

# Global warming and lung health. There is a clear connection & we need act now!

## Editorial

Climate change is a worldwide problem and one that is not only an environmental concern but is and will remain our largest public health issue for the foreseeable future. It is my belief, and that of many that climate change is as big a threat to the health and well-being of humankind as tobacco use is across the globe. Climate change is already escalating a number of health challenges that will become increasingly problematic for people living with lung disease and other chronic conditions, as well as those living without constant health challenges. Increasing greenhouse gases, in the form of elevated levels of CO<sub>2</sub> serve to raise the temperature of our planet and this is worsening the respiratory health of everyone. As the world experiences more heightened and prolonged heat waves, temperature variability, air pollution, forest fires, droughts and flooding the quality of our air is worsening and with it a rise in respiratory morbidity and mortality.

The World Allergy Organization (WAO) recently published a statement supporting this concern where they also highlight the dramatic, almost epidemic rises in allergic airway diseases such as asthma and rhinitis, which are both likely the byproduct of not only air pollution from industry derived emissions and automobiles, but by climate change due to the transformation of the global economy in both developed and developing regions. An increase in greenhouse gases, most notably carbon dioxide, has served to warm the planet putting our respiratory health at risk. Climate-related health impacts, including deaths and acute morbidity as well as an escalation in acute cardio-respiratory events are undoubtedly due, in large part to higher levels of ground level ozone, more particulate pollution and this impacts the spatial and temporal distribution of allergens, such as pollen, mold and dust mites we all breathe.

These changes and their full impact are not well understood at this time but many, including myself believe that without significant attempts to forestall these trends, we are likely all facing a world with much more cardio-pulmonary morbidity and mortality, despite all of the miraculous medical and therapeutic advances we are already enjoying and utilizing. Global warming is already impacting the quality of the air we all breathe, the growth cycles of plants and trees around us and the ecosystem we have come to depend on for our health and well being. Left unchecked, we are all likely to keep seeing longer and more intense pollen/allergy seasons, more poor air quality days with higher and more protracted numbers of asthma and COPD respiratory exacerbations, pulmonary infections and attributable deaths due to co-morbid complications.

Climate change affects the social and environmental determinants of health, including clean air, safe drinking water, sufficient food, and secure shelter. The direct damage cost to health has been estimated by the WHO to be between US\$ 2-4billion per year by the year 2030. Beyond the monetary burden, the implications on pulmonary health are immense. We as healthcare professionals need to take on a greater and

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vocal leadership role in advocating for our patients, families and future generations. While greenhouse emissions already in the atmosphere will continue to warm the planet and disrupt the climate, helping to reduce the emissions each of us generate moving forward will ensure that we do not create a situation that would bring even more extreme and dangerous climate disruptions. Clearly, we must now act and do all that we can to reduce these emissions as effectively and quickly as possible worldwide, but the scope and nature of the problem appears too immense and out of reach for most of us to be engaged and act. This needs to change. Global warming is obviously a complicated problem with a variety of contributing factors and no single and easy answers, but that doesn't mean that continuing to sit passively on the sidelines and doing nothing is appropriate. In fact, I think the time is now for all of us to become more aware, active and vocal. We can all try and make small steps in the right direction, by driving less and generating less fossil fuel emissions, limiting the use of coal and wood burning in our communities and being less wasteful with consumer and medical goods whenever possible. Our communities also must take steps to improve air quality and public health measures need to be further developed to better support vulnerable populations during current and future climate-change related events, such as heat waves and severe air pollution days. Switching to low carbon technologies including those in power plants as well as how we cook and heat our homes-will all lower particulate matter exposure, benefitting all of us.

Climate-related flooding creates mold, which can be a serious respiratory irritant, in addition to droughts which increase the risk for more wildfires and the particulate matter they bring to the air we breathe-causing additional inflammation and injury to our respiratory systems. It goes without saying that children are especially vulnerable to the harmful effects of air pollution so advocating on their behalf as well, to mitigate the impact on the lung health of children is critical-including limiting outdoor exposure on poor air-quality days and working to improve the air quality in our homes, classrooms and the places we congregate.

Improved housing conditions, as well as preventative measures such as vaccination and adjusting medical therapies in alignment with climate and air quality conditions in your communities will become as increasingly important as knowing when “flu season” has emerged, as well as “high pollen season” in your patient-based communities. Poor air quality days are now more commonplace in many parts of the globe and they are likely to become more prevalent and problematic for our patients over the next decades, so awareness and pre-planning will be increasingly urgent and necessary.

## Conclusion

In conclusion, I believe that it is already understood by many that the impact of climate change on respiratory health is evident and noticeable, and I believe that it will undoubtedly worsen with time.

However, strategies to reduce global warming by reducing emissions generated by our industrial and personal activities would have immediate, beneficial impacts on lung health in addition to curbing climate change. As healthcare providers we owe it to ourselves and our patients to more strongly advocate and act in a manner supportive of these unified goals of better lung health and wellbeing for all. Tomorrow is now. Action is long overdue and we as advocates for our patients need to speak up and be heard.

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## Conflict of interest

The author declares no conflict of interest.