

we inhale 10,000 liters of air/day

CLEAN AIR IN EUROPE



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



Zorana Jovanovic Andersen, 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





1. Everyone is exposed – no lower threshold



- 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





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

2. Air pollution burden is huge, increasing & underestimated in ERS



^{*}interpretation: 6.2 % increase in mortality risk for each 10 μ g/m³ increase in PM_{2,5}

*Red line indicates the summary estimate from the systematic review by Chen & Hoek (2020). Range of mean PM_{2.5} exposure Europhen studies from 5:89(0/20:9)(from system systematic review by Chen & Hoek (2020). Range of mean PM_{2.5} exposure

https://journals.lww.com/environepidem/Fulltext/2022/10000/Benefits of future clean air policies in Europe .5.aspx

3. Air pollution and climate change – inseparable issues

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



Evia/Greece, August 2021 Germany, Jul

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....

Adults

- All-cause mortality
- Respiratory disease mortality
- Respiratory disease morbidity
- Asthma
- COPD
- Pneumonia
- Cardiovascular disease mortality
- Cardiovascular disease morbidity
- Myocardial infarction
- Stroke
- Atrial fibrilation
- Heart failure

- Cancer morbidity and mortality
- Lung cancer
- Breast cancer
- Kidney cancer
- Bladder cancer
 Liver cancer
- Stomach cancer
- Brain tumors – Leukemia
- Lymphomas COVID-19
- Type 2 diabetes mortality
- Type 2 diabetes morbidity
- Neurodegenrative disease morbidity
 - Dementia and Alzheimer's Disease
- Parkinson's disease
- Multiple sclerosis
- Psychiatric diseases morbidity
- Depression
- Suicide

Pregnancy and birth outcomes



- Hypertensive disorders in pregnancy
- Preeclampsia
- Gestational hypertension
- Gestational diabetes

Children outcomes

- Respiratory disease mortality
- Respiratory disease morbidity
- Asthma and asthma related outcomes
- Lower respiratory infections
- Metabolic disease
- Type 1 diabetes

Offspring

- Intrauterine growth restriction
- Decreased birthweight
- Reduced fetal growth
- Preterm birth
- Congential anomalies
- Spontaneous abortion
- Stillbirth
- Infant death

- Childhood Cancers
- Leukemia
- Lymphomas
- Central nervous system cancers
- Tumors originating in embryonic tissue
- Neuroblastoma
- Retinoblastoma
- Nephroblastoma
- Neurodevelopment
- Autism
- ADHD

Air Pollution and Lung (Erik)

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



Ella Kissi-Debrah - 9 year old girl suffered fatal asthma attack triggered by air pollution, London, February 2013 RS



Ella Adoo-Kissi-Debrah: Air pollution a factor in girl's death,



la Adoo-Kissi-Debrah lived 25 metres from the South Circular Road in south-east

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

Ella Adoo-Kissi-Debrah, who lived near the South Circular Road in Lewisham south-east London, died in 2013.

Air pollution and cardio-metabolic health (Petter)





Air pollution and cancer (Michelle)



Commission



Strengthening Europe in the fight against cancer



EU Health Union: Europe's Beating Cancer Plan #EUCancerPlan

3 FEBRUARY 2021

• Cancer causes 1 in 4 deaths in the EU (1.3 million cancer deaths in 2020)



 BECA - the EU Green Deal is a key tool to limit people's exposure to (air) pollution and prevent cancer,

GBD - 'fraction attributable' to air pollution https://www.stateofglobalair.org/

^{*}International Agency for Research on Cancer (IARC) 'Air Pollution and Cancer' 2013



Lung

cancer

19%

"In 2020, while we were all fighting against the COVID-19 pandemic, many of us were fighting a silent battle. The battle against cancer. In 2020, we lost 1.3 million Europeans to this disease. And sadly, the number of cases is on the rise. This is why we present Europe's Beating Cancer Plan today. The fight of

Cutting pollution through the EU's Zero Pollution Action Plan and the Chemical Strategy for Sustainability as well as strong implementation of other existing EU policies would go a long way to reduce cancer cases and deaths. This would be an effective investment in our citizen's well-being.

Hans Bruyninckx, EEA Executive Director

NEWS

European Environment Agency



Exposure to pollution causes 10% of all cancer cases in Europe

Exposure to air pollution, second-hand smoke, radon, ultraviolet radiation, asbestos, certain chemicals and other pollutants causes over 10% of all cancer cases in Europe, according to a European Environment Agency (EEA) report published today. The good news is that these risks are preventable.

Emerging issues: air pollution and the brain (Barbara) (Delta ERS)

- Impaired neurocognitive development in children (learning difficulties, loss of IQ, ADHD, autism)
- Accelerated cognitive decline (dementia) elderly
- Mental health (suicide, depression, anxiety)







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

zorana.andersen@sund.ku.dk

@zoranajova

Rosamund Adoo Kissi Debrah:'We need to ensure parents know the impact air pollution has on their children'

ELF Award 2022 - Rosamund Adoo-Kissi-Debrah

YouTube · The European Lung Foundation · 01 Sept 2022



European Parliament

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