CLIMATE CHANGE – A MAJOR THREAT TO RESPIRATORY HEALTH IN EUROPE SAYS NEW REPORT FROM ECONOMIST INTELLIGENCE UNIT

Panel of experts calls for urgent policy action

- ***Climate change and its impact on lung health: a focus on Europe*** says climate change is damaging respiratory health in many ways not commonly known[1]
- In Europe, climate change is particularly affecting the vulnerable in society, but healthy people with no known underlying conditions are also increasingly at risk[1]
- As we slowly emerge from Covid, climate change could be next biggest respiratory health crisis, with most people still unaware of the risks
- These and more are findings in a brand-new report from the Economist Intelligence Unit (EIU) published today, commissioned by Chiesi[1]

Parma (Italy), 7 September 2021 — A new report from the Economist Intelligence Unit (EIU) says that climate change is damaging respiratory health in ways that are not commonly known and will significantly impact respiratory health of many populations if it goes unchecked. Within Europe, it is disproportionately affecting the vulnerable, such as those with underlying health conditions and the economically disadvantaged.[1] The report by the EIU also finds that climate change can lead to the onset of respiratory conditions such as chronic obstructive pulmonary disease (COPD) and asthma in previously healthy individuals.[1]

Higher and fluctuating air temperatures can increase the incidence and severity of respiratory infections and can increase ozone levels.[1] Extreme weather events such as soaring temperatures, forest fires, storms and desertification are leading to dramatically poorer air quality. With warmer temperatures, flowering seasons are longer, creating more pollen that is more allergenic and remains in the air for longer.[1] These factors combine to create a significant increase in potential deaths, for example, ozone-related deaths alone have already jumped 20% in a decade.[2]

Urgent need for action, not just words

The report *Climate change and its impact on lung health: a focus on Europe* was sponsored by respiratory health specialists and certified B Corp, Chiesi Group, which has a 30-year experience in treating asthma and COPD. Commissioned with a focus on patients and those suffering the health consequences of the climate crisis, the report rings a warning bell to highlight the need to prevent this avoidable major health catastrophe in the future. By highlighting this stark evidence, Chiesi wants to bring this shocking and urgent truth to a bigger audience, to promote greater understanding and collaboration between sustainability and health experts so that everyone steps up to play their part.

"Protecting patient health and the environment is not a matter of compromise for us. This report reinforces our intent to not only treat the symptoms of the crisis through our products, but also to address the root causes, by constantly improving our own environmental and social impact," says **Chiesi Group CEO Ugo Di Francesco.** "*Policymakers need to prioritise respiratory health in the fight against climate change, and companies need to take meaningful, measurable and independently verified actions. Only then can we encourage and track progress towards a greener, healthier society."*

Key recommendations[1]

An expert panel worked with the EIU on the report's conclusions. The report makes a series of detailed policy recommendations, the most important of which include:

- Ensure that climate change policies include improvements to public health as a key target, especially preventing the impact on lung health[1]

- Involve all relevant stakeholders in climate change policies[1]
- Focus on improving air quality, particularly in urban areas where most people live[1]
- Reduce emissions and tackle climate change in all sectors[1]
- Raise awareness among the healthcare community of the need for urgent action on climate change[1]
- Conduct further research to increase our understanding of the impact of climate change and air quality on lung health[1]

The evidence

The major ways in which climate change is damaging our respiratory health identified by the EIU report are:

Higher temperatures are already leading to premature deaths from ozone – this is going to get worse[1]

Ozone is a key contributor to morbidity and mortality from respiratory disease and was responsible for 20,600 premature deaths in Europe in 2018 alone.[2] Ground-level ozone is formed through atmospheric reactions between nitrogen oxides, volatile organic compounds and methane in the presence of sunlight. It is set to rise as climate change creates more of the atmospheric conditions favourable to its creation.[3,4] Simply put, higher temperatures are leading to increased ozone levels.

But it's not even being talked about and the situation is deteriorating. While much effort has gone into cutting exposure to nitrogen dioxide (NO_2,) premature deaths from which have been more than halved in the decade between 2009 and 2018: premature deaths from ozone shot up by 20% in the same period.[2]

Heatwaves are damaging the respiratory health of the vulnerable[1]

Deaths attributable to heat waves are expected to rise significantly in Europe this century.[5,6] Estimates suggest that for each degree Celsius increase in temperature, premature death risk among respiratory patients is six times that of the general population.[7] One analysis predicted that there will be more than twice as many heat-related respiratory hospital admissions between 2021 and 2050 than there were between 1981 and 2010 in Europe.[8]

Higher temperatures particularly impact the vulnerable.[9] Deaths among people with pre-existing chronic conditions like COPD and asthma increase during heatwaves,[10] and mortality from heatwaves has increased by 53.7% in those aged 65+ in the last 20 years.[11]

Climate change is worsening pollen allergenicity[1]

Most pollen is normally caught in the upper airways, but storms and pollution can cause pollen grains to burst, releasing allergen microparticles which can penetrate lower airways and cause serious health problems, even among the previously healthy.[12] This changing allergenicity of pollen can make it increasingly dangerous to respiratory health.

Rising temperatures are increasing pollen load levels[1]

Climate change is significantly increasing pollen production and dispersal in Europe.

Rising temperatures and carbon dioxide levels are increasing the pollen load in three ways.

1. By expanding the area in which potent aeroallergens such as ragweed grow.[13]
2. By extending the season in which allergenic plants grow and release pollen.[14]
3. By increasing the concentration of the pollen produced.

This will aggravate health problems for people with conditions such as hayfever and asthma but also cause symptoms in people with no underlying conditions.

Extreme weather events are generating more pollen, particles and spores[1]

Climate change is resulting in more frequent extreme weather events including wildfires, dust storms and thunderstorms as well as increased desertification, including in Europe.

These extreme weather events generate more pollen, particles and spores. Dust storms can carry fungal spores, viruses and pollen. Particulate matter from wildfires can travel up to 1,000km and dust particulate matter, much farther.[15] The onset of thunderstorms often results in a rise in pollen concentration and asthma epidemics. Moreover, heavy rainfall, more frequent storms and increased flooding are resulting in more damp living conditions that promote the growth of and exposure to mould spores that impact asthma and rhinitis.[16,17,18,19]

Climate change exacerbating an already dire situation in the EU[1]

Of 32 European countries measured in 2017 – the year for which most recent comparative data is available – Ireland proportionally was the worst-performing of the EU 27 countries, which at 13.4% had the highest incidence of deaths due to respiratory disease, followed by Spain at 12.2% and Denmark at 12%.[20]

Who is most at risk?

EIU analysis suggest that those most susceptible to at risk of worsening respiratory health as a result of climate change are

- those with chronic respiratory diseases[1]
- people aged over 65[1]
- children whose lungs are still developing[1]
- lower socioeconomic groups[1]
- people in high-income countries[1]
- outdoor workers[1]

While lower socioeconomic groups are likely to be more affected within a country, the prevalence of chronic respiratory disease is highest in high income countries, suggesting that poorer people in rich countries are being adversely affected, underlying again the societal inequalities of climate change on public health.

The prevalence of respiratory diseases and deaths from them increase dramatically with age. In the EU-27 standardised death rate from respiratory diseases for those aged 65+ years and over was 38 times higher than for those aged under 64 and under.[20] Generally, a higher proportion of men than women die from diseases of the respiratory system in Europe. **But in 2017 the rate was higher in women in the United Kingdom, Ireland,** Iceland, Denmark, Sweden, Norway, Liechtenstein and Greece.[20]

For more information on Chiesi's sustainability commitments follow the #ActionOverWords campaign and visit: www.actionoverwords.org

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More information on Chiesi Group's sustainability efforts:

- The healthcare group was awarded **B Corp certification** in June 2019.[21] This means that we meet the highest standards of verified social and environmental performance, transparency and accountability. Chiesi completed the B Impact Assessment (BIA) with a score of 87.5 after which B Lab verified Chiesi's B Corp status.
- In May 2021, Chiesi announced its plans to become **carbon neutral on direct emissions by 2030 and indirect emissions by 2035**.[22]
- In May 2021, to coincide with International Nurses Day, Chiesi Ltd launched a new virtual learning and support platform called 'Together in Respiratory', which also features 'The Modern Face of Nursing' exhibition'.[23] Treating and caring for patients with respiratory issues can be mentally and physically

challenging for nurses. We want to support the nurses caring for patients with respiratory conditions by providing a route for sharing experiences, peer support and mentorship.

- In March 2021, Chiesi joined the B Corp Climate Collective, a group of Certified B Corporations working together to take action on the climate emergency and committing to the **United Nations Framework Convention on Climate Change (UNFCCC) "Race To Zero".**
- Chiesi launched the Leicestershire **Take AIR** (Take Action for Inhaler Recycling) scheme in January 2021. A pilot project aimed at enabling inhaler users to safely and effectively recycle their empty or expired inhalers through the post. The scheme is currently being piloted in the Leicestershire area for 12 months. This is a Chiesi Limited scheme supported by University Hospitals of Leicester NHS Trust and Leicestershire and Rutland Local Pharmaceutical Committee (LPC).
- In 2019, Chiesi was the first pharmaceutical company to publicly announce a solution to address the **carbon footprint of pressurised metered dose inhalers** (pMDIs) while safeguarding all necessary therapeutic options and patient access. The first carbon minimal pMDI containing a low global warming potential (GWP) propellant will be introduced by 2025 ensuring a 90% carbon footprint reduction.[24]
- In 2019, Chiesi co-created the first Sustainable Development Goals enabled Code of Conduct with its suppliers to define shared guidelines and require every part of Chiesi's value chain to adhere to a common set of principles to achieve a more sustainable and inclusive business model. This is called the "**Code of Interdependence**".[25]
- In December 2018, Chiesi changed its structure and by-laws, adopting the new legal status of **Benefit Corporation**, introduced in Italy with Law No. 208/2015 and in the United States with the US law (Delaware). In 2021 Chiesi France has worked to become the first "Société à mission" (SAM) of the health industry, an opportunity given by French law since May 2019.

About Chiesi Group

Based in Parma, Italy, Chiesi is an international research-focused pharmaceuticals and healthcare group with over 85 years' experience, operating in 30 countries with more than 6,000 employees (Chiesi Group). To achieve its mission of improving people's quality of life by acting responsibly towards society and the environment, the Group researches, develops and markets innovative therapeutic solutions in its three focus areas: AIR (products and services that promote respiration, from new-born to adult populations), RARE (treatment for patients with rare and ultra-rare diseases) and CARE (products and services that support specialty care and consumer-facing self-care). The Group's Research and Development centre is based in Parma and works alongside 6 other important research and development hubs in France, the U.S., Canada, China, the UK, and Sweden to pursue its pre-clinical, clinical, and regulatory programmes. In 2018 Chiesi has changed its legal status to a Benefit Corporation, according to the law in Italy, USA and, more recently, in France, by incorporating common benefit objectives into its bylaws, to generate value for its business, for the society and the environment. Since 2019, Chiesi has been the world's largest B Corp certified pharmaceutical group. B Corps are global leaders convinced to leverage business as a force for good. Moreover, as a Benefit Corporation, Chiesi Farmaceutici S.p.A. is required by law to report annually in a transparent way about its progress in achieving the common benefits objectives it has set forward. The Group is committed to becoming carbon neutral by the end of 2035.

For further information: www.chiesi.com

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