European Respiratory Society (ERS) and European Lung Foundation (ELF) submission to the European Commission’s consultation on EU climate target for 2040

The European Respiratory Society (ERS) and the European Lung Foundation (ELF) appreciate the efforts made by the European Commission on the call for evidence for an impact assessment on the 2040 Climate Target Initiative. Given this opportunity, we aim to shed light to the effects that climate change has on people with respiratory diseases by providing inputs for the 2040 climate targets. Climate change is currently considered by the World Health Organization (WHO) the biggest global threat to humanity in the 21st century and it is expected to cause at least 250,000 deaths every year by 2050 due to climate-related heat stress, malnutrition, malaria, and diarrhoea, as well as to create further health burdens from more indirect climate-related paths (i.e. migration, conflicts, poverty, disruption of health care and ecosystems).

In the last few decades, we have started witnessing the impacts of global warming on biodiversity, farming, environment, economy, quality of life and human health among others.

People with respiratory diseases are among the most vulnerable groups impacted by climate change. Individuals with an already impaired respiratory function (e.g. asthma or chronic obstructive pulmonary diseases (COPD) patients) are particularly sensitive to changes in weather or extreme weather events, which can directly lead to a worsening of their health and an increased risk of dying. Exposure to environmental factors, such as air pollution, pollen and other aeroallergens can affect a number of respiratory outcomes. As a result, there could be an increase in allergic responses, existing respiratory diseases and new cases of chronic and infectious respiratory diseases.

Increasing summer temperatures have been associated with risks of respiratory disease hospitalisations and mortality. Extreme heat can trigger respiratory symptoms that may require the use of medication, the examination by a general practitioner or emergency room visits, hospital

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2 IPCC. 6th Assessment Report WG2.
admission and may even result in death\textsuperscript{9} \textsuperscript{10} \textsuperscript{11}. Similarly, abrupt changes in temperature and humidity have also been associated with increases in airway resistance and bronchoconstriction\textsuperscript{12}. Additionally, climate change will likely increase the frequency of thunderstorms (associated with an increase of allergic asthma outbreaks mediated through allergen exposure)\textsuperscript{13} \textsuperscript{14} as well as wildfires and dust storms, causing massive air pollution exposure, affecting not only the local communities but also producing harmful particles that can travel thousands of kilometers, affecting populations far away from the source\textsuperscript{15} \textsuperscript{16} \textsuperscript{17}, as we recently witnessed with devastating wildfires in Canada. \textsuperscript{18}

Taking this into consideration, the European Respiratory Society and the European Lung Foundation recommend the following objectives and priorities for a long-term vision to reach the EU climate target for 2040:

- The Ambient Air Quality Directive (AAQD) is a core step for Europe to be the first climate neutral continent in the world, by achieving a “Zero Pollution Ambition” or net-zero greenhouse gas emissions by 2050, as set out by the European Green Deal in 2019. A full alignment with the WHO 2021 Air Quality Guidelines is key to achieve this goal. Simultaneously it is necessary to seek higher standards and ambitions for both the Euro 7 Emissions Standards and the CO2 emission standards for heavy-duty vehicles\textsuperscript{19}. Emissions regulation should be strengthened to ensure that vehicles meet the emission limits on the road, for all pollutants, under all possible driving conditions.

\textsuperscript{9} Igúez C, Royé D, Tobías A. Contrasting patterns of temperature related mortality and hospitalization by cardiovascular and respiratory diseases in 52 Spanish cities. Environ Res 2021; \textbf{192}: 110191.
\textsuperscript{14} Andrew E, Nehme Z, Bernard S, et al. Stormy weather: a retrospective analysis of demand for emergency medical services during epidemic thunderstorm asthma. BMJ 2017; \textbf{359}: j5636.
- Health care professionals are one of the main actors involved in the application of adaptation strategies (e.g. providing advice to patients). They need to have the relevant information and resources to help their patients and become active partners in climate change mitigation efforts.

- Promoting the reduction of carbon footprint created by the health sector is an important step. The health sector is responsible for the 3-8% of the total greenhouse gas emissions in EU member states, because of the production of pharmaceuticals, medical goods, as well as energy consumption\(^\text{20}\). Existing and new initiatives should be encouraged and supported at European and national level\(^\text{21}\).

- The European Institutions should provide the right tools at national and local level to ensure the appropriate implementation of infrastructures and innovative projects (i.e. supporting urban planners in promotion of active travel, expansion of public transport and green spaces), while promoting informational campaigns to raise awareness about the connection between climate change and respiratory health.

- Despite the overwhelming evidence we already have showing that climate change will present a major burden to respiratory disease patients, more research is still needed to fully map the burden of climate change on respiratory disease under different global warming scenarios, as well as to understand underlying biological mechanisms and complex interactions with other factors such as air pollution, social inequalities, etc. Lifelong learning and increase in funding opportunities of programmes such as Horizon and Erasmus + should be consistently promoted and supported to give professionals the opportunity to advance their research, to exchange expertise and good practices, as well as to participate in both European and international projects.

- Interdisciplinary and interinstitutional collaboration among a variety of stakeholders (i.e. health care professionals, scientists, epidemiologists, climate change experts, atmospheric scientists, statisticians, political scientists, policy makers as well as patients and patients advocates) is needed to create new approaches based on the existing scientific evidence. To achieve this, member states could create coordinating bodies to facilitate cooperation and communication among different scientists, stakeholders and institutions.

Climate change presents a major threat to lung health. ERS and ELF are calling for urgent measures to mitigate its adverse effects on respiratory patients. At the heart of these measures, bold actions are needed to reduce exposure to air pollution, which would bring immediate benefits to health as well as help directly tackle major sources of greenhouse gases. As the climate scenarios for the next century predict that warming will progress at a much faster speed (if no reductions in greenhouse gas emissions occur), the EU has the opportunity to implement a legal framework to foster climate change and air pollution reduction policies at European and national level, and ultimately support changes across the world.


\(^{21}\) Health Care Without Harm Europe. https://noharm-europe.org/issues/europe/our-projects