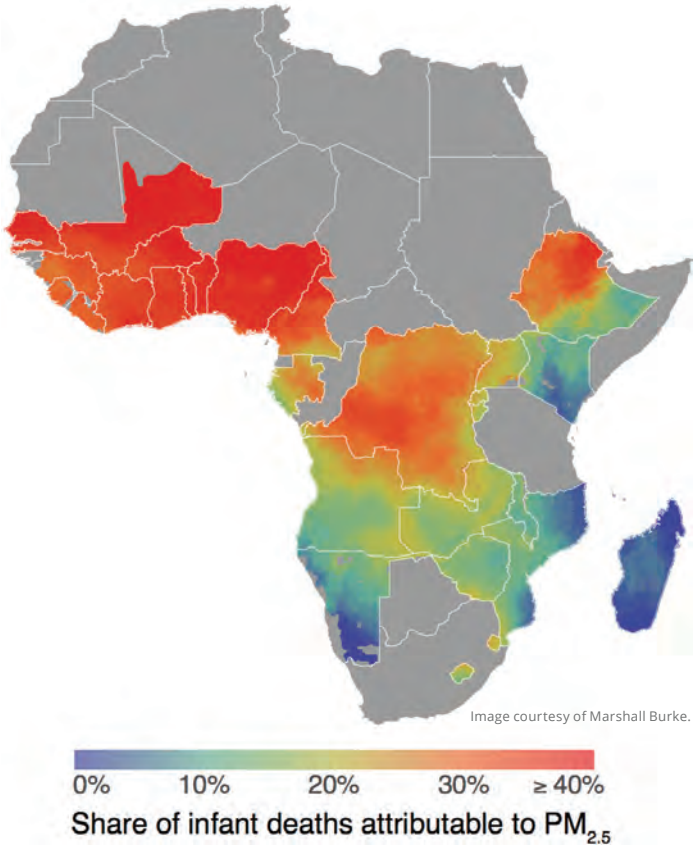

Image courtesy of Marshall Burke.

Stanford scientists calculated the amount of infant deaths due to high particulate matter concentrations in 31 sub-Saharan African countries.

Jerry Yang & Akiko Yamazaki Environment & Energy Building | MC 4205 | 473 Via Ortega, Stanford, CA 94305 | woods.stanford.edu

Background

Although there have been numerous studies on the human health effects of poor air quality in developed countries, the same is not true for developing countries. To craft appropriate policy responses and allocate aid funding effectively, a deeper understanding of air pollution and health linkages in the developing world is imperative. This remains challenging due to lack of data. For instance, in sub-Saharan Africa, only two countries have air pollution monitoring stations that report to global databases, and most countries do not have the vital statistics common in developed nations.

The reasearch team's findings indicate that poor air quality affects child health in sub-Saharan Africa much more severely than previously understood and suggests adopting air quality policies could yield immense health returns. In regions where human activities such as industrial activity or biomass burning are important sources of air pollution, experience elsewhere suggests that policy can improve air quality. However, in regions such as West Africa, where air quality is particularly bad and a substantial proportion of particulate matter derives from non-human dust sources, policy should also support adopting approaches or technologies that limit exposure to dirty air.

Looking Ahead

Additional research is needed to determine the optimal portfolio of health interventions and related costs to best protect people—especially infants and children—in developing countries from the effects of poor air quality.

About the Researchers

Marshall Burke is a fellow at the Center on Food Security and the Environment, the Stanford Woods Institute for the Environment, the Freeman Spogli Institute for International Studies, and the Stanford Institute for Economic Policy Research.

Jennifer Burney is a fellow at the Center on Food Security and the Environment and an assistant professor at the University of California, San Diego, School of Global Policy and Strategy.

Eran Bendavid is an associate professor of medicine at Stanford, a member of the Child Health Research Institute and an affiliate of the Stanford Woods Institute for the Environment.

Sam Heft-Neal is a research fellow at the Center on Food Security and the Environment.

This research brief is based on the *Nature* article "Robust relationship between air quality and infant mortality in Africa," published June 27, 2018.