



Impact of Air Quality on Public Health

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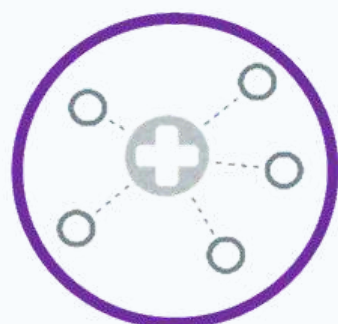


The **ASMPH Center for Research and Innovation (ACRI)** is the research arm of the Ateneo School of Medicine and Public Health (ASMPH) based in Manila, Philippines

The Center aims to improve the health of Filipinos by doing timely, relevant, and rigorous research and by translating research findings into impact products (policies, programs, and innovations) within the national and global context.



**MENTAL HEALTH
SCIENCE**



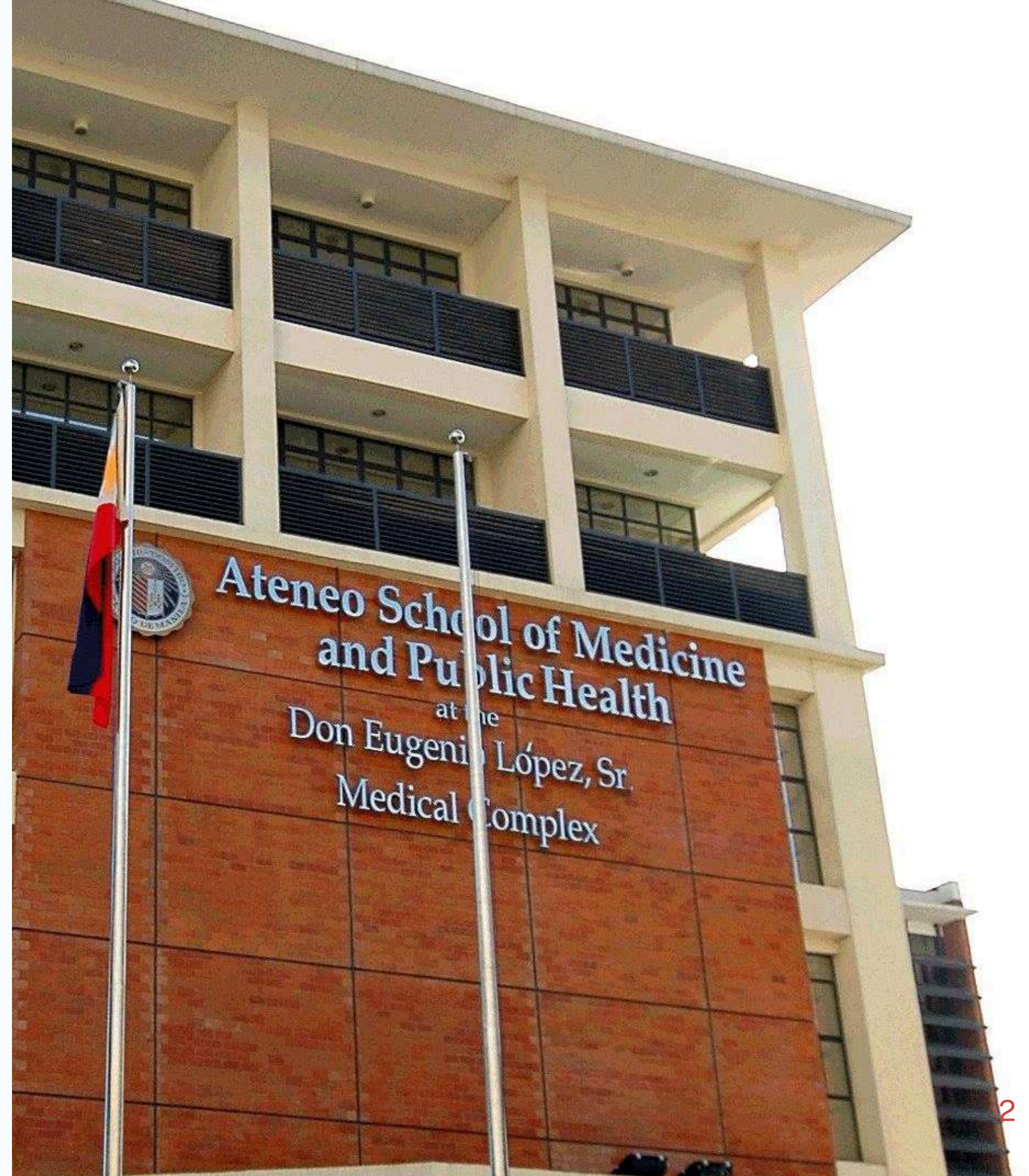
**HEALTH
GOVERNANCE**



**ENVIRONMENTAL
HEALTH**



BIOTECHNOLOGY



Globally, air pollution is a leading contributor to premature mortality

Responsible for 8% of the total global health burden

Majority of Filipino people remain exposed to PM 2.5 levels 4 times the safe level

Average PM2.5 $\approx 22 \mu\text{g}/\text{m}^3$

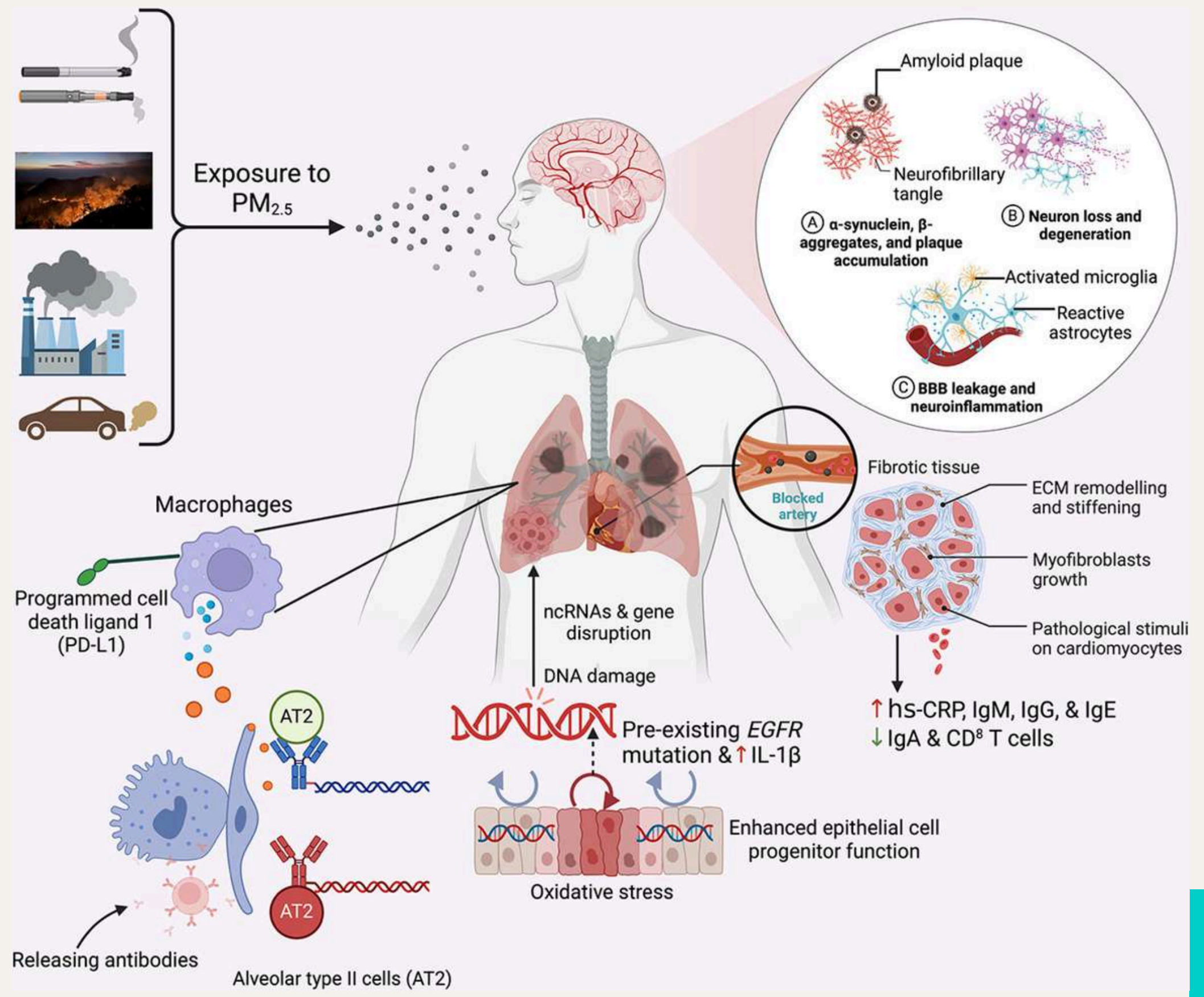
WHO guideline: $5 \mu\text{g}/\text{m}^3$

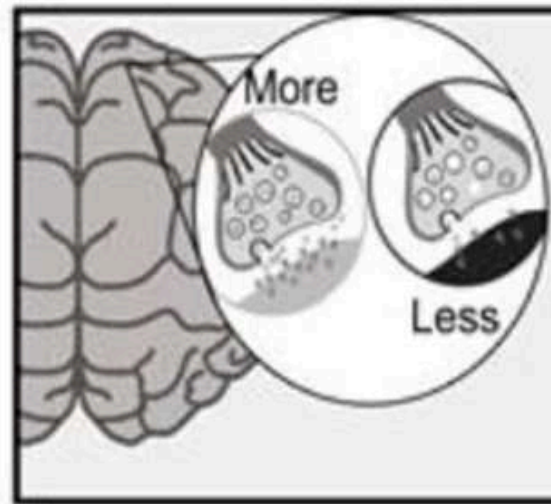
Exposure happens everywhere

Traffic
Construction
Industry
Waste burning

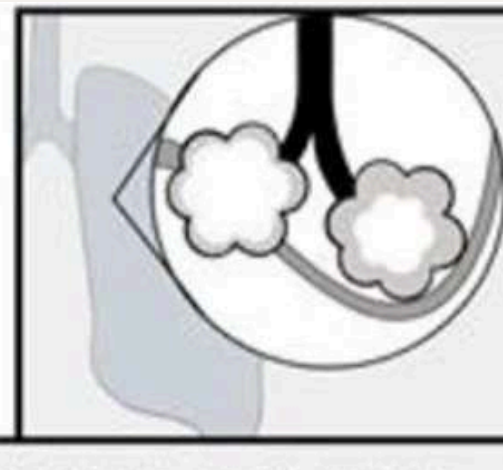
Cooking fuels
Hazardous materials
Poor ventilation
Infiltration of outdoor air

PM2.5 triggers chronic inflammation throughout the body

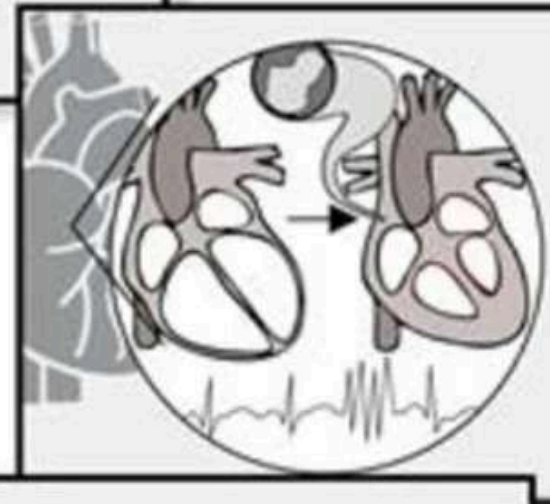




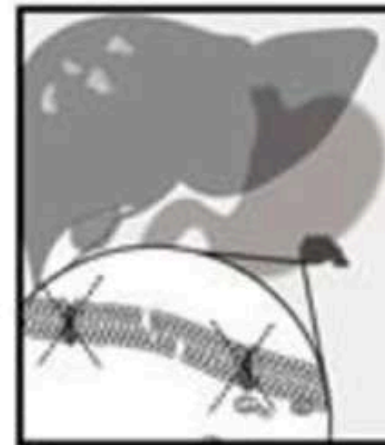
Parkinson and Alzheimer's diseases
 Decrease episodic memory
 Anxiety
 Low cognition
 Changes in social behavior



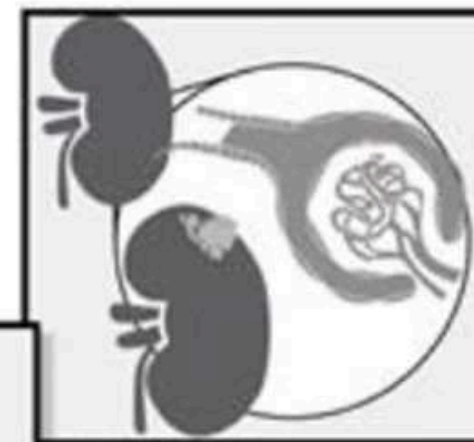
Asthma;
 Pneumonia association;
 Cancer lung incidence;
 COPDs and pulmonary dysfunction;




Increase systemic blood pressure;
 Cardiac remodeling;
 Atherosclerosis;
 Arrhythmia and fibrillation;
 Heart rate variations;



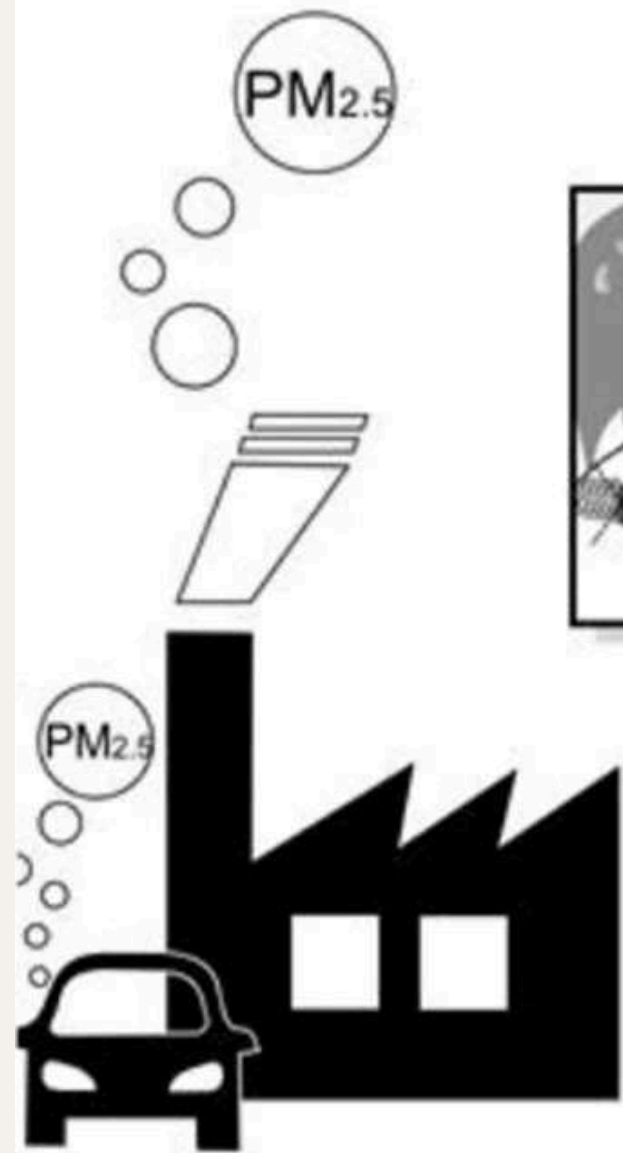
Changes in amino acid metabolism
 Changes in the intestinal microbiota
 Peptic ulcer
 Gastric and liver cancer



Chronic kidney disease
 Fibrosis
 Low glomerular filtration rates



Premature births
 Decrease fetal growth
 Placental thrombus
 Morphological alteration of the placenta

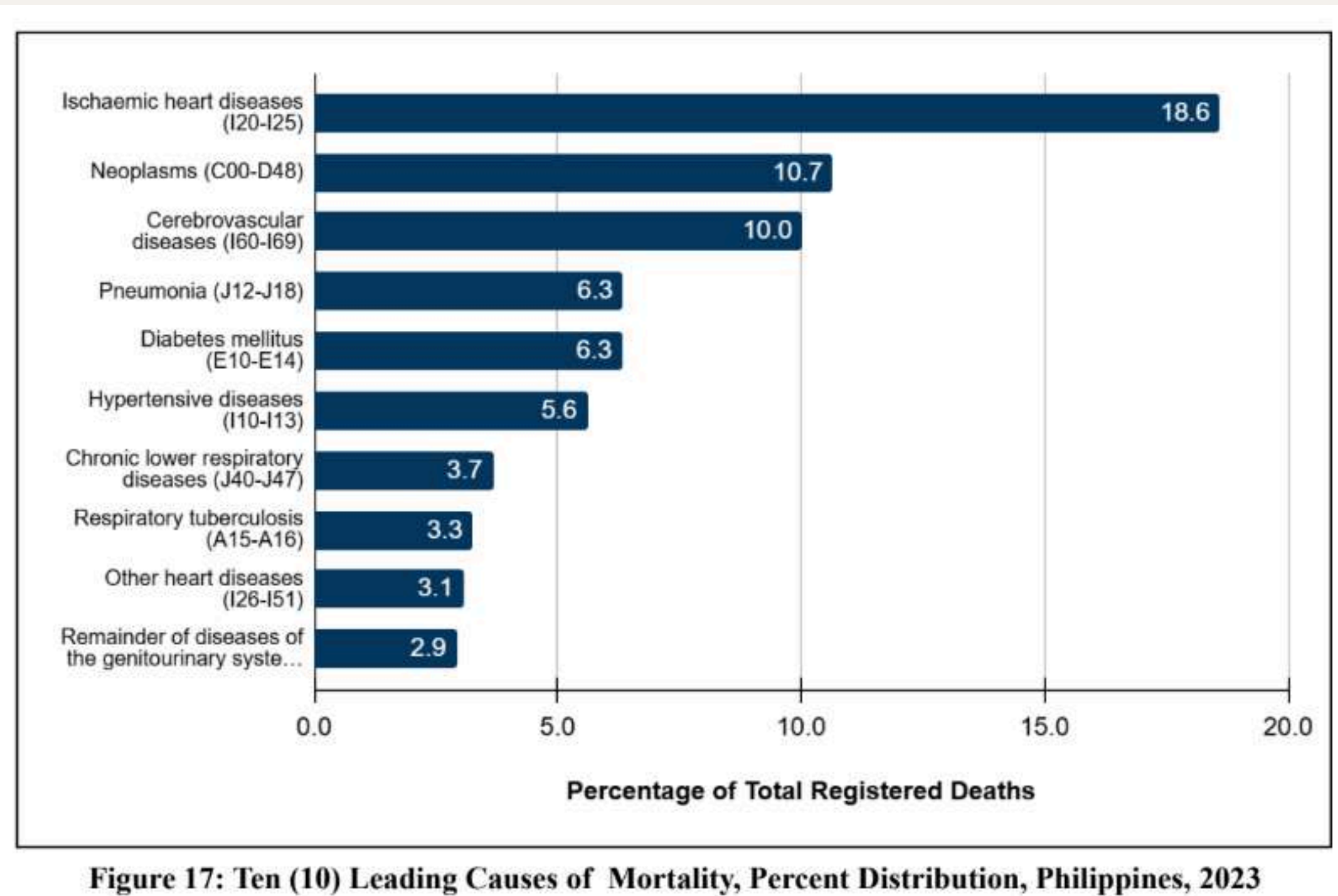


A person wearing a dark jacket and a beanie is riding a bicycle away from the camera on a city street. The air is thick with smog or haze, obscuring the background buildings and other people. The overall tone is somber and emphasizes the impact of air pollution.

Outdoor air pollution and PM2.5 are classified as carcinogenic to humans

International Agency for Research on Cancer

Air pollution contributes to the same diseases that dominate our national mortality statistics.



86,962
premature = ₱1.4 trillion
deaths

Estimated health economic burden of PM2.5 in the Philippines in 2019

Fang, Tingting, Yefu Gu, Jiaying Li, Joseph J. Y. Sung, and Steve H. L. Yim. "Effects of Climate Change on PM2.5 Formation Chemistry, and the Associated Human Health Impacts and Economic Costs in Southeast Asia." *Environment International* 205 (November 2025): 109835. [Prevention and control of Noncommunicable Diseases in the Philippines. The Case for Investment, Philippines, 2019. Geneva: World Health Organization; 2019 \(WHO/UHC/CDS-NCD/19.90\). License: CC BY-NC-SA 3.0 IGO.](#)

Real-time air quality data can save lives

Identify hyperlocal pollution
spots

Measure how well an intervention
is working

Raise public awareness