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Accelerating the end of the fossil fuel era: a human and planetary health imperative and opportunity

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A Viewpoint on the Frontiers in Science Lead Article

[Immune-mediated disease caused by climate change-associated environmental hazards: mitigation and adaptation](#)

Key points

- Climate change and its primary root cause, the burning of fossil fuels, are arguably the leading cause of avoidable morbidity and mortality worldwide.
- Ending the era of fossil fuels as soon as possible is imperative for human and planetary health.
- The health community—health professionals, health organizations, and health systems—could play a unique and essential role in building public and political will to accelerate the end of the fossil fuel era.

The health imperative of hastening the end of the fossil fuel era

In their excellent lead article “*Immune-mediated disease caused by climate change-associated environmental hazards: mitigation and adaptation*,” Agache et al. (1) paint a vivid picture of how the human immune system is dysregulated by climate change. Their timely review was published at an auspicious moment, shortly after the conclusion of COP28—the 28th United Nations (UN) “Conference of Parties” to negotiate the global response to climate change—which, according to the UN Climate Change Executive Secretary Simon Stiell, signaled the “beginning of the end” of the fossil fuel era.

At COP28, the world’s leaders committed to triple renewable energy production by 2030 and “transition away from fossil fuels”. This came not a moment too soon, given that in 2018 leading climate scientists—through the Intergovernmental Panel on Climate

Change (IPCC) *Global Warming of 1.5°C Special Report*—warned that global warming of 2°C cannot be considered safe and that all additional warming beyond current levels will lead to greater health harms through increases in extreme heat, air pollution, vector-borne diseases, poverty, and other impacts including food insecurity, sea-level rise and saltwater intrusion, drought, flooding, and involuntary migration (2). In this context, the article by Agache et al. (1) can be seen as clarifying that, from a human and planetary health perspective, humanity must expedite the transition from the “beginning of the end” of the fossil fuel era to the “end of the fossil fuel era”.

Arguably, climate change and its primary root cause, the burning of fossil fuels, are already the leading cause of avoidable morbidity and mortality worldwide, although a full accounting of the current worldwide health burden associated with the fossil fuel economy has never been compiled. Even a partial accounting makes a powerful case for hastening the end of the fossil fuel era. Vohra and colleagues (3) estimated the global annual mortality from outdoor air pollution generated by fossil fuel combustion at 8.7 million premature deaths, while Lelieveld et al. (4) estimated the number at a mere 5.1 million premature deaths using a different method. According to other research (5), worldwide, particulate matter (PM)_{2.5} exposure above the World Health Organization (WHO) guideline level reduces the average person’s life expectancy by 2.3 years. Its impact exceeds that of any other risk factor—including tobacco, which has long been seen as the leading killer. A full accounting of the health harms from fossil fuel air pollution must also include preventable morbidity. For neonates and children this includes both adverse birth outcomes (low birth weight and pre-term birth) and neurodevelopmental harms (reduced intelligence quotient, autism, attention-deficit/hyperactivity disorder, anxiety, and depression) that undermine their lifetime potential. For seniors it includes neurodegenerative harms (including dementia, Parkinson’s disease, and multiple sclerosis) that seriously undermine the quality of their final stage of life. For people of all ages it includes respiratory illness (asthma and chronic bronchitis for children and adults, plus emphysema and chronic obstructive pulmonary disease for adults), cancer, and cardiovascular disease (6, 7). Moreover, fossil fuel air pollution is exacerbated by the hotter temperatures resulting from global warming, and it is only one of many pathways by which climate change is harming human health—the others include increasing heat illness and deaths, intense storms and flooding, vector-, food-, and waterborne illnesses, food insecurity and malnutrition, mental health impacts, involuntary migration and displacement, and violent conflict—all of which are projected to become increasingly prevalent and severe as global temperatures increase (8).

Over the past several decades, the social determinants of health (economic stability, educational access and quality, healthcare access and quality, neighborhood and built environment, and social and community context) have become almost universally accepted in the health professions as fundamental to health—and as health professionals our mission has evolved to address these factors. However, recently, it has become increasingly clear that the ecological determinants of health—including climate change and the choices of fuel used to power the global economy—are even

more fundamental than the social determinants. Disrupting the ecological determinants of health undermines the social and behavioral determinants, in addition to the myriad of direct harms caused (9). This leads to the inescapable conclusion that the mission of health professionals, health organizations, and health systems must evolve yet again to defend the ecological determinants of health—as a human and planetary health imperative.

The health community’s opportunity to hasten the end of the fossil fuel era

Social science research conducted over the past decade strongly suggests that the health community—health professionals, health organizations, and health systems—could play a unique and essential role in building public and political will for necessary climate solutions including clean energy, low-carbon and active transportation systems, improved food and food systems, energy-efficient buildings, and climate-smart community designs (10). Many health professionals understand that climate change is harming the health of the people they care for, although most feel they lack expertise in the topic; most also feel that health professionals and organizations should play a role in educating the public and policymakers about the health relevance of climate change and in advocating for climate solutions, and many express a willingness to get involved in such efforts. The factor most strongly associated with health professionals’ willingness to personally advocate for climate solutions is their view that health professionals have a professional responsibility to do so.

Most members of the public currently know little about the health relevance of climate change and the health harms of burning fossil fuels, yet they trust health professionals as a source of such information (10). When presented with information about these health harms and the health benefits associated with climate solutions, people tend to become more personally engaged in the issue and more likely to take action to support public policies that address climate change. This may be especially true of moderate political conservatives who have traditionally been less supportive of climate action and could, if successfully engaged, play a key role in building political will for climate action. Moreover, when health professionals explicitly acknowledge the role that fossil fuel chief executive officers and lobbyists play in opposing climate action, the recipients of this information become even more supportive of climate action—especially political conservatives—and it increases people’s trust in the health professionals who communicated the information (11).

Conclusion

Ending the era of fossil fuels as soon as possible is imperative for human and planetary health. Through education and advocacy conducted explicitly through the lens of protecting human and planetary health (versus, say, the lens of environmentalism), the health community can play a unique and essential role in building public and political will to accelerate the transition to a clean energy economy. To this end, the WHO recently published a toolkit

specifically to help health professionals effectively communicate about climate change and health (12).

Can such education and advocacy by the health community make a difference? The following case study suggests it can. In 1980, seven American and Soviet physicians established the International Physicians for the Prevention of Nuclear War (IPPNW). Their message to the world—especially to Ronald Reagan, Mikhail Gorbachev, and other leaders of the United States and the Union of Soviet Socialist Republics (USSR)—was simple: a nuclear war would destroy civilization and might extinguish human life. In 1985, their organization was awarded the Nobel Peace Prize for its central role in helping to open arms control discussions between the United States and the USSR. Two years later, in his autobiography, *Perestroika*, Gorbachev said: “Their work commands great respect. For what they say and what they do is prompted by accurate knowledge and a passionate desire to warn humanity about the danger looming over it. In light of their arguments and the strictly scientific data they possess, there seems to be no room left for politicking. And no serious politician has the right to disregard their conclusions.” Later, in a thank you letter to IPPNW’s Executive Director and Board, Gorbachev said: “I want to thank you [IPPNW] for your great contribution to preventing nuclear war. Without it and other effective antinuclear initiatives this [Intermediate-range Nuclear Forces] Treaty would probably have been impossible”.

Statements

Author contributions

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