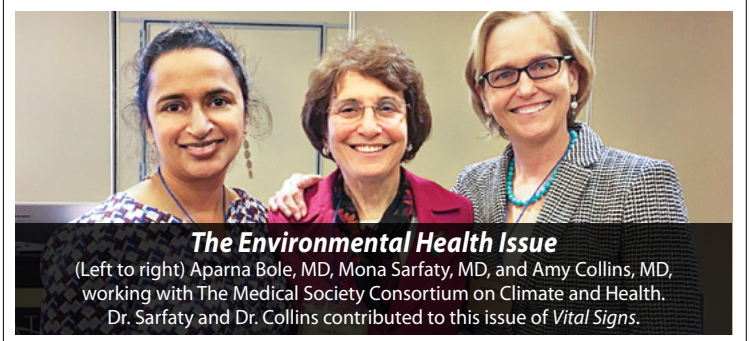


VITAL SIGNS



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MEDICAL SOCIETY

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each patient counts.*



VOLUME 23, ISSUE 6, SUMMER 2018

How Climate Change Shapes Health, Health Care, and Physician Advocacy in Massachusetts

BY ROBYN ALIE, MANAGER, MMS HEALTH POLICY AND PUBLIC HEALTH

In the scientific and medical communities there is little doubt about the causes and consequences of climate change. Its influence on human health and health care delivery is being felt today in communities from Bangladesh to Boston. Climate change is “the biggest global health threat of the 21st century,” the Lancet Commission on Climate Change concluded in 2009. “We need to act now to mitigate against the health effects,” says Nitin S. Damle, MD, MS, MACP, clinical associate professor of medicine at Brown University’s Alpert Medical School and a past president of the American College of Physicians.

Global Warming, Local Effects

While climate change is profoundly affecting lower-income countries, more affluent countries are in no way immune. The US Global Change Research Program calls climate change “a significant threat to the health of the American people.” The program cites current and future threats from higher temperatures; increased storm intensity, rainfall rates, and storm surge; temperature-related illness and death; air quality impacts; natural disasters; and vector-borne disease.

Massachusetts is feeling the heat, too. “The simple truth of the matter is we have 351 cities and towns in Massachusetts, and they all need a vulnerability plan, and they all need a hazard mitigation plan,” Governor Charlie Baker said in March, announcing a Climate Resiliency Initiative. In 2015, for example, a Climate Change Vulnerability Assessment

in Cambridge found that heat exposure has a direct impact on total daily deaths, and higher temperatures may affect birth outcomes, such as an increase in preterm births. Cambridge is among the many urban communities that are vulnerable to the “heat island” effect, intensified by older housing stock, minimal

Distant weather events can have long-term effects on the medical supply chain. The ongoing shortage of IV fluids in Massachusetts health care centers, for example, has everything to do with the hurricane in Puerto Rico last year that disrupted production at a single, small volume IV fluid bag plant, Dr. Bernstein points out.



protection from trees, air pollutants related to high energy consumption, and other factors.

Effects on Physician Practices

Climate change shapes the everyday practice of physicians in Massachusetts, says Aaron Bernstein, MD, MPH, co-associate director of the Center for Climate, Health, and the Global Environment at Harvard T. H. Chan School of Public Health. “This is a medical care issue. It affects the ability of doctors to practice medicine, and it affects our ability to provide the care we need.”

The regional health care system is also challenged by influxes of people displaced from disaster zones to Massachusetts and other areas, as well as by local weather events. “We’re starting to uncover these vulnerabilities for which we’re not prepared,” says Dr. Bernstein. “New England has experienced the greatest intensification of the water cycle. Heavy snows and rains are a risk to power supplies — we can’t refrigerate our medicines — and create risks to access to care. People can’t get to clinics, including the people who work there.”

Effects on Patient Health

Climate change is directly influencing human health in the US. “We’re not talking about polar bears, we’re talking about kids,” says Mona Sarfaty, MD, MPH, FAAFP, a family physician based in Washington, DC, and executive director of The Medical Society Consortium on Climate and Health, established in 2017 to help physicians address the health risks of climate change.

Some demographics and communities are particularly susceptible to air pollution and heat exposure (see page 4). “Kids spend more time outside and are more likely to suffer heat illness; pregnant women are more vulnerable to heat and poor air quality,” says Dr. Sarfaty. Thousands of student athletes are treated for heat illnesses each year, and people of limited socioeconomic means are often unable to evacuate areas affected by wildfire smoke or storms, she says.

The elderly and chronically ill are also at relatively high risk, says Dr. Damle, who is an internist in Rhode Island. “We have seen an increase in heatwaves leading to more emergency room and office visits and higher death rates in our vulnerable populations: the elderly, people with chronic heart and lung conditions, and the poor who lack access to air conditioning and other measures.”

The northeast US is also experiencing increasing risk from tick-borne disease (see page 5), Dr. Damle says. “We are seeing more cases of tick-borne illness — primarily Lyme disease, Anaplasma, and Babesia infection — and

continued on page 4



Cleaning Up Our Practice Environment Improves Human Health

We spend countless, valuable hours discussing with our patients the health-influencing issues of stress, sleep, tobacco use, drugs, alcohol, diet, and physical activity. We know that certain recommendations and guidelines can reduce our patients' risk of disease and improve their quality of life. Ideally, we do our best to take our own advice.

There is another aspect of health that we as healers and role models of a healthy lifestyle can and should consider — our environment, the places where we live, learn, work, and play.

We know that any threat to (or disruption of) access to clean air, clean water, and safe food, or the introduction of toxic substances into our environment, can adversely affect health.

As my colleague Amy Collins, MD, points out on page 3, the health care industry is a major source of environmental pollution. This pollution — which includes greenhouse gas emissions and hospital waste — takes a serious toll on human health. Health care professionals have a part to play in minimizing the harmful effects of health care delivery.

When physicians and our colleagues become cognizant of the impact of health care on our environment and health outcomes, we can reduce that impact. Engaged, committed leadership is essential in driving "climate-smart health care." At the same time, physicians as individuals are vital messengers and advocates for reducing and mitigating the environmental risks to human health.

This issue of *Vital Signs* provides proven, actionable steps to improve our practices and our lives, so that we may contribute more broadly to the improved health of the world we share and everyone in it.

— Alain A. Chaoui, MD

Massachusetts Doctors Raise Awareness of Environment/Human Health Link

BY ROBYN ALIE, MANAGER, MMS HEALTH POLICY AND PUBLIC HEALTH

This summer, the MMS will launch a multiyear campaign to promote public awareness of the link between the health of the environment and the health of our patients.

Recent polls have shown stark differences between the public's understanding and scientists' understanding of the relationship between humans and the environment. They also show that the public's understanding is heavily influenced by politics.

For example, while studies show that 97 percent of scientists believe global warming is occurring and related to human activity, a Gallup poll conducted in March found that only 64 percent of the public believes this. Among Democrats polled, 89 percent agreed with scientists, compared to 35 percent of Republicans. Overall, however, a record high percentage of Americans — 45 percent — think global warming will pose a serious threat in their lifetime, and



"As program funding is cut and regulations that have protected the public health are rolled back at the federal level, we as physicians and scientists can demonstrate our concern by raising awareness about the link between the environment and health, and help patients think about ways they can minimize those risks in their own lives and communities."

— Louis E. Fazen, MD, pediatrician;
MMS Committee on Public Health



43 percent — 91 percent of Democrats — report being fairly or greatly worried.

Prioritizing Public Awareness

The upcoming campaign is a directive of the MMS House of Delegates, which adopted policy recognizing the "inextricable link between environmental health, animal health, and human health, and the importance of scientific research in informing policies that protect human health from environmental toxins." Delegates directed the Society to initiate a public health campaign promoting public

awareness of pollutants and their impact on human health.

The MMS Committee on Public Health recommended the policy, noting recent federal actions. These actions included heavy cuts to the federal programs that study and monitor potential environmental toxins, and legislation that would promote industry representation on environmental advisory boards and limit the types of scientific research, including epidemiologic studies, that could guide EPA policy.

Helping Patients and Communities

The campaign is an opportunity for physicians to help clarify the issues and promote safer policy and behaviors, says Louis E. Fazen, MD, member of the MMS Committee on Public Health. It will primarily use the MMS's Facebook and Twitter channels and website as a cost-effective means of disseminating simple information designed to raise awareness of the links between environmental health and human health. Physicians can find more information and a link to the campaign at massmed.org/environment.



Massachusetts Medical Society Elects Officers for 2018–2019

Alain A. Chaoui, MD (right), the 136th president of the Massachusetts Medical Society, succeeded Henry L. Dorkin, MD, FAAP, at the Annual Meeting in April.

Photo by Doug Bradshaw

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Green Your Practice While Cutting Costs: Why and How to Get Started

BY AMY COLLINS, MD, AND LUCY BERRINGTON, MS

Physicians take an oath to do no harm. Yet our health care facilities create an environmental and carbon footprint that damages the health of our patients, communities, and planet. If the US health care sector were a country, it would rank 13th in the world for greenhouse gas emissions, ahead of the UK. It generates 14,000 tons of waste a day, according to the Healthcare Plastics Recycling Council. Pollutants related to health care lead to an annual loss of 405,000–470,000 years of healthy life in the US, according to a 2016 study in *PLoS One*.

The financial costs are no less startling. The health care sector spends more than \$8 billion on energy a year, enough to cover more than 100,000 nurses at an average salary, according to the US Department of Energy. Improved management can result in savings both direct and indirect, say advocates and researchers — in part, and crucially, by reducing the incidence of human disease.

“Climate-Smart Health Care”

As trusted leaders, physicians have many opportunities to advance sustainability within their organizations. A 2017 report by the World Bank Group and



Tracey Burg, RD, teaching kitchen chef at Boston Medical Center at the hospital’s rooftop farm.

Health Care Without Harm, a campaign for environmentally responsible health care, argued for shifting the industry toward “climate-smart health care.” That emerging term covers low-carbon design, construction, and supply purchasing, energy efficiency, waste minimization, sustainable transport and water use, and resilience in the context of climate-related disruption.

Professional and advocacy organizations are stepping up. Many hospitals have reevaluated their operations, reducing energy use and transitioning to renewable energy sources. Specialty organizations including the American



“Climate change poses serious threats to human health. As physicians, we owe it to our patients to speak out about our concerns, advocate for policies to reduce the impacts and prepare our communities to be ‘climate-resilient,’ and encourage our hospital facilities to lead by example, by implementing energy efficiency and sustainability programs.”

— Regina C. LaRocque, MD, MPH, infectious disease specialist



Key Resources

HEALTH CARE WITHOUT HARM: The leading campaign for environmentally responsible health care and advocacy: noharm-uscanada.org

HEALTH CARE WITHOUT HARM PHYSICIAN NETWORK: noharm-uscanada.org/physiciannetwork

PRACTICE GREENHEALTH: The leading membership association for hospitals and businesses engaged in sustainable health care: practicegreenhealth.org

See massmed.org/environment for additional details and resources.

College of Physicians, the American Academy of Pediatrics, and the American Society of Anesthesiologists are encouraging physician leadership on environmental sustainability. “Physicians and health organizations have obligations to use their influence, expertise, and resources to protect health, which includes promoting sustainability,” the *AMA Journal of Ethics* concluded in a 2017 case.

Sustainability Cuts Costs

How financially viable are sustainability initiatives in health care facilities? The 2012 report by the Commonwealth Fund, “Can Sustainable Hospitals Help Bend the Cost Curve?,” looked at programs aimed at reducing energy use and waste and improving operating room efficiencies (OR consumption and waste is particularly high) in selected hospitals. It found that the savings associated with sustainability interventions far exceeded the costs of implementation, which were relatively low.

If applied nationally, the interventions studied could save \$15 billion over 10 years, the researchers concluded. Many programs did not require additional costs but generated immediate savings; for example, reprocessing single-use devices, salvaging unused items from OR packs,

and disposing of nonhazardous items separately from costly “red bag” waste.

The Commonwealth Fund report anticipated that sustainability efforts could yield even larger savings in nonacute settings, because of their lower fixed costs — citing, for example, “Kaiser Permanente’s annual savings of tens of millions of dollars through systemwide implementation of its environmentally preferable purchasing program.”

How to Get Started

The Health Care Without Harm Physician Network is the primary forum for physicians who are interested in promoting climate-smart health care and reducing the environmental impact of health care delivery. Health Care Without Harm and its sister organization, Practice Greenhealth, which works with health care facilities to achieve sustainability goals, offer extensive resources. Environmental organizations and initiatives emphasize that sustainability in health care settings requires committed leadership; leadership resources are available from Practice Greenhealth.

Dr. Amy Collins is the founder of Health Care Without Harm’s Physician Network, which helps physicians promote sustainability and climate-smart health care; acollins@hcvh.org.

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What Are Your Patients Breathing? The Rising Harms of Air Pollution

BY HEATHER J. ALKER, MD, MPH, CHAIR, MMS COMMITTEE ON ENVIRONMENTAL AND OCCUPATIONAL HEALTH



Consider the clinical case of a 25-year-old male seen at Boston Medical Center while experiencing an acute asthma episode.

The flare-ups were becoming more frequent, he said. After he had been treated and stabilized, he reported that he lived in a low-income neighborhood close to a major highway in old housing stock. Indoors, he was potentially exposed to asbestos, lead paint, and mold. Outdoors, he was certainly exposed to traffic pollution that is closely associated with asthma exacerbations and is a risk factor for developing asthma.

"You can't necessarily say this patient's symptoms are clearly due to air pollution," says Manijeh Berenji, MD, MPH, who specializes in occupational and environmental medicine at BMC, "but you do have enough information for a risk assessment — to say, 'This person has all these contributing sources to his current respiratory state.' You can come to a pretty legitimate conclusion." The adverse health effects of air pollution will almost certainly become worse as climate change intensifies, researchers say.

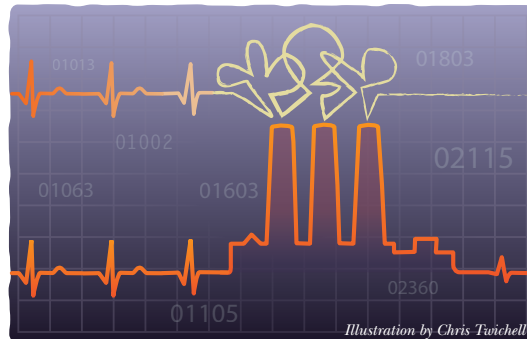
Health Effects of Air Pollution

In New England exam rooms, the health impact of air pollution may show up as more cases of respiratory or cardiovascular distress and more acute episodes. At a symposium on Natural Gas Infrastructure and Public Health at Boston University in January, Mary B. Rice, MD, a pulmonologist at BIDMC, presented her team's research on the local effects of relatively low levels of air pollution. A study in eastern Massachusetts showed that healthy adults had clinically meaningful reductions in lung function after a moderate (as opposed to a good) air quality day, as delineated by EPA standards (*American Journal of Respiratory and Critical Care Medicine*, 2015). A 2018 Boston study found evidence of air pollution as a risk factor for pediatric asthma (*Journal of Allergy and Clinical Immunology*, 2018).

Fine particulate matter in the air and ozone are known public health hazards. A 2017 study involving more than 60 million Medicare beneficiaries in the continental US found that the higher

the concentration of air pollutants, the higher the chance of an early death (*New England Journal of Medicine*).

Particulate matter is associated with serious cardiovascular and respiratory illness and increased mortality — a relationship that is evident even at



Check current air quality by zip code at airnow.gov.

very low concentrations of ambient particles. Traffic is a major contributor of particulate matter, and traffic pollution is heavily implicated in cardiovascular disease, obesity, and diabetes, as well as respiratory illness.

Climate change is expected to increase concentrations of ground-level ozone, along with more frequent stagnant air conditions, which further raise the ozone risk. Ozone is associated with respiratory illness and chronic obstructive pulmonary disease. The US Global Change Research Program predicts rising hospital admissions and premature deaths linked to ozone.

Unequal Harms

The health effects of air pollution are most heavily felt by people with pre-existing, chronic medical conditions, the young, the old, and those who work or exercise outdoors. In addition, research shows that air pollution continues to

amplify disparities along racial, ethnic, and socioeconomic lines.

Communities of lower socioeconomic status are more likely to live in areas with higher air pollution. In Massachusetts, 555,000 adults and 168,000 children have asthma — a disease more common among racial and ethnic minorities, and people living in poverty, compared to the general population. "At Boston Medical we deal with a lot of the social determinants of health, including the environmental component. I see that in my daily practice," says Dr. Berenji.

Stagnation of US Air Policy

The US withdrawal from the Paris Agreement, a voluntary international commitment to limiting greenhouse gases, pointed to the US government as a barrier to clean air. Like the air itself, US federal policy on air has stagnated while other countries have continued to finesse their equivalent legislation. The Clean Air Act has been key to reducing air pollution and its associated health risks, but the law has not been updated since 1990.

Meaningful policy change can also take place at the state level. Researchers at the Harvard T. H. Chan School of Public Health calculated last year that two Massachusetts bills aimed at implementing a carbon tax could save 340 lives and generate \$2.9 billion in health benefits by 2040, largely from reduced transport and building emissions.

For information on resources and advocacy, see massmed.org/environment.



"Ongoing air pollution from our transportation and energy infrastructure, and its associated climate disruption, is a public health danger. We have to educate people about these risks. It's no different than when we warn parents to lie babies on their back to sleep to prevent crib deaths, teenagers not to drink and drive, and healthy middle-agers that high blood pressure and smoking increases risk of heart attacks."



— Matthew J. Bivens, MD, emergency physician, St Luke's and BIDMC; chair, Greater Boston chapter, Physicians for Social Responsibility; co-chair, Southcoast Emergency and Disaster Preparedness Committee

Climate Change

continued from page 1

a longer season for susceptibility, extending from March to November of each year. The impact of climate change is real and now."

Physicians as Advocates

The good thing is, says Dr. Bernstein, that recommendations we routinely make for our patients, such as eating less red meat, and walking, biking, and using public transit instead of driving, also promote carbon reductions.

On a broader scale, physicians can play an important role in advocating for evidence-based environmental policies that will protect health. "The voice of the health profession is essential" to mitigating the effects of climate change, said the Lancet Countdown on Health and Climate Change (previously the Lancet Commission on Climate Change) in 2017, noting that the delayed response to climate change over the past 25 years has jeopardized human life. The American College of Physicians warned in a 2016 position paper that climate change could have a devastating effect on human and environmental health and emphasizes physicians' roles in addressing and mitigating the health effects of climate change (see page 3).

"Policy should be based in science and evidence and not be censored," Dr. Damle says. "Our actions should be based on the scientific evidence, the bedrock of an advanced society." In surveys, the Medical Consortium for Climate and Health found that physicians knew climate change was occurring, that it was substantially caused by humans, and that it was directly relevant to the practice of medicine.

Physicians' Voice

The media offers physicians and other health professionals an opportunity to be heard. Since 2007, newspaper coverage of climate change has increased 78 percent, the Lancet Countdown



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Scientists Look to Gene Editing to Combat Lyme Disease in Massachusetts

BY SARAH RUTH BATES, MBE

Should scientists tinker with wild mouse genes to make the rodents unsuitable hosts for ticks that carry disease? The ticks that transmit Lyme and other illnesses are thriving, for reasons that likely include climate change, and scientists seeking to protect human health are weighing the pros and cons of previously untested responses.

The Possible Role of Climate Change

The transmission of tick-borne illnesses is spiking, according to CDC data — and Massachusetts is among the states most badly affected, with the fourth highest number of reported tick-borne disease cases. Across the nation, the number of tick-borne disease cases nearly doubled in a single year, from 2015 to 2016, and all evidence points to a continued rise in incidence.

Climate scientists have long predicted increases in tick-borne diseases, such as Lyme, as a consequence of global warming, since warm weather accelerates ticks' breeding cycles and allows them to live in locales that have historically been too cold for them. Some scientists have drawn a link between climate change and Lyme disease. The Environmental Protection Agency tracks

the incidence of Lyme disease as a climate change indicator. The US Global Change Research Program warns that climate change may extend the "Lyme disease season" in the Eastern US.

The science is not settled, however. Experts at the CDC have thus far not linked their data to climate change. Catherine M. Brown, DVM, MSc, MPH, deputy state epidemiologist at the Massachusetts Department of Public Health, points to an alternative (or co-occurring) explanation of the rising Lyme incidence, citing "anthropogenic environmental changes" — patchy reforestation and human encroachment on those environments — which favor the deer and rodent populations that harbor disease-spreading ticks.

Editing Mouse Genes May Thwart Ticks

Whatever the cause, the need for solutions is not disputed: "There is substantial need for the development of innovative methods that effectively reduce the incidence of tick-borne diseases," says Dr. Brown. "There are many different possible approaches,

but nothing has been developed thus far that safely and effectively reduces occurrence of disease."

Gene-editing technology, which has the potential to disrupt Lyme's disease vector, may be an answer. At the Massachusetts Institute of Technology, Kevin Esvelt, PhD, assistant professor of media arts and sciences and director of the Sculpting Evolution group, is working on editing the genes of white-footed mice, which carry ticks, to immunize the mice to Lyme.



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100 Percent Mouse

Dr. Esvelt and his team are collaborating with local stakeholders on a project called Mice Against Ticks, exploring the possibility of releasing Lyme-resistant mice on Martha's Vineyard and/or Nantucket. By community request, any mice released on the islands will be "100 percent mouse," with no foreign DNA. If the island experiment goes ahead and is successful, mainland communities might subsequently use a "daisy drive," a self-limiting gene drive that is no longer inherited after a certain number of generations, to

provide some protection against unanticipated ecological outcomes, says Dr. Esvelt. Such a drive would use CRISPR technology and would introduce the DNA of bacteria into wild mice.

Ethical Dilemmas of Messing with Mice

Editing the genes of a wild population of organisms using CRISPR could potentially yield huge public health benefits. But the transmissibility that makes the technology so effective also carries risks, and it is the burden of scientists to anticipate what could go wrong. "I feel quite a bit of moral responsibility," Dr. Esvelt says.

In community meetings, he says, people who have contracted a tick-borne illness, or know someone who has, express "a palpable urgency" to taking action. But Dr. Esvelt has purposely slowed the research process, in part by ensuring that each stakeholder committee includes at least one vocal skeptic. "My concern is that someone out there might have some concern that might turn out to be valid," he says.

Human interventions with the natural environment got us into this situation; Dr. Esvelt wants to take all possible care when intervening again to get us out of it.

Climate Change

continued from page 4

noted. Stories on federal actions — such as the US withdrawal from the Paris Agreement, roll-backs of clean air regulations, and the increased role of industry in EPA policymaking — reveal climate change to be a highly charged issue politically. "[People] want to know what doctors are thinking. Not everyone knows a climate scientist, but they know a physician," says Dr. Sarfaty.

"This is where the voice of thoughtful physicians can be really valuable," says Matthew J. Bivens, MD, an emergency physician at St. Luke's and BIDMC who chairs the Greater Boston

chapter of Physicians for Social Responsibility. Dr. Bivens had a long career as a reporter before he became an emergency physician. "One of the dirty secrets of journalism is that there are no good rules about deciding who to interview as an 'expert.' Many people or institutions that interact with reporters about climate change have a narrow agenda. As a group, physicians have no business or political interest. But we do have a medical interest in our patients and fellow citizens and a scientific interest in identifying and documenting risks to public health."

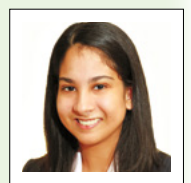
On an individual level, says Dr. Bernstein, "we can make sure we

know the record of our elected officials on voting related to energy policy, and vote. This is a medical care issue. It affects the ability

of doctors to practice medicine and provide the care we need; it affects access to medications, and the integrity of our facilities."



"Climate change affects our health in so many ways, including increased air pollution, extreme weather events, higher temperatures, and the spread of infectious diseases. As the youngest cohort of health professionals, medical students and residents will see the worst of what climate change has to bring. This puts us in a unique position to share our stories, highlight the urgency of the problem, and demand solutions."



— Krupa R. Patel, MD, internal medicine/preventive medicine resident, Boston Medical Center

Environmental Justice: An Unexpected Opportunity for Physician Wellness

BY JAMES M. RECHT, MD,
ASSISTANT PROFESSOR OF PSYCHIATRY,
CAMBRIDGE HEALTH ALLIANCE/
HARVARD MEDICAL SCHOOL



In the emergency room is a 60-year-old South Asian woman who has lived in the US for 15 years. She has a history of diabetes mellitus, hypertension, and cardiovascular disease. The patient has been in outpatient psychotherapy for PTSD related to a combination of childhood trauma and a terror attack experienced two decades ago. She recently learned that her sister and nephew were among more than 2,000 drowning victims of the latest devastating flood in her home country. She presents with more than a week of severe insomnia and loss of appetite, agitated, ruminating guiltily over her inability to be with her family for the funeral and religious ceremonies. After an emergency psychiatric assessment, she is admitted for inpatient treatment.

Also in the ER, on the third consecutive day of the latest record-breaking heat wave, a 20-year-old man presents with panic symptoms and acute asthma exacerbation. His asthma symptoms eventually respond to nebulizer treatment, but he remains in significant distress. He

is sent home with instructions to follow up with his PCP. Over the next several weeks, he becomes increasingly depressed and withdrawn, with agoraphobic symptoms severe enough that he takes a leave of absence from school, losing his work-study job.

Both of these individuals are patients of mine (I've changed some details to protect their anonymity). Their stories are not exceptional: I'm confident that virtually all of us have patients with comparable histories. They are workday examples of harm caused or exacerbated by climate change, even here in Massachusetts.

While it's clear that our poorer communities and communities of color are most vulnerable, it's just as obvious that no individual or family — no neighborhood, regardless of its affluence — is immune to these harms. Heat, severe storms and flooding, rising water levels and land loss, and the spread of vector-borne infections are today's realities; and there is an overwhelming scientific consensus that this bodes poorly for the future.

As climate change exposes systemic racial and economic health injustices, it also presents opportunities. I know I'm not alone in grappling with unsupportive professional environments and

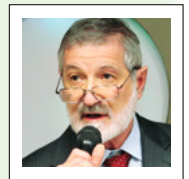
outrageous barriers to care. Increasingly, my most rewarding experiences as a health professional come through activism for social change.

I have helped organize college students and faculty in campaigns promoting divestment from fossil fuels and re-investment in community development and renewable energy. I devote several hours each week to The Poor People's Campaign, a nationwide effort to combat racism, militarism, and environmental devastation. I gain inspiration, and even a little hope, from this advocacy work and the personal and professional relationships it has led to.



"As climate change continues and large parts of the earth can no longer support their human populations, we must anticipate a significant increase in conflict.

As physicians, we have a special responsibility to alert our patients and the general public to this danger, and we know that such efforts can be successful. Physicians, working together as advocates, won the 1985 Nobel Peace Prize for educating the public about the medical consequences of nuclear war. We've continued to update our medical message, which was key to the International Campaign to Abolish Nuclear Weapons being awarded last year's Nobel Peace Prize."



— Ira Helfand, MD, internist;
co-president, International Physicians for the Prevention of Nuclear War (IPPNW)

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Waltham, MA

IN MEMORIAM

We also note member deaths on the MMS website, at massmed.org/memoriam.

Thomas L. Antkowiak, MD, 72; Osterville, MA; University of Pittsburgh School of Medicine; died April 18, 2018.

Stuart H. Bentkover, MD, 69; Worcester, MA; Mount Sinai School of Medicine, New York; died February 26, 2018.

Frank V. Colombo, MD, 91; Lynnfield, MA; Harvard Medical School, Boston; died May 1, 2018.

Ahad Dilmaghani, MD, 82; Chestnut Hill, MA; University of Tehran, Iran; died April 18, 2018.

James E. Ellis, MD, 81; Acton, MA; University of Chicago Medical School; died March 1, 2018.

Jonathan E. Fine, MD, 86; Cambridge, MA; Yale Medical School, New Haven; died January 17, 2018.

Francis C. Hersey, MD, 93; North Falmouth, MA; University of Louisville School of Medicine; died March 17, 2017.

Frank A. Howard, MD, 91; Newton, MA; Washington University School of Medicine, St. Louis; died April 2, 2018.

Joseph A. King Jr., MD, 93; Westford, MA; New York Medical College; died January 27, 2018.

Robert J. Lang, MD, 64; South Dartmouth, MA; Dartmouth Medical School, Hanover; died June 14, 2017.

Gerald W. N. LaPierre, MD, 80; East Longmeadow, MA; Boston University School of Medicine; died May 19, 2018.

Edward D. Mackler, MD, 90; Dartmouth, MA; Tufts Medical School, Boston; died December 17, 2011.

Jack S. Parker, MD, 94; Westwood, MA; Harvard Medical School, Boston; died February 9, 2018.

Vincent M. Perrone, MD, 89; Springfield, MA; Boston University Medical School; died April 25, 2018.

Larry G. Seidl, MD, 83; Denver, CO; Harvard Medical School, Boston; died April 13, 2018.

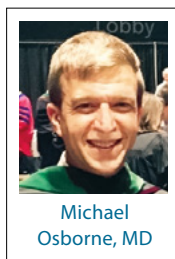
Gordon D. Winchell, MD, 98; Lincoln, MA; Tufts University School of Medicine, Boston; died May 9, 2018.

Gary B. Witman, MD, 68; Providence, RI; SUNY Downstate Medical Center, Brooklyn; died April 30, 2018.

MMS Member News and Notes



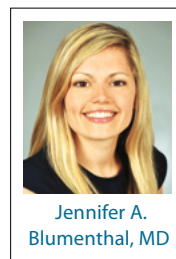
Krishna Aragam, MD, MS



Michael Osborne, MD



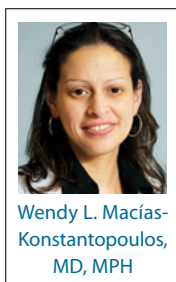
Gabriela M. Andujar Vasquez, MD



Jennifer A. Blumenthal, MD



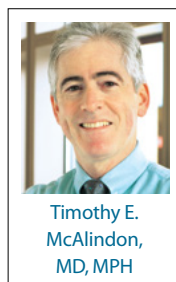
Emal Leshya



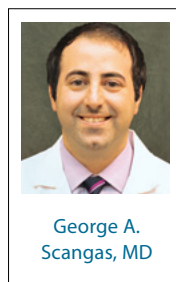
Wendy L. Macías-Konstantopoulos, MD, MPH



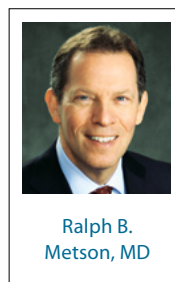
Calum A. MacRae, MD, PhD



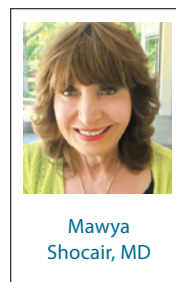
Timothy E. McAlindon, MD, MPH



George A. Scangas, MD



Ralph B. Metson, MD



Mawya Shocair, MD

Krishna Aragam, MD, MS (University of Michigan Medical School, 2011; residency: Hospital of the University of Pennsylvania), and **Michael Osborne, MD** (University of Chicago Pritzker School of Medicine, 2010; residency: BWH), have received American College of Cardiology/Merck Research Fellowships. Dr. Aragam, a clinical and research fellow in cardiology, was recognized for his research on the genetic determinants of physical activity and their association with cardiometabolic disease, and Dr. Osborne, a clinical and research fellow in cardiology and radiology, for his research on the neurobiological mechanisms linking chronic stress and metabolic disease.

Gabriela M. Andujar Vasquez, MD (Universidad Central del Caribe, 2011; residency: Mount Sinai Beth Israel), and **Jennifer A. Blumenthal, MD** (University of Alabama School of Medicine, 2012; residency, BCH), were among the first recipients of LEAP fellowships (Leadership in Epidemiology, Antimicrobial Stewardship, and Public Health) sponsored by the CDC. Dr. Vasquez is a physician and assistant professor at TUSM, and Dr. Blumenthal is a third-year fellow in infectious disease/critical care medicine at BCH.

Emal Leshya (Tufts University School of Medicine, class of 2020) has been selected as a TEDMED 2018 Research Scholar. Emal was chosen for his expertise in bioengineering, biotechnology, and health care, and will be evaluating individuals and topics nominated for the annual TEDMED Stage Program. He graduated from

UMass Boston majoring in biology. Emal is an active student member of the MMS Norfolk South district and has served as a delegate and reference committee member at the House of Delegates.

Wendy L. Macías-Konstantopoulos, MD, MPH (University of Vermont College of Medicine, 2003; residency: MGH-BWH), was appointed inaugural incumbent of the MGH Endowed Scholar for Leadership in Emergency Medicine. Dr. Macías-Konstantopoulos is director of MGH's Human Trafficking Initiative, founding medical and executive director of the MGH Freedom Clinic for trafficking survivors, and assistant professor of emergency medicine at HMS. (Photo: MGH.)

Calum A. MacRae, MD, PhD (University of Edinburgh, 1985; residency: BWH), received the One Brave Idea research award from the American Heart Association, Verily Life Sciences, and AstraZeneca for his research into coronary heart disease (CHD). As the largest single award to prevent and cure CHD, Dr. MacRae will receive \$75 million over five years. Dr. MacRae is vice chair for scientific innovation in the department of medicine at BWH and associate professor of medicine at HMS.

Timothy E. McAlindon, MD, MPH (University of Southampton Medical School, 1982; residency: Southmead Hospital; fellowship: St Thomas' Hospital, London), won the Clinical Research Forum's Distinguished Clinical Research Achievement Award, which was presented in Washington, DC, in April. Dr. McAlindon, an arthritis expert, is chief of the division of rheumatology at Tufts Medical Center.

George A. Scangas, MD (Perelman School of Medicine at the University of Pennsylvania, 2012; residency: Mass. Eye and Ear, BWH), will in mid-July join the ENT practice of **Ralph B. Metson, MD** (University of California San Diego, 1979; residency: UCLA; fellowship: Mass. Eye and Ear), in Boston: MetsonandScangasMD.com. Dr. Scangas is finishing his fellowship at HMS in rhinology and anterior skull base surgery; he will have clinical privileges at Mass. Eye and Ear. Dr. Metson is a professor in the department of otolaryngology at HMS and

has been on staff at Mass. Eye and Ear since 1985.

Mawya Shocair, MD (Damascus University Faculty of Medicine, 1972; fellowship: BWH), past president of the Charles River District Medical Society, was elected to the National Kidney Foundation's medical advisory board for the New England Region. Dr. Shocair, a specialist in nephrology and internal medicine, is medical director of the Dialysis Center at Waltham.

Please send your news to vitalsigns@mms.org.

MMS Legal Advisory Plan
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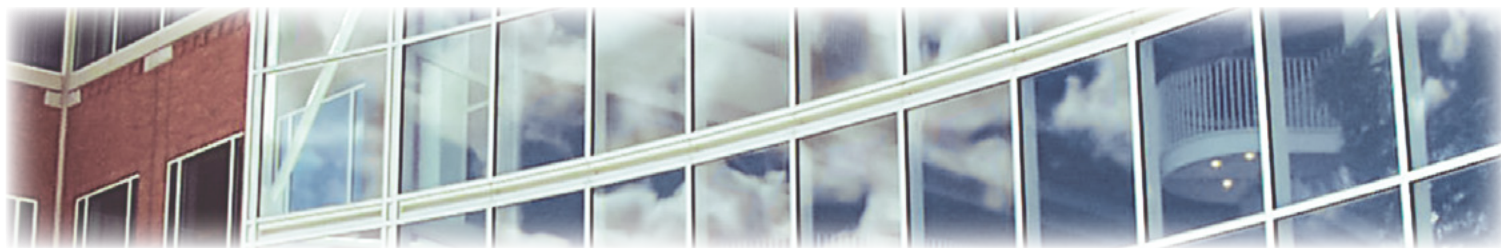
Your malpractice insurance may not cover Board of Registration in Medicine complaints, or your policy may be limited.

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ENVIRONMENTAL HEALTH ISSUE

- 1 > How Climate Change Shapes Health and Health Care in MA
- 2 > President's Message: Cleaning Up Our Practice Environment
 - > MA Doctors Raise Awareness of Environmental Health Threat
- 3 > Green Your Practice While Cutting Costs
- 4 > What Are Your Patients Breathing?
- 5 > Genetic Scientists Tackle Lyme Disease in MA
- 6 > Environmental Justice: An Unexpected Opportunity for Physician Wellness
 - > In Memoriam
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VOLUME 23, ISSUE 6, SUMMER 2018

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MMS AND JOINTLY PROVIDED CME ACTIVITIES

ONLINE CME ACTIVITIES

For these and other online CME activities, visit massmed.org/cme.

Negotiating Your Best Employment Agreement

Physician Employment Contract Basics

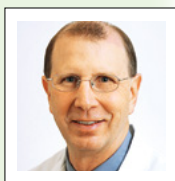
Current and Future Models of Physician Compensation

CME CREDIT: These activities have been approved for *AMA PRA Category 1 Credit™*. For additional information and registration details, go to massmed.org/cmecenter, or call (800) 843-6356.



“Think globally and act locally’ is a motto for all of us to embrace. Physicians can advise their patients to be prepared for the health-related consequences associated with climate change. Physicians can be a resource for other physicians, patients, government, and corporations. The MMS Committee on Environmental and Occupational Health (CEOH) is an opportunity to get involved with the Society and is a resource for reviewing and proposing policy and Society positions.”

— Alan C. Rodgers, MD, occupational medicine physician; vice chair, MMS Committee on Environmental and Occupational Health



ACROSS THE COMMONWEALTH

District News and Events

NORTHEAST REGION

CHARLES RIVER — Executive Committee Meeting. Mon., Sept. 24, 6:30 p.m. Dr. McCann's home. **Family Outing.** Sat., Sept. 29, noon. Community Rowing, Inc., Brighton.

MIDDLESEX — Fall Family Outing. Sun., Sept. 16, 11:00 a.m.–4:00 p.m. Kimball Farm, Westford.

MIDDLESEX WEST — Fall Meeting. Thurs., Oct. 11, 6:00 p.m. La Cantina Italiana, Framingham. Topic: Symphony of the Brain. Speaker: Joel Popkin, MD.

Contact Michele Jussaume or Linda Howard at (800) 944-5562 or mjussaume@mms.org or lhoward@mms.org.

WEST CENTRAL REGION

BERKSHIRE — Fall Meeting. Thurs., Oct. 11, 6:00 p.m. Crowne Plaza, Pittsfield. Topic: Preparedness for Violence against Physicians.

Contact Cathy Salas at (800) 522-3112 or csalas@mms.org.

Statewide News and Events

ARTS, HISTORY, HUMANISM, AND CULTURE MEMBER INTEREST NETWORK

Introduction to Birding. Start this program with a classroom presentation and end with a spectacle of roosting egrets and swallows. Lecture: Wed., Aug. 22, 6:00–8:00 p.m. MMS Headquarters, Waltham. Field Excursion: Sat., Aug. 25, 4:00–8:00 p.m. Joppa Flats, Newburyport. \$40 for both; \$15 lecture only; \$35 excursion only.

Contact Cathy Salas at (800) 522-3112 or csalas@mms.org.

CASUAL NETWORKING — Sat., July 28, 6:30–9:30 p.m. Cape Cod Beer, Hyannis. Complimentary hors d'oeuvres and drinks. All physicians (members and nonmembers) and guests are welcome. Please reply by July 13 to sfrazier@mms.org.

The MMS plans to bring casual networking events to all parts of the state. Questions? Call (800) 944-5562.