

Climate Change How Will it Impact Cancer Care Delivery?

BY JOAN H. SCHILLER, MD



We all know that the globe is warming. Twenty years ago, few people believed it was real; 10 years ago, some people believed it was real but not as a result of human activity; and now, many people believe that either it is real but will not affect them for a long time (so why suffer the pain and expense of changing our life style now?) or that it is real and will be catastrophic, yet nothing can be done.

I am a medical oncologist, and, until recently, found myself in the latter category. Actually, that is not quite true. I was in the “I’m-too-busy-to-do-something-about-it-may-be-someone-else-will” category. And then, the trees around our cabin in the mountains in southwest Colorado started dying due to infection by spruce beetles, as the trees became increasingly stressed by drought and heat. It was also around the same time that forest fires started emerging as billion-dollar events in the West, including in Colorado, and it occurred to me that my grandchildren might never see these magnificent forests. These events made it clear to me on a personal level that climate change is *happening now*.

To be transparent, I have since retired and thus no longer have the “I’m-too-busy-to-do-something-about-it” excuse. However, it has become clear to me that the “maybe-someone-else-will” excuse is no longer a viable option. Climate change is affecting us today, and the impacts are largely irreversible; they will only increase in the future depending on the actions we take now.

Climate change is typically seen through an environmental, political, or socioeconomic lens. Yet it should also be seen as a catastrophic health threat.¹ Climate change will have major impacts on children; pregnant women and their

unborn babies; older adults; low-income and disadvantaged people in our society; low- and middle socioeconomic countries, among others. It will change our way of life, including our ability to care for patients with cancer. A warming climate will impact patients with cancer in many ways, including increases in²:

- Vector-borne diseases
- Diseases due to poor water quality
- Asthma and allergies
- Dehydration and renal impairment
- Food insecurity
- Mental stress
- Cardiovascular and pulmonary morbidity and mortality

Perhaps 2 of the biggest areas we will see these impacts in the US are in air pollution and access to care (see Figure 1,² page 95).

Pollution

Air pollution and climate change are 2 sides of the same coin; they are both largely due to the burning of fossil fuels. The Institute for Health Metrics and Evaluations’ “Global Burden of Disease Study 2017” calls it out as the second most common cause of lung cancer, after smoking.³ Epidemiological studies have reported between a 13% to 14% increase in the risk for lung cancer mortality per each 10 mg/m³ increase in fine particulate matter (PM_{2.5}) concentrations.³ In patients who have never smoked, each 10 mg/m³ increase in PM_{2.5} concentrations is associated with a 15% to 27% increase in lung cancer mortality.⁴

Access to Care

As the planet warms, we are seeing more extreme weather events—hurricanes, sea rise, droughts, floods, and wildfires. A meta-analysis

of the effects of natural disasters on cancer care found significant impacts, including damage to infrastructure and workforce management; loss of medical records and tissue samples; the need for evacuation of patients and staff; disruption to communication services and supply chains; and a lack of medications.⁵ Perhaps, most importantly, interruptions in a patient’s anticancer treatment can worsen their prognosis and survival.⁶

Taking Action

What can we (oncology health care professionals, health systems, and organizations) do? After all, we are busy, and climate change’s direct impact on providers and patients seems both abstract and decades away. We could embrace the status quo argument that the “climate scientists and politicians will take care of it.” After all, we are physicians, nurses, and other health care professionals—we take care of patients with cancer, not polar bears. But it is precisely because we care about our patients and ourselves that we need to get involved in the climate change movement. In addition to educating our patients and the public (physicians are rated among the most trusted health care professionals) and changing our individual lifestyle practices—all of which are important—we can advocate for the environment with our legislators and policymakers. We can also look in the mirror and act.

The US health care sector is estimated to contribute about 8% of all pollution in the country, including acid rain (12%), greenhouse gas emissions (10%), smog formation (10%), air pollutants (9%), stratospheric ozone depletion (1%), and carcinogenic and non-carcinogenic air toxins (1% to 2%).⁷ The country’s health care emissions account for

Figure 1. Centers for Disease Control and Prevention, Impact of Climate Change on Human Health²



27% of the total global health care footprint and is the highest in the world.⁸⁹ It also contributes an estimated 23 million to 44 million tons of municipal solid waste.⁹⁰

We need to dramatically reduce the carbon footprint of the US health care sector. Eighty percent of health care's carbon emissions come from the production, transportation, utilization, and disposal of goods and services, such as pharmaceuticals and other chemicals, food and agricultural products, medical devices, and hospital equipment and instruments.¹¹ Although it is difficult to estimate how much our specialty's contribution is, compared to this larger problem, given the magnitude of oncology's impact on most health care organizations through the use of chemotherapy, radiation therapy, surgical oncology, and diagnostic services, it is likely to be a significant

amount.¹² Climate scientists have summarized key actions to lower emissions, including¹³:

- Powering health care with clean and renewable energy
- Investing in zero emissions buildings and infrastructure
- Transitioning to zero emissions
- Offering sustainable travel and transport options
- Providing health and sustainable food options
- Incentivizing and producing low-carbon pharmaceuticals
- Embracing sustainable health care management

These actions will require organizational change. Health care systems, hospitals, clinics, and practices are starting to recognize the profound


and growing threat to public health that is posed by climate change. In October 2020, the UK's National Health Service became the world's first nationwide health system to commit to reaching carbon net zero.¹⁴ In the US, the Department of Health and Human Services created its Office of Climate Change and Health Equity and promoted the voluntary Health Sector Climate Pledge, asking health care organizations to reduce their greenhouse gas emissions.¹⁵ As of April 2023, 116 health care organizations have signed on to the pledge.¹⁵ The US Department of Veterans Affairs also released its Climate Action Plan in August 2021, with targeted energy efficiency and renewable energy goals.¹⁶ Additionally, in March 2023, The Joint Commission requested feedback from the public on a draft accreditation standard to facilitate health care decarbonization. The 4 action points are¹⁰:

1. The appointment of a person to oversee emission reduction activities
2. The measurement of 3 (or more) of 6 high-emission or waste-focused hospital-based activities
3. The development of an action plan to reduce emissions of the measured activities
4. An analysis of the data resulting from the action plan and revisions to meet the goals

Unfortunately, the commission has since decided to make its decarbonization standard voluntary, giving “extra credit” to those who meet these goals. This change was due to negative feedback from senior administrators, who were concerned about the logistics and financial challenges of the targeted energy efficiency and renewable energy goals, despite the enthusiastic supportive by younger clinicians of this new standard.

These initiatives require buy-in from our health care system, hospital, clinic, and practice leaders. We need to help find cost-neutral and/or cost-saving solutions. Resources are available to help health care organizations track greenhouse gas emissions and set reduction goals.^{13,17,18}

Many of us recognize that the effects of climate change will be catastrophic, especially upon our daily lives and ability to care for our patients. However, we often cite a range of personal, professional, and societal barriers that impede us from changing our actions, with the lack of time being the most important one.¹⁹ Regardless, the climate crisis is unfolding rapidly, and we need to act now. We need you—as individual health care professionals and/or administrators—to recognize that while systemic factors that impact health care may be harder to see and require systemic solutions, they are nonetheless real. We need to advocate with our leaders, organizations, and stakeholders to mobilize toward education, research, and action in this critical space.

As oncologists who care deeply about our patients, it is our responsibility to do whatever we can to prevent cancer and reduce its complications. We all took oaths to “first, do no harm.” To have it within our power to prevent harm to future patients and to not speak out—or not act—is a violation of that pledge. 

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