Annette Prüss-Ustün
The impact of air pollution on NCDs as compared to other risk factors
Air pollution and NCDs

7 million deaths each year from air pollution in 2016, from both ambient air & household air from cooking.

Of those, 5.6 million are from NCDs

- 25% of ischaemic heart disease: 2.4 million
- 24% of stroke: 1.4 million
- 43% of chronic obstructive pulmonary disease: 1.3 million
- 28% of lung cancer: 0.5 million
Mechanisms of air pollution on NCDs

Pathways

- Direct toxicity to cells, gene alterations
- Indirect damage through oxidative stress and inflammation

Leading to (examples):

- Cardiovascular: reduced heart rate variability, increased blood pressure, vascular tone and blood coagulability, progression of atherosclerosis
  - Heart disease (IHD), stroke (CVD)
- Pulmonary: Reduced lung function, increased airway responsiveness, abnormal cell growth
  - Chronic obstructive pulmonary disease (COPD), asthma, lung cancer
Attributable fraction of NCDs for selected risk factors by disease group, World, 2016

Comparative risk assessment methods (different sources)

Sources: WHO 2016, IHME 2016, *WHO 2004

Recent trends
Attributable fraction of NCDs for selected risk factors by disease group, country example – SE Asia, 2016

- Cardiovascular
- Cancers
- Chronic respiratory
- Other NCDs

- All air pollution
- Household air pollution
- Ambient air pollution
- Smoking
- High sodium intake
- Diet low in fruits
- Low physical activity
- Alcohol
Global NCD deaths per year – mapping to SDGs

*Primary prevention related to environment is key for reducing NCDs*

40 million, total NCDs

8.2 million, environment

10.3 million, dietary risks

Other SDGs, other sectors

SDG 3, mainly health sector

Source: Global Health Observatory 2018; IHME Compare, 2018

2018 UN Political Declaration on NCDs:
"We, Heads of State and Government, commit to:

- Increase global awareness, action and international cooperation on environmental risk factors, to address the high number of premature deaths from NCDs attributed to human exposure to indoor and outdoor air pollution, underscoring the particular importance of cross-sectoral cooperation..."
Sectors with health relevance linked to environmental risks

Other sectors with main health-relevant policies, on which we can act:
- Energy, industry
- Transport, city, planning, housing
- Agriculture, nutrition
- Labour
- Water & sanitation

Additional sectors: Finance, education, sports

Global health

SDG 3

SDGs 1-17

World Health Organization
Sectors with health relevance linked to environmental risks

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Sources of additional funding to equitably support global health

SDGs 1-17

Limited funds
Only 3% for prevention

Health sector

SDG 3

Global health

dietary
environment
malnutrition
Activity

World Health Organization
Key messages

In many countries, NCDs can only be efficiently combated by also addressing air pollution.

Health needs to be a key argument in all sectors' policies setting.

Alternatively, are we going to treat people from NCDs just to send them back into their polluted air, and wait until they come back?