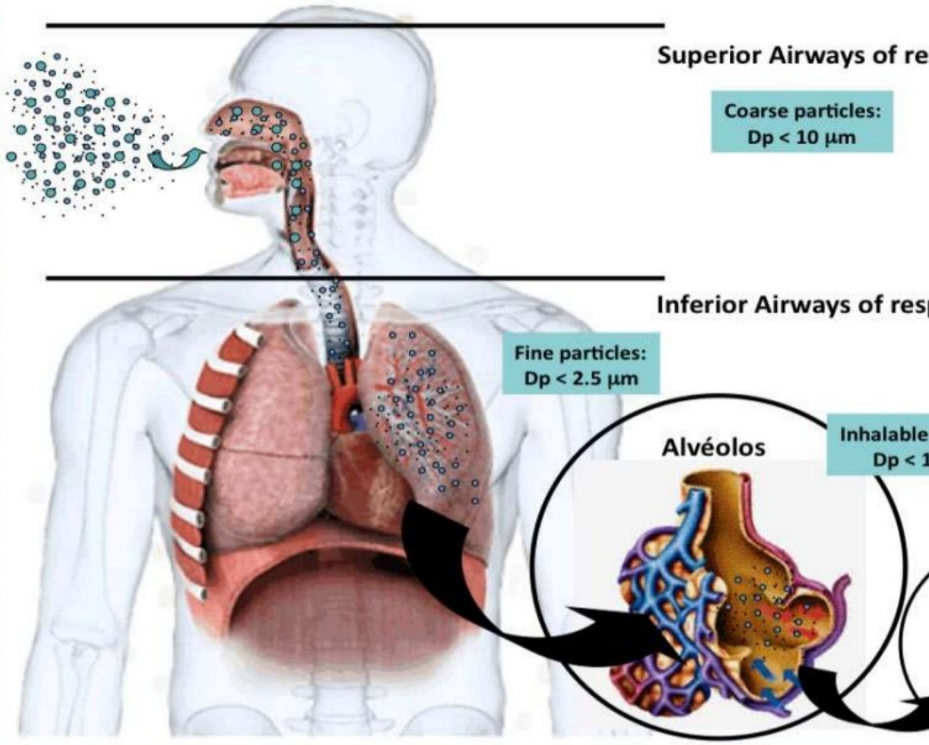






Life after WHO 2021 AQG – What does science tell us?

ERS

24th May, 2023

[redacted] Chair of the European Respiratory Society (ERS) Environment and Health Committee; Professor in Environmental Epidemiology, Department of Public Health, University of Copenhagen, Denmark

WHO 2021 AQG – main messages and beyond



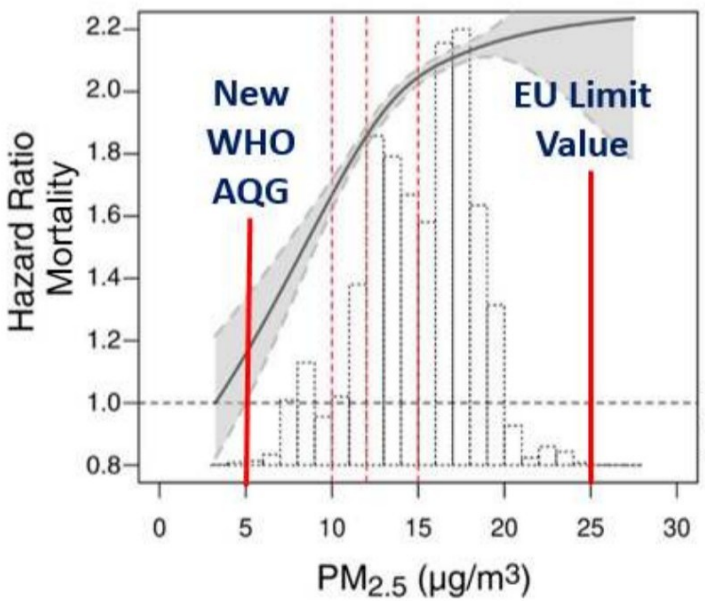
WHO AIR QUALITY GUIDELINES

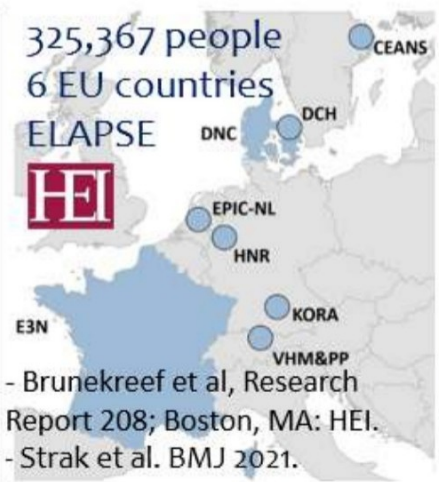
NO2	2005: 40 µg/m³, annual	**2021: 10 µg/m³, annual**
PM2.5	2005: 10 µg/m³, annual	**2021: 5 µg/m³, annual**

1. Everyone is exposed – no lower threshold

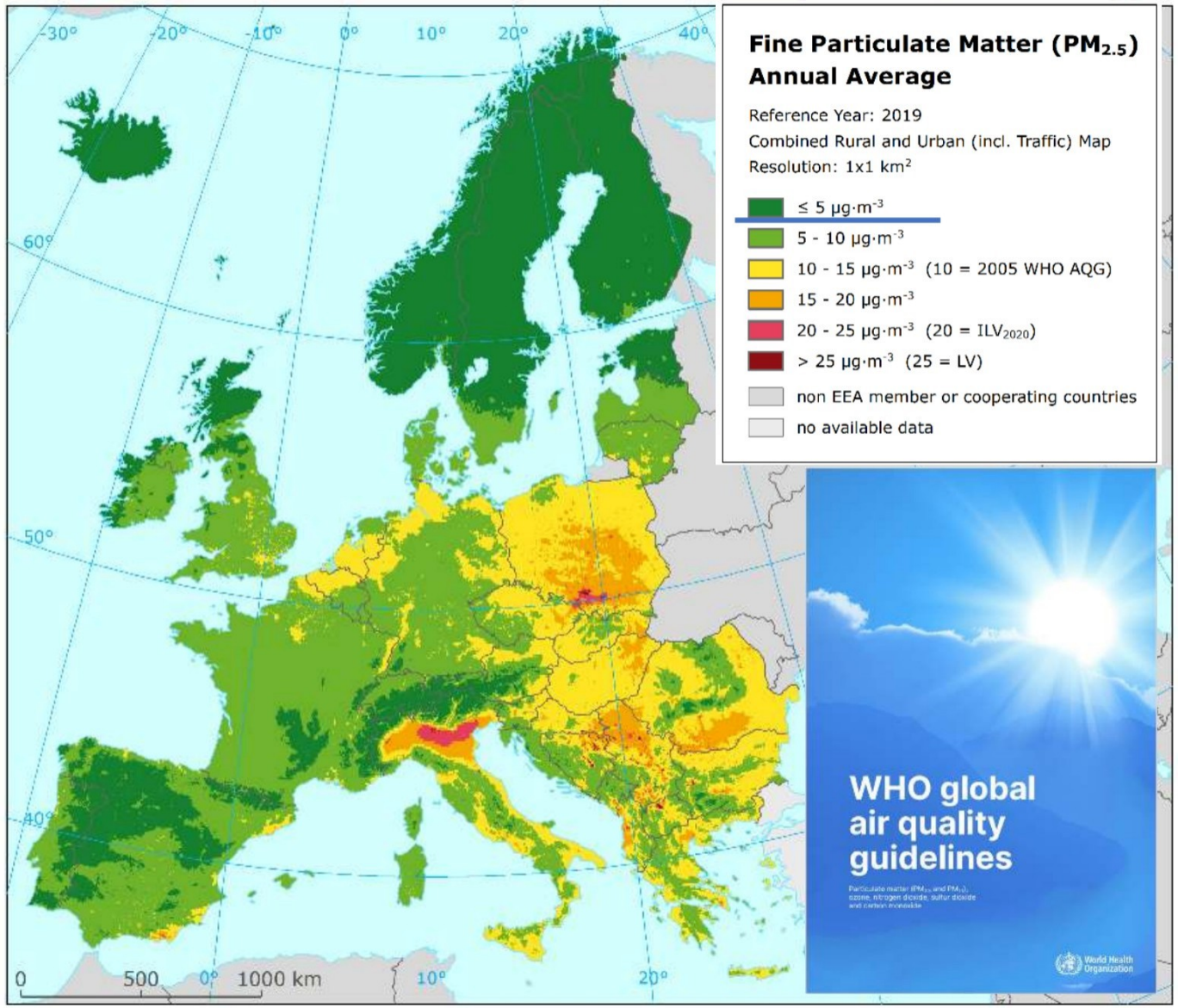
1. Everyone in Europe is exposed to harmful levels of air pollution (97.5% European population)

2. No lower threshold below which air pollution is safe





- Brunekreef et al, Research Report 208; Boston, MA: HEI.
- Strak et al. BMJ 2021.



Source: file:///C:/Users/vlq961/Downloads/ETC%20HE%20report%202022-3_status_eionet_mix_2021_2022-03-31_FINAL-2.pdf

3. Air pollution and climate change – inseparable issues

EXHAUSTION
www.exhaustion.eu

WE BREATHE CLIMATE CHANGE

More people will die of **lung** diseases in our cities when high temperatures are combined with high levels of air pollution. This is especially true for those of us who are 65 and older.

The good news
Policies that make us less exposed to heat and air pollution will be beneficial for our health and wellbeing.

Change in number of deaths from lung diseases in European cities (%) in association with high temperatures, by different levels of air pollution (PM2.5)



LEGEND

Change in n° of deaths from lung diseases when we are exposed to moderate temperatures **compared to:**

- High temperatures and **high** air pollution
- High temperatures and **medium** air pollution
- High temperatures and **low** air pollution

Confidence interval: the estimate lies in this interval, with very high probability

Low, medium and high levels of air pollution (fine particles PM2.5, μg/m³)

Overall estimate			Oslo			Rome			Berlin		
low	medium	high	low	medium	high	low	medium	high	low	medium	high
4	10	21	2	6	15	9	15	23	7	12	21

Moderate temperature level: in the study period, 75% of the days in the city have a temperature below this level (°C)

Overall estimate	Oslo	Rome	Berlin
20.2	15.3	25.7	20.2

High temperature level: in the study period, 1% of the days in the city have a temperature above this level (°C)

Overall estimate	Oslo	Rome	Berlin
26.4	21.7	29.6	27.1

REDUCING AIR POLLUTION AND MITIGATING CLIMATE CHANGE, TOGETHER HELP TO PROTECT OUR HEALTH



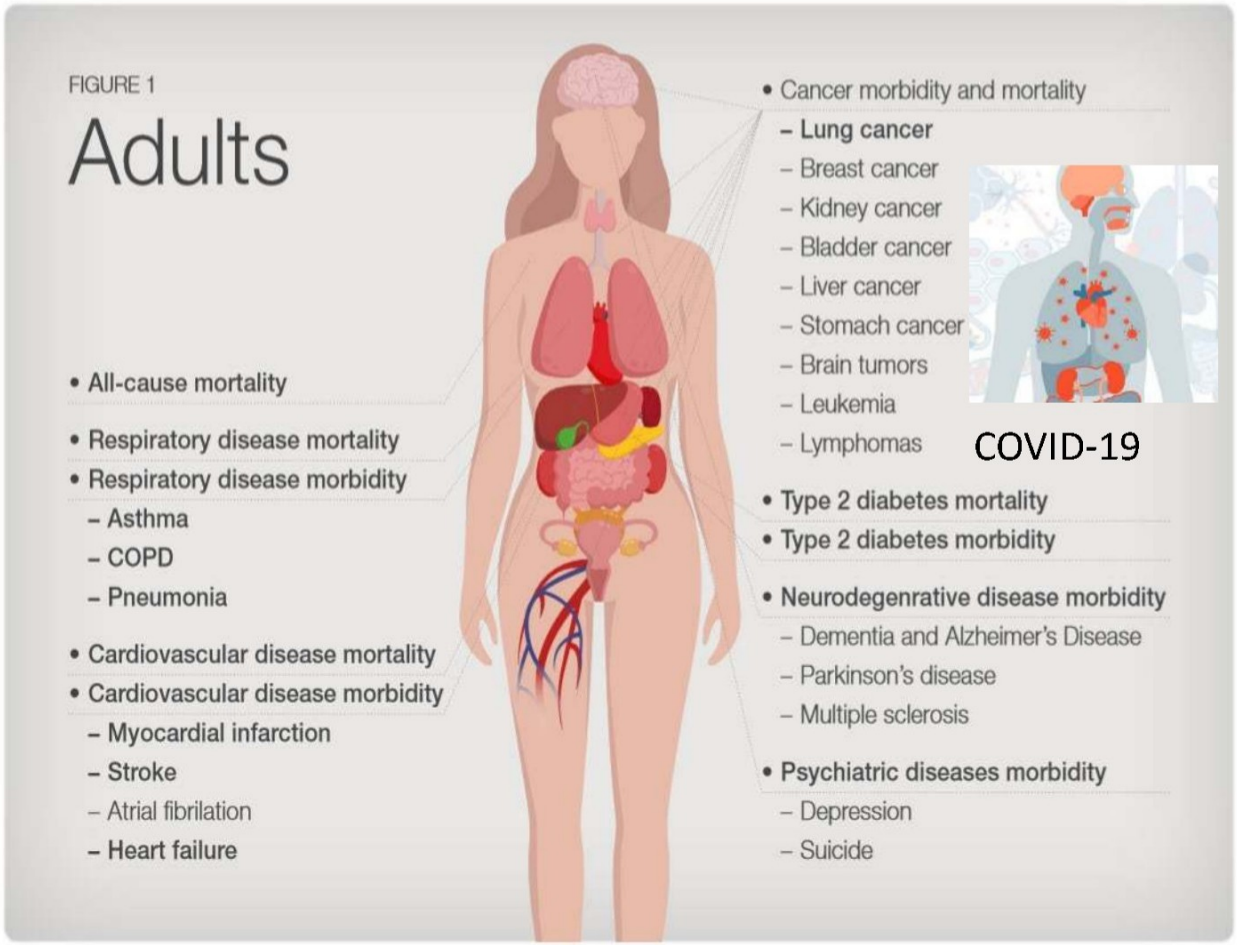
WHO Air Quality Guidelines set goals to protect millions of lives from air pollution.

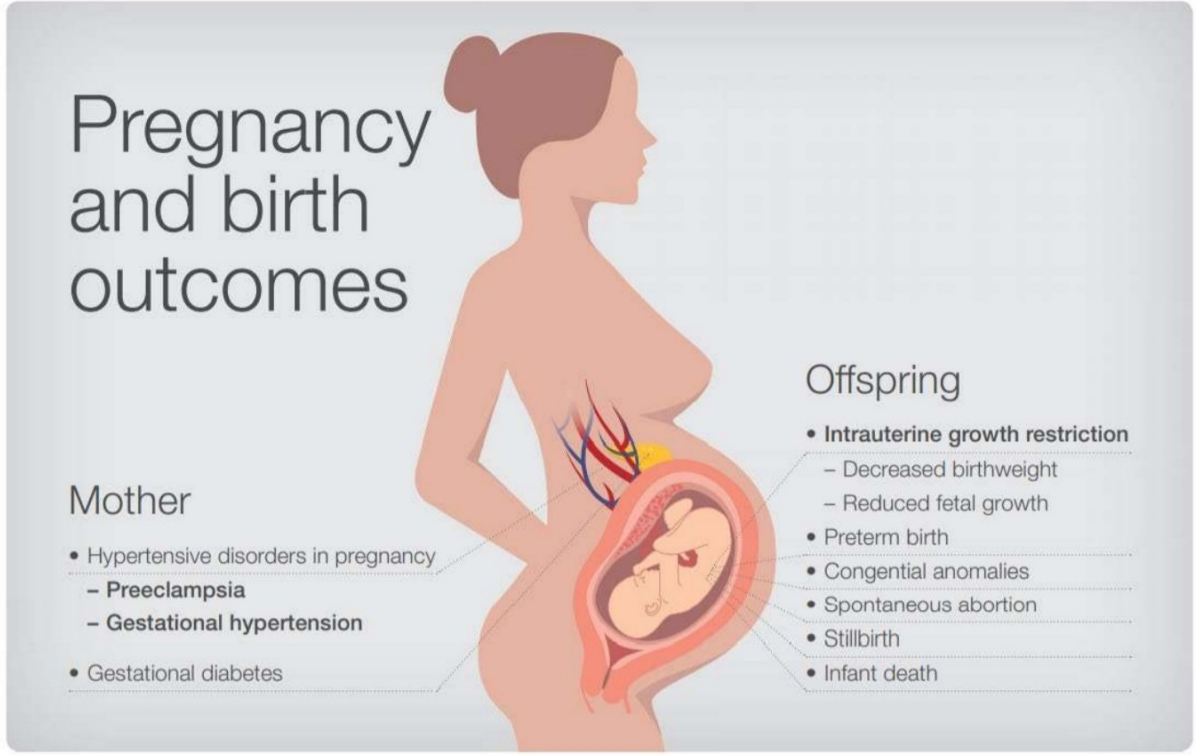
CLEAN AIR FOR HEALTH #AirPollution World Health Organization

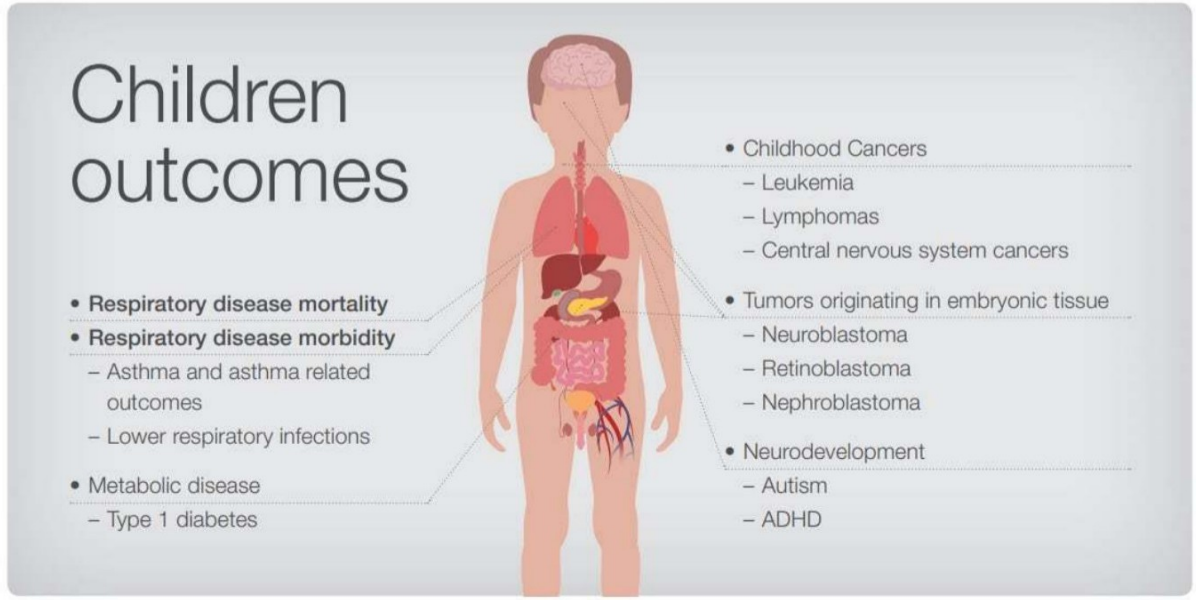


Health burden of air pollution

Premature deaths + millions of new cases of disease, symptoms, worsened quality of life, doctor visits, ER visits, hospital admissions, sick days (school & work), medication use….







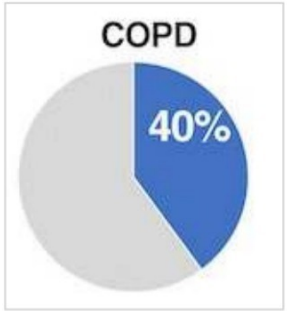
Air Pollution and Lung [redacted]

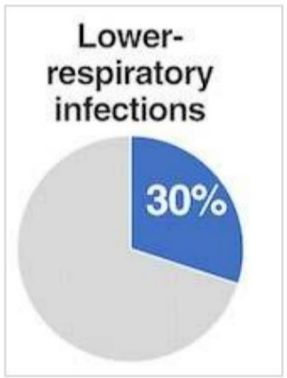
- **Long-term (years, lifetime) exposure to air pollution** can lead to impaired lung function and development of new lung disease in healthy individuals and increased risk of dying from those diseases:

asthma, COPD, pneumonia, COVID-19, lung cancer

- **Short-term (hours, days) exposure to air pollution** can exacerbate existing lung disease in lung patients and trigger:

wheezing, cough, shortness of breath, need for medication, ER visits, hospitalizations, and death





GBD - Mortality specific-causes, 'fraction attributable' to air pollution https://www.stateofglobalair.org/



16% asthma cases in children due to air pollution*

*Khreis H, et al.. Environ. Int. 2017

[redacted] Air pollution a factor in girl's death, inquest finds

16 December 2020



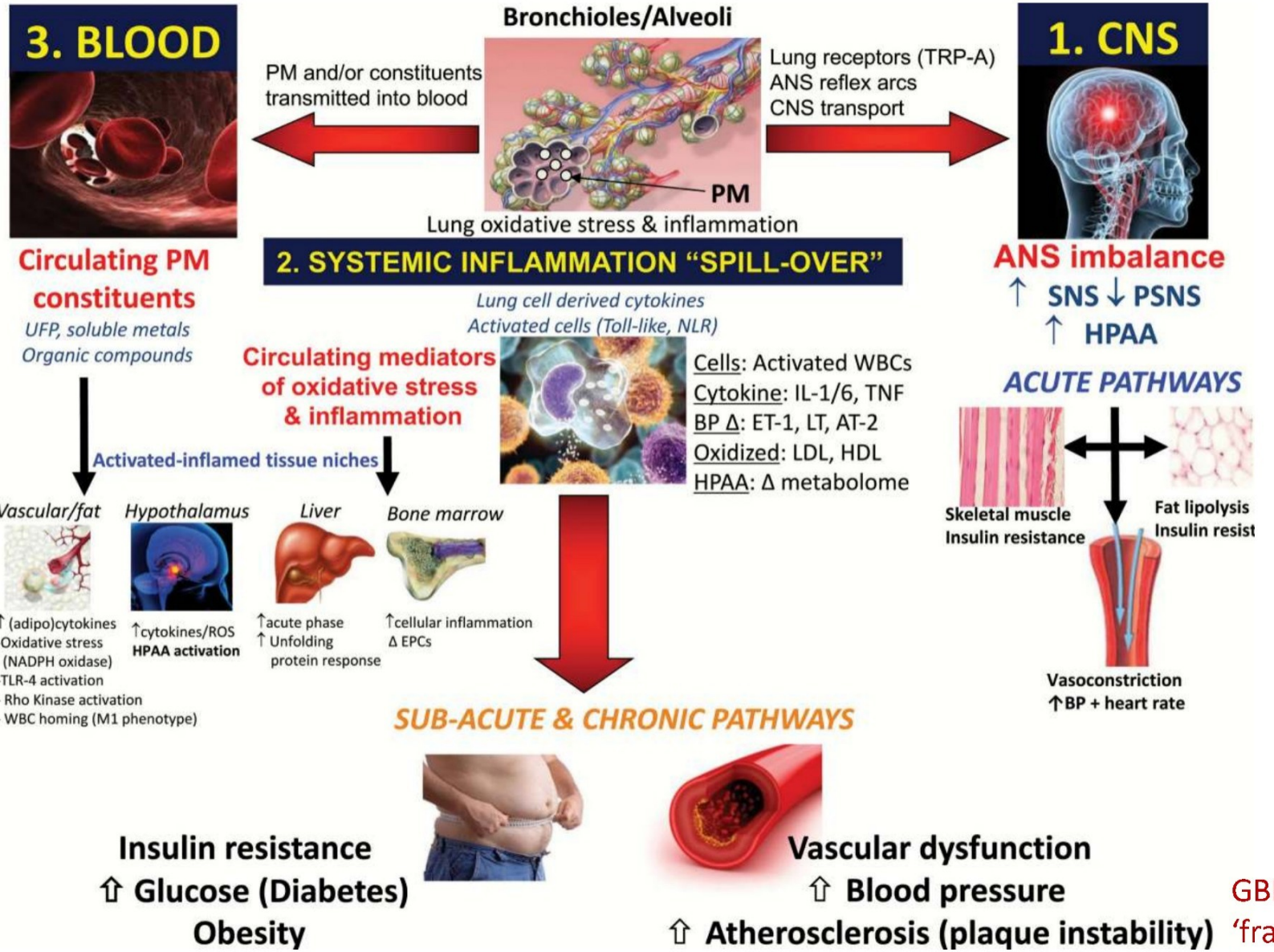
lived 25 metres from the South Circular Road in south-east London

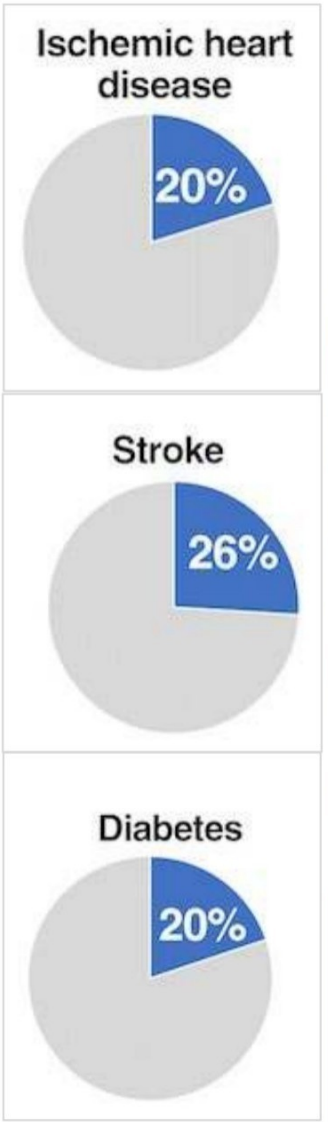
A nine-year-old girl who died following an asthma attack has become the first person in the UK to have air pollution listed as a cause of death.

[redacted] who lived near t[redacted] died in 2013.

[redacted] - 9 year old girl suffered fatal asthma attack triggered by air pollution, London, February 2013

Air pollution and cardio-metabolic health





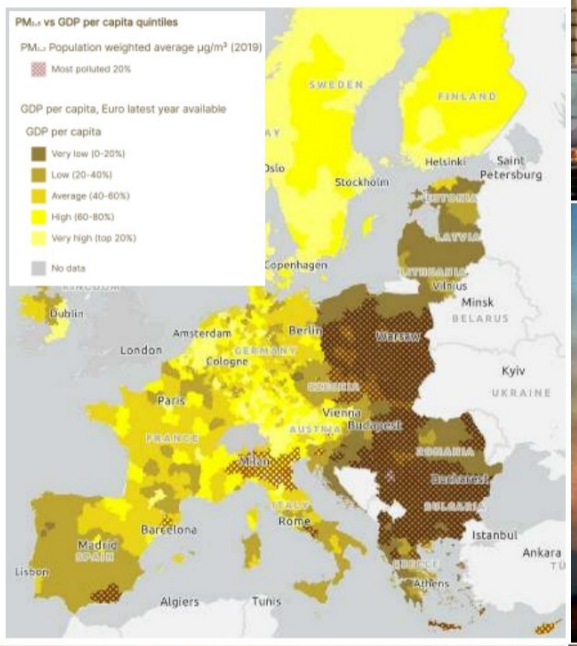


GBD - Mortality specific-causes, 'fraction attributable' to air pollution
https://www.stateofglobalair.org/

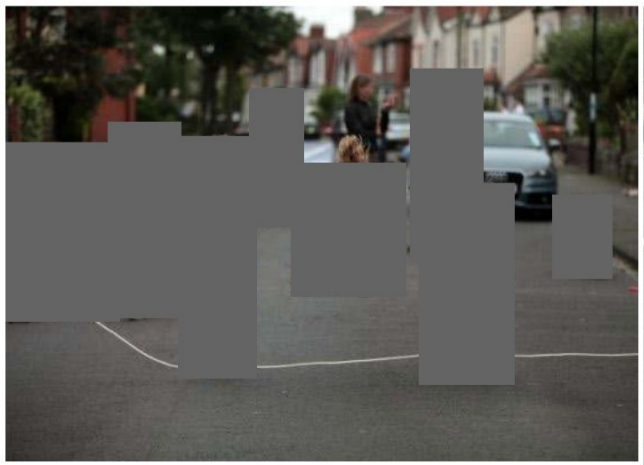
Everyone is exposed – some are more vulnerable

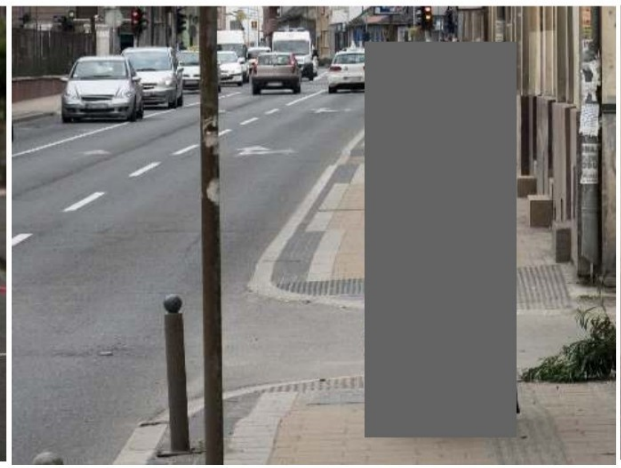
- Children
- Pregnant women
- Elderly
- Chronic diseases patients
- Poor (environmental inequality)



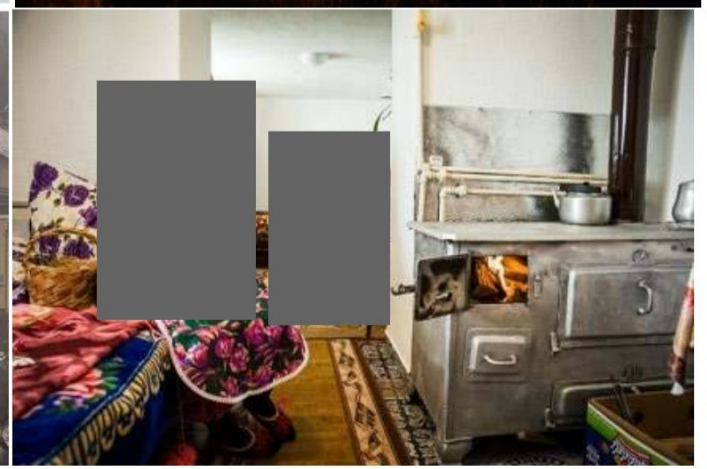










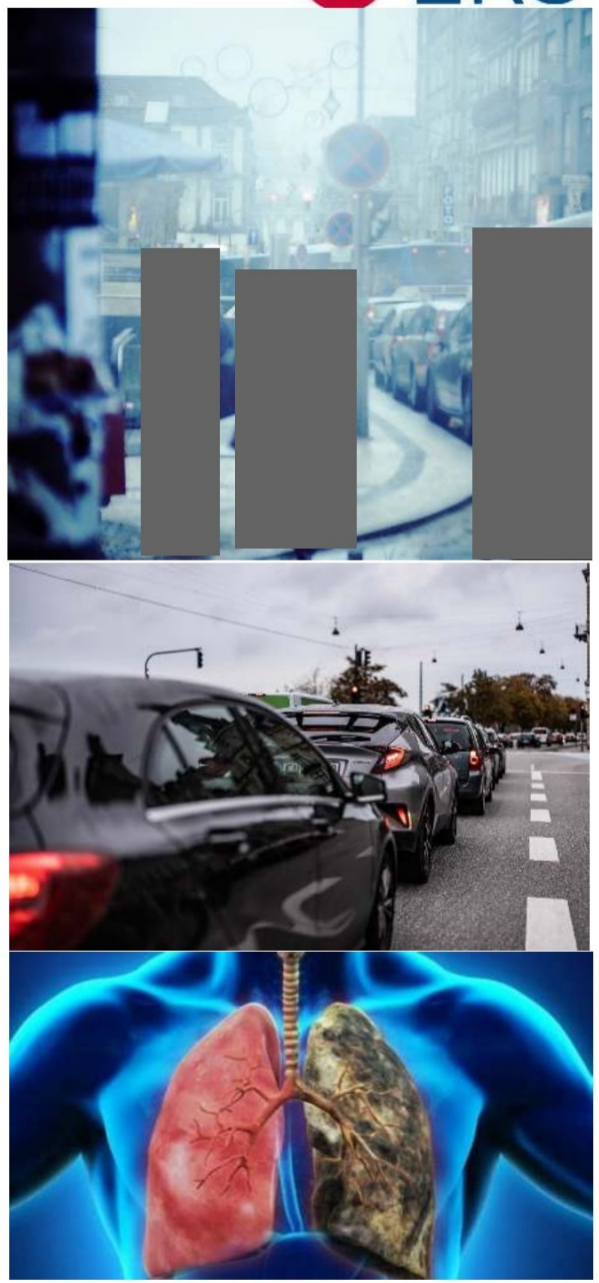


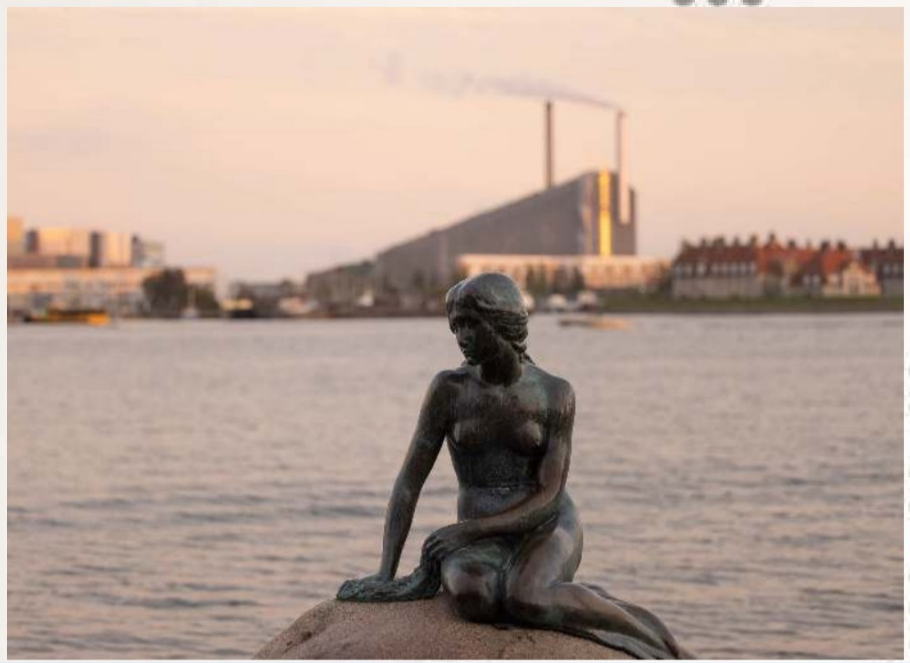
Conclusion

New AAQD, fully aligned with WHO 2021 AQG, is a major public and planetary health opportunity, that would:

1. prevent a substantial number of new cases of major NCDs
2. make EU citizens more resilient to seasonal influenza epidemics and COVID-19-like new pandemics
3. improve life of lung, heart, and other chronic disease patients
4. Indirect benefit for health - help mitigate unprecedented climate change impact on our health and our planet

Clean air as a basic civil right - no one should get sick or die from breathing





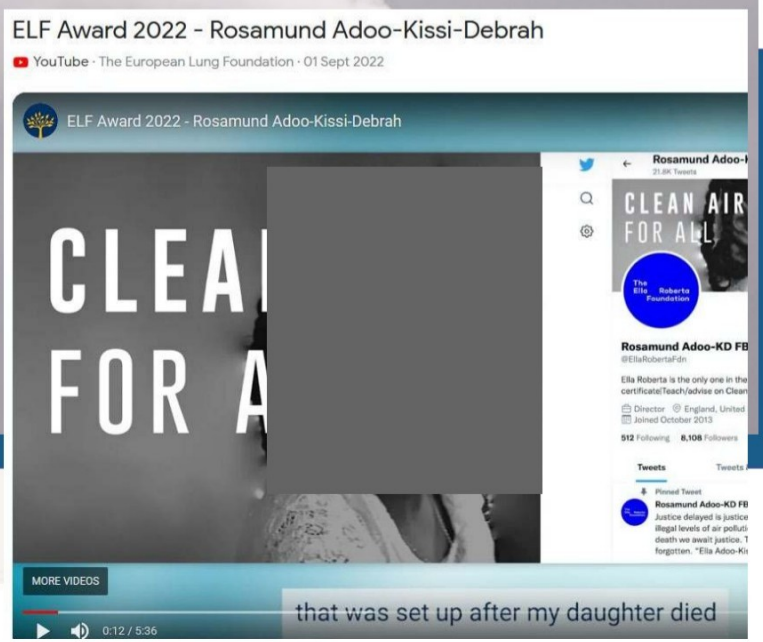
Thank You

[redacted]

[redacted]

[redacted]

'We need to ensure parents know the impact air pollution has on their children'



https://www.youtube.com/watch?v=V673obDHCVc