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Global Mortality from Outdoor Fine Particle Pollution Gen...



Abstract | 24 September 2018

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Global Mortality from Outdoor Fine Particle Pollution Generated by Fossil Fuel Combustion

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Abstract

Background-The burning of fossil fuels, especially coal and diesel, is a major source of airborne fine particulate matter (PM_{2.5}), and air quality has been implicated as key contributor to the global burden of mortality and disease. We aimed to undertake a global assessment of mortality associated with air pollution from fossil fuel combustion among adult population. We also estimated mortality due to lower respiratory infections (LRI) among children under the age of five in North America, South America and Europe. Methods-Global PM_{2.5} exposure levels were derived from the chemical transport model GEOS-Chem. Relative risks and attributable fractions of mortality were modeled using function from meta-analysis of association between long-term exposure to air pollutants and mortality. Results-We estimate a total global annual premature mortality attributable to the fossil-fuel component of PM_{2.5} with 6,69 million deaths. Greatest mortality is simulated over regions with substantial higher change in the PM_{2.5} concentration, notably parts of eastern North America, Europe, and Asia. We also estimated the excess annual deaths due to child LRI with 794 in North America, 619 in South America and 523 in Europe. Conclusion-This study demonstrates that the fossil fuel component of PM_{2.5} does have an important mortality burden. By quantifying the health consequences of fossil fuel combustion, a clear message is sent to policymakers and stakeholders of the co-benefits of alternative energy sources.