From:
To: Community Affairs, Committee (SEN)
Subject: Submission to inquiry - Impacts on health of air quality in Australia
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From - The Medical Journal of Australia

Air pollution and its health impacts: the changing panorama
Tord E Kjellstrom, Anne Neller and Rod W Simpson
Med J Aust 2002; 177 (11): 604-608.

Adverse respertory health effects of air pollution

Increased mortality.

Increased incidence of lung cancer.

Increased frequency of symptomatic asthma attacks.

Increased incidence of lower respiratory tract infections.

Increased exacerbation of chronic cardiopulmonary or other diseases, reflected in various ways, including reduced ability to cope with daily activities, increased hospitalisation, increased physician visits and medication, and decreased pulmonary function.

Reduction of FEV1 or FVC associated with clinical symptoms.

Increased prevalence of wheezing unrelated to colds, or wheezing on most days or nights.

Increased prevalence or incidence of chest tightness.

Increased prevalence or incidence of cough/phlegm production requiring medical attention.

Increased incidence of acute upper respiratory tract infections that interfere with normal activity.

Acute upper respiratory tract infections that do not interfere with normal activity.

Eye, nose and throat irritation that may interfere with normal activities (eg, driving a car), if severe.

There is an increasing global awareness of the extreme levels of indoor and outdoor air pollution arising from the use of coal and biomass (eg, wood, farm waste, cowdung) for cooking and heating in developing countries.Coal-burning to fuel industry and produce electricity is another major source of air pollution in some countries — for example, India and China, where cheap coal is an important factor in industrialisation.
The recent documentation of lung cancer as an effect of long-term exposure to urban air pollution8 puts the spotlight on carcinogenic chemicals in the smallest air particles and on carcinogenic gases (eg, benzene; benzo-(alpha)pyrene) as possible causal agents.
Carbon dioxide (CO_2), another air pollutant created by fuel combustion, has no direct health effects at the concentrations occurring in the ambient environment. However, it is the main "greenhouse gas" causing global climate change9 and, as such, indirectly contributes to the global health impact of such change. Australia and New Zealand are among the few countries where vehicle-related CO_2 emissions have substantially increased since 1996, when the Kyoto Protocol on greenhouse gas reductions was signed. Efforts to reduce

urban air pollution by reducing the use of cars would have the added benefit of reducing CO2 emissions.

Hospital admissions

Acute time-series studies3 have shown associations between particle pollution and daily hospital admissions, mainly for respiratory disease (especially asthma and chronic obstructive pulmonary disease) but also for cardiovascular diseases.

Other effects

Studies in Australia have reported an association between particle exposure from dust storms and exacerbation of asthma symptoms,24 and between particle exposure and decreased lung function in people with asthma.

Some studies have suggested that air pollutants are related to respiratory allergic diseases by the interaction between pollen allergens and air pollutants: air pollutants adhering to pollen grains may increase their impact, and probably also heighten airway responsiveness to aeroallergens.

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