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Estimating annual number of deaths from outdoor air pollution in Bangkok, Thailand

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The aim of this study is to estimate the expected number of mortality cases for Bangkok residential exposure to outdoor air pollution. Road traffic is a significant source of air pollution in Bangkok. Using Bangkok air quality data were collected by Pollution Control Department, BKK, during 1996 - 2009 to calculate current annual mean concentration of PM₁₀ ($\mu\text{g}/\text{m}^3$) and mortality rate of disease group from the Ministry of Public Health, Thailand. The expected annual number of deaths from outdoor air pollution can be determined by using the quantitative assessment of the health impact of outdoor air pollution from inhalation exposure (Ostro 2004;WHO, 2004). For short-term exposure to PM₁₀, The annual number of deaths from outdoor air pollution of all-cause mortality at all age, and Respiratory mortality at age < 5 years, in roadside areas were higher than that in residential areas 1,799 deaths/year (95% CI, 1,357 - 2,235), 95 deaths/year (95% CI, 20 -164), and 1,285 deaths/year (95% CI, 968 - 1,599), 68 deaths/year (95% CI, 14 - 120), respectively. Much more benefits would be gained for long-term exposure to PM_{2.5}, The annual number of deaths from outdoor air pollution of Cardiopulmonary mortality at age > 30 years, and Lung cancer at age > 30 years, in roadside areas were higher than that in residential areas 2,385 deaths/year (95% CI, 966 - 3,509), 200 deaths/year (95% CI, 87 - 280), and 2167 deaths/year (95% CI, 868 - 3,222), 183 deaths/year (95% CI, 78 - 260), respectively. Public exposure to particulate matter is associated with premature mortality. Estimates of the burden of disease attributed to outdoor air pollution can help fix the priority for controlling air pollution by Government policy not only to put control device on vehicle and improved standard combustion technology including fuel quality but also to design land use for develop public transport system to protect human health.

Biography

Pornpun Watcharaviton has been working as a lecturer at School of Occupational Health and Safety, Institute of Medicine, Suranaree University of Technology, and currently studying in the field of Occupational Medicine and Industrial Hygiene, National Taiwan University (NTU).

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