

Global warming and warning

Nelson A. Rosario ^{1,*}, Gennaro D'Amato,^{II} Ignacio Ansotegui^{III}

^IDepartamento de Pediatria, Universidade Federal do Parana, Curitiba, PR, BR. ^{II}Division of Respiratory and Allergic Diseases, Hospital A. Cardarelli, Naples, Italy. ^{III}Allergy, Hospital Quironsalud Bizkaia, Bilbao, Spain.

Rosario NA, D'Amato G, Ansotegui I. Global warming and warning. *Clinics*. 2019;74:e1219

*Corresponding author. E-mail: nelson.rosario@ufpr.br

Evidence that the earth's temperature is increasing is provided by warming of the oceans, the melting of glaciers, rising sea levels and the diminished snow cover in the Northern Hemisphere. Climate change is associated with the intensity and frequency of precipitation, thunderstorms, sandstorms, and extreme weather events, such as heat waves, droughts, blizzards, floods, and hurricanes. Air pollution, especially increased carbon dioxide concentrations, is the driving power of the earth's warming through the greenhouse effect. Wildfires and deforestation also contribute to global warming (1).

A paper published in *NEJM* (2) reviewed the adverse effects of climate change on human health. Moreover, an editorial called for physicians to take a leading role in confronting climate change with the urgency that it demands (3).

Examples of how air pollution and climate change can affect allergenic plants and pollen distribution include the following: plants growing faster and an increased number of plants; increasing numbers of robust allergenic plants and an increase in aeroallergen load for patients with inhalant allergy; and an earlier and longer pollen season, as shown by phenology observations. The consequences of climate change for patients with seasonal allergic rhinoconjunctivitis and asthma are more intense symptoms and the need for more medication. Insect allergy may be more frequent and severe due to the introduction of new species or the migration of stinging and biting insects into new environments. New food proteins might also give rise to food allergies (4,5).

A global monitoring system dedicated to tracking the health dimensions of pollution and the effects of climate change on health discussed the five following domains: climate change impacts, adaptation, mitigation actions, economics, and public and political engagement (6).

The World Allergy Organization (WAO) as an institution is active through a committee on climate change promoting worldwide education of the effect of global warming on respiratory health. In 2018, a joint congress of the WAO and the American Academy of Allergy Asthma and Immunology (AAAAI) focused on global environmental change and respiratory health. Both the WAO and the AAAAI could be considered resources for physicians' responses to climate change.

We agree that individual and institutional actions should be taken to reduce the substantial increases in morbidity and mortality due to anthropogenic disasters. Physicians should take the lead to promote actions to mitigate air pollution and the global warming consequences of the greenhouse effect.

REFERENCES

1. D'Amato G, Holgate ST, Pawankar R, Ledford DK, Cecchi L, Al-Ahmad M, et al. Meteorological conditions, climate change, new emerging factors, and asthma and related allergic disorders. A statement of the World Allergy Organization. *World Allergy Organ J*. 2015;8(1):25. <https://doi.org/10.1186/s40413-015-0073-0>
2. Haines A, Ebi K. The Imperative for Climate Action to Protect Health. *N Engl J Med*. 2019;380(3):263-73. <https://doi.org/10.1056/NEJMr1807873>
3. Solomon CG, LaRocque RC. Climate Change — A Health Emergency. *N Engl J Med*. 2019;380(3):209-11. <https://doi.org/10.1056/NEJMp1817067>
4. Cecchi L, D'Amato G, Annesi-Maesano I. External exposome and allergic respiratory and skin diseases. *J Allergy Clin Immunol*. 2018;141(3):846-57. <https://doi.org/10.1016/j.jaci.2018.01.016>
5. Butland BK, Anderson HR, van Donkelaar A, Fuentes E, Brauer M, Brunekreef B, et al. Ambient air pollution and the prevalence of rhinoconjunctivitis in adolescents: a worldwide ecological analysis. *Air Qual Atmos Health*. 2018;11(7):755-64. <https://doi.org/10.1007/s11869-018-0582-4>
6. Watts N, Amann M, Arnell N, Ayeb-Karlsson S, Belesova K, Berry H, et al. The 2018 report of the Lancet Countdown on health and climate change: shaping the health of nations for centuries to come. *Lancet*. 2018;392(10163):2479-514. [https://doi.org/10.1016/S0140-6736\(18\)32594-7](https://doi.org/10.1016/S0140-6736(18)32594-7)

Copyright © 2019 CLINICS – This is an Open Access article distributed under the terms of the Creative Commons License (<http://creativecommons.org/licenses/by/4.0/>) which permits unrestricted use, distribution, and reproduction in any medium or format, provided the original work is properly cited.

No potential conflict of interest was reported.

DOI: 10.6061/clinics/2019/e1219