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Medical News & Perspectives

Medical Community Gathers Steam to Tackle Climate's Health Effects

M.J. Friedrich

Nearly 30 years ago, Alexander Leaf, MD, drew a bold analogy. Changes brewing in climate and the environment, he wrote, may be just as harmful to human health as nuclear war.

Leaf, the former chief of medicine at Massachusetts General Hospital in Boston, acknowledged in a 1989 *New England Journal of Medicine* essay that climate change wasn't in most physicians' purview. Even so, he advised clinicians that dealing with the related health threats "becomes our special burden."

Leaf passed away in 2013, but his message has flourished. In the 1990s, his essay spurred development of the Center for Health and the Global Environment at the Harvard School of Public Health in Boston. Some medical schools now offer courses in climate and health, and additional education programs are cropping up for practicing physicians.

In fact, the 2015 *Lancet Commission on Health and Climate Change* recommended that health professionals use similar strategies to combat climate-related health dangers as they did in tackling tobacco use, HIV infection, and polio. "A public health perspective has the potential to unite all actors behind a common cause—the health and wellbeing of our families, communities, and countries," Commission members wrote.

Start With Medical Students

Although some medical schools offer coursework in climate change and health, it isn't a standard requirement by any means,

said Aaron Bernstein, MD, MPH, associate director of Harvard's Center for Health and the Global Environment and a pediatrician at Boston Children's Hospital. He teaches the Human Health and Global Environmental Change course, which has been part of the curriculum since 1996. However, Bernstein's class is open to all Harvard students. Many students entering medical school ask for specific training in this area, but find the curricula lacking.

"They have learned as undergraduates that this is a real health problem and are somewhat mystified as to why the topic disappears in medical school," he said. Heat-related disorders, respiratory problems due

to air pollution, infectious diseases from more widespread vectors, and waterborne illnesses due to flooding and toxic algae growth—not to mention injuries and mental stress from climate-related natural disasters—already affect vulnerable US populations.

"There is no question the students want to know more," said Jay Lemery, MD, associate professor of emergency medicine at the University of Colorado School of Medicine. "They're curious and still in a save-the-world mode. They're hungry for this information." The big challenge, he said, is how to get it into a crowded medical school curriculum.



Learn More About Climate Change and Health

Physicians can consult a growing list of climate change resources, including the following:

Reports

- *Medical Alert! Climate Change is Harming Our Health*, a 2017 report from the Medical Society Consortium on Climate and Health, comprising 12 medical societies, outlines the direct and immediate effects of climate change on human health in the United States.
- *The Lancet Countdown: Tracking Progress on Health and Climate Change*, an international initiative that reports annually on indicators of climate-related health effects.
- *2015 Lancet Commission on Health and Climate Change*, which details the health effects of climate change and suggests policy responses to protect human health.
- *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, a publication of the US Global Change Research Program (USGCRP) that presents evidence-based estimates of observed and projected climate-related health effects in the United States.
- *The Third National Climate Assessment (NCA)*, a 2014 report from the USGCRP that assesses the science of climate change and its US effects throughout this century.
- *2014 Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC)*, which updates scientific knowledge on climate change, its potential effects, and options for adaptation and mitigation.
- *Primary Protection: Enhancing Health Care Resilience for a Changing Climate*, US Department of Health and Human Services, Fall 2014, is a toolkit for health care professionals, design professionals, policy makers, and others to develop a resilient health care infrastructure.
- *Inspire Hope, Not Fear: Communicating Effectively About Climate Change and Health* by Wendy Ring, MD, MPH, highlights how health professionals can engage the public and shares strategies to communicate about climate change and health.
- *Climate Change and Health: A Position Paper of the American College of Physicians*, which explores the evidence of health consequences from climate change and suggests ways for physicians to reduce the harmful effects.

Websites

- *Medical Society Consortium on Climate and Health*
- *US Climate and Health Alliance*
- *Center for Climate Change and Health*
- *A Physician's Guide to Climate Change, Health and Equity*
- *Climate 911*, a national network supporting health professionals calling for climate action.
- *George Mason University Center for Climate Change Communication*
- *ecoAmerica*, a San Francisco-based nonprofit that offers communication guides on how to discuss climate and health.
- *American College of Physicians Climate Change Toolkit*, which helps physicians advocate for climate change adaptation and mitigation policies.
- *Healthcare Without Harm*, an international coalition that supports healthful, ecologically sound practices and products in the health care industry.
- *US Department of Health and Human Services' Sustainable and Climate Resilient Health Care Facilities Initiative* includes a toolkit with guidelines on land use, building design, and ways to reduce energy consumption and waste for hospitals and other large health care facilities.
- *National Institute of Environmental Health Sciences: Climate Change and Human Health*
- *US Environmental Protection Agency: Climate Change*
- *Practice Greenhealth*, a nonprofit organization whose members share environmental solutions for the health care sector
- *Natural Resources Defense Fund*

Books

- Luber G, Lemery, J. eds. *Global Climate Change and Human Health: From Science to Practice*. San Francisco, CA: Jossey-Bass; 2015.
- Levy B, Patz J, eds. *Climate Change and Public Health*. New York, NY: Oxford University Press; 2015.
- Butler C, ed. *Climate Change and Global Health*. Boston, MA: CAP International; 2016.

The Icahn School of Medicine at Mount Sinai in New York City introduces first-year medical students to climate change and health issues in a week-long course on global health. Perry Sheffield, MD, MPH, associate professor of pediatrics at Icahn, teaches the course that covers climate change, albeit briefly. Each year, 1 or 2 Mount Sinai students also conduct research on climate change and health. In one project, Sheffield said, a student examined how New York City's extreme heat preparedness activities meet the needs of its elderly populations.

Sheffield also is working on a climate change curriculum project with medical educators who represent about 9 medical schools. They're addressing the call for increased medical education on the topic, a subject that Mount Sinai's medical education department supports, she said.

Lemery, who coauthored *Global Climate Change and Human Health*, a textbook with a clinical bent that's appropriate for medical school education, suggested that one way to squeeze this material into the medical school curriculum is with financial incentives that encourage young, overworked assistant professors of medicine to take this topic on and teach future physicians to become well-versed in climate change and human health.

Lemery also discussed a new physician fellowship that is funded through the University of Colorado School of Medicine's department of emergency medicine and the Living Closer Foundation, a nonprofit organization in the Denver area. The fellowship, which begins in July, will allow a clinician to spend time at the National Institutes of Health, the Centers for Disease Control and

Prevention, and the American Meteorological Society to become fluent in climate and health science policy. "The idea is that this person can go forth and be a leader in the field," a young physician who spurs action within medical societies, academic organizations, nonprofits, and state or federal governments, he said.

Another effort to promote climate and health education is under way through the [Global Consortium on Climate and Health Education \(GCCHE\)](#), an initiative funded by The Rockefeller Foundation. Kim Knowlton, DrPH, MS, assistant clinical professor of environmental health sciences at the Columbia University Mailman School of Public Health in New York City who heads the GCCHE, said the consortium aims to unite medical schools, nursing schools, and schools of public health in sharing best

practices to build curricula and core training “so that the next generation of health profession students will have the tools, the knowledge, to be leaders in diagnosing and treating the health effects of climate change.”

Training Practitioners

Medical students aren't alone in desiring more information on the health effects of climate change. According to several recent surveys, the majority of practicing physicians recognize that climate change is happening, believe it is at least in part caused by humans, and already see it affecting their patients, said Mona Sarfaty, MD, MPH, director of the program on climate and health at George Mason University's Center for Climate Change Communication in Fairfax, Virginia.

Sarfaty coauthored the surveys, in which members of the [National Medical Association](#), the [American Thoracic Society](#), and the [American Academy of Allergy, Asthma, and Immunology](#) participated. Many physicians said they believed they had a responsibility to inform the public and their patients on climate-related health effects but wanted to be better informed.

These findings led Sarfaty and her colleagues to form a consortium of medical societies. Last November the [Medical Society Consortium on Climate and Health](#), now consisting of 12 medical societies that represent almost half of US physicians, launched its website with a mission to inform physicians, the public, and policy makers about the harmful effects of climate change and various ways to find solutions.

Linda Rudolph, MD, MPH, director of the [Center for Climate Change and Health](#) at the Public Health Institute in Oakland, California, also has surveyed physicians and public health professionals about climate change and health. Many said they're reluctant to speak out because they lack expertise, while some also felt they don't have the time, mandate, funding, or resources to address it. The politicization of the issue also has influenced some to avoid it.

Rudolph and her colleagues have been working in California to introduce physicians to the array of potential roles that medical providers can play in issues of climate change and health. For example, they can integrate climate change into patient education, management, and care protocols; speak to their communities and peers; or work to help green their organizations and institutions. The Center for Climate Change

and Health created [A Physician's Guide to Climate Change, Health, and Equity](#), which pulls together a wide range of information on the topic.

“We're also trying to identify individuals who want to become advocates, champions on climate and health,” said Rudolph. Although the majority of people in the United States now think global climate change is happening, many remain [unaware](#) of the immediate threats climate change poses. But Rudolph and others have noted that as trusted messengers, physicians can play an important role in informing their patients, their community, and policy makers.

She said her group has helped some physicians speak on Spanish-language radio programs in Stockton, California, introducing the general subject of climate change and health and then presenting a more specific segment on climate change and mental health.

The Center for Climate Change and Health also hosts the [US Climate and Health Alliance](#), a national network of individuals and medical and health organizations. Through the alliance, Rudolph and her colleagues have identified groups who see climate change and health as a critical issue and are taking action in their local communities. For example, they recently helped members of Health Professionals for a Healthy Climate in Minnesota craft a letter to all their state legislators to underline several critical issues on health and climate.

Greening the Health Care Sector

Clinicians can also address climate change and health by adopting environmentally sustainable practices in health care facilities.

Hospitals are among the most energy-intensive enterprises in the country, consuming massive amounts to power ventilators, heating and cooling systems, and lighting. They also generate greenhouse gas emission associated with food service, transportation, and waste disposal.

“Ironically the sector of our society that's devoted to healing [the healthcare sector] is itself a major polluter,” 2015 MacArthur fellow Gary Cohen, MBA, said in 1996. Cohen is president and founder of [Health Care Without Harm](#) (HCWH) in Reston, Virginia.

Through efforts such as the Healthier Hospitals Initiative (HHI)—a 3-year campaign created in 2012 to introduce environmentally sustainable programs in hospitals

and health care facilities—Cohen and his colleagues have worked to green the health care sector, which contributes about 8% of total greenhouse gases in the United States.

Healthier Hospitals Initiative worked with 12 health systems to guide other hospitals—altogether 1600 were involved—to adopt environmental best practices in reducing energy and waste; choosing safer, less toxic products; and purchasing healthier food.

The University Hospitals Health System in Northeast Ohio had made progress in moving toward environmentally sustainable practices on its own before working with HHI. But the system's officials learned even more from the other hospitals in the initiative, said Aparna Bole, MD, assistant professor of pediatrics at University Hospitals Rainbow Babies and Children's Hospital in Cleveland and board member of HCWH.

Despite progress over the last decade, Bole said many hospital systems remain naive about environmental sustainability. “Remarkably, there are still hospitals today that don't have a single recycling bin,” she said.

“The good news is that often the very things that improve well-being and sustainability, that reduce the carbon footprint and pollution, are the very things that provide a good return on investment,” said Emily Senay, MD, MPH, assistant clinical professor of preventive medicine at the Icahn School of Medicine at Mount Sinai.

Senay, who spearheaded green practices at Mount Sinai, said, “Health systems are businesses, but we're lucky, because our business is helping people.” However, if their mission is to create health and well-being, rather than just put Band-Aids on problems, she said, “we need to make sure we're not putting harmful toxic chemicals out the back door while patients are coming in the front door.”

Physicians play a role in society by preparing people for the future and helping communities become resilient, said John Balbus, MD, MPH, senior advisor for public health at the National Institute of Environmental Health Sciences of the National Institutes of Health. “But if physicians are not speaking out about what's at stake for their patients related to climate change, who else will do it with the same moral authority?” he asked. ■

Note: The print version excludes source references. Please go online to [jama.com](#).