

Health Practitioners and Climate Change

Climate Action Team Public Health Workgroup
Sacramento, CA
November 20, 2013

Robert M. Gould, M.D.
President, SF-Bay Area Chapter
Physicians for Social Responsibility

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“Climate change is the biggest global health threat of the 21st century... The impacts will be felt all around the world – and not just in some distant future but in our lifetimes and those of our children.”

The Lancet



Alexander Leaf Dies at 92; Linked Diet and Health

By PAUL VITELLO
Published: January 6, 2013

Alexander Leaf, a versatile physician and research scientist who was an early advocate of diet and exercise to prevent heart disease, and who traveled the world to make important discoveries about increasing human longevity and to help scientifically establish the dangers global warming poses to the human species, died on Dec. 24 in Boston. He was 92.

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Dr. Alexander Leaf

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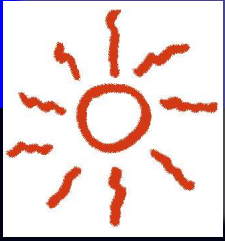
The cause was complications of Parkinson's disease, said his wife, Barbara Leaf.

Dr. Leaf's career toggled between pure scientific research and medical practice; unusually for the medical world, he sustained achievement in both realms. He was at different times chairman of medicine and chief of medical services at Massachusetts General Hospital in Boston, one of the nation's premier hospitals, and led the department of preventive medicine at Harvard Medical School. He was one of the first practicing physicians ever elected to the National Academy of Sciences, in 1972.

He was probably best known for his work on heart disease, advocating prevention through exercise and diet, particularly foods low in animal fat and sodium.

Dr. Leaf's research into the cellular biology of heart disease led him to undertake a series of expeditions in the early 1970s to study longevity in parts of the world where heart disease was rare and some people were said to live 140 years or more.

The expeditions, sponsored by the National Geographic Society, were criticized when some of the very old people in the study turned out to have lied or been misinformed about their ages. Dr. Leaf openly disavowed the project. But he never doubted the basic insights he had gleaned from the scores of interviews he conducted with people in the Caucasus Mountains, the Hunza Valley of Pakistan and the foothills of the Andes.



PSR's Nationwide Educational Campaign on Climate Change

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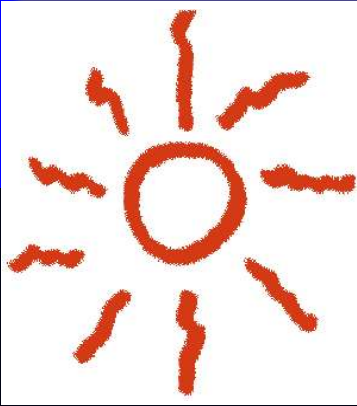
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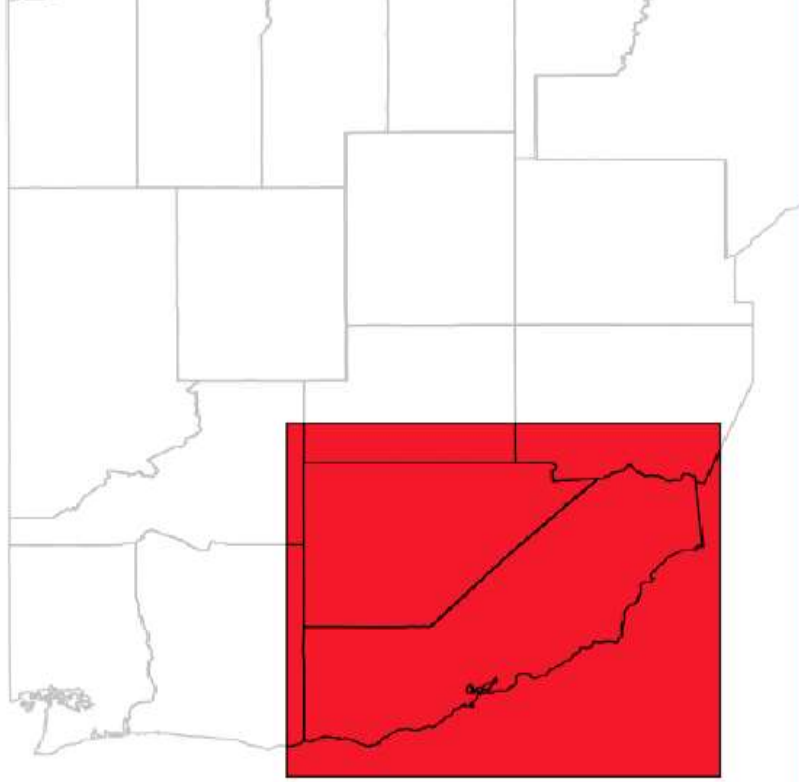
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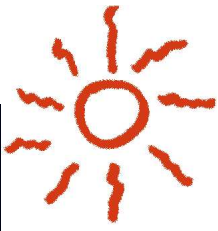
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HOW SMARTER ENERGY
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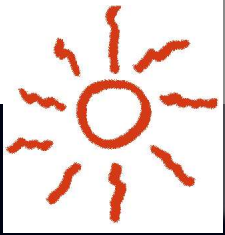
CALIFORNIA REPORT

A collage of four images: top-left shows a sunset over a beach with waves; top-right shows a sunset over a field with a lightning bolt; bottom-left shows a blue sky with white clouds; bottom-right shows a satellite view of Earth's atmosphere.

UNDERSTANDING
AND RESPONDING TO
**CLIMATE
CHANGE**
Highlights of
National Academies Reports
2008 EDITION

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Global Climate Change Impacts in the United States



A State of Knowledge Report from the
U.S. Global Change Research Program



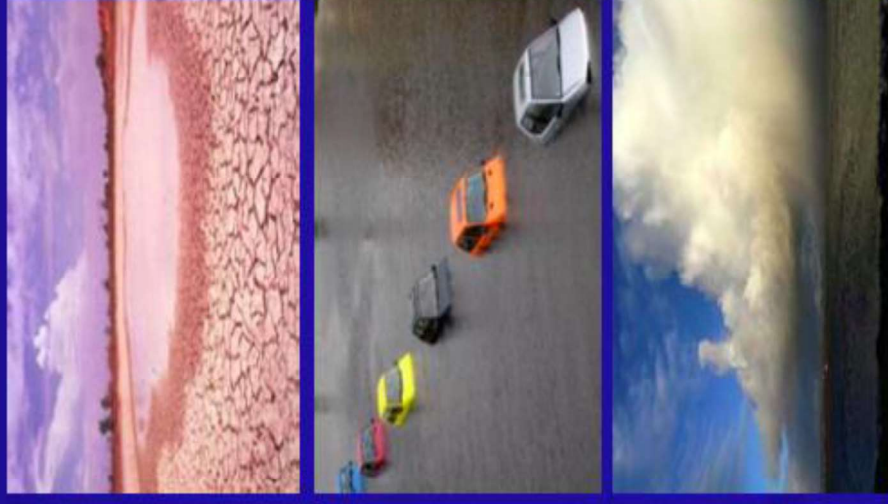
Climate Change: The Facts



- **Climate change is the biggest global health threat of the 21st century.** (The Lancet, May 2009)
- **For more than a century, levels of CO₂, methane, and other greenhouse gases have been rising.** (Frumkin et al. 2008)
- **Global mean temperature has increased approximately 0.6°C since 1860.** (Frumkin et al. 2008)
- **WHO estimates: climate change causes over 150,000 deaths annually.**
- **“Hidden” costs of energy: \$120 billion in U.S. in 2005 – primarily health damages from air pollution from electricity generation and motor vehicle transportation** (National Research Council 2009)
- **Only 1 in 5 Americans reports understanding climate change very well.** (Frumkin et al. 2008)

Public Health Effects of Climate Change Remain Largely Unaddressed

- **Climate change is happening now**
- **Costs of inaction are high**
- **Prevention approach is key**
 - **Public health and safety**
 - **Preparedness and response**
 - **Community resiliency and recovery**



U.N. Climate Panel Endorses Ceiling on Global Emissions



Ban Ki-moon, the secretary general, addressed the United Nation's Intergovernmental Panel on Climate Change on Friday. Jonathan Nackstrand/Agence France-Presse — Getty Images

By JUSTIN GILLIS
Published: September 27, 2013 | 295 Comments

STOCKHOLM — The world's top climate scientists on Friday formally embraced an upper limit on greenhouse gases for the first time, establishing a target level at which humanity must stop spewing them into the atmosphere or face irreversible and potentially catastrophic climatic changes. They warned that the target is likely to be exceeded in a matter of decades unless steps are taken to reduce emissions immediately.

Related



Temperature Rising
Articles in this series focus on the central arguments in the climate debate and examine the evidence for global warming and its consequences.

Unveiling the latest United Nations assessment of climate science, the experts cited a litany of changes that are already under way, warned that they are likely to accelerate and expressed virtual certainty that human activity is the main cause.

“Climate change is the greatest challenge of our time,” said Thomas F. Stocker, co-chairman of the Intergovernmental Panel on Climate Change, the United Nations-sponsored group of scientists that produced the [report](#). “In short, it threatens our planet, our only home.”

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CLIMATE CHANGE 2013 The Physical Science Basis

Headline Statements from the Summary for Policymakers

Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased.

Each of the last three decades has been successively warmer at the Earth's surface than any preceding decade since 1850. In the Northern Hemisphere, 1983–2012 was *likely* the warmest 30-year period of the last 1400 years (*medium confidence*).

Ocean warming dominates the increase in energy stored in the climate system, accounting for more than 90% of the energy accumulated between 1971 and 2010 (*high confidence*). It is *virtually certain* that the upper ocean (0–700 m) warmed from 1971 to 2010, and it *likely* warmed between the 1870s and 1971.

Over the last two decades, the Greenland and Antarctic ice sheets have been losing mass, glaciers have continued to shrink almost worldwide, and Arctic sea ice and Northern Hemisphere spring snow cover have continued to decrease in extent (*high confidence*).

The rate of sea level rise since the mid-19th century has been larger than the mean rate during the previous two millennia (*high confidence*). Over the period 1901–2010, global mean sea level rose by 0.19 [0.17 to 0.21] m.

The atmospheric concentrations of carbon dioxide (CO₂), methane, and nitrous oxide have increased to levels unprecedented in at least the last 800,000 years. CO₂ concentrations have increased by 40% since pre-industrial times, primarily from fossil fuel emissions and secondarily from net land use change emissions. The ocean has absorbed about 30% of the emitted anthropogenic carbon dioxide, causing ocean acidification.

Total radiative forcing is positive, and has led to an uptake of energy by the climate system. The largest contribution to total radiative forcing is caused by the increase in the atmospheric concentration of CO₂ since 1750.

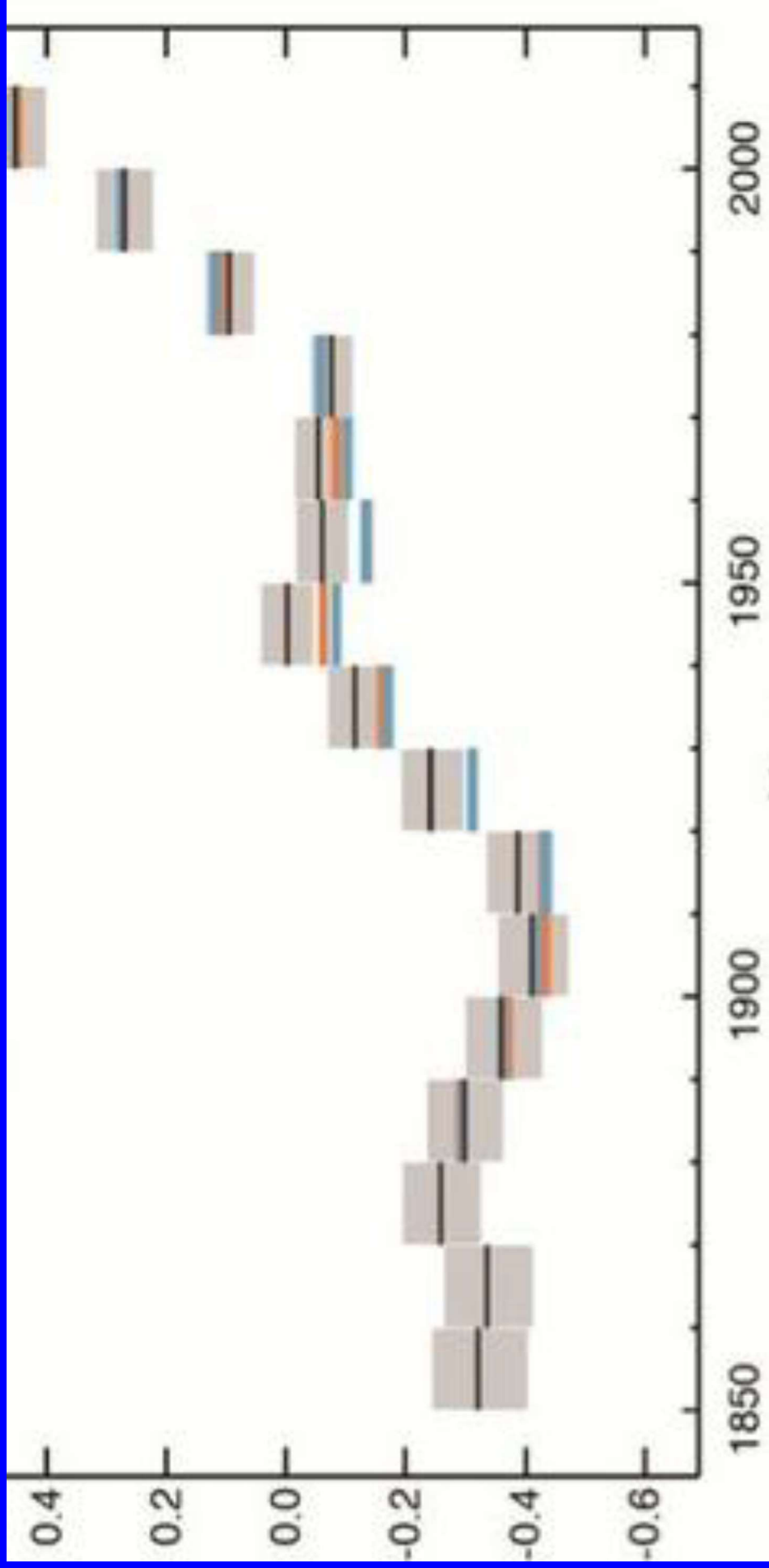
Human influence on the climate system is clear. This is evident from the increasing greenhouse gas concentrations in the atmosphere, positive radiative forcing, observed warming, and understanding of the climate system.

Climate models have improved since the AR4. Models reproduce observed continental-scale surface temperature patterns and trends over many decades, including the more rapid warming since the mid-20th century and the cooling immediately following large volcanic eruptions (*very high confidence*).

Observational and model studies of temperature change, climate feedbacks and changes in the Earth's energy budget together provide confidence in the magnitude of global warming in response to past and future forcing.

Photo © Yann Arthus-Bertrand / Altitude

IPCC: Decadal Avg Temp Rise



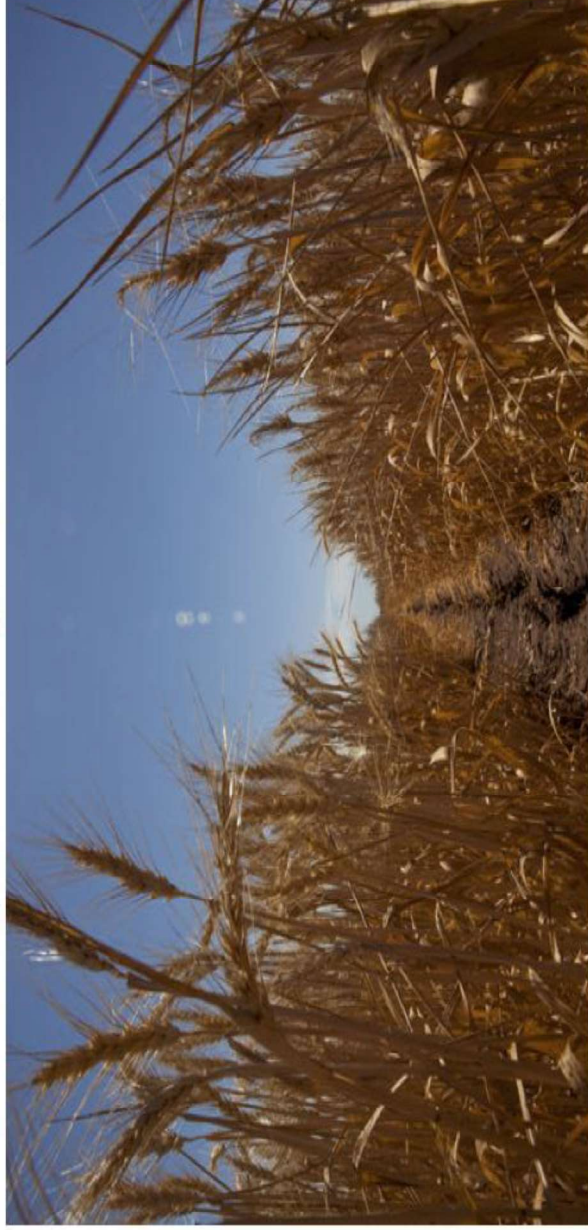
Source: *New York Times* September 27, 2013

Antarctic Ice Sheet Melting



Source: University of Texas Institute for Geophysics, *New York Times*, October 15, 2013

Climate Change Seen Posing Risk to Food Supplies



A leaked draft report from the Intergovernmental Panel on Climate Change warns that climate change could have wide-ranging negative effects on global agriculture.

By JUSTIN GILLIS

Published: November 1, 2013 | 197 Comments

Climate change will pose sharp risks to the world's food supply in coming decades, potentially undermining crop production and driving up prices at a time when the demand for food is expected to soar, scientists have found.

Related Series

Temperature Rising

Articles in this series focus on the central arguments in the climate debate and examine the evidence for global warming and its consequences.

In a departure from an earlier assessment, the scientists concluded that rising temperatures will have some beneficial effects on crops in some places, but that globally they will make it harder for crops to thrive — perhaps reducing production over all by as much as 2 percent each decade for the rest of this century, compared with what it would be without climate change.

Josh Haner/The New York Times

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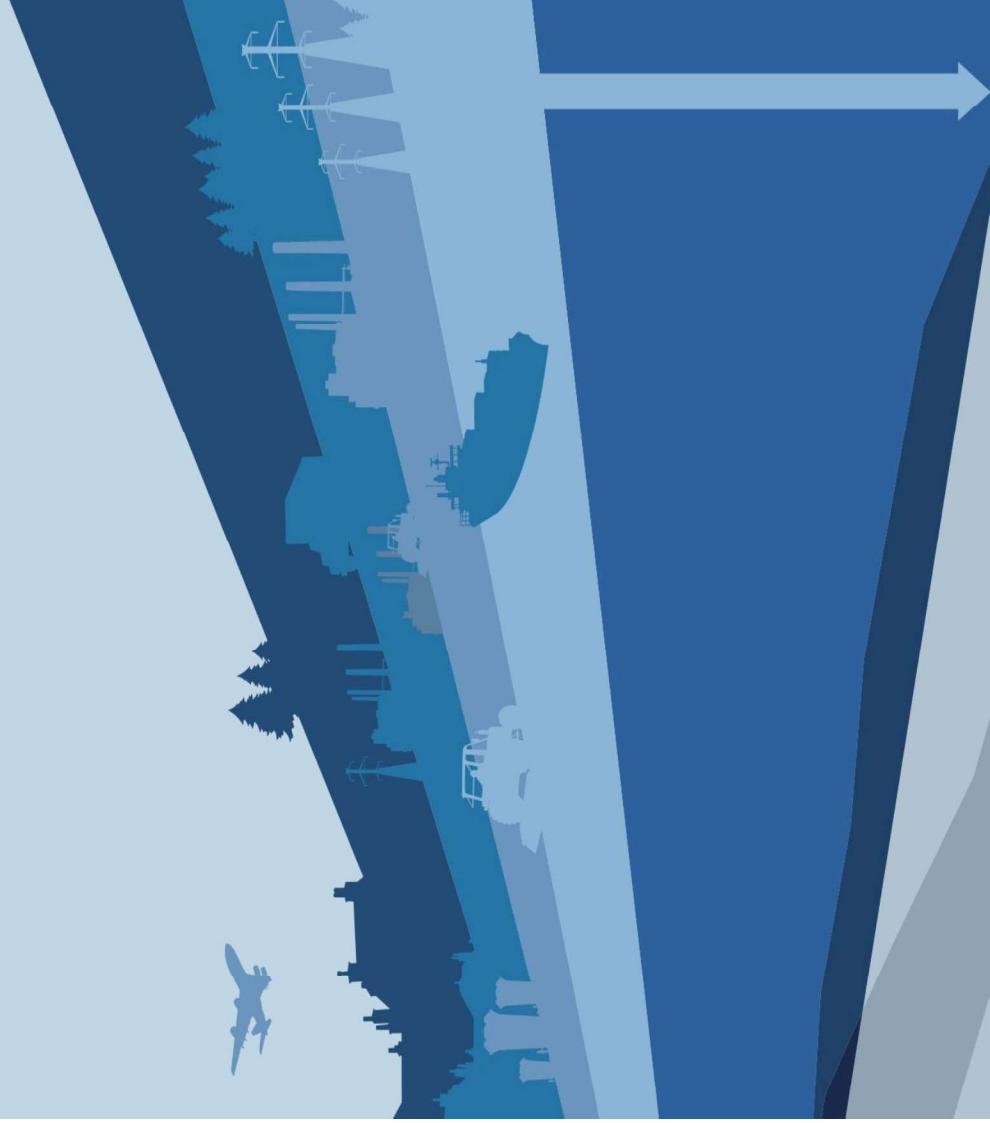
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The Emissions Gap Report 2013

A UNEP Synthesis Report



November 18, 2013

Slowdown in Carbon Emissions Worldwide, but Coal Burning Continues to Grow

By JUSTIN GILLIS and DAVID JOLLY

Global emissions of carbon dioxide are slowing somewhat from the rapid pace of the last decade, new figures show, but growth in coal burning continues to outstrip the growth in other forms of energy, and experts said the world remains far from meeting international goals on climate change.

Scientists compiling the numbers said it was unclear whether the slowdown in the growth of emissions might represent the beginnings of a permanent shift. One-time factors in China, including the opening of several large new dams to supply electricity, played a substantial role, as did slower economic growth there.

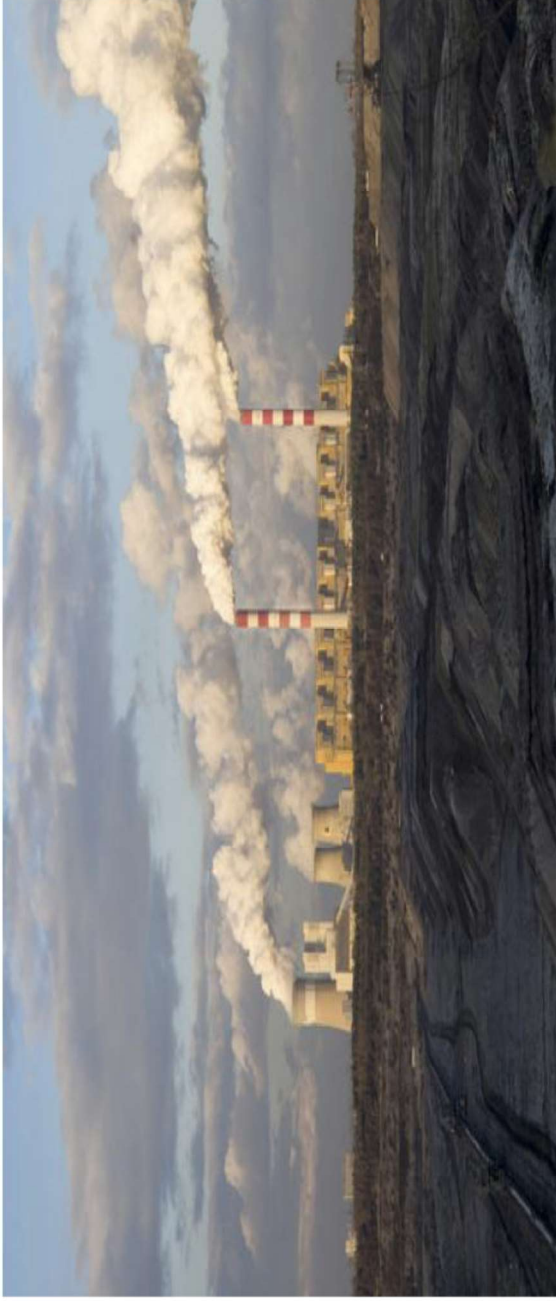
The new figures were released late Monday by the Global Carbon Project, which tracks emissions. They showed that carbon dioxide emissions from the burning of fossil fuels and the production of cement rose by 2.1 percent in 2012, compared with 2011, and they are projected to rise by a similar amount in 2013. Since 2000, growth in such emissions had been running above 3 percent a year, on average.

Scientists said that more aggressive climate policies in some countries may have played some role in the slowdown. Emissions are falling in the United States, thanks partly to an abundance of natural gas, which is displacing coal in the generation of power, and to tougher mileage standards for new cars. They are also falling in Europe, where a weak economy has reduced demand for power.

Yet on a global scale, the continuing expansion of coal, the dirtiest form of fossil energy and the one associated with the highest emissions of greenhouse gases, is far outstripping the growth of renewables and other low-carbon sources of power.

“Coal is king, still,” said Glen P. Peters, a researcher at the Center for International Climate and Environmental Research in Oslo and a leader of the group that produced the new analysis.

Poland, Wedded to Coal, Spurns Europe on Clean Energy Targets



Maciek Nabrdalik for The New York Times

Europe's largest coal-fired utility plant is in Belchatow, Poland.

By DANNY HAKIM and MATEUSZ ZURAWIK

Published: October 31, 2013

BELCHATOW, Poland — They call it Poland's biggest hole in the ground.

The coal mine here is more than eight-and-a-half miles long, nearly two miles wide and as deep in parts as three football fields. Enough coal comes out of it to fuel Europe's largest coal-fired utility plant, whose chimneys loom in the distance.

"The entire world population could fit in this hole," Tomasz Tarnowski, an administrator here, said in a bit of proud hyperbole as he led a group of reporters on a walk near a towering mound of brown coal about halfway into the mine.

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Maciek Nabrdalik for The New York Times

The coal mine in Belchatow is more than 8.5 miles long and nearly two miles wide.

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November 15, 2013

Japan Shelves Plan to Slash Emissions, Citing Fukushima

By HIROKO TABUCHI and DAVID JOLLY

TOKYO — Japan took a major step back Friday from earlier pledges to slash its greenhouse gas emissions, saying a shutdown of its nuclear power plants in the wake of the Fukushima disaster had made its previous target unattainable. The unexpected announcement cast a shadow over international talks underway in Warsaw aimed at fashioning a global pact to address the threats of a changing climate.

Under its new goal, Japan, one of the world's top polluters, would still seek to reduce its current emissions. But it would release 3 percent more greenhouse gases by 2020 compared to levels in 1990. Japan's previous government had promised before the Fukushima crisis to cut greenhouse emissions by 25 percent from 1990 levels, expecting that it could rely on nuclear power to achieve that goal.

Since the 2011 disaster, Japan's nuclear power program, which provided about 30 percent of the country's electricity, has ground to a halt amid public jitters over safety. The current government is pushing to restart reactors, but it remains unclear when that might happen.

"We're down to zero nuclear; anyone doing the math will find that target impossible now," Nobuteru Ishihara, the environment minister, said in Tokyo after announcing the new target. He said the original goal was "unrealistic in the first place."

"The current government seeks economic growth while doing our best to meet emissions targets," he added.

Japan's weaker emissions target is a major setback in the fight against global warming and comes as negotiators are working in Warsaw on an international agreement to curb greenhouse gas emissions. It also added to concerns about the difficulty in reducing the atmospheric pollution that many scientists say makes extreme weather events like the devastating typhoon that hit the Philippines last week more severe and more frequent.

Published: November 16, 2013

Fossil-Fuel Emissions by Country

The level of carbon dioxide, the most important heat-trapping gas in the atmosphere, continues to rise. The debate over how to address the effects intensified at a United Nations meeting that began this week, with some countries claiming the need for compensation. But determining each country's responsibility is a complicated task. [Related Article »](#)



November 16, 2013

Growing Clamor About Inequities of Climate Crisis

By [STEVEN LEE MYERS](#) and [NICHOLAS KULLISH](#)

WARSAW — Following a devastating typhoon that killed thousands in the Philippines, a routine international climate change conference here turned into an emotional forum, with developing countries demanding compensation from the worst polluting countries for damage they say they are already suffering.

Calling the climate crisis “madness,” the Philippines representative vowed to fast for the duration of the talks. Malia Talakai, a negotiator for the Alliance of Small Island States, a group that includes her tiny South Pacific homeland, Nauru, said that without urgent action to stem rising sea levels, “some of our members won’t be around.”

From the time a scientific consensus emerged that human activity was changing the climate, it has been understood that the nations that contributed least to the problem would be hurt the most. Now, even as the possible consequences of climate change have surged — from the typhoons that have raked the Philippines and India this year to the droughts in Africa, to rising sea levels that threaten to submerge entire island nations — no consensus has emerged over how to rectify what many call “climate injustice.”

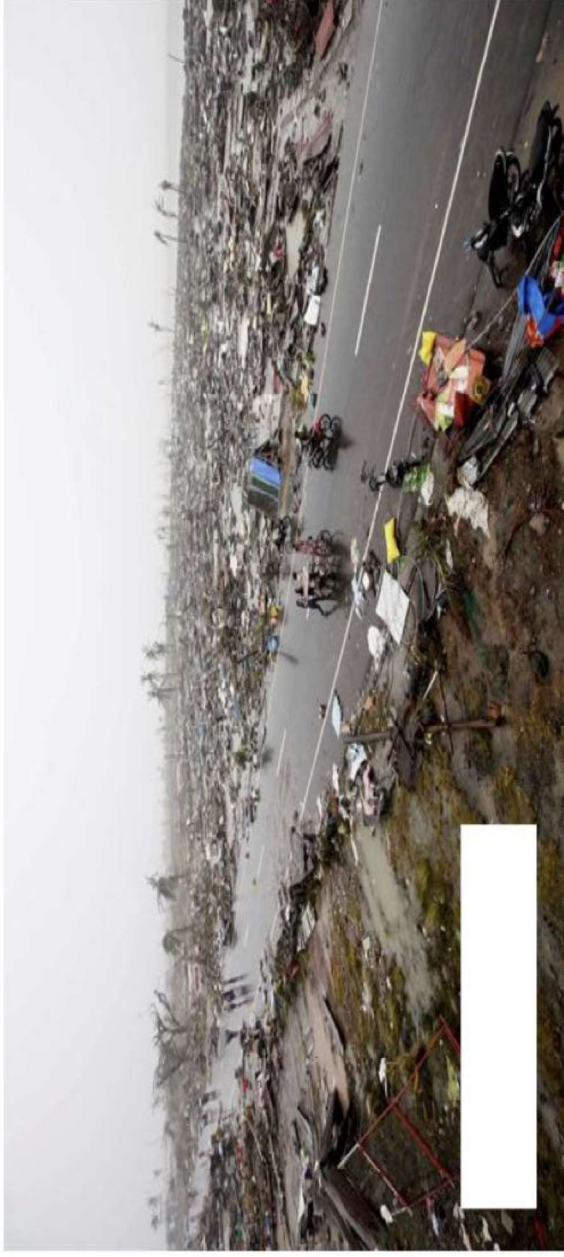
Growing demands to address the issue have become an emotionally charged flash point at negotiations here at [the 19th conference](#) of the United Nations Framework Convention on Climate Change, which continues this week.

“We are in a piece of land which is smaller than Denmark, with a population of 160 million, trying to cope with this extreme weather, trying to cope with the effect of emissions for which we are not responsible,” Farah Kabir, the director in Bangladesh for the anti-poverty organization ActionAid International, said at a news briefing here.

With expectations low for progress here on a treaty to replace the 1997 Kyoto Protocol, widely seen as having failed to make a dent in worldwide carbon emissions, some nations were losing patience with decades of endless climate talks, particularly those who see rising oceans as a threat to their existence.

“We are at these climate conferences essentially moving chess figures across the board without ever being able to bring these negotiations to a conclusion,” Achim Steiner, executive director of the United Nations Environment Program, said in a telephone interview.

Devastation Feared Across Central Philippines in Typhoon's Wake



Powerful Typhoon Causes Devastation in Philippines: A deadly storm left the seaside city of Tacloban in ruins. Dennis M. Sabangan/European Pressphoto Agency

By KEITH BRADSHAW and GERRY MULLANY
Published: November 10, 2013

CEBU, Philippines — One of the most powerful typhoons ever recorded now appears to have devastated cities, towns and fishing villages with heavy loss of life when it played a deadly form of hopscotch across the islands of the central Philippines on Friday.

Barreling across palm-fringed beaches and plowing into frail homes with a force that by some estimates approached that of a tornado, but sprawling across a huge area of this far-flung archipelago, Typhoon Haiyan delivered a crippling blow to this country's midsection. Disorder and looting over the weekend compounded the destruction.

Multimedia



Typhoon Haiyan Batters the Philippines

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Challenge for the Philippines: 4 Million Displaced



Sergey Ponomarev for The New York Times

< 1 2 3 4 5 6 7 >

When Typhoon Haiyan hit the Philippines, people in Basey, Samar Island, went to the Arc of Archangel Saint Michael Church for refuge.

By AUSTIN RAMZY

Published: November 18, 2013

BASEY, the Philippines — When Typhoon Haiyan hit this coastal town, residents ran for Saint Michael the Archangel Church. Now, 10 days later, more than 100 of them remain.

“I was in my house, but it was destroyed,” said Belen Cabonce, 87. “We ran for higher ground, and this was it. Some people stayed in houses trying to hold on, but most of them came here.” She has lived here ever since, sleeping on a wet pew, wondering when the next shipment of relief goods will arrive.

Multimedia



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Natural Disasters, Armed Conflict, and Public Health

Jennifer Leaning, M.D., and Debarati Guha-Sapir, Ph.D.

From the François-Xavier Bagnoud Center for Health and Human Rights, Harvard School of Public Health, Boston (J.L.); and the World Health Organization Collaborating Center for Research on the Epidemiology of Disasters, Institute of Health and Society, University of Louvain, Brussels (D.G.-S.). Address reprint requests to Dr. Leaning at the François-Xavier Bagnoud Center for Health and Human Rights, Harvard School of Public Health, 651 Huntington Ave., 7th Fl., Boston, MA 02115, or at jleaning@hsph.harvard.edu.

N Engl J Med 2013;369:1836-42.

DOI: 10.1056/NEJMr1303877

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An interactive graphic showing natural disasters from 1950 through 2012 is available at nejm.org

NATURAL DISASTERS AND ARMED CONFLICT HAVE MARKED HUMAN EXISTENCE throughout history and have always caused peaks in mortality and morbidity. But in recent times, the scale and scope of these events have increased markedly. Since 1990, natural disasters have affected about 217 million people every year,¹ and about 300 million people now live amidst violent insecurity around the world.² The immediate and longer-term effects of these disruptions on large populations constitute humanitarian crises. In recent decades, public health interventions in the humanitarian response have made gains in the equity and quality of emergency assistance.

Natural disasters are broadly classified as biologic, climate-related (hydro-meteorologic), or geophysical (Table 1). (Biologic events are not considered in this article because they require very specific analytic approaches and are often not directly connected to geophysical and climate-related disasters.) There were three times as many natural disasters from 2000 through 2009 as there were from 1980 through 1989 (Fig. 1 and interactive graphic, available with the full text of this article at [NEJM.org](http://nejm.org)). Although better communications may play a role in the trend, the growth is mainly in climate-related events, accounting for nearly 80% of the increase, whereas trends in geophysical events have remained stable. During recent decades, the scale of disasters has expanded owing to increased rates of urbanization, deforestation, and environmental degradation and to intensifying climate variables such as higher temperatures, extreme precipitation, and more violent wind and water storms. The effects of disasters on populations include immediate death and disabilities and disease outbreaks caused by ecologic shifts. For example, the 2010 earthquake in Haiti and Cyclone Nargis, which hit Myanmar in 2008, killed 225,000 and 80,000 people, respectively, in a matter of minutes; destroyed health care facilities; and left many homeless.

In contrast, armed conflicts have decreased globally, although some persist, with entrenched internal violence lasting for years, such as in Darfur (in Sudan) and in the eastern Democratic Republic of Congo. Advances in small-arms technology and struggles over natural resources of international value (oil and rare minerals) make conflict resolution challenging. Civilians bear the burden. Families are forced to move from their homes to escape internecine violence. Refugees cross national borders and are legally entitled to assistance in United Nations (UN)-managed camps. But increasingly since the mid-1980s, people have been unable to cross international frontiers and so remain internally displaced (Fig. 2). They are often at higher risk for malnutrition and disease than residents or refugees.³

ADVANCES IN HUMANITARIAN PUBLIC HEALTH RESPONSE SINCE 1970

The early 1970s were watershed years for public health in emergencies. The Biafran War (in Nigeria), the 1970 cyclone in Bangladesh, and the sweeping famines in Africa

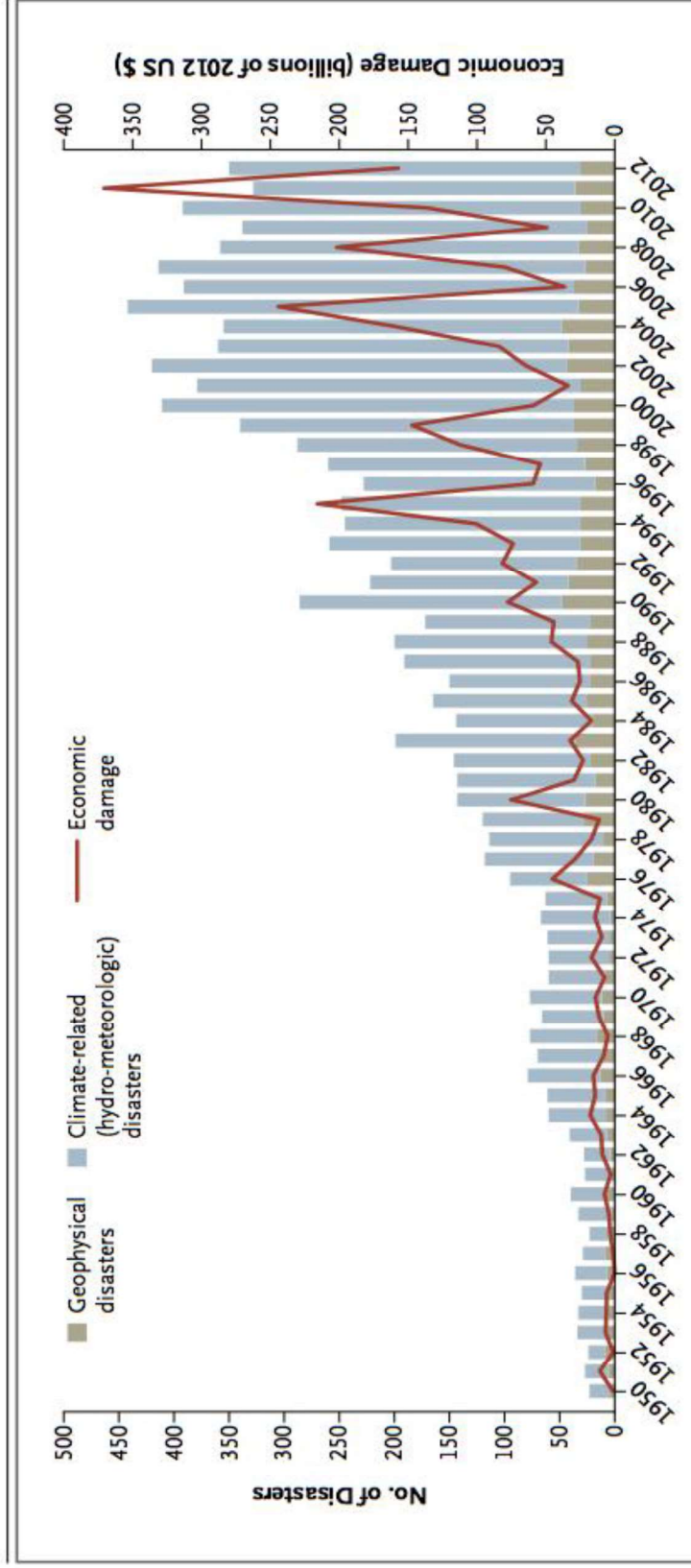


Figure 1. Numbers and Types of Natural Disasters, 1950–2012.

The effect of a disaster on the local economy usually consists of direct consequences (e.g., damage to infrastructure, crops, and housing) and indirect consequences (e.g., loss of revenues, unemployment, and market destabilization). The estimated economic damage is for the year in which the disasters occurred and is given in billions of 2012 U.S. dollars. Data are from the EM-DAT International Disaster Database, Center for Research on the Epidemiology of Disasters, University of Louvain (www.emdat.be/). Although this database tracks biologic events, such events are not shown here because they require very specific analytic approaches and are often not directly connected to geophysical and climate-related disasters.

The Extraordinary Steps Health Care Providers Are Taking To Prepare For Climate Change

BY KATIE VALENTINE ON JULY 30, 2013 AT 7:31 AM



Medical workers assist a patient into an ambulance during an evacuation of NYU Langone Medical Center during Superstorm Sandy. (Credit: AP)

On October 29, as Superstorm Sandy downed power lines and flooded New York streets, 300 patients were evacuated from New York University's Langone Medical Center after one of its backup generators, located in the basement, was knocked out. Twenty babies in neonatal intensive care went first, followed by the sickest adults. The evacuation took about 15 hours to complete.

Some of the hospitals in downtown Manhattan were **the first to go down**. They need to be the **last ones**.

PUBLIC HEALTH

Rebranding Climate Change as a Public Health Issue

Why medical professionals may be the best messengers for global warming right now

By Courtney Subramanian @cmsub | Aug. 08, 2013 | 0

To most people, climate change means melting snowcaps and helpless polar bears sweltering under escalating temperatures. But most of the world's populations aren't likely to see an iceberg in their lifetimes, much less a stranded polar bear in the wild. Which explains why the dangers of these environmental changes haven't exactly earned high priority on most people's list of attention-worthy crises. (Does anyone remember Al Gore's \$300 million *We Campaign*?) The politicization of climate change — the never-ending debate over whether it exists, for example, and the ensuing back-and-forth over its causes, its implications and potential solutions — further discourages the public from action.

But what if climate change were instead about an increase in childhood asthma, or a surge in infectious diseases, or even an influx of heat-induced heart attacks? Would that hold more resonance for the average citizen of the world? That's what some climate change experts are hoping, as they steer the conversation about global warming toward the public health issues it raises. Last week, the journal *Science* featured a special issue on climate change and included a study on the complex yet growing connection between global warming and infectious diseases.

MORE: Infectious Disease Could Become More Common in a Warmer World—Especially for Plants and Animals

According to a recent study, framing global warming as a public health issue rather than as an environmental or national security one produces the most emotionally compelling response among people, since it focuses on the immediate implications a warmer climate could have on people's lives. This strategy also has the benefit of providing a sense of hope that the problems can be addressed and avoided, if people take action early enough. Matthew Nisbet, co-author of the study and an associate professor at American University, says such positive actions are critical for communicating the importance of climate change to a broader and more diverse proportion of Americans who may not care about environmental issues. "It's easy to become fatalistic about the problem," he says. "You have to give them a sense of hope that they can become part of something that addresses the problem."



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NPR

Maryland and Virginia residents say harm from climate change is arriving
Washington Post

ENTREPRENEURS | 8/06/2013 @ 10:45AM | 1,128 views

Health Care Needs To Lead The Fight Against Climate Change

Editor's Note: Gary Cohen (left) is Co-Founder and President of [Health Care Without Harm and Practice Greenhealth](#). Jeffrey E. Thompson (right), MD, is chief executive officer and chairman of the boards of [Gundersen Health System](#), and a practicing pediatric intensivist and neonatologist.



As we continue to learn more about climate change, we are realizing it is fundamentally a health issue that will affect everyone in the world. How it is damaging to our health depends on where we live. If we live in Beijing or Baton Rouge, climate change looks like air that's so thick and poisoned we can't go outside of our homes. If we live in the Midwest of the United States, climate change looks like extreme weather that rages through our communities and heat waves that destroy our crops and cause heat exhaustion. If we live in New York City, climate change looks like a massive hurricane, which flooded our streets, trapped us in homes with no power and shut down our hospitals. For many communities living downwind from coal power plants, processes that affect climate change are more local and look like increased asthma in our children and respiratory disease in our most vulnerable citizens. We are learning that climate change is already leading to the spread of mosquito- and other vector-borne infectious diseases like Dengue fever and malaria to places that have never seen these diseases before. We are learning it's not possible to support people on a sick planet.

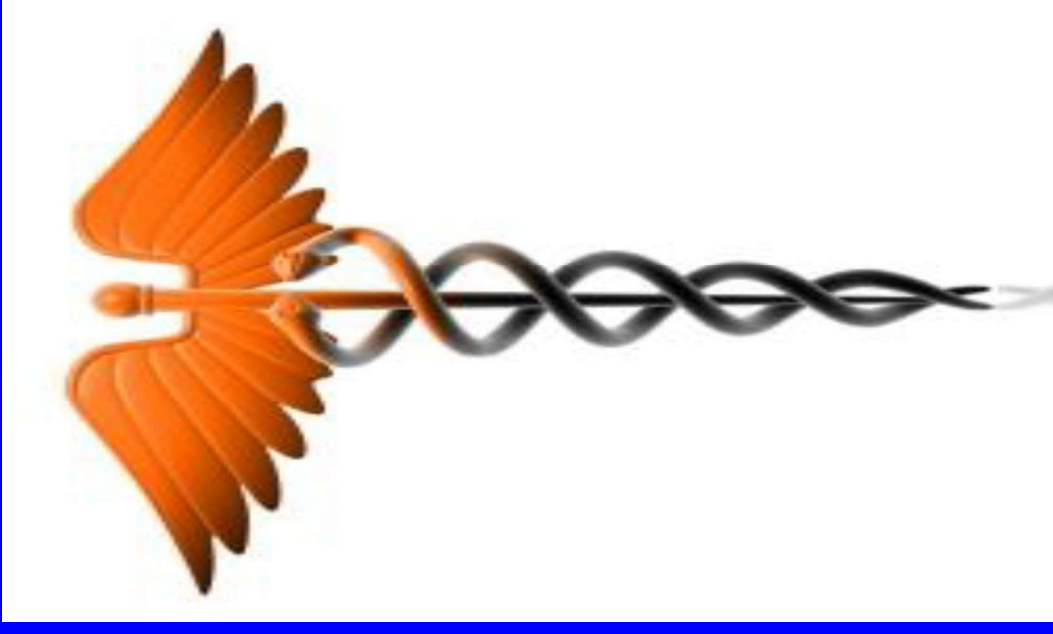
In this unfolding crisis, the healthcare sector occupies a unique position in our society to admit its contribution to the problem and to lead the fight against climate change.

First, healthcare is just as addicted to fossil fuels as the rest of us, if not more so. Hospitals use twice as much energy per square foot as our schools and offices, partly because of the intensity of their business, partly because of lack

Addressing Climate Change in the Health Care Sector

“The health care industry has a critical role to play in climate change mitigation. Energy usage in medical facilities is highly intensive. In fact, hospitals expend about twice as much total energy per square foot as traditional office space.”

(Department of Energy, 2003)



Jscreationzs, freedigitalphotos.net

December 27, 2010

Cohen's Nonprofit Helps Hospitals Go Green

Gary Cohen and his nonprofit, Health Care Without Harm, have persuaded hospitals around the world to close their medical-waste incinerators, dramatically cutting emissions of dioxin and other toxins.

By Catherine Elton

Gary Cohen is not a doctor or a nurse. He has never worked in a hospital, and, he admits, he thinks hospitals are kind of scary, in part because both of his parents died in one. But when the Environmental Protection Agency released a draft report in the mid-1990s, citing hospital incinerators as the country's No. 1 source of carcinogenic dioxin emissions, Cohen, a longtime environmental activist, simply couldn't abide the irony. How could the industry that existed to heal people be doing so much harm?

In 1996, he and colleague Charlotte Brody founded the nonprofit Health Care Without Harm, and Cohen quickly made his way to hospitals around the country, explaining to aghast administrators how their operations were hurting patients, employees and communities. Then he supplied them with cost-effective steps they could take to remedy the situation, as well as the promise of a lasting partnership.

Some 15 years later, Health Care Without Harm is a coalition of nearly 500 hospitals, universities, health professional organizations and environmental groups working in 52 countries around the world. When Cohen began the work, there were 5,000 medical-waste incinerators in the U.S. By 2006, there were 83. Back then, every nurse carried a thermometer filled with highly poisonous mercury; the instruments lined the shelves of pharmacies and went home from the hospital with new mothers. Today, mercury thermometers are practically obsolete in the United States, and Cohen, partnering with the World Health Organization, is on the cusp of making them disappear around the world. Cohen helped hospitals leverage their massive buying power to get medical supply companies to stock hospitals with greener products. Even as his work with hospitals deepened in the U.S. and expanded worldwide, Cohen has a more ambitious goal. "If the health care sector can clean up its own house," he says, "they can be powerful messengers in the broader society on how we can detox the entire economy."

Cohen calls himself an accidental activist. Before becoming an environmentalist, his great passion was India. He studied Eastern philosophy in college and after graduating spent a couple of years traveling in India on what he describes as a journey to find himself. Then he enrolled in a graduate program in Indian philosophy at the University of California, Berkeley, but when the woman who eventually became his wife moved east, Cohen dropped out and moved with her to Massachusetts, unsure what was next. His best friend from college, John O'Conner, offered him a job at the National Toxics Campaign, which he had just founded. As Cohen made his way around the country meeting with community leaders, the work grew on him.

In December 1984, a Union Carbide factory exploded in Bhopal, India, spewing poisonous chemicals over a sleeping community. Some 5,000 people were killed and a half a million sickened in a single night. "When Bhopal happened, I thought this is the Hiroshima of the chemical industry. This is what it looks like," Cohen says. Cohen would go on to use Bhopal as a rallying cry to push for the passage of a U.S. law, the Emergency Planning and Community Right-to-Know Act, requiring companies operating in American communities to report what chemicals they use and to maintain emergency plans.

In the years after the explosion, Cohen helped Bhopal survivors try to get compensation from Union Carbide, worked on toxics issues in the U.S. and made a trip to Auschwitz. While there, he says, he learned that chemical companies not only sold the gas used to kill the prisoners in the concentration camps but used prisoners as slave labor to build factories. Cohen speaks of Eastern philosophy and the importance of finding humanity in one's opponents when discussing his work in the health care sector. It is a grace he is unwilling to extend to the chemical industry, which, he now believes, is ruled by a "culture of complete immorality." Fighting that mindset, he says, is what it means to be a "good Jew." "He working for justice. Some industry supporters aren't that fond of Cohen either, dubbing his organization "Health Scare Without Shame." "He



Gary Cohen started Health Care Without Harm by explaining to hospital administrators how their operations were hurting patients, employees and communities. (Jason Grow)

The Global Health and Safety Initiative:

A Social Movement Providing
Sector-wide Leadership to Transform Health Care

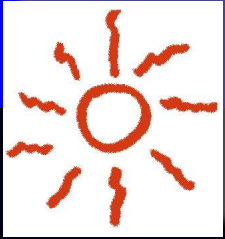


The Synergy of Three Safeties:

Safe Patients = Good Healthcare

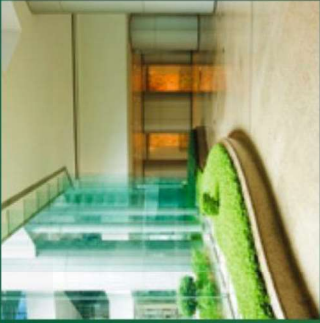
Safe Workers = Good Business

Safe Environment = Good for the World



Addressing Climate Change in the Health Care Setting

Opportunities for Action



Presentation Contents

- **Getting Started:** Tips for initiating a climate change mitigation program.
- **Opportunities for Action:** Climate change mitigation options in health care.
- **Resources:** Partnering for climate change action.

Getting Started

- Assess Your Resources
- Create An Infrastructure for Action
- Preach What You Practice
- Identify Actions
- Measure Your Emissions Baseline
- Reorganize for Sustainability – the Green Guide for Health Care (GGHC)

The Health Care Sector Can Play a Key Role Combating Climate Change



- Encourage green practices and energy efficiency in your medical facility
- Provide brochures, relevant literature and informational posters in waiting areas and lobbies to educate patients and their families about how they can reduce their emissions
- Make recommendations to hospital staff and community members that improve health and wellbeing and reduce greenhouse gas emissions (such as eat less meat, walk and bike more, use public transit)

THE ECO-HEALTH FOOTPRINT GUIDE

Measuring Your Organization's Impact on Public Health and the Environment

(Version 1.2)

May 2009



Urge hospitals to measure energy use, water use, waste generation and disposal, transportation systems and toxins.

Urge hospitals to reduce their eco-footprint, save money, improve their operations, and create healthier environments for patients, Staff, and the community at-large.

Urge hospitals to benchmark their progress for the entire healthcare sector.

About the Global Health and Safety Initiative

The Global Health and Safety Initiative (GHSI) is a sector-wide collaboration to transform the way that healthcare designs, builds and operates its facilities, the products used in healthcare and research and public policy that supports healthier and safer hospitals, communities and society.

GHSI aims to build a learning community and leverage the expertise of its partners to support evidence-based improvements at the intersection of patient safety, worker safety and environmental sustainability. www.globalhealthandsafety.org.

Introducing the Healthier Hospitals Initiative

Janet Brown
Director, Content & Outreach
HHI



Healthier Hospitals INITIATIVE

www.healthierhospitals.org



HHI Overview



The screenshot displays the Healthier Hospitals Initiative (HHI) website. At the top left is the logo. A navigation bar includes links for About HHI, HHI Challenges, Get Involved, Get Inspired, Media Center, and Tools. A search bar is located on the right. The main content area features a large green banner with the text "HHI CHALLENGES" and a sub-header "The HHI Challenges are a data-driven platform designed to help healthcare organizations commit to sustainability goals and track their environmental efforts." Below this banner is a grid of six challenge categories, each with a representative image and a plus sign icon:

- + Engaged Leadership** (Image: A woman in a pink shirt standing next to a blue recycling bin)
- + Healthier Food** (Image: A man in a white lab coat holding a plate of food)
- + Less Waste** (Image: A woman in a grey jacket holding a bunch of green leafy vegetables)
- + Leaner Energy** (Image: A landscape with green hills and blue mountains under a clear sky)
- + Safer Chemicals** (Image: A close-up of a person's hands holding a small object, possibly a medical device or component)
- + Smarter Purchasing** (Image: A wind turbine against a blue sky)

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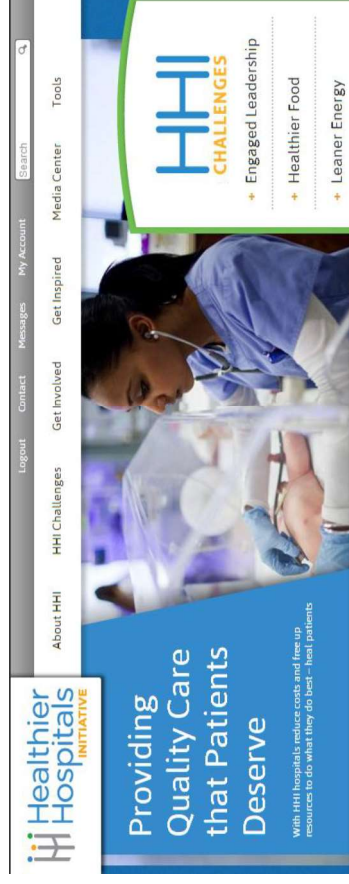


Healthier Hospitals Initiative



Goal is to enroll **2000 hospitals**

FREE for all enrollees



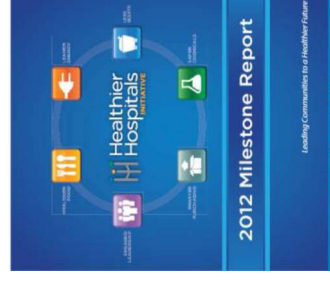
Modeled after IHI 100,000 Lives Campaign

- Acceleration strategy at the intersection of sustainability, patient and worker safety
- Using proven strategies to drive success



Milestone Report

a **POWERFUL** evidence-based story to tell



800 Hospitals Enrolled in US & Canada

Home » About HHI

Healthier Hospitals INITIATIVE

Logout Enroll Now Contact Messages My Account Search

HHI Challenges Get Inspired Media Center Tools

Get Involved

Path-Based Metatags

Participating Hospitals

Challenges Committed: All Challenges Alpha: A - Z Name (Contains): Type: - Any - Reset

State: - Any - Zip: Items per page: 20

Chesapeake Regional Medical Center

Challenges Committed:

- Engaged Leadership
- Less Waste
- Practice Greenhealth Member

NYU Langone Medical Center

Challenges Committed:

- Leaner Energy
- Practice Greenhealth Member

About HHI

- What We Do
- Who We Are
- Participating Hospitals**
- Participating Hospitals Map
- Supporting Businesses
- Supporting Organizations
- Frequently Asked Questions
- Contact Us

Enroll Now with HHI

Enroll Now with HHI

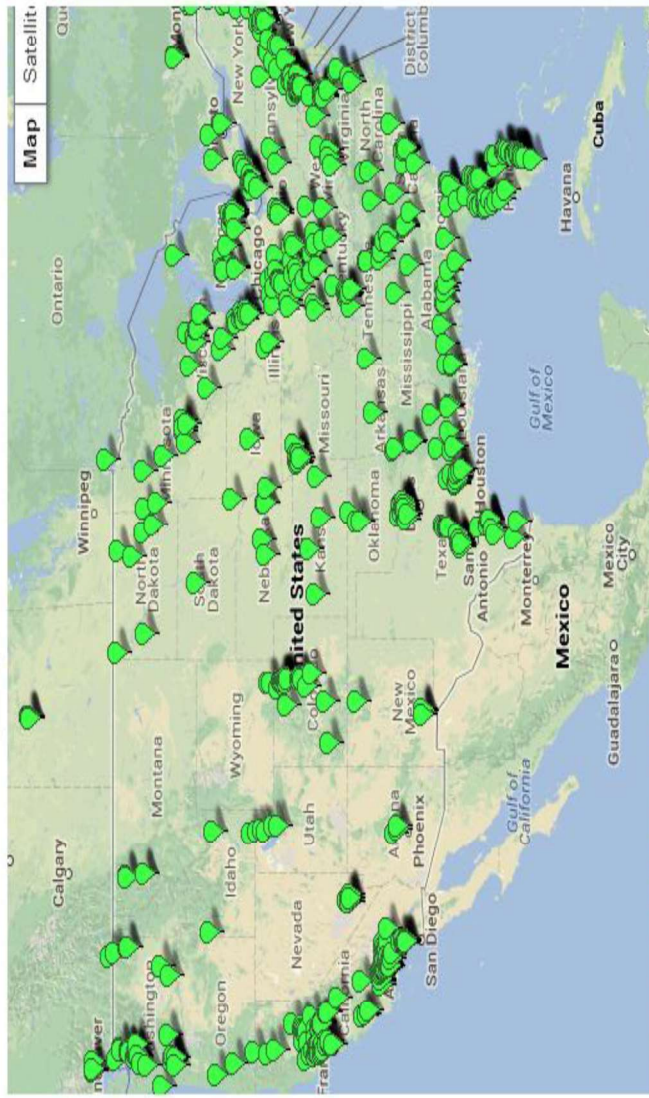
Three organizations and thirteen Sponsoring Health Systems invite you to join them in leading communities to a healthier future. Enroll in healthier hospitals initiative. [Learn More](#)

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All Hospitals

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Three organization
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Systems invite you to

join them in leading communities to a
healthier future. Enroll in healthier

Climate Change and the Role of Health Care Professionals: Education, Mitigation, Adaptation



Robert M. Gould, MD

San Francisco Bay Area Physicians for Social Responsibility
Earth Day Webinar hosted by Practice Greenhealth

March 21, 2012



The Climate and Health Literacy Consortium

Our goals are to educate healthcare professionals about the science and health effects of climate change, and to help build a stronger, more unified effort within the health care sector to reduce the environmental and public health impacts of climate change in our global community.

Many thanks to the following organizations that have participated in the Climate and Health Literacy Consortium and have contributed to the development of this presentation

- American Medical Association
- American Nurses Association
- Center for Disease Control and Prevention
- Evidence Based Media
- Health Care Without Harm
- Health Sciences Online
- Program on Global Sustainability and Health, Johns Hopkins Bloomberg School of Public Health
- Natural Resources Defense Council
- Physicians for Social Responsibility
- Practice Greenhealth

PRESENTATION OVERVIEW

- The Science of Climate Change
- The Environmental and Health Impacts of Climate Change
- Climate Mitigation within Health Care Facilities
- Preparedness and Adaptation Strategies for Health Care Facilities
- Health Care Sector Leadership and Advocacy – Shaping Climate Policy Change
- Conclusion and Acknowledgements

The Important Role of the Health Care Sector in Tackling Climate Change and Shaping Policy

- Inform, educate and engage with the public
- Lead by example personally and professionally
- Advocate for development and implementation of state, federal and international climate policies
- Engage decision-makers
- Disseminate information to colleagues and networks
- Collaborate with professionals outside of the health sector

December 27, 2010

Healthier Hospital Food — For Us and the Earth

Hospitals can play an unexpected roll in the sustainable food movement.

By Christopher Danzig

Lucia Sayre is not a doctor, although she helms the San Francisco Bay Area Chapter of Physicians for Social Responsibility. Before taking that post as the group's co-director and only full-time employee, Sayre lived and worked on the Arizona-Mexico border. For two decades, she was involved in community development, and she met many fourth- and fifth-generation farmers with "food in their blood." But when they came to the United States, there was no local agriculture available to these people.

"I got really interested in the food system and how unhealthy it is in this country," Sayre says. For the last six years, the 49-year-old has turned her activist's eye and experience toward a unique nexus of environmentalism and food work: hospitals.

While the sustainable, local and organic food craze may be old news to many, Sayre has helped the local health care industry get on the bandwagon.

"Traditionally, food service in health care systems has been primarily about nutrition," she says. "One of the big goals of our project is to integrate the nutrition but also the environmental effects of how we grow our food, package it, transport it."

Hospital food service is a \$12 billion-per-year industry. Most of its food is purchased through group purchasing organizations, or GPOs, from which a hospital may get up to 90 or 95 percent of what they serve to patients, staff, at catering events and in vending machines, Sayre says. Several hospitals in an area will join a single GPO.

GPOs, in turn, obtain most of their food from a small group of food distributors. Nationally, two companies dominate food distribution: U.S. Foods and Sysco. Sayre's main long-term goal is to increase the accessibility of sustainable and locally grown food in these contracts.

It's a tough mission, because the current model "flies in the face" of local and sustainable food service says Michelle Gottlieb, the national co-coordinator and New England regional coordinator for Healthy Food in Health Care. Healthy Food in Health Care is an initiative of Health Care Without Harm, an international coalition of people and organizations dedicated to implementing ecologically sound and healthy alternatives to traditional health care practices.

"[Group purchasing] is really efficient with beds and IV bags, but when you're talking about vegetables it doesn't work so well," Gottlieb says. Sayre has partnered with HCWH, as well as major hospitals and health networks around Northern California on a variety of programs, including one of SF-PSR's biggest initiatives, the Balanced Menus program.

While Physicians for Social Responsibility's national organization has been around for several decades, Sayre was the first person to focus her 4,000-member chapter on environmental health — i.e. the ways our living environment and the Earth's condition affect our health — and specifically hospital food service.

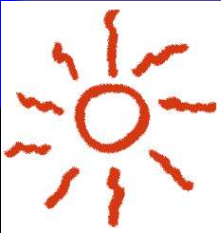
That the initiative arose in the Bay Area isn't totally surprising: "We're in a hotbed of food work," Sayre says.

Sustainable food is healthier for humans and better for the environment on several levels. Meat, poultry and eggs from pastured animals have less fat and fewer calories than feedlot meat, for example. Locally grown produce requires less fuel for transportation than industrial food.

Livestock produced in large industrial feedlots require antibiotics that lead to drug-resistant bacteria. Overcrowded conditions also lead to waste that pollute the air and water. And livestock production is a key contributor to global climate change; it generates an estimated 18 percent of

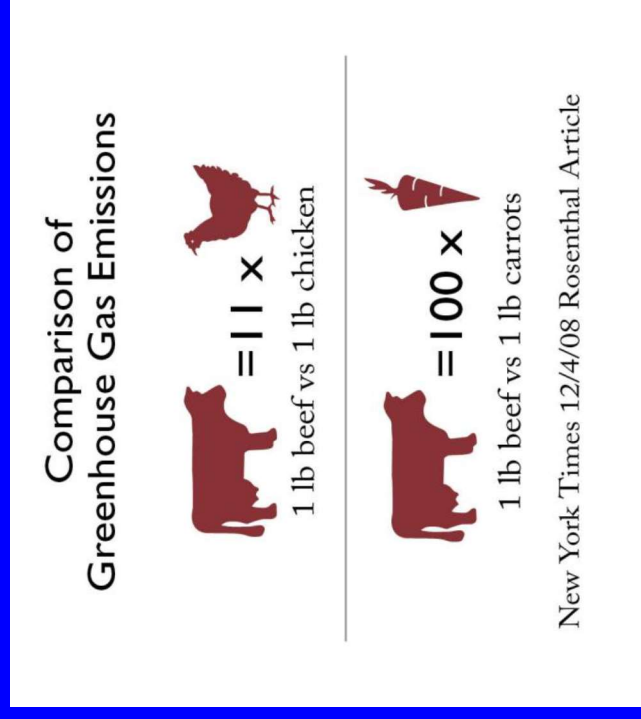
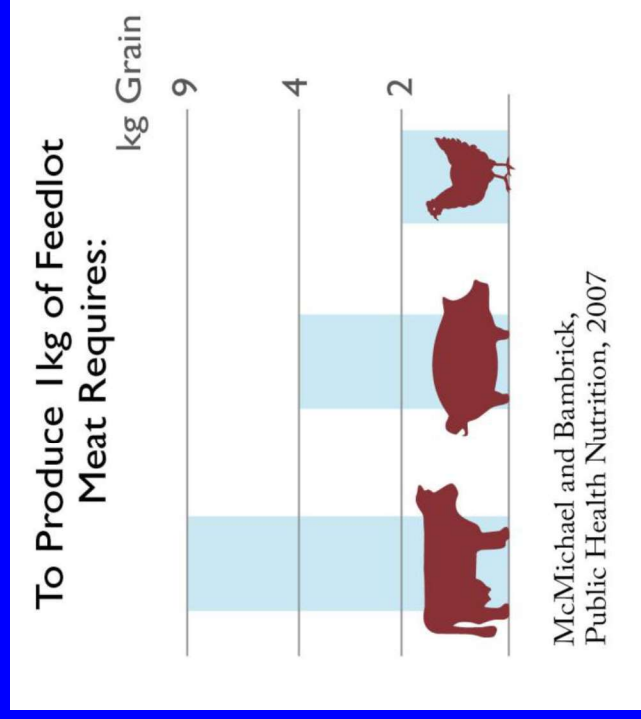


Hospitals are learning the benefits and methods of putting locally and sustainably produced food on their menus. (Sarah Gilbert/Flickr.com)



Food and Climate Change: The Balanced Menus Project

- Typical produce item now travels about 1,500 miles from farm to table
- Meat production is primary contributor to GHG emissions from the agricultural sector



SAN FRANCISCO MEDICINE

JOURNAL OF THE SAN FRANCISCO MEDICAL SOCIETY

Food: Too Much, Too Little, Too Bad *Nutrition Policy, Progress, and Pitfalls*

Antibiotics in Agriculture
We've Reached a Crisis State

Genetically-Modified Food: Hazardous or Healthy?
Obesity, Soda Tax, and Energy Drinks



VOL. 86 NO. 6 July/August 2013

Taking Action to Prevent Harm

County Medical Associations and Environmental Health

Robert Gould, MD, and Cindy Russell, MD

Members of SF-Bay Area county medical associations, largely based in the San Francisco Medical Society (SFMS) and Santa Clara County Medical Association (SCCMA), have increasingly recognized that providing the best care for our patients and families involves addressing the environmental and public health issues that impact patient and community health. Commencing in the late 1990s, physician delegates to the CMA House of Delegates (HOD) tackled the issues posed by the hospital industry's own contribution to environmental pollution. These efforts led to CMA adopting policies that reduce and ultimately would eliminate a wide variety of hospital-based pollution. For example, the elimination of mercury and various PVC plastics in hospital practice will prevent impacts ranging from neurodevelopmental defects to cancer. Subsequently, CMA policy addressed the dangers of flame retardants and responded to the warnings in 2009 by the Endocrine Society about the health impacts of endocrine-disrupting chemicals and the need for timely action to prevent harm.

Recent CMA policies have moved beyond the targeting of specific toxic agents of concern to call for the adoption of public-health protective chemical policy to address the well-documented inadequacies of the existing regulatory framework, under which there is lack of toxicity testing for the vast majority of the more than 80,000 chemicals in commerce.

Reflecting the adage that "we are what we eat," CMA has passed many policies aimed at protecting vulnerable populations, including schoolchildren, farm workers, and agricultural communities, from

the dangers of pesticides. More recently, in response to alarming trends in obesity and diabetes, CMA has adopted comprehensive policies encouraging hospitals to take the lead in improving health of patients and the population overall by implementing food purchasing practices and menus that promote health and prevent disease. This includes eschewing non-sustainably-produced food such as meat from Concentrated Animal Feeding Operations (CAFOs) and instead choosing free-range animals, food grown on small and medium-sized local farms, and food grown according to organic or other methods that emphasize renewable resources, ecological diversity, and fair labor practices. In 2009, CMA responded to the rapidly accumulating evidence linking the overuse of antibiotics to serious outbreaks of drug-resistant infections by joining the rising voice of physician opposition to the use of non-therapeutic antibiotics in livestock.

CMA's current efforts to address its longstanding concern about the adverse impact of air pollution are linked to issues of fossil fuel use and the unfolding global health threats posed by climate change.

CMA has called for hospitals to use the cleanest and most sustainable forms of energy and has encouraged physician support for binding reductions in national and global greenhouse emissions. In 2009, CMA adopted policy in support of "smart growth" strategies that protect health and endorsed the education of health professionals with resources, such as the Eco-Health Footprint Guide distributed by the Global Health and Safety Initiative, to help mitigate the impacts of health care system contributions to climate change and toxic pollution.

As exemplars of "First, do no harm," all of these policies provide a basis for physicians to help transform our institutions by addressing the environmental contributors to our patients' health. For example, members of SCCMA breathe life into these policies by working on hospital-based "green teams" and engaging hospitals through environmental audits and Grand Rounds about addressing climate change in the healthcare setting, based on information provided through a joint project of Practice Greenhealth, Health Care Without Harm, and Physicians for Social Responsibility.

Allied with parallel efforts by physicians in other states' medical associations, all of the foregoing measures have had an enormous impact on shaping the recent direction of American Medical Association (AMA), which has adopted policies promoting the incorporation of environmental health into medical education, supporting reforms in chemical policy, and addressing mercury exposure and other key environmental health issues. Most recently, AMA has made a major commitment to participate in actions to address climate change and has adopted a policy to promote the engagement of clinicians and policy makers in creating a healthy and sustainable food system.

As such, the work of CMA physicians has been successful in bringing diverse issues that had long been outside the range of patient care to the forefront of the concerns of mainstream medical practice. Our charge now is to transform this new awareness that permeates multiple levels of the health care system into the concrete measures needed to transform our institu-

Continued on page 29 . . .

Policy Arena: Food Advocate for Improved Public Policy

California Medical Association Pesticide Exposure Prevention Policies

PHASE-OUT OF SOIL FUMIGANTS (2013)

Encourage Office of California Governor, Departments of Pesticide Regulation and Food and Agriculture to fund and implement program to transition Cal agriculture to effective, affordable, least toxic non-fumigant replacements for soil fumigant pesticides, and to phase-out soil fumigants as soon as possible, and to strengthen mitigation measures such as buffer zones to protect residents, vulnerable populations.

• **IMPROVING HEALTH THROUGH SUSTAINABLE FOOD PURCHASING (2007)**

Encourage hospitals to adopt policies and implement practices that increase the purchasing and serving of food ... grown according to organic or other methods that emphasize renewable resources, ecological diversity, and fair labor practices

• **PESTICIDES AND SCHOOLS (2004)**

Strengthen health protection of students, teachers, and other school employees ... through adequately funded and implemented least-toxic school pest management programs, that strictly prohibit the school use of highly toxic pesticides

• **AGRICULTURAL PESTICIDE DRIFT (2000)**

Strengthen efforts to protect schools and residential areas from pesticide drift and off-site pesticide movement

• **FARMWORKER PROTECTION FROM PESTICIDES (2000)**

Support efforts to reduce farmworker exposure to pesticides; strengthen enforcement of existing laws by increasing fine levels; encourage physician awareness of pesticide illness and reporting

• **HEALTHY SCHOOLS (1999)**

Protect indoor air at California schools; recommend statewide implementation of least-toxic school pest management programs; include parents in pest management decision making.

Complete text of California Medical Association resolutions at: http://www.sfbaypsi.org/work_cma.html

REPORT 8 OF THE COUNCIL ON SCIENCE AND PUBLIC HEALTH (A-09)
Sustainable Food
(Resolution 405, A-08)
(Reference Committee D)

EXECUTIVE SUMMARY

Objective: To address how medical schools, hospitals, and other health care facilities can model and encourage healthy eating in a manner that supports environmentally sustainable agricultural and food system practices. This report defines sustainability within the context of the overall food system and outlines areas requiring further attention.

Methods: Literature searches for articles published through February 2008 were conducted in the PubMed database using the search terms “sustainable food,” “sustainable agriculture,” and “organic food.” Articles were selected that focused on human health and on the role health professionals and health care institutions could play in regard to these issues. Web sites managed by federal agencies and applicable professional and grassroots organizations were also reviewed for relevant information. Additional articles were identified by reviewing the reference lists of pertinent publications.

Results: Sustainability refers to the capacity of being maintained indefinitely, in a manner that meets present needs without compromising the ability to meet future needs. It is a continual process of improvement that must constantly respond to the economic, ecological, and health inputs to the system. Food systems encompass food production, processing, packaging, labeling, distribution, access, and consumption. A sustainable food system includes sustainable agricultural practices (environmental stewardship, profitable farm incomes, and stable farm families and communities) as well as other practices within the entire food system that promote and preserve ecology (conservation of resources and genetic biodiversity), social values (just working conditions, humane treatment of animals, geographical and economic accessibility to food), health (nutritious food without potentially harmful contaminants), and economic viability (fair incomes for families and local economies). Organic, natural, and local foods are not necessarily healthy and/or sustainable, although healthy food should be both nutritious and sustainable. Using a “more/less” rather than “either/or” approach, local food is usually the most sustainable, being generally less resource intensive and less vulnerable to contamination, while providing fresher and less processed food and fostering healthier relationships between farmers and consumers. However, even eating more conventionally produced (i.e., nonorganic, nonlocal) fruits and vegetables in place of animal products improves the sustainability of the food system. Several organizations offer information, resources, and recommendations to help schools and health care facilities leverage their community and market leadership to adopt healthier, sustainable food policies and practices. Although more research is needed to clarify the best means of achieving a healthier food system, it is essential that it incorporate a systems approach.

Conclusions: Healthy diets are rich in fruits, vegetables, and whole grains, and low in unhealthy fats, sodium, and added sugars, but they also support environmental sustainability, economic viability, and human dignity and justice. Unhealthy food systems are not sustainable, and contribute to the very health problems the health care system is trying to solve — at extraordinary costs both economically and in terms of quality of life. It is essential that health care organizations become both models and advocates of healthy, sustainable food systems that promote wellness and that “first do no harm.”

VOL.83 NO.3 April 2010

SAN FRANCISCO MEDICINE

JOURNAL OF THE SAN FRANCISCO MEDICAL SOCIETY

Medicine and the Environment

Practice, Prevention, and Policy



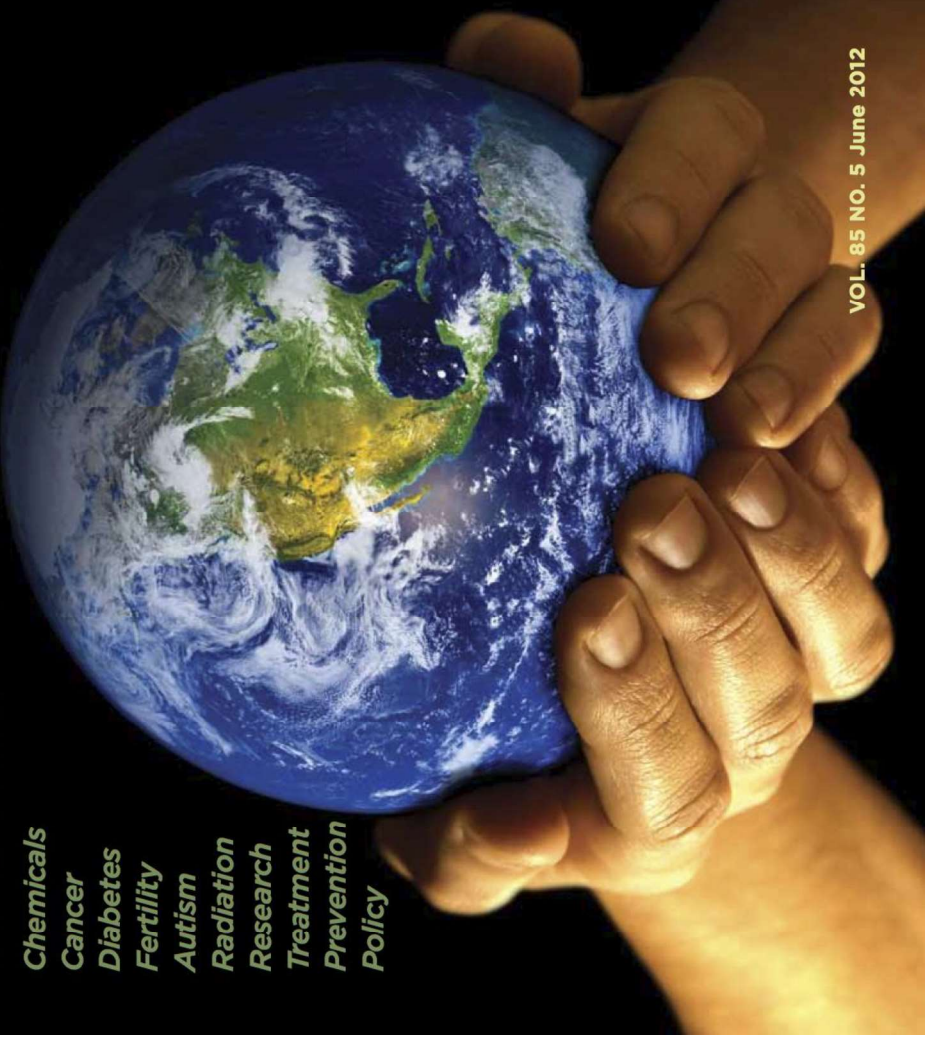
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ENVIRONMENTAL HEALTH

Toward Healthier Environments Across the Lifespan

Chemicals
Cancer
Diabetes
Fertility
Autism
Radiation
Research
Treatment
Prevention
Policy



VOL. 85 NO. 5 June 2012

A Climate Change for the Better

Federal Initiatives on Climate Change and Health

Linda Birnbaum, PhD, and John Balbus, MD, MPH

With Washington, D.C., buried under more than two feet of snow and Congress seemingly paralyzed by the discussion of health care and economic reforms this winter, one might have been tempted to believe that the human health impacts of climate change have been lost in the blizzard of other federal public health concerns. But instead we can write today about the new and renewed federal efforts to address these broad impacts—efforts taking the form of research and interagency initiatives, which are emerging like the crocuses under the leafless trees. As spring arrives and these initiatives begin to bloom, physicians should be among those taking notice.

The public health community is beginning to fully realize that climate change presents many long-term challenges to human health. The American Medical Association's 2008 resolution on global climate change and human health recognized that immediate effects may include those related to heat, extreme weather events such as flooding or drought, increased air pollution, and infectious and vector-borne diseases. It also noted longer-term impacts on food and water supplies that could result in malnutrition and dehydration.¹ The resolution also included a number of recommendations aimed at encouraging the medical community to become educated about the impacts and threats from climate change, particularly on vulnerable populations such as the elderly, children, and the poor; to help such patients and communities respond; and to become involved in policy efforts to mitigate climate effects.

Exciting new research is revealing

that the news on climate change is not necessarily all bad, and that reducing greenhouse gases has the potential to provide significant benefits to human health, saving both lives and dollars in the process. Last November, scientists and government officials from the United States and Great Britain came together in an "across the pond" teleconference event to mark the release of a special issue of *The Lancet* that contained a series of studies² conducted in London and Delhi demonstrating that significant health benefits could result if measures were taken to reduce greenhouse gases from household energy use, electrical generation, urban land transport, and agriculture.

The key message from the series, which was cosponsored by the National Institute of Environmental Health Sciences, the Wellcome Trust, and the London School of Hygiene and Tropical Health Medicine, was that "[i]f properly chosen, action to combat climate change can, of itself, lead to improvements in health."³ For example, interactions between human health, climate change, and short-lived greenhouse pollutants (those that last only a few weeks at most in the environment) were the topic of one of the papers in *The Lancet* series, which illustrated both the opportunities and the complexities of this science. Black carbon aerosols that result from incomplete fossil fuel combustion in household cooking and diesel engines have been shown in numerous studies to contribute to cardiovascular mortality, asthma, COPD, and pneumonia. Other studies have suggested that black carbon aerosols may contribute as much as 60 percent of the total climate forcing as the most promi-

nent greenhouse gas, carbon dioxide.⁴ Reducing black carbon emissions by providing the developing world with cleaner cookstoves or installing diesel particulate filters would provide the double benefit of improving health while immediately reducing the warming potential of the atmosphere. One caveat, however, is that where there is black carbon, there is often sulfur. Because sulfate aerosols have a cooling effect on the atmosphere, diesel particulate filters that require low-sulfur diesel fuel may provide mixed benefits for climate, since they would reduce both warming and cooling air pollutants. Because of the high stakes for both public health and as the complex considerations of public policy in the climate arena, *The Lancet* authors recommend that policymakers consider all of the health implications in short-lived greenhouse pollutant reduction measures.

Because physicians are at the front lines of treating diseases and reducing mortality that may be associated with a changing climate, it is vital that you contribute your perspectives to these considerations. In addition to revealing new bricks in the path toward understanding climate change impacts on health, this research offers a road map to move not just health but also energy, transportation, and agricultural policy forward on this issue. *The Lancet* authors noted, however, that awareness of the potential for health benefits to offset at least some of the costs of reducing greenhouse gases was generally low. Physicians clearly have a role to play in increasing such awareness.

Other federal commitments to research on health impacts of climate

Continued on page 16...

Policy Arena: Climate Change and Energy **Advocate for Improved Public Policy**

California Medical Association Climate Change and Energy Policies

- **AIR POLLUTION, ENERGY AND HEALTH (2002)**

Encourage hospitals to use cleanest power generating units, including emergency generators; retire old power plants and replace with renewable energy sources; ease the introduction of clean, alternative vehicles, explore petroleum demand reduction strategies, clean up and mitigate transportation and petroleum-related air and water pollution; support new, clean transportation technologies and infrastructure.

- **CLIMATE CHANGE AND HUMAN HEALTH (2002)**

Urge the President of the United States to take proactive steps to reduce green house emissions and work with other nations to address the increasing dangers of climate change by committing to binding reduction targets for emissions.

REPORTS OF THE COUNCIL ON SCIENCE AND PUBLIC HEALTH

The following reports, 1–4, were presented by Carolyn B. Robinowitz, MD, Chair.

**I. GREEN INITIATIVES AND THE HEALTH CARE COMMUNITY
(RESOLUTION 409, A-07, AND RESOLUTION 605, A-08)**

**HOUSE ACTION: RECOMMENDATIONS ADOPTED
IN LIEU OF RESOLUTIONS 409 (A-07) AND 605 (A-08) AND
REMAINDER OF REPORT FILED**

Resolution 409, Global Warming–Green Initiatives, introduced by the International College of Surgeons and referred at the 2007 Annual Meeting, asks:

That our American Medical Association (AMA) endorse the development of green initiatives and antipollution programs that may include but not be limited to auto and transportation emissions, waste food handling, and the disposal of biodegradable and non-biodegradable products.

Resolution 605, Encouraging “Green” Initiatives, introduced by the Illinois Delegation and referred at the 2008 Annual Meeting, asks:

That our AMA encourage green initiatives and further encourage comprehensive efforts to teach children how to live on a planet with finite resources; and that our AMA encourage companies, manufacturers, and public school systems to curtail greenhouse gas emissions and to recycle material and resources.

Within the last year other resolutions on environmental health issues have been referred by the House of Delegates. Resolution 442 (A-07) and Resolution 430 (A-08) are addressed in another Council on Science and Public Health (CSAPH) report at this meeting, on global climate change. Resolution 607 (A-08) calls for our AMA to “conduct an internal assessment of its environmental footprint and research creative solutions to minimize it” and is being addressed by the Board of Trustees. A future CSAPH report in response to Resolution 405 (A-08) will address “sustainable food practices” comprehensively; therefore, the current report limits discussion of this subject to selected purchasing practices in hospital settings.

Our AMA remains committed to environmental stewardship and the reduction of environmental hazards that adversely affect the health of the public. Specifically, our AMA has supported tightening of the Federal Clean Air standards on airborne lead, particulate matter, and ozone. Previous reports of this Council have addressed the health effects of mercury (CSA Report 13-1-04), approaches for reducing environmental exposure to mercury (CSA Report 1-1-06), and the issue of landfill placement over principal aquifers (CSAPH Report 4-A-07).

This report focuses on the background and rationale for “green” initiatives in the medical community and highlights areas in which the health care industry has implemented such initiatives, including waste management, sustainable food programs, and green building. The initiatives included in this report reflect environmental health hazards in the medical setting, and actions (initiatives) that can be taken to eliminate them. This report also provides an extensive list of resources that can be consulted by other organizations, companies, and individuals interested in implementing green practices and conservation programs on a community-wide basis.

METHODS

English-language articles were identified by a Google Scholar and PubMed search from January 1968 to May 2008 using the key words “green initiatives,” “resource conservation,” “medical waste,” and “recycling.” Articles were selected based on their inclusion of solutions or initiatives in the health care setting. Additional articles were chosen to identify gaps in knowledge, such as those specific to green building, and the impact of pesticides and chemicals on human health. In addition, the web sites of the Environmental Protection Agency (EPA), Health Care Without Harm, Practice Greenhealth, and CleanMed were consulted for relevant information.



Global Climate Change and Human Health Resolutions



- **American Medical Association, 2008**

“1) endorse the findings of the 4th Intergovernmental Panel on Climate Change; 2) support research to explore the human health effects of climate change; 3) support state, federal and international policy coordination to develop adaptive strategies to respond to the predicted human health effects of climate change; and 4) encourage Congress and the President to adopt national and international policies to reduce the emissions of greenhouse gasses.”

- **American Nurses Association, 2008**

“American Nurses Association recognizes and publicly acknowledges that the challenges we face as a result of global climate change are unprecedented in human history and it is critical that nurses speak out in a united voice and advocate for change on both individual and policy levels.”

- **American Public Health Association, 2007**

“The public health community should advocate for mitigation and avoidance of climate change, track the impacts of climate change on human health, and assist with adaptation, to the degree possible, to those health effects caused by changes in climate that can not be prevented.”



Michael D. Maves, MD, MBA, Executive Vice President, CEO

November 19, 2009

The President
The White House
Washington, DC 20500

Dear Mr. President:

Ongoing global climate change is now widely accepted by the majority of scientists and climatologists. The American Medical Association (AMA) supports the findings of the Intergovernmental Panel on Climate Change's (IPCC) fourth assessment report and concurs with the scientific consensus that global climate change is occurring and human activity is accelerating this process. Similar views are held by the interagency United States Global Change Research Program and the World Health Organization. The IPCC assessment acknowledges that the extent of climate change will depend on many factors, most notably changes in global greenhouse gas emissions. Widespread effects on ecosystems, land composition, sea levels, weather patterns, vector-borne diseases, and air pollution are predicted. Other downstream effects of global climate change include compromised agricultural food production and threats to potable water supplies.

The AMA is concerned about the significant public health implications of such developments, particularly the likelihood that disproportionate effects will be experienced by the most vulnerable populations, including children, the elderly, individuals suffering from chronic disease, and the poor. Many health effects attributable to global climate change already have been described.

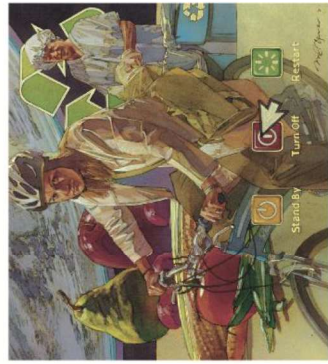
Adaptation and response to climate change will require additional health care resources, increase health care costs, and challenge an already over-burdened public health infrastructure. The AMA offers its support in educating the medical community on the potential adverse public health effects of global climate change and we are working to develop the tools necessary to assist physicians in educating patients and the public on environmentally sustainable practices, and to serve as role models for promoting environmental sustainability.

American Medical Association 515 N. State St. Chicago IL 60654
phone: (312) 464-5445 fax: (312) 464-5896 www.ama-assn.org

Slowing Global Warming: Benefits for Patients and the Planet

CINDY L. PARKER, MD, MPH, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland

Global warming will cause significant harm to the health of persons and their communities by compromising food and water supplies; increasing risks of morbidity and mortality from infectious diseases and heat stress; changing social determinants of health resulting from extreme weather events, rising sea levels, and expanding flood plains; and worsening air quality, resulting in additional morbidity and mortality from respiratory and cardiovascular diseases. Vulnerable populations such as children, older persons, persons living at or below the poverty level, and minorities will be affected earliest and greatest, but everyone likely will be affected at some point. Family physicians can help reduce greenhouse gas emissions, stabilize the climate, and reduce the risks of climate change while also directly improving the health of their patients. Health interventions that have a beneficial effect on climate change include encouraging patients to reduce the amount of red meat in their diets and to replace some vehicular transportation with walking or bicycling. Patients are more likely to make such lifestyle changes if their physician asks them to and leads by example. Medical offices and hospitals can become more energy efficient by recycling, purchasing wind-generated electricity, and turning off appliances, computers, and lights when not in use. Moreover, physicians can play an important role in improving air quality and reducing greenhouse gas emissions by advocating for enforcement of existing air quality regulations and working with local and national policy makers to further improve air quality standards, thereby improving the health of their patients and slowing global climate change. (*Am Fam Physician*. 2011;84(3):271-278. Copyright © 2011 American Academy of Family Physicians.)



► See related editorial on page 256.

► Patient information: A handout on global warming, written by the author of this article, is provided on page 282.

Global warming is an occurrence that is well documented, with average global surface temperatures now 1.5°F (0.83°C) higher than at the start of the industrial revolution.¹ Since the 1970s, each decade has been warmer than the previous, and the 2000 through 2009 decade was the warmest on record.¹

Changes in temperature alter wind, precipitation, and ocean current patterns across the world. Because climate is temperature-driven, scientists prefer the term “climate change” to “global warming.” The Intergovernmental Panel on Climate Change, comprising more than 2,000 of the world’s leading climate-change scientists, concluded in its 2007 consensus report that most of the increase in global average temperatures since the mid-20th century has resulted from an increase in human-generated greenhouse gas emissions,

with a probability of greater than 90 percent.² A review of the extensive scientific evidence for climate change is beyond the scope of this article, but, in addition to the consensus report,² a 2009 report from *The Lancet* offers a comprehensive review of the science.³

Because humans are largely responsible for these climate changes, it is reasonable to suggest that persons could take actions necessary to stabilize the climate. Although that responsibility falls on everyone, physicians can make an important contribution by keeping informed about the impending adverse health effects of climate change; making specific health recommendations to their patients; reducing the environmental impact of their office and hospital practices; and serving as community spokespersons. Family physicians should join the growing global movement of scientists—as evidenced by the InterAcademy

Global Warming and Your Health

What is global warming?

Global warming is when the Earth's average surface temperature goes up over time. Because of this, the Earth is getting warmer with each decade. Scientists have found that this is mostly caused by human activities that affect air pollution.

When people burn fossil fuels for energy (example: driving vehicles that use gasoline), it puts gases into the air. Sometimes these gases are called greenhouse gases because having too much of them in the air causes what is called the greenhouse effect.

A greenhouse is a building where plants are grown. It usually has a glass ceiling and walls for the sun to shine through. The sun's heat goes in through the glass more easily than it can get back out of it. This causes the temperature inside the greenhouse to get warmer than it is outside. Greenhouse gases cause global warming

by acting like the glass of a greenhouse around the Earth's atmosphere. Adding to the problem, people also have removed a lot of the Earth's plants that would help absorb the greenhouse gas carbon dioxide.

How will it affect my health?

Warmer average temperatures can increase the risk of health problems. Global warming will cause direct and indirect effects on health. The direct effects would be easier to see and may show up first (Table 1), but the indirect effects would be the most serious (Table 2).

What can I do to help?

About one-fifth of all greenhouse gases come from the production of food animals. Raising cows generates the most greenhouse gases. Your doctor may have talked about the health benefits of a low cholesterol diet, but reducing

Table 1. Global Warming's Direct Health Effects

<i>Change caused by global warming</i>	<i>How this change affects health</i>	<i>Who is the most at risk?</i>
Heat waves come more often, are more severe, and last longer	Heat stress makes people sick Heat stroke can be deadly	Everyone, but especially older people and children
Average temperatures are warmer, summers last longer	Increase in infectious diseases, especially those carried by insects	Everyone, but especially people who live in countries that don't have good public health care systems
Air pollution gets worse	More risk of heart and lung diseases, such as asthma and heart attacks	Everyone, but especially people who already have heart or lung disease
More severe storms cause flooding and damage from wind, snow, and hail	More accidents and injuries	Everyone



The Physician's Role in Efforts to Slow Global Warming

ROBERT M. GOULD, MD, *Physicians for Social Responsibility, San Francisco, California*

▶ See related article on page 271.

Dr. Parker's article in this issue of *American Family Physician* offers a concise presentation of the science of climate change.¹ Global warming will directly affect the health of our patients, communities, and planet; therefore, physicians and other health care professionals have a critical role in addressing the issue.

In 2007, greenhouse gas emissions attributable to the production of health care goods and services accounted for 8 percent of total emissions in the United States.² Hospitals are the largest contributors to health care's carbon footprint, responsible for an estimated 39 percent of the sector's greenhouse gas emissions.² Many major health systems and organizations committed to improving sustainability and safety across the health care sector have been participating in the Healthier Hospitals Initiative (HHI). The HHI is a coordinated sector-wide approach to the design, construction, and operation of hospitals.³

The HHI partner organizations have developed a number of innovative programs to foster climate-friendly health care institutions. One such valuable resource, *Addressing Climate Change in the Health Care Setting*, focuses on addressing seven major contributors to climate change in hospitals: energy conservation and efficiency, alternative energy generation, green building design, waste disposal and management (including recycling anesthetic gases), water conservation, transportation, and food service.⁴ Myriad strategies for reducing the impact of each of these areas have been developed and successfully implemented at hospitals across the United States, with potential benefits to the general public health from reduced hospital-generated pollution.^{4,5}

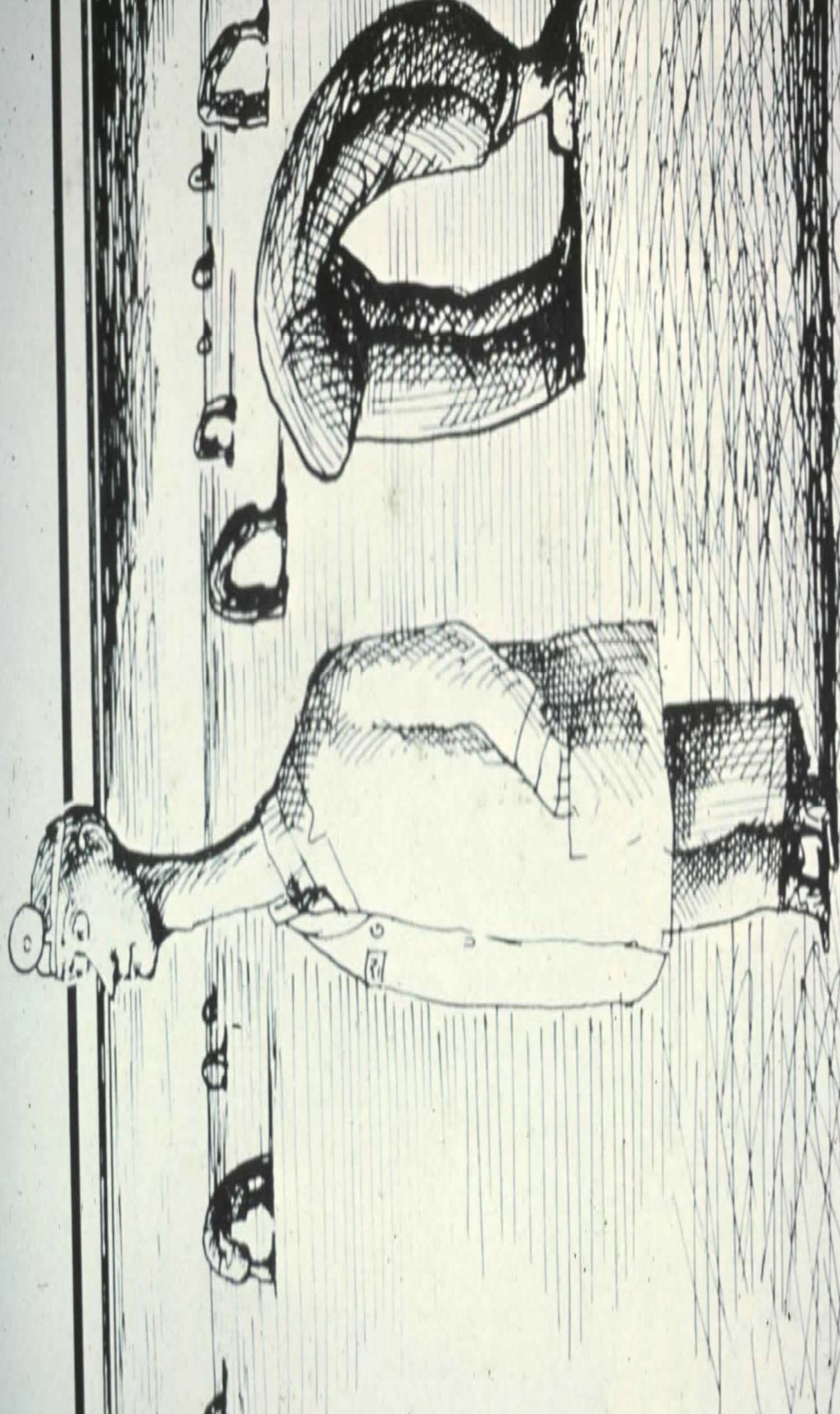
Other efforts to reduce the carbon footprint of hospitals include the Health Care Without Harm initiatives, Healthy Food in Health Care campaign and Balanced Menu Challenge.⁶ These initiatives complement efforts to educate patients about reducing meat consumption outlined in Dr. Parker's article by changing hospital food procurement patterns to help prevent and mitigate climate change and related adverse health impacts.⁷

The links between our industrialized food system and climate change include: (1) fossil fuels that are consumed to run farm machinery and transport food over long distances; (2) fossil fuels related to heavy reliance on pesticides and chemical fertilizers; and (3) industrialized livestock production (e.g., fossil fuel-intensive grain to feed livestock, deforestation for feed production and pasture).⁷

Steps that health care facilities can take include procuring food produced in systems that eliminate the use of toxic pesticides and chemical fertilizers using ecologically protective and restorative agriculture (e.g., local, organic). Data from four institutions demonstrate that implementation of the Balanced Menu Challenge can yield substantial reductions in greenhouse gas emissions, as well as save hospitals money in food purchases.⁸ Because the health care sector spends \$12 billion annually on food,⁹ this balanced menu approach can serve as a model for healthy food purchases in other sectors and encourage the more widespread availability of healthy foods. Thus, realignment of the hospital's food system can have positive health impacts well beyond our cafeterias.

Recognizing that education is key to the success of climate-friendly hospital programs, the American Medical Association (AMA), in concert with the American Nurses Association and the American Public Health Association, has strongly supported educating health professionals about the impacts of climate change. The AMA is a major participant in the Climate and Health Literacy Consortium, which has developed free standard PowerPoint presentations for hospital administrators and clinical staff.¹⁰

Finally, Dr. Parker points to physician involvement in policy change. Historically, the clinical voice in policy arenas has been central to addressing environmental threats to patient health.^{11,12} The potential of physician involvement in addressing climate change cannot be overestimated. For example, the California Medical Association has adopted numerous policies to prevent and mitigate climate change, including encouraging hospitals to implement better food-purchasing strategies.¹¹ The AMA has also adopted far-reaching policies that comprehensively address healthy food issues¹³ and call for active engagement of physicians in other efforts to prevent and mitigate climate change.¹⁴ This was underscored by a November 19, 2009, letter from the AMA to President Obama citing the "significant public



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The American College of
Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS



COMMITTEE OPINION

Number 575 • October 2013

The American College of Obstetricians and Gynecologists Committee on Health Care for Underserved Women

American Society for Reproductive Medicine Practice Committee
The University of California, San Francisco Program on Reproductive Health and the Environment

This Committee Opinion was developed by the American College of Obstetricians and Gynecologists Committee on Health Care for Underserved Women and the American Society for Reproductive Medicine Practice Committee with the assistance of the University of California, San Francisco (UCSF) Program on Reproductive Health and the Environment. The Program on Reproductive Health and the Environment endorses this document. This document reflects emerging clinical and scientific advances as of the date issued and is subject to change. This information should not be construed as dictating an exclusive course of treatment or procedure to be followed.

Exposure to Toxic Environmental Agents

ABSTRACT: Reducing exposure to toxic environmental agents is a critical area of intervention for obstetricians, gynecologists, and other reproductive health care professionals. Patient exposure to toxic environmental chemicals and other stressors is ubiquitous, and preconception and prenatal exposure to toxic environmental agents can have a profound and lasting effect on reproductive health across the life course. Prenatal exposure to certain chemicals has been documented to increase the risk of cancer in childhood; adult male exposure to pesticides is linked to altered semen quality, sterility, and prostate cancer; and postnatal exposure to some pesticides can interfere with all developmental stages of reproductive function in adult females, including puberty, menstruation and ovulation, fertility and fecundity, and menopause. Many environmental factors harmful to reproductive health disproportionately affect vulnerable and underserved populations, which leaves some populations, including underserved women, more vulnerable to adverse reproductive health effects than other populations. The evidence that links exposure to toxic environmental agents and adverse reproductive and developmental health outcomes is sufficiently robust, and the American College of Obstetricians and Gynecologists and the American Society for Reproductive Medicine join leading scientists and other clinical practitioners in calling for timely action to identify and reduce exposure to toxic environmental agents while addressing the consequences of such exposure.

Reproductive Environmental Health

Robust scientific evidence has emerged over the past 15 years, demonstrating that preconception and prenatal exposure to toxic environmental agents can have a profound and lasting effect on reproductive health across the life course (1–3). Exposure to toxic environmental agents also is implicated in increases in adverse reproductive health outcomes that emerged since World War II; these changes have occurred at a rapid rate that cannot be explained by changes in genetics alone, which occur at a slower pace. For additional information, a detailed review is available at www.acog.org/goto/underserved.

Exposure to environmental chemicals and metals in air, water, soil, food, and consumer products is ubiquitous. An analysis of National Health and Nutrition

Examination Survey data from 2003–2004 found that virtually every pregnant woman in the United States is exposed to at least 43 different chemicals (4). Chemicals in pregnant women can cross the placenta, and in some cases, such as with methyl mercury, can accumulate in the fetus, resulting in higher fetal exposure than maternal exposure (5–7). Prenatal exposure to environmental chemicals is linked to various adverse health consequences, and patient exposure at any point in time can lead to harmful reproductive health outcomes. For example, prenatal exposure to certain pesticides has been documented to increase the risk of cancer in childhood; adult male exposure to pesticides is linked to altered semen quality, sterility, and prostate cancer; and postnatal exposure to some pesticides can

“The health sector must add its voice – loud and clear...we must fight to place health issues at the center of the climate agenda. We have compelling reasons for doing so. Climate change will affect, in profoundly adverse ways, some of the most fundamental determinants of health: food, air, water.”

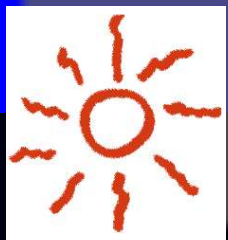
- Dr. Margaret Chan, Director General of the World Health Organization, December 2007



Freedigitalphotos.net, Danilo Rizzuti, Jsceratonzs, Carlos Porto



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Contact Information

San Francisco Bay Area Chapter Physicians for Social Responsibility

www.Sfbaypsr.org

2288 Fulton St., Suite 307, Berkeley, CA 94704-1449

Phone: 510-845-8395 Fax: 510-845-8476

email: info@sfbaypsr.org

Physicians for Social Responsibility (National)

1111 14th Street NW, Suite 700

Washington, DC 20005

Phone: 202-667-4260 Fax: 202-667-4201

www.psr.org