

air pollution

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I've read a recent bit of research on air pollution from China. The

research looked at particulate (PM₁₀) levels across the major cities in China and the effect on mortality. The findings were unsurprising in many ways but also showed some surprises.

- PM₁₀ levels vary widely from city to city.
- A 10?g/m₃ change in PM₁₀ concentration raised the death rate by a mean of 0.44%.
- The previous 2 days PM₁₀ levels had a significant effect on death rates.
- The effects were greater for cardiovascular and respiratory disease deaths.
- Older people were much more vulnerable than young people to death.
- The PM₁₀ concentration had less effect in more polluted cities.

Of course diesel engines (much in the news at the moment) are not the only cause of PM₁₀s. So are a wide variety of other sources from coal fired power stations (common in China and other places but closing like mad), vehicle tyres, wood burning, petrol engines, industry and gas central heating. So local effects are likely. It could also depend on prevailing weather conditions. The fact that the previous two days particulate concentrations is not surprising either. Weather and the fact that the PM₁₀ concentrations have to have a biological effect helps to explain that one. You would also expect since you are looking at mortality that the cause of death will have to be acute. It should be remembered that scientists are coming to the conclusion that long term effects are also occurring on fertility and the brain etc. The last two conclusions are more surprising. In the West PM₁₀s have been found to have acute effects on the very young as well. The last finding is even more surprising. This suggests that air pollution effect are not cumulative? One drawback of this useful piece of research is that other pollutants were not examined such as NO_x, SO_x, these also have effects on human health and maybe responsible for some of the mortality. There is much to think about here as policymakers worldwide grapple with this problem. BMJ 2017;356:j667 Neil

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