### **EU Healthy Air Coalition**

# **Policy Outlook: Strengthening Disease Prevention Through Clean Air Measures**



EU Healthy Air Coalition

### Policy Outlook: Strengthening disease prevention through clean air measures



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28 January 2025

() 12:00 - 14:00 CET

European Parliament, Room SPAAK 7C50

### Hosted by MEP Javi Lopez

he EUHAC secretorial is hosted by the Health and Environment Alliance (HEAL

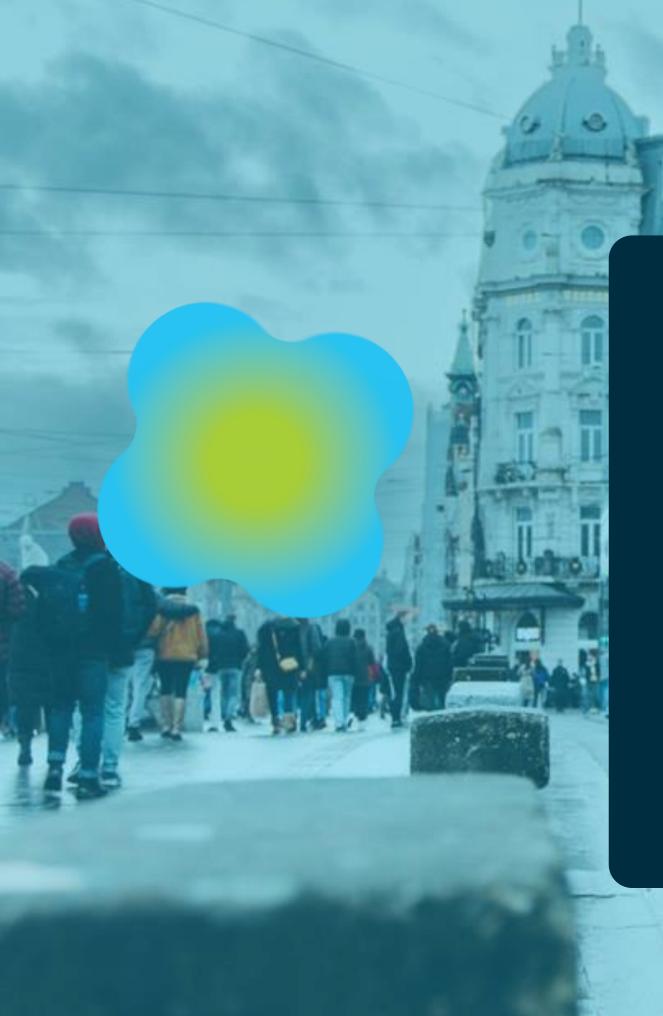


HEAL gratefully acknowledges the financial support of the Foropean Union (FU) and the Cleam Air Fond (CAF) for the organisation of this event. The responsibility for the content lies with the authors and the views expressed in this problemation on an excessorily reflect the views of the EU institutions, CHEA and funders. The European Climate, Infrastructure and Environment Executive Agency (CINEA) and the funders are not responsible for any use that may be made of the information contained in this publication. HEAL EU transportency register number: 0072334382-90.

The EU Healthy Air Coalition is an initiative supported by the Clean Air Fund (CAF)



### United for science-based policies to prevent air pollution



## Welcome and opening remarks

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# Session 1: The health and economic burden of air pollution

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## Impact of air pollution on public health, public finances, and inequalities

Mutualités Libres / Onafhankelijke Ziekenfondsen www.mloz.be

**Ludo VANDENTHOREN** 

### **Expert in economic and scientific matters, REPRESENTATION AND STUDIES**

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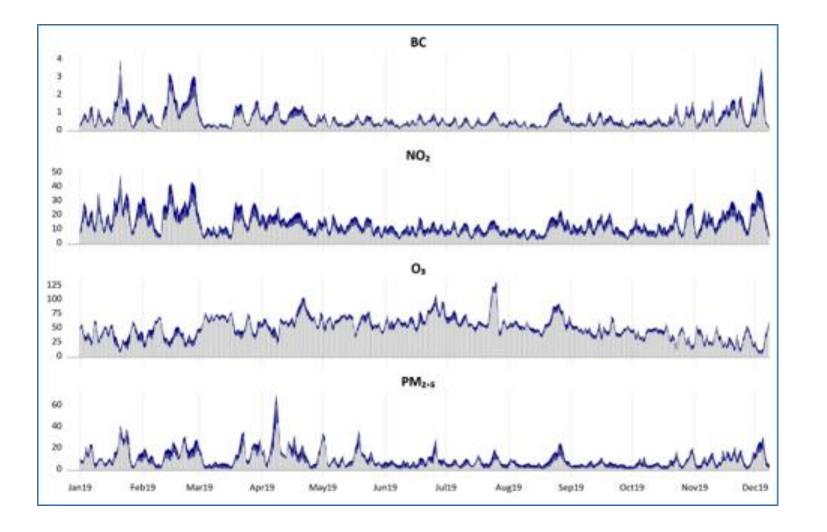
# Agenda

- J Study 1 Impact of air pollution on work incapacity
- J Study 2 Impact of air pollution on healthcare use
- J Study 3 Impact low emission zones on socioeconomic inequalities
- **Key messages**

<u> Mutualités Libres / Onafhankelijke Ziekenfondsen</u> ww.mloz.be



### Short-term exposure to ambient air pollution and onset of work incapacity related to mental health conditions



due to mental disorders:

- An increase of 5 micrograms of nitrogen dioxide  $(NO_2)$ per cubic meter of air increases the risk of work incapacity by 4.2%.
- An increase of 0.5 micrograms of black carbon (BC) per cubic meter increases the risk of work incapacity by 3.2%.

Pollution peaks contribute to an increase in the number of people recognized in work incapacity or who are absent from work for a long period of time

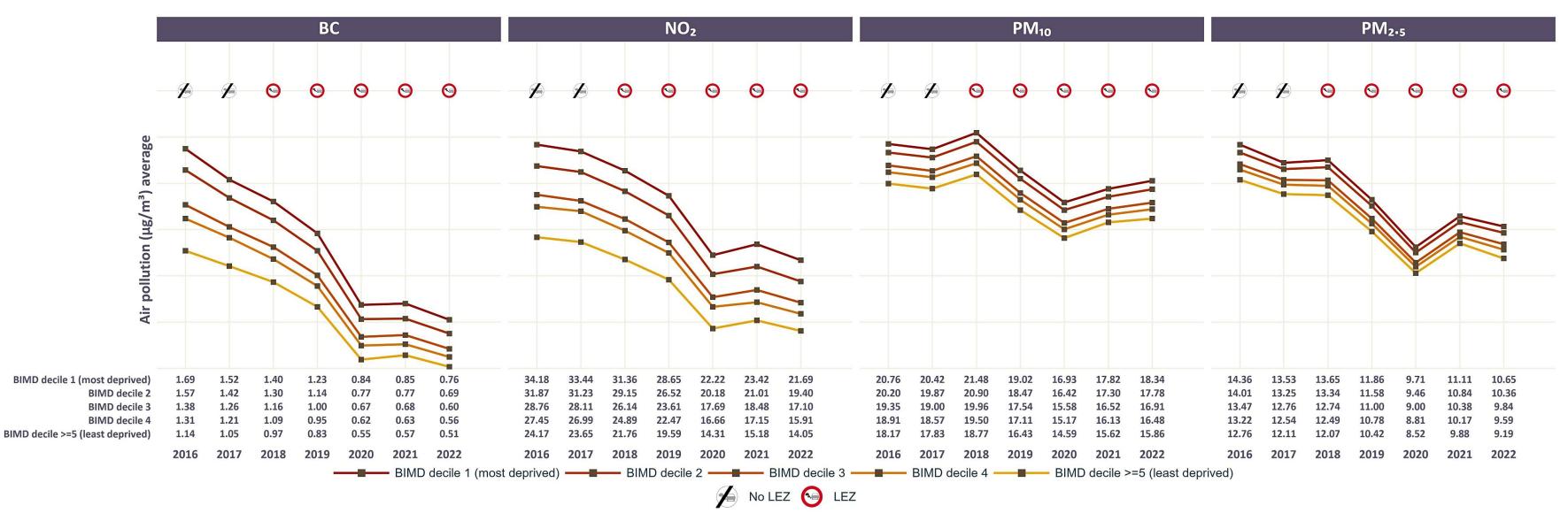
# Association of air pollution and green space with all-cause general practitioner and emergency room visits: A cross-sectional study of young people and adults living in Belgium

PM <sub>2.5</sub>	Average GP visits	Avoidable GP visits if PM <sub>2.5</sub> between 4.91 and 7.49 µg/m <sup>3</sup>	Annually
4,91-7,49 µg/m³	2,96		general
7,50-9,99 μg/m³	3,10	33.744	around
10,00-11,99 µg/m³	3,20	64.988	funds ar
12,00-14,64 µg/m³	3,30	97.233	

# **Example 1 Constant of the second s**

ly potentially avoidable cost of visit to the l practitioner and emergency room with I 37 million euros borne by health insurance and 6 million euros out-of-pocket payments.

# Positive impact of the introduction of low-emission zones in Antwerp and Brussels on air quality, socio-economic disparities and health: A quasi-experimental study



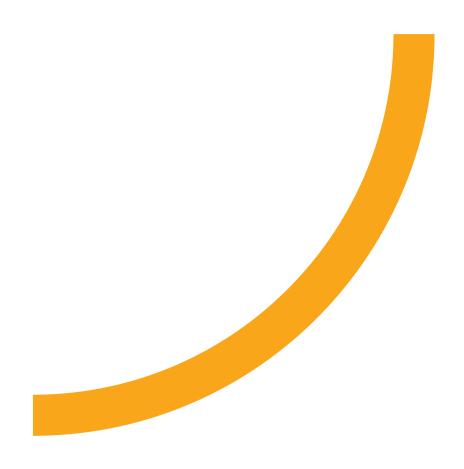
•Controlling for the pre-LEZ value (in 2017), there is a STATISTICALLY SIGNIFICANT DIFFERENCE IN THE CHANGE IN BLACK CARBON (BC) AND NITROGEN DIOXIDE (NO2) over time across BIMD deciles | for BC there is a systematically slower decrease with lesser deprivation | for NO2 there is a slower decrease for BIMD

decile ≥5 | MORE DEPRIVATION = MORE RAPID DECREASE

•Controlling for the pre-LEZ value (in 2017) there is NO STATISTICALLY SIGNIFICANT DIFFERENCE IN THE CHANGE IN PARTICULATE MATTER 10 (PM10) AND

PARTICULATE MATTER 2.5 (PM2.5) over time across BIMD deciles

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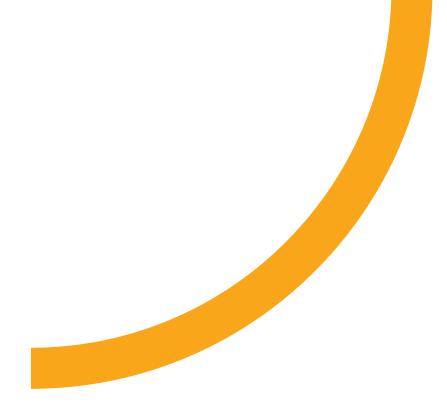


### **Key messages**

- Air pollution is a risk for public health in Europe with an impact on our physical health, mental health, and work incapacity
- social security system
- tackle health inequalities

Reducing air pollution is protecting the financial sustainability of the

Policy on air quality needs a social and socio-economic dimension to



### Link to our studies



**Environment International** Volume 164, June 2022, 107245



Full length article

Short-Term exposure to ambient air pollution and onset of work incapacity related to ment conditions

Luk Bruyneel \* 5 🛱 , Wies Kestens \*, Marc Alberty \*, Gür Renata Van Woensel °, Christian Horemans °, Elke Trimper Charlotte Vanpoucke <sup>c</sup>, Frans Fierens <sup>c</sup>, Tim S Nawrot <sup>d e</sup>,

### **HEALTH IMPACT RESULTING FROM** THE INTRODUCTION OF LOW-EMISSION ZONES

A COMPARATIVE INTERRUPTED TIME SERIES ANALYSIS OF A NATURAL EXPERIMENT IN THREE BELGIAN CITIES USING INDIVIDUAL-LEVEL HEALTH OUTCOMES





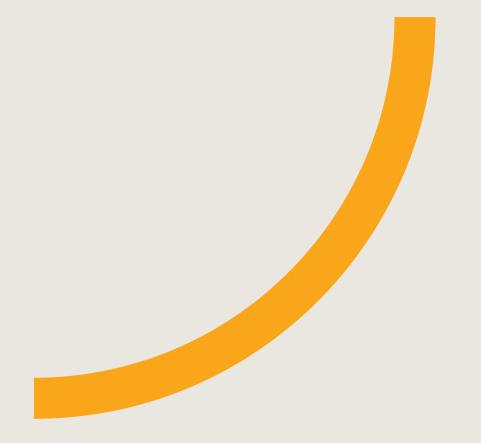
Environmental Research Volume 236, Part 1, 1 November 2023, 116713



Association of air pollution and green space with all-cause general practitioner and emergency room visits: A crosssectional study of young people and adults living in Belgium

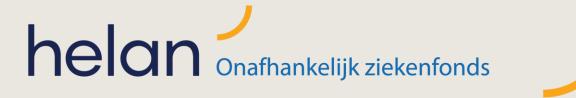
Arthur Vranken <sup>a b</sup>, Esmée Bijnens <sup>c d</sup>, Christian Horemans <sup>a</sup>, Agnès Leclercq <sup>a</sup>, Wies Kestens <sup>a</sup>, Güngör Karakaya ", Ludo Vandenthoren ", Elke Trimpeneers ", Charlotte Vanpoucke ", Frans Flerens \*, Tim Nawrot f @, Blanca Cox h, Luk Bruyneel \* b 😤 🖾







### Additional questions? Contact me at ludo.vandenthoren@mloz.be













- In addition to premature mortality, the impacts from living with air pollution related diseases are significant in Europe
- **Doctors are more and more involved in air quality measures**
- They still need more information and training to be able to inform their patients of the negative health impacts of air pollution but also of the health benefits of air quality measures
- **CPME and national medical associations are also active**

Dr Ina Kelly, Chair of CPME Working Group on Environmental Health & Climate Change European Parliament, Brussels - 28 January 2025



- Air pollution and climate change are inseparable issues
- European doctors have published policies and recommendations, e.g. on air quality, climate change, and commercial determinants of health
- We contribute to the EU clean air policy, e.g. by
  - providing policy briefs
  - participating in legislative processes (e.g. AAQD & NECD revisions)
  - informing and mobilising our member organisations
  - working with the other EU Healthy Air Coalition members

Dr Ina Kelly, Chair of CPME Working Group on Environmental Health & Climate Change European Parliament, Brussels – 28 January 2025



**Session 2: Connecting the dots:** latest science on air pollution, climate resilience and public health



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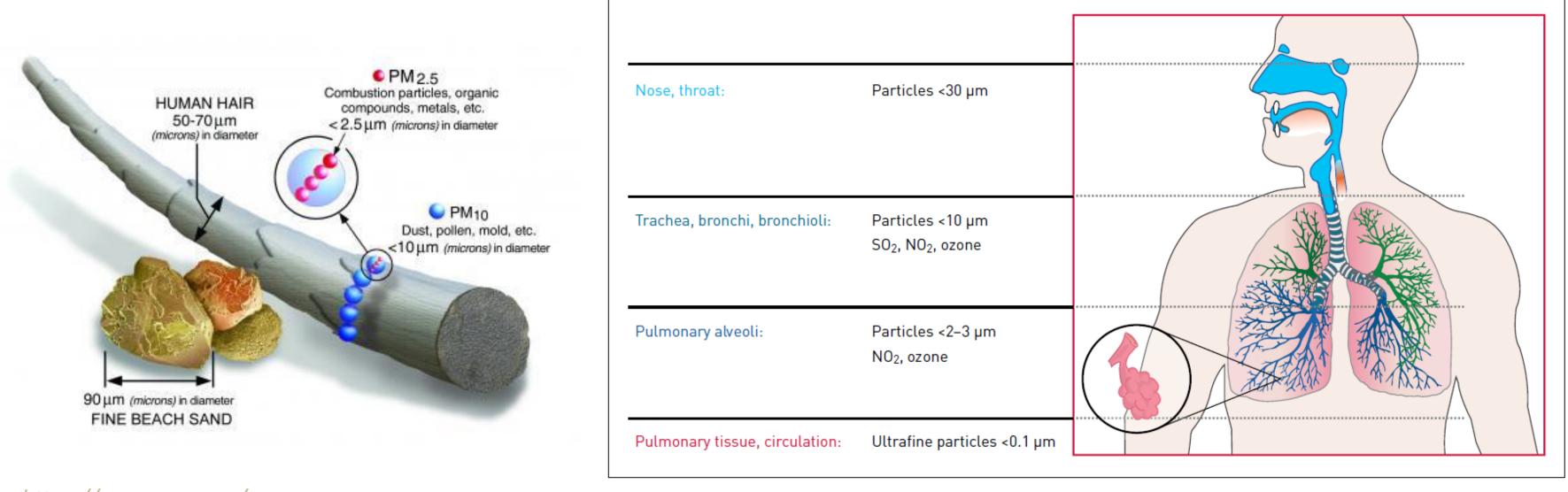
**Scientific Evidence on Health Impacts of Air Pollution** Why we need to act for clean air now



### Dr. Ulrike Gehring

Utrecht University, The Netherlands Chair of the ERS Environment & Health Committee

# With every breath we inhale millions of particles that can penetrate deeply into our lungs



<u>https://www.epa.gov/pm-</u> pollution/particulate-matter-pmbasics

ERS. Air quality and health 2010

### Air pollution affects not only the lungs, but nearly all organ systems

- Onset of respiratory diseases
- 2. Exacerbations of existing respiratory diseases
- 3. Increased susceptibility of respiratory patients to development of other diseases

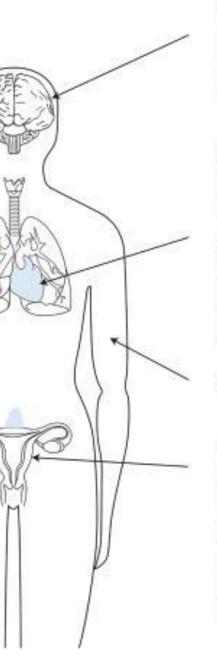
Respiratory disease mortality Respiratory disease morbidity Lung cancer Pneumonia

Upper and lower respiratory symptoms Airway inflammation Decreased lung function Decreased lung growth

Insulin resistance **Type 2 diabetes Type 1 diabetes** Bone metabolism

High blood pressure

Endothelial dysfunction Increased blood coagulation Systemic inflammation **Deep venous thrombosis** 



Stroke Neurological development Mental health Neurodegenerative diseases

Cardiovascular disease mortality Cardiovascular disease morbidity Myocardial infarction Arrhythmia Congestive heart failure Changes in heart rate variability ST-segment depression

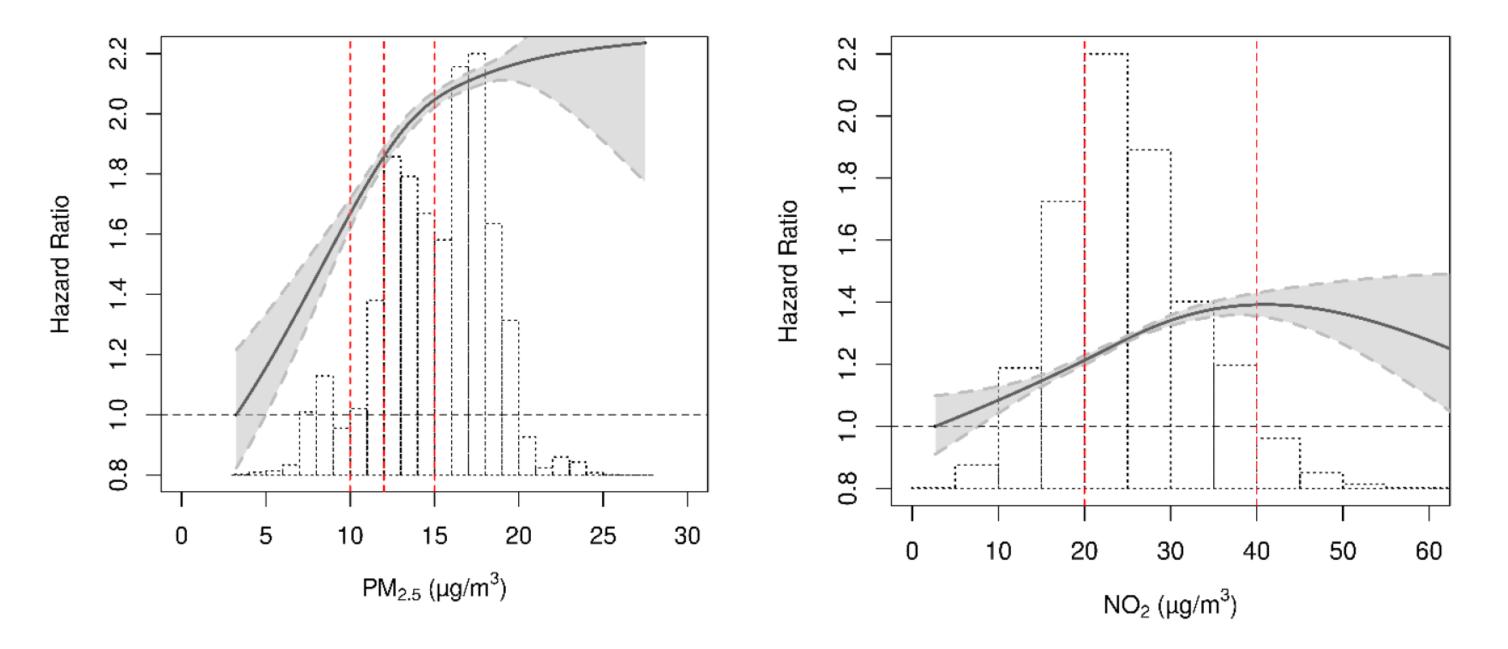
Skin ageing

### Premature birth Decreased birthweight

Decreased fetal growth Intrauterine growth retardation Decreased sperm quality Pre-eclampsia

Thurston et al. Eur Respir J 2017

# There is no safe threshold below which no health effects occur





Long-term effects on natural cause mortality

Strak et al., BMJ 2021

### Air pollution is a major risk factor to public health

High blood pressure -Tobacco · Dietary risks -High body-mass index -High fasting plasma glucose -High alcohol use -High LDL -Kidney dysfunction -Occupational risks -Air pollution Non-optimal temperature Low bone mineral density -Other environmental -Drug use -Malnutrition -Low physical activity -Unsafe sex -Childhood sexual abuse and bullying -Intimate partner violence -WaSH -500 1.5k 2k 0 1k DALYs per 100,000

European Union, Both sexes, All ages, 2021



https://vizhub.healthdata.org/gbd-compare/

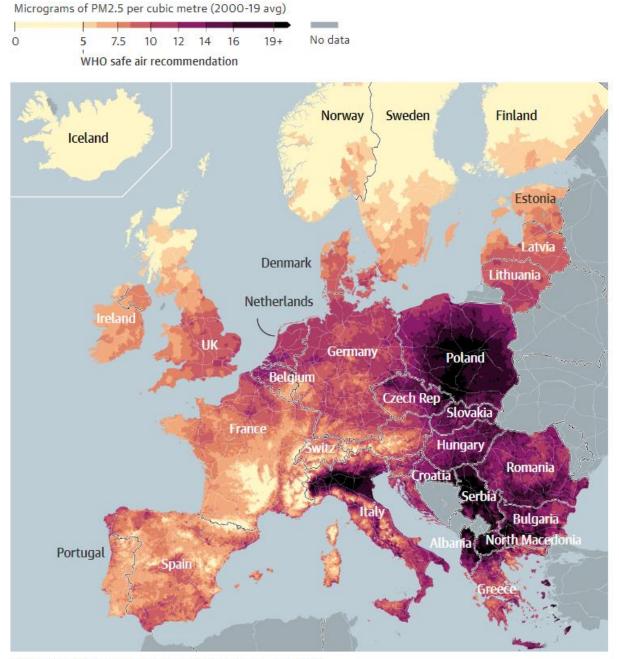
### What the science tells us

Pollutants*	2021 WHO Guidelines	EU old limit values	EU new limit values
PM <sub>2.5</sub> (year)	5 μg/m³	25 μg/m³	10 μg/m <sup>3</sup>
NO <sub>2</sub> (year)	10 µg/m³	40 µg/m³	20 μg/m <sup>3</sup>



**Above these levels serious** health effects beyond reasonable doubt!

### In Europe, 98% of people live in areas with PM<sub>2.5</sub> concentrations that exceed the WHO guidelines!



Guardian graphic. Source: Expanse project; Guardian analysis

### Conclusions

- Air pollution causes a very large disease burden in Europe
- To protect the health of European citizens, air lacksquarepollution levels need to be reduced to the WHO Air Quality Guideline values as soon as possible
- Air pollution reduction comes with large co- ${\bullet}$ benefits for climate, economy and quality of life
  - We need to act now!





### Thank you!



### Air Pollution, Climate and Health – EEA Perspective

January 28<sup>th</sup>, 2025

### Dr. Ian Marnane

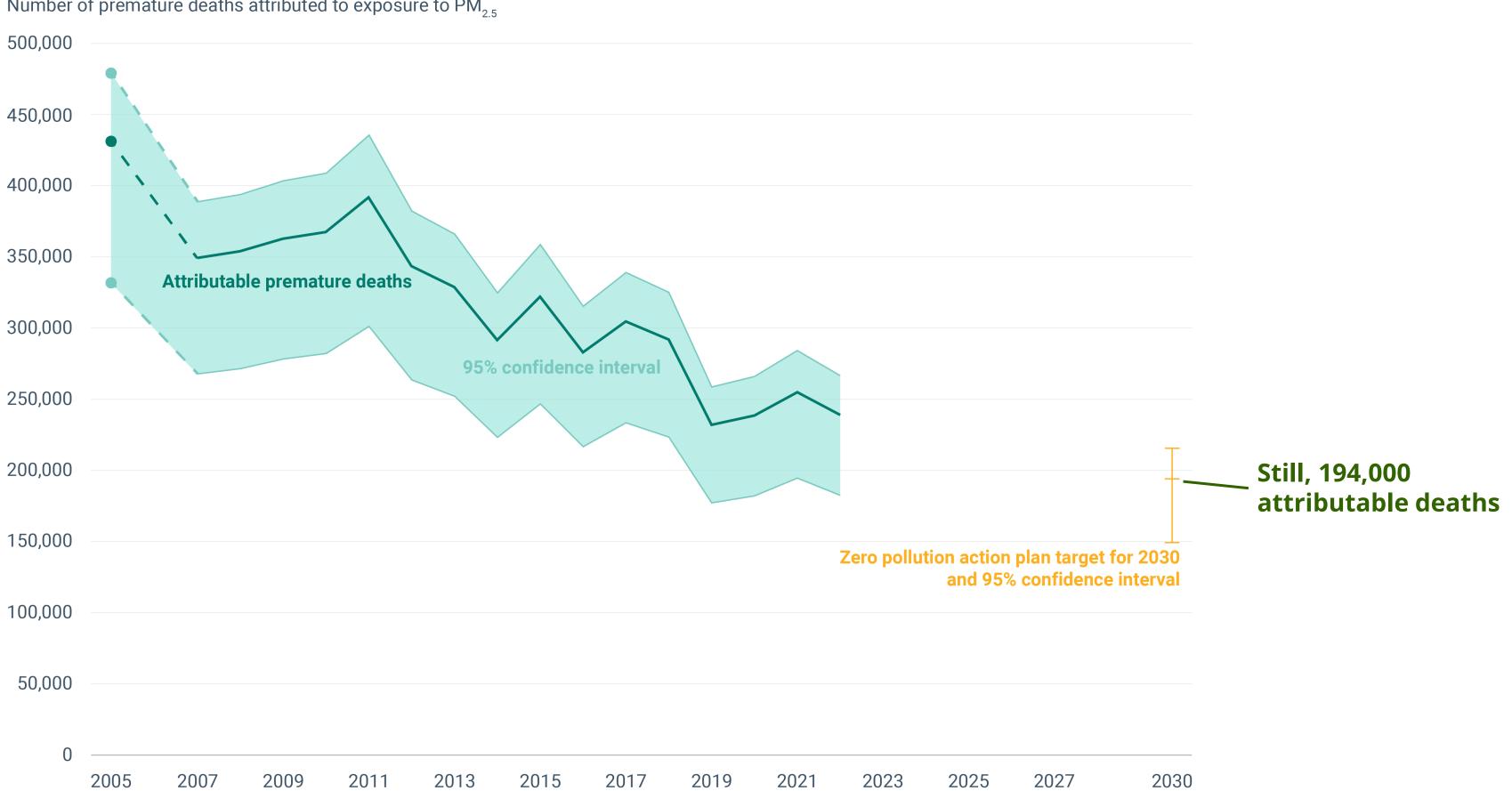
**European Environment Agency** 



Air Quality – current status and burden of disease



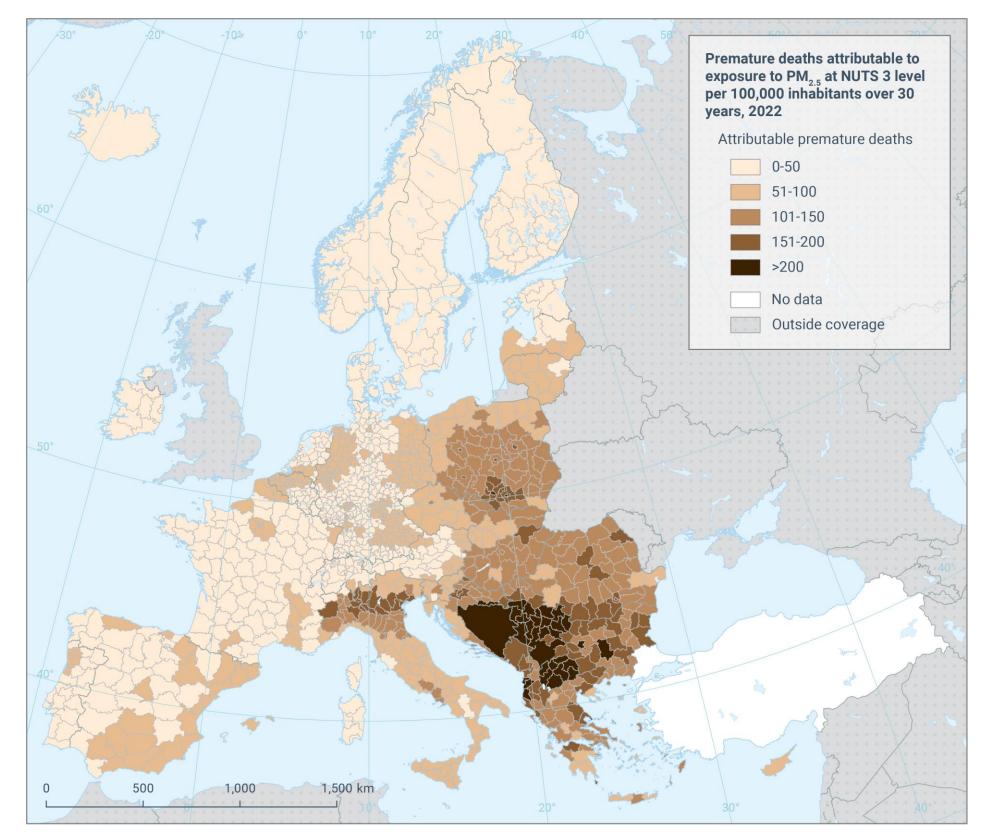
## On track to reach the ZPAP objective for 2030, but....



Number of premature deaths attributed to exposure to PM<sub>25</sub>

# ... we also need to close the inequality gap

- Inequalities in exposure
- Inequalities in impact
- Socioeconomic inequalities
- Small children and elderly are the main impacted groups
- Also increased risk from exposure to other environmental stressors



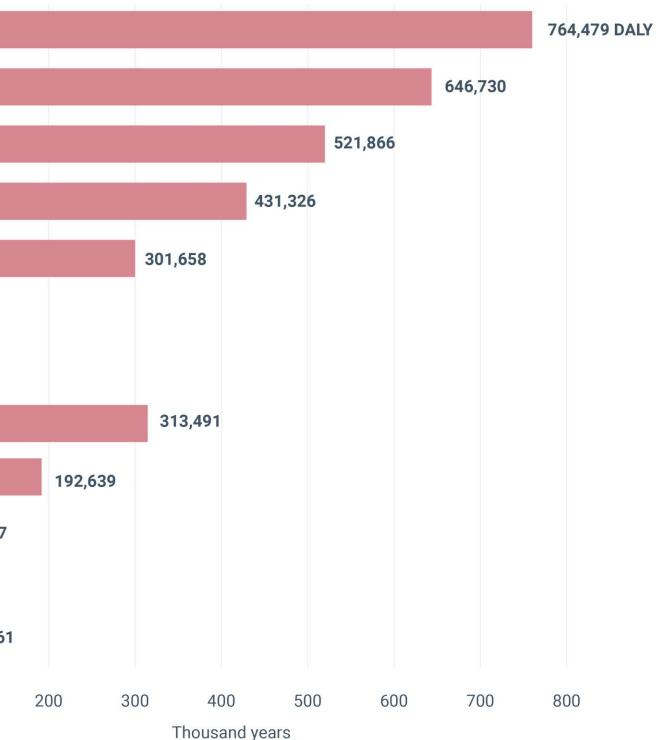
Reference data: © EuroGeographics, © FAO (UN), © TurkStat Source: European Commision - Eurostat/GISCO

### And it's not only about premature deaths

Disability-adjusted life years (DALY)

● Years lived with disability (YLD) ● Years of life lost (YLL)

PM<sub>2.5</sub> Ischemic heart disease Morbidity contribute to the burden of Stroke disease **Diabetes mellitus** Lung cancer Reduced quality of life Chronic obstructive pulmonary disease 37,768 Asthma in children Increased healthcare costs NO, **Diabetes mellitus** Reduces resilience to other health Stroke risks 74,717 Asthma in adults 03 Chronic obstructive 83,861 pulmonary disease 0 100



How does climate change influence the health impacts of air pollution?





### **EUCRA – Assessment of major climate health risks**

### Key issues related to air pollution:

- Combined impacts of heat and air pollution
- Air quality impacts of wildfires
- Impact on the healthcare system
- Increasing risk of ozone

### Table ES.3 Assessment of major risks

Climate risks for 'Health' cluster

Heat stress - general population Population/built environment due to wildfires (hotspot region: southern Europe) Population/built environment due to wildfires Wellbeing due to non-adapted buildings (\*) Heat stress – outdoor workers (hotspot region: southern Europe) Heat stress – outdoor workers Pathogens in coastal waters Health systems and infrastructure Infectious diseases Legends and notes Urgency to act **Risk severity** Urgent action needed Catastrophic More action needed Critical Further investigation Substantial

Sustain current action Limited

Watching brief

Urgency to act		Risk severity		
		Current	Mid-century	Late century (low/high warming scenario)
		+++	+++	+++
		+++	+++	++++
		+++	++	++
		++	++	++
		+++	+++	+++
		+++	+++	++++
		+	+	+
		+++	++	++
		+++	++	++

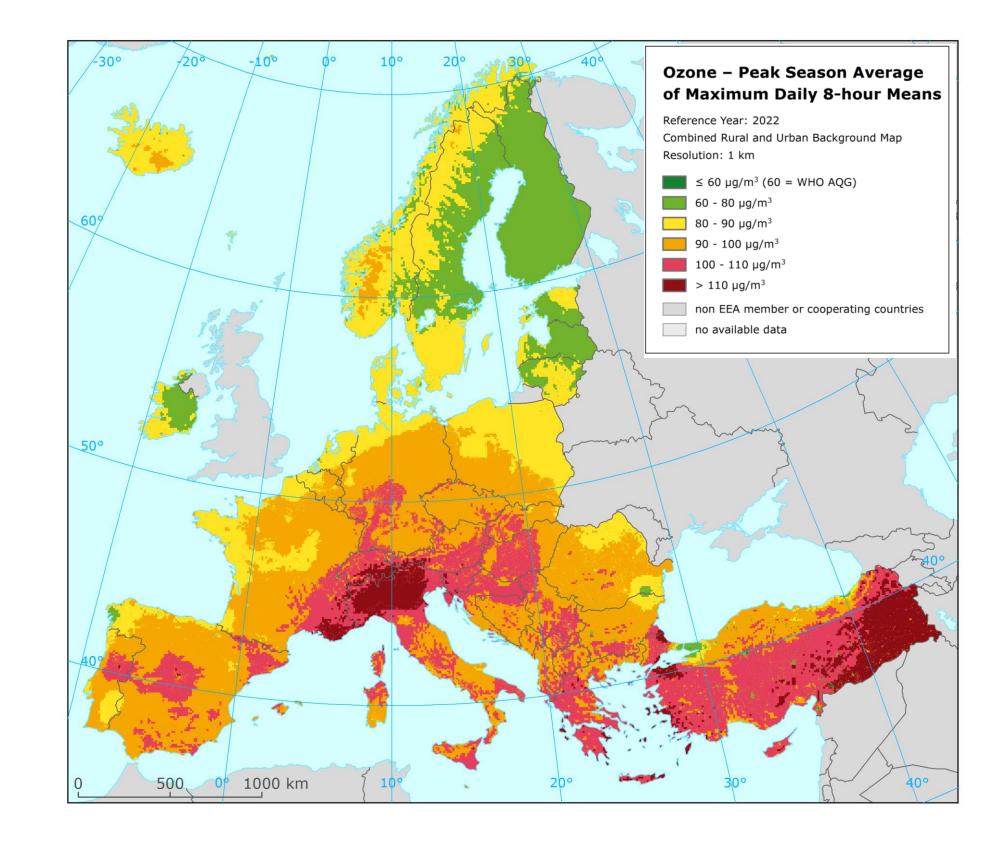
### Confidence

Low: + Medium: ++ High: +++

(\*) Urgency based on high warming sc

### **Ground level ozone impacts**

- First time the impact of longterm ozone exposure calculated
- 70,000 deaths attributable to ozone > WHO guideline
- Ozone concentrations will be influenced by climate (heat)
- Southern Europe particularly impacted





European Environment Agency



**Chanks!** 

# PUBLIC HEALTH PERSPECTIVE ON CLEAN AIR AND HEALTH EQUITY

"For a stronger Europe, we need to work together to reduce air pollution and tackle the health inequities it fuels."

**Raymond Gemen,** Head of Policy raymond.gemen@epha.org





# the voice for better health for all

### We *advocate* for better health

Europe

We focus on legislative action to create living environments for people to flourish

# WHO ARE WE?

### We convene public health voices in



### Air pollution impacts us all, but not equally

- Pregnant women lacksquare
- Children
- The elderly •
- Low-income families
- People living in poorer regions







### OUR APPEAL: KEEP CLEAN AIR AMBITION HIGH!

- It's the right thing to do
- It's a health and economic investment
- It strengthens our societies
- It reduces health inequities and healthcare costs
- It safeguards the health and productivity of Europe's workforce, ensuring a strong and prosperous Europe

# Thank you for your attention.

Stay updated on our latest activities.

Follow our social media channels:

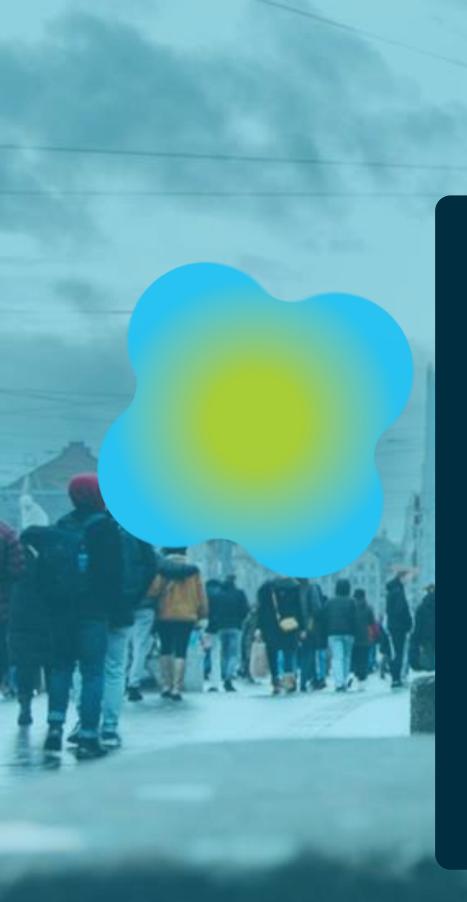


@EPHA\_EU in European Public Health Alliance

european public health alliance

### **Contact:** Raymond Gemen, Head of Policy raymond.gemen@epha.org





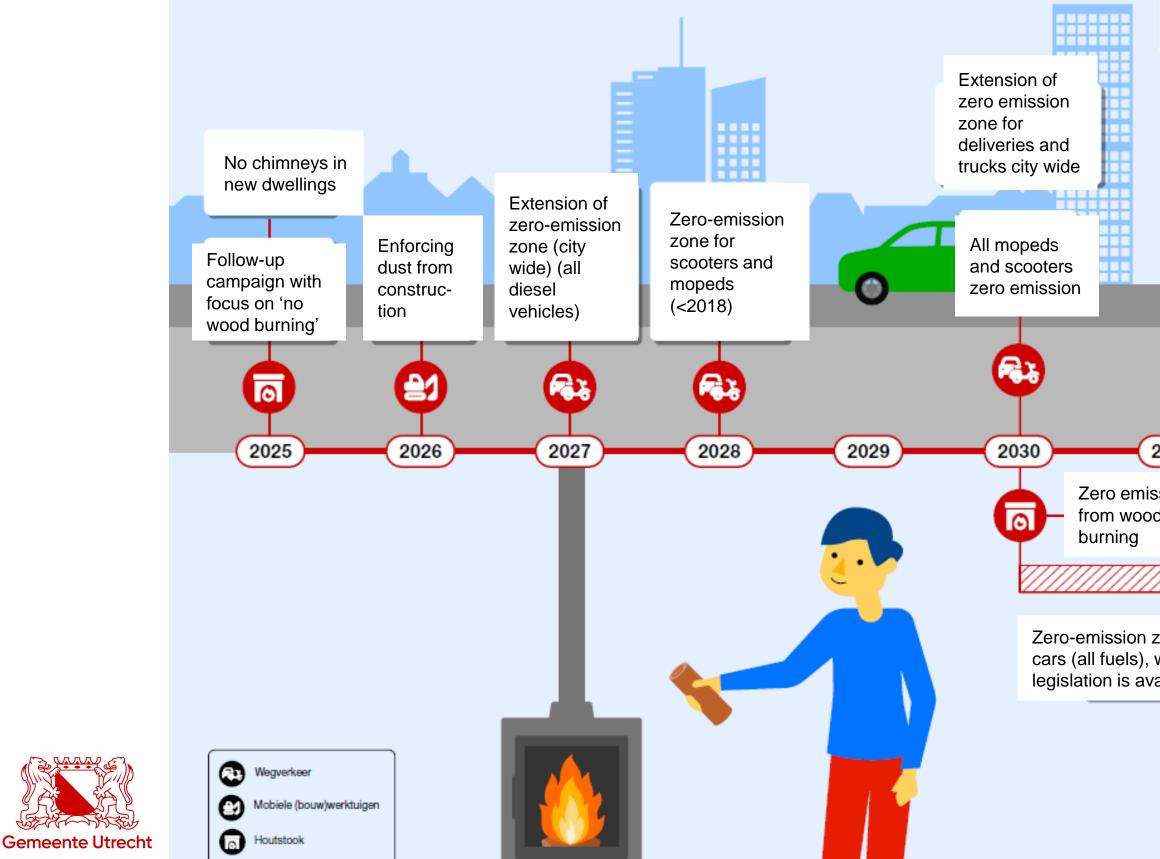


## Session 3: Discussion on the way forward for policies in the EU

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### Utrecht ambition: Zero emission city



### Our goal: healthy air that meets WHO guideline values of 2021

	Luchtvervuiling Utrecht 2022	EU-grenswaarden	WHO-advieswaarden 2021 (ons doel)
NO <sub>2</sub>	22,1 µg/m³	20 µg/m³	10 µg/m <sup>3</sup>
PM <sub>2,5</sub>	10,3 µg/m³	10 µg/m³	5 µg/m³
PM <sub>10</sub>	18,3 µg/m³	20 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>
24	2032	2022	2034 2035
ons	2032	2033	2034
ne for passe	enger		

# Find out more

Healthy Air for Healthy People

# healthyaircoalition.eu

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