

Physicians and Planetary Health

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Main Text:

The effects of environmental change at the global level on human health and society are becoming increasingly severe. It is imperative for physicians to be aware of the planetary health perspective, and those who care for human health must play an important role in working with local communities to achieve a sustainable future.

The Industrial Revolution that took place in the mid-18th century was a pivotal moment in the transformation of the global environment. Climate change, loss of biodiversity, and environmental pollution caused by chemical substances have made the global environmental system less resilient and more vulnerable. Paul Crutzen, a 2000 Nobel laureate in chemistry, named the geological age since humans began to influence the Earth's geology and ecosystems the "Anthropocene". The Anthropocene is a concept that has become a symbol not only of geological but also social, economic, and cultural change.

The concepts of "great acceleration" and "planetary boundaries" are specific to the onset of the Anthropocene. The "great acceleration" represents the rapid increase in the burden on the global environment caused by the increased economic activity from the Industrial Revolution to the present day. "Planetary Boundaries" indicates the extent to which the health of the global environment can be maintained. There are nine planetary boundaries that are set, and four boundaries have already been exceeded, including climate change.

The health impacts of climate change include heat stroke and heat-related deaths, deaths from natural disasters, increase in waterborne and foodborne infectious diseases, expansion of endemic areas of arthropod-borne infectious diseases, increase in nutrition-related diseases, and mental health problems due to disasters and other factors. It is estimated that inadequate measures to control greenhouse gas emissions will result in about 250,000 excess deaths per year between 2030 and 2050. In the sub-Saharan region and South Asia, the risk of death from child malnutrition, malaria, and diarrhea will increase, and in developed countries, the risk of heat-related deaths, especially among elderly people, is expected to increase.

In addition, the loss of tropical rainforests has led to increased contact with wildlife and an increase in emerging and re-emerging infectious diseases, such as SARS (2002), MERS (2012), Ebola virus disease (2013), and the COVID-19 pandemic in 2019. The rapid increase in the international flow of people and commodities has contributed to the spread of infectious diseases and caused significant disruption to the international society.

The use of chemicals has increased since the Industrial Revolution, and even today, environmental pollution causes 9 million deaths per year, with air pollution estimated to be responsible for 6.7 million deaths. In addition, the use of pesticides and chemical pollution has spread, and microplastics produced by broken-down plastic wastes are ingested by marine animals, causing a toxic impact through the food chain. The burden of this problem has been found to be greater on the most vulnerable members of society. The burden has been shown to fall more heavily on vulnerable populations.

Thus, when considering our health, it is important to take a planetary health perspective that pursues the "health" of the entire global environment. Human health can only be realized through the existence of a

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healthy Earth environment, and it is fundamental to fully recognize that the two are inseparable. The importance of this concept was emphasized in "Proposals for the Future" published in March of this year in the 120th Anniversary Commemorative Journal of the Japanese Association of Medical Sciences.

In advance of the 26th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP26; 2021), an editorial co-authored by the editors-in-chief of 18 journals, including the Lancet, the New England Journal of Medicine (NEJM), and the British Medical Journal (BMJ), was published in over 220 medical journals around the world. Warning that "the science is clear" that adverse health effects from climate change will occur unless the temperature increase from pre-industrial times is limited to less than 1.5°C. Medical professionals took the lead in urging governments and world leaders to take action on climate change to protect people's health, and at COP26, the need to promote climate change action was emphasized. The COP26 meeting emphasized the need to take action on climate change in order to protect people's health.

Planetary health was introduced by a committee launched in 2014 by the Rockefeller Foundation and The Lancet. The committee published a report titled "Safeguarding Human Health in the Anthropocene Epoch" in The Lancet journal the following year, and the concept rapidly gained widespread recognition. In 2016, the Planetary Health Alliance was launched, a consortium of universities, non-governmental organizations, research institutions, and government entities from more than 60 countries that have played a central role in the rapid growth of this diverse interdisciplinary field. In May of this year, the Planetary Health Alliance Japan Hub was organized by academics.

By adopting a planetary health perspective, physicians can develop a broader view of their health initiatives. For example, local nature, such as *satoyama*, is closely related to the health and culture of the community, and physicians can educate the public about its importance and work with residents to protect the environment, thereby improving the health of the community. Physicians can contribute to the promotion of harmony between the health of local communities and the environment by actively participating in efforts to ensure the sustainability of social capital, which includes natural resources such as water, air, and food, as well as social resources such as education, equality, and resident networks, all of which are essential for a better quality of life.

Meanwhile, the healthcare industry is also placing a burden on the global environment. According to a recent survey of 43 countries, the healthcare sector accounts for an average of 4.4% of total industry greenhouse gas emissions, and Japan is the fourth largest emitter of greenhouse gases in the world. To achieve the global goal of limiting temperature increase to less than 1.5°C, the healthcare sector has an obvious responsibility. The healthcare sector is obviously responsible for limiting temperature rise to below 1.5°C, the global target. If medical progress drives climate change, the health of the current generation will be traded off against the health of the next. In order to protect the health of the next generation and avoid widening intergenerational health disparities, focusing on disease prevention with less impact on the global environment to achieve a healthy society is important. While some have voiced concerns about the cost-effectiveness of climate change measures, studies have shown that the health benefits outweigh the costs, and physicians actively disseminating this information to society will be a major driving force in achieving carbon neutrality.

The planetary health perspective offers an opportunity to rethink the mission and role of physicians in a new dimension. In addition to the treatment of disease, disease prevention, and care for the environment are important means of promoting health, and physicians can make an important contribution toward the protection of the Earth's environment and the realization of a sustainable society. Physicians are expected to practice the philosophy of planetary health and actively participate in efforts to build a sustainable future for generations to come, in collaboration with local communities.

For references, please see the website.