The Profession of Medicine and Climate Change: A Thirty Year Perspective

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The past year has seen unprecedented high temperatures, loss of polar ice, rising sea levels, and extreme weather events like floods and hurricanes, and wildfires. It would be shocking except that last year and the year before were also just as shocking. In 2016 the ACP issued a bold policy statement about the consequences of global climate change on human health and physicians' roles in responding to the dramatic threats posed by global warming.

Thirty years ago–in 1990--the Annals published a paper by two of us (MM and CC) calling for physician attention to environmental health threats, placing climate change at the top of the list of concerns. [1] In laying out the spectrum of health consequences of environmental damage, our goal was to persuade doctors that as a profession we have a responsibility to be aware of these issues and to actively advocate to change policies that lead to adverse health effects. Our argument was similar to the logic that had given rise to a powerful physician movement against the proliferation of nuclear weapons in the 1980's, led by Physicians for Social Responsibility (PSR) in the US and the International Physicians for the Prevention of Nuclear War (IPPNW) globally. That logic was that physicians would be helpless in the face of the catastrophic medical consequences of nuclear war, and that physicians have the knowledge, credibility and the social standing to have an impact on public opinion and on policymakers, and therefore we have a responsibility to do so. That physician led movement gained enormous public attention internationally, contributed to a bipartisan understanding of the need to reduce global nuclear arsenals, and was awarded the 1985 Nobel Peace Prize for that work. [2] The 1990 Annals article argued that, similar to nuclear war, global climate change will cause devastating harms to human health, which will overwhelm health care systems globally.

One of us (RJ) has devoted his medical career to this precept, and joins us here to take note of the importance of the College's 2016 policy paper, to urge all physicians in all specialties to adopt these principles, and to advocate for even stronger calls to action.

The thirty-year perspective offered by these two papers demonstrates why, now, the College asserted that a "sense of urgency is warranted." [3]. The 1990 paper focused on prevention, calling for reduction in greenhouse emissions, investment in alternative energy sources, education of the public to support these policies, and for more research. At that time, the call for more government investment in climate research was needed because most of the predictions were based on computer models, and scientists debated the scope and pace of the changes predicted. Now the *experience* of global warming is convincing and clear, as is the actual unprecedented and frightening scope and pace of the changes that have occurred over these three decades. [4]

Lost opportunities are sadly familiar to every physician. Daily we counsel prevention, but when that counsel isn't heeded we must aggressively treat the critically ill patient. Thirty years ago the call for prevention made sense, similar to advising patients to manage lipids and blood pressure to reduce the risk of stroke and cardiovascular disease. These methods dramatically reduced death from cardiovascular disease, but when prevention is neglected and a patient does have an acute myocardial infarction, immediate action is needed. Failing to reduce carbon pollution of the atmosphere is causing the global patient, the planet's population and ecosystems, to decompensate. This is not a time for debate about the merits of the science, or even for calls for more research, this is a time for immediate and definitive action and physicians must join the leadership.

Nine out of ten of the warmest years on record have occurred since 2005. In the last 30 years, the level of greenhouse gas, CO_2 in the atmosphere has increased from 350 to 410 ppm, already above the danger level cited by the IPPPC. [5] (5) Overall warming of the planet by 1.5 – 2 degrees is considered to be the level "too dangerous to cross." [6]. Recent models are now showing that in this century global temperature may rise to as much at 5 degrees or more—alarming to scientists who cannot even predict what this would mean for biological life.7 The oceans have become warmer and more acidic, damaging global food supplies and biological diversity. Humans are subject to higher rates of respiratory and heat related illness, increased risk of famine and malnutrition. Epidemics of Zika, Ebola, and Dengue have signaled the continuing emergence of different kinds of infectious threats. This plus drought, fires and floods have further fueled political instability leading more than 70 million people to become permanent refugees. 40 million of these displaced people can be considered "climate refugees" and by

the year 2050 (only thirty years from today—the same time period since our 1990 article) this number is predicted to be in the range of 200 million. [78]

Just as the basic science of in medicine is well established, so it is with climate devastation. Every physician knows that denial and procrastination can be fatal. We are taught to distinguish the merely important from the truly urgent. In this year of 2020, we physicians must confront our own lives and that our communities and our children, and we must demand that elected officials, policy makers, healthcare institutions, corporate leaders and all citizens respond to climate threats as urgent. In 1990 physicians and scientists were able to overcome the political divides of the cold war to bring leaders together to speak about their common survival in the face of the nuclear threat. The basic science is established. It is time to confront the underlying disease, and to apply effective regimens to manage human and generational endangerment from atmospheric destruction and climate heating.

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