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Title

Health, Faith, and Science on a Warming Planet.

Permalink

<https://escholarship.org/uc/item/0427t5c0>

Journal

JAMA, 319(16)

ISSN

0098-7484

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Publication Date

2018-04-01

DOI

10.1001/jama.2018.2779

Peer reviewed

VIEWPOINT

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Health, Faith, and Science on a Warming Planet

Global change presents humanity with unprecedented challenges. Climate change, altered natural cycles, and pollution of air, water, and biota threaten the very conditions on which human civilization has depended for the last 12 000 years. While human health is better now than ever before in human history, climate change is undermining many public health advances of the last century and ultimately may be associated with the unprecedented extinction of species. The increasing gap between the wealthy and poor—already unconscionable, and the cause of profound preventable morbidity and mortality—amplifies the effects of climate change on health and deepens health disparities.

These challenges call for global collaboration. Innovative partnerships are essential. The emerging alignment of health professionals, climate scientists, and the faith community is one such partnership. This alignment is based on a great deal of common ground.

First, *there are certain truths*. This is a time when many people are questioning even established facts. Untruths are promulgated with disturbing frequency and are disseminated efficiently through social media. But disciplined, critical thinking, and an unflinching commitment to distinguish what is verifiable from

“one of the principal challenges facing humanity,” recognized the grave implications for health and equity, and grounded this assessment in “the scientific consensus that changes in the climate are largely man-made.”²

Third, *“with unchecked climate change and air pollution, the very fabric of life on Earth, including that of humans, is at grave risk.”*^{3(p5)} Data collected in recent years have revealed that worldwide warming can expose billions of people to deadly heat waves, floods, droughts, and fires. The pollutants released by the burning of fossil fuels and nonrenewable biomass that lead to climate change are associated with an estimated 7 million premature deaths each year.⁴ In response, the Pontifical Academy of Sciences convened a group of political and faith leaders, climate scientists, and public health experts in 2017, to review data on health effects of climate change. The group affirmed the seriousness of the threat. It proposed scalable solutions such as transitioning to a decarbonized energy system, providing financial support to poor nations for climate adaptation, and ending deforestation. The group also recommended an alliance of scientists, policy makers, private donors, and faith leaders to implement these solutions.

Fourth, *there is a role for reverence and awe*. These responses may come more easily to religious than to scientific thought, but in truth they are common to both domains. “You must have experienced it, too,” Werner Heisenberg wrote to Albert Einstein, “One is almost frightened in front of the simplicity and compactness of the interconnections that nature all of a sudden

spreads before him and for which he was not in the least prepared.”^{5(p108)} The impulse to address climate change, to protect people, and to seek justice is not only a response to danger. It also reflects profound appreciation for the sanctity of individuals, the beauty of community, the gift of health, and the majesty of the natural world.

Fifth, *there is a moral obligation to safeguard the earth for future generations*. Scientists, health professionals, and people of faith all understand that contemporary actions have future consequences. Climate scientists model and forecast these consequences. Health professionals understand them through the lenses of genetics and epigenetic effects. Religious traditions are grounded in the intergenerational transmission of faith and values. Together, these perspectives support a robust moral claim that each generation has a responsibility to the generations that follow.⁶

Sixth, *there is a moral obligation to care for the most vulnerable*. Health professionals recognize that social inequities are among the strongest predictors of poor health. The world’s major religious

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what is not, characterize the best of the health, science, and faith communities.

Second, *scientific evidence is a primary basis for distinguishing what is verifiable from what is not*. Science is both an epistemology (ie, a way to establish truth) and a set of institutional arrangements, including universities and research institutes, science academies, expert committees, and government science advisors. Scientific evidence provides invaluable policy guidance to political leaders, to members of the public, and to religious leaders. In the United States, for example, the National Academies have provided extensive guidance on climate science and on the influence of climate change on human health and well-being.¹ The Pontifical Academy of Sciences at the Vatican, which was founded in 1936 by Pope Pius XI but which traces its origins to the much older *Accademia dei Lincei* (established in 1603 and led by Galileo Galilei), has a similar important role. For example, the Academy provided scientific support to the 2015 Papal encyclical, *Laudato Si’*, which laid out a global approach to environmental stewardship. *Laudato Si’* identified climate change as

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traditions, even if they interpret God in different ways, must share a commitment to human dignity, the pursuit of justice and peace, and the exercise of charity, and must act together accordingly. Pope Francis's reminder that "there is an inseparable bond between our faith and the poor"⁷ is as clear and compelling, in its domain, as are the health data in their domain. All people are vulnerable to the effects of climate change, but the poor and disenfranchised are especially vulnerable.⁸ Strategies for climate mitigation and adaptation, for health promotion and disease pre-

vention, and for economic and social development, must center on serving these populations.

These 6 areas of common ground represent a broad and deep foundation, and a powerful opportunity. They establish a path to innovative and productive partnerships among health professionals, scientists, and the faith community as they work together safeguarding both the global environment and human health—and leveraging their moral authority, expertise, and influence—to address climate change urgently, effectively, and equitably.

ARTICLE INFORMATION

Published Online: March 15, 2018.
doi:10.1001/jama.2018.2779

Conflict of Interest Disclosures: All authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Dr Frumkin reported that he currently serves without compensation on advisory committees for the Global Consortium on Climate and Health Education (Columbia University), the Planetary Health Alliance (Harvard University), the Medical Society Consortium on Climate & Health (George Mason University), the Wellcome Trust "Our Planet, Our Health" initiative, and EcoAmerica's "Climate for Health" initiative; that he previously (within the last 3 years) served without compensation on the external advisory board for the Yale Climate and Energy Institute (Yale University); and that he has agreed to serve without compensation as an expert witness on the health effects of climate change in a pending federal lawsuit. None of the other authors reported disclosures.

REFERENCES

1. Kaelin WG Jr. Climate change: what would Lincoln do? *JAMA*. 2017;318(7):611.
2. Pope Francis. *Laudato Si'*. The Vatican website. http://w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_encyclica-laudato-si.html. 2015. Accessed March 5, 2018.
3. Ramanathan V, Sánchez Sorondo M, Dasgupta P, Raven P, von Braun J, Sachs J. Final Declaration: Our Planet, Our Health, Our Responsibility. Pontifical Academy of Sciences website. http://www.pas.va/content/dam/accademia/pdf/declaration_health.pdf. 2017. Accessed March 5, 2018.
4. World Health Organization. Burden of disease from the joint effects of household and ambient air pollution for 2012. World Health Organization website. http://www.who.int/phe/health_topics/outdoorair/databases/FINAL_HAP_AAP_BoD_24March2014.pdf. 2014. Accessed March 5, 2018.
5. Cantore E. *Scientific Man: The Humanistic Significance of Science*. New York, NY: ISH Publications; 1977.
6. Gibbons ED. Climate change, children's rights, and the pursuit of intergenerational climate justice. *Health Hum Rights*. 2014;16(1):19-31.
7. Pope Francis. *Evangelii Gaudium*. The Vatican website. http://w2.vatican.va/content/francesco/en/apost_exhortations/documents/papa-francesco_esortazione-ap_20131124_evangelii-gaudium.html. 2013. Accessed March 5, 2018.
8. Leichenko R, Silva JA. Climate change and poverty: vulnerability, impacts, and alleviation strategies. *Wiley Interdiscip Rev Clim Change*. 2014; 5(4):539-556.