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Original article



## Physicians' responsibility toward environmental degradation and climate change: A position paper of the European Federation of Internal Medicine

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## ABSTRACT

The current data on climate change and environmental degradation are dramatic. The consequences of these changes are already having a significant impact on people's health. Physicians — as advocates of the patients, but also as citizens — have an ethical obligation to be involved in efforts to stop these changes. The European Federation of Internal Medicine (EFIM) strongly encourages the Internal Medicine societies and internists across Europe to play an active role in matters related to climate change and environmental degradation. At a national level, this includes advocating the adoption of measures that reduce greenhouse gas (GHG) emissions and environmental degradation and contributing to policy decisions related to these issues. At a hospital level and in clinical practice, supporting actions by the health sector to reduce its ecological footprint is vital. At the level of EFIM and its associated internal societies, promoting educational activities and developing a toolkit to prepare internists to better care for citizens who suffer from the consequences of climate change. In addition to advocating and implementing effective actions to reduce the ecological footprint of the health industry, recommending the introduction of these themes in scientific programs of Internal Medicine meetings and congresses and the pre- and postgraduate medical training. At a personal level,

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internists must be active agents in advocating sustainable practices for the environment, increasing the awareness of the community about the health risks of climate change and environmental degradation, and being role models in the adoption of environmentally friendly behaviour.

## 1. Introduction

The 2021 Assessment of the United Nations Intergovernmental Panel on Climate Change (IPCC) was the sixth in a series of reports of the latest scientific and socioeconomic data on climate change [1]. This report — approved by 195 governments — is “a code red for humanity”, according to the statement of the Secretary-General of the United Nations, António Guterres [2]. Working Group II of this panel compiled the most recent literature on the impacts of climate change, concluding that some of the adaptations are no longer possible [3]. The 26th UN Climate Change Conference of the Parties (COP26) failed to meet the expectations to set the goal of reducing the global greenhouse gas (GHG) emissions by 50% in the next ten years, a number required to limit the increase of Earth’s temperature to a maximum of 1.5 °C.

The current data and scientific predictions about the consequences of global warming are dramatic: 2021 ranked as the sixth-warmest year on record — according to an analysis conducted by the National Oceanic and Atmospheric Administration scientists [4]. It is estimated that the average global surface temperature, in 2081–2100, is very likely to be 2.1–3.5 °C higher, in the intermediate GHG emissions scenario, compared to the 1850–1900 period. The Arctic Sea ice area decreased by 40% in the last four decades, and will probably disappear completely by 2050. The mean global sea level rose by 0.20 m, between 1901 and 2018, and it is estimated that it will further rise by 0.44–0.76 m in 2100. Atmospheric CO<sub>2</sub> concentrations were higher, in 2019, than at any other time in the last 2 million years. There was an increase in the frequency and intensity of hot extremes (including heatwaves), heavy precipitation, and major tropical cyclones across most land regions, and extreme daily precipitation events are projected to increase by approximately 7% for each 1 °C of global warming [1].

Many changes due to past and future GHG emissions are irreversible, especially changes in the ocean, ice sheets, and global sea level [1].

Moreover, in addition to climate change, other phenomena are affecting humans: overpopulation, the depletion of natural reserves, and the degradation of ecosystems.

It took us 200,000 years to reach a world population of 1 billion, in the year 1804, but, since then, only 218 years to reach the current number of 7.8 billion, and it is predicted that will be 9.7 billion in 2050 [5,6]. Life expectancy has increased from 32 years in 1900 to 72 years in 2019, although this evolution differed across the globe: now, in Europe, the life expectancy is 78 years, while in Africa it is 63 [5].

The world is also experiencing rapid depletion of natural resources, the degradation of ecosystems, and the loss of biodiversity. Since the industrial revolution, human activities have increasingly destroyed forests, grasslands, and wetlands, threatening human lives and well-being. It is estimated that 75% of the Earth’s ice-free land surface has already been significantly altered and more than 85% of the wetland area has been lost. In the last 50 years, there was an average decrease of 70% in the population sizes of mammals, birds, amphibians, reptiles, and fish [7]. Globally, 93% of all children live in environments with air pollution levels above the WHO guidelines [8].

To sustain our 21st-century lifestyles, we are overusing the Earth’s biocapacity by at least 56%. Since 1970, our ecological footprint has exceeded the Earth’s rate of regeneration [9].

The recognition that human activities began to have a substantial global effect on the Earth’s systems led to the proposal to define the current geological epoch, as the Anthropocene epoch [10].

## 2. Effect of climate change and degradation of ecosystems on health and the footprint of the health sector

Climate change and the degradation of ecosystems are already having a significant impact on people’s health. To emphasize this link, between nature and human well-being, the Rockefeller Foundation–Lancet Commission and the UN Climate Change introduced the concept of “Planetary Health”, defining it as “the health of human civilization and the state of the natural systems on which it depends” [11]. The World’s largest study of global climate-related mortality concluded that more than five million extra deaths per year can be attributed to abnormally extreme temperatures [12], and pollution remains responsible for approximately 9 million deaths per year (one in six deaths worldwide) [13].

Deforestation, illegal and poorly regulated wildlife trade, intensified agriculture, livestock production, antimicrobial resistance, and climate change increases the risk of zoonosis pandemics [14]. In fact, 60% of emerging infectious diseases come from animals, and nearly three-quarters of these are from wild animals [7]. Climate change is already affecting vector-borne disease transmission and spread, and its impacts are likely to worsen [15]. Biodiversity loss also threatens food security [14].

As a consequence of extreme temperatures, we will see an increase in heat-related illnesses, injuries, mental disorders, heart failure, and chronic kidney disease, which will particularly affect the most vulnerable populations, such as the elderly, children, and the homeless. In the last 20 years, heat-related diseases have increased by more than 50% among the elderly [16]. Air pollution is increasing the prevalence of asthma, allergic diseases, chronic obstructive pulmonary disease, cancer, myocardial infarction, and stroke. Water quality-related diseases such as cholera, *Campylobacter*, *Leptospira*, and *Cryptosporidium* infections, among others, will become more common. Water and food shortages will aggravate hunger, malnutrition, and diarrheal illnesses. The degradation of the environment and the ecosystems will accentuate migratory movements, conflicts, and mental illness. Natural disasters will cause many violent deaths [17]. Eventually, human survival itself will be threatened.

On the other hand, the healthcare sector has a very large climate footprint, which is equivalent to 4.4% of global net GHG emissions. These emissions are primarily derived from the healthcare supply chain, through the production, transport, and disposals of goods and services, such as pharmaceuticals and other chemicals, food and agricultural products, medical devices, hospital equipment, and instruments. If the health sector were a country, it would be the fifth-largest emitter on the planet [18]. However, the impact of the healthcare sector on the environment is not only through the emissions of GHG but through many other mechanisms; for instance, an estimated 8.4 million tons of pandemic-associated plastic masks waste have been generated from 193 countries as of August 2021, with 25.9 thousand tons released into the ocean. Masks will take as long as 450 years to break down [19].

## 3. Recommendations

The reversal of the threat posed by climate change and environmental degradation still seems possible but it depends on the decisions of each country, organization, and person in the coming years. Physicians — as advocates for their patients, but also as citizens — have an ethical obligation to be involved in this global movement. There is a sense of urgency in this matter.

The World Health Organization, several scientific societies, and



professional bodies in different countries have already taken positions about the impact of climate change and environmental degradation on the health of the population [8,20–24]. The Portuguese Society of Internal Medicine was the first Internal Medicine society to take a public stance and issue recommendations on this topic [25]. The editors of more than 200 medical journals worldwide launched a collective call for emergency action to limit global temperature rise, restore biodiversity, and protect health [26].

The European Federation of Internal Medicine (EFIM) strongly encourages the Internal Medicine societies and internists across Europe to play an active role in matters related to climate change and environmental degradation:

At a national level:

- 1 Advocate the adoption of measures that reduce GHG emission and environmental degradation, the use of renewable energy sources, the use of lower emission vehicles, healthy buildings, change population behaviours, stop deforestation, funding adaptation plans, funding research to understand and mitigate the human health effects of climate change, and the imposition of environmental ethics on organizations.
- 2 Contribute to policy discussion and decisions so that health systems can respond to health problems of populations, related to climate change and environmental degradation, and reduce their ecological footprint.

At a hospital level and in clinical practice:

- 3 Defend a strategy and actions by the health sector to reduce its ecological footprint and implement environmentally sustainable practices. These actions should include, among others:
  - a Evaluation of the use of heating, ventilation, and air conditioning systems in healthcare institutions, knowing that it is possible to adapt their use for the purposes for which they are intended and adjust to the time of day and season;
  - b Improve energy efficiency in the built environment;
  - c Reduce hospital fleets emissions;
  - d Reduce waste;
  - e Banish metered-dose inhalers (MDIs) that use hydrofluorocarbons as propellants;
  - f Adopt low-carbon alternatives for anaesthetic gasses;
  - g Replace single-use equipment and devices with reusables;
  - h Introduce a plant-based diet in the hospitals and scientific meetings;
  - i Avoid the use of brochures and documents on paper;
  - j Reduce the impact of travel, promoting virtual meetings and avoiding air travel for short distances;
  - k Incentivize hospitals to adopt the “Green Hospitals” certification;
  - l Promote a healing environment in the hospital;
  - m Promote an increasingly hybrid journey of the patients through the health system, with digital and human touchpoints;
  - n Promote healthy lifestyles in clinical practice;
  - o Engage in solutions of proximity medical practice;
  - p Reduce overscreening, overdiagnosis, and overtreatment.

At the level of EFIM and its national Internal Medicine societies:

- 4 Promote educational activities and develop a toolkit to help internists to reduce energy use and greenhouse gas emissions in clinical practice. Prepare the internists to act for climate crisis-related disasters, better care for citizens who suffer the consequences of climate change and environmental degradation, and advocate and implement effective actions to reduce the ecological footprint of the health industry.

- 5 Introduce climate change health-related issues in the scientific programs of Internal Medicine meetings and congresses, with a selection of abstracts dedicated to these issues.
- 6 Demand the introduction of the impact on the health of climate change and environmental degradation in the pre- and postgraduate medical training.

At a personal level:

- 7 Internists must be active agents in advocating sustainable practices for the environment, increasing the awareness of the community about the health risks of climate change and environmental degradation, and being role models in the adoption of environmentally friendly behaviour.

Taking care of the environment is taking care of one’s health and the health of others, but first and foremost defending the right to a sustainable, happy and healthy life!

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The authors declare they have no conflicts of interest.

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