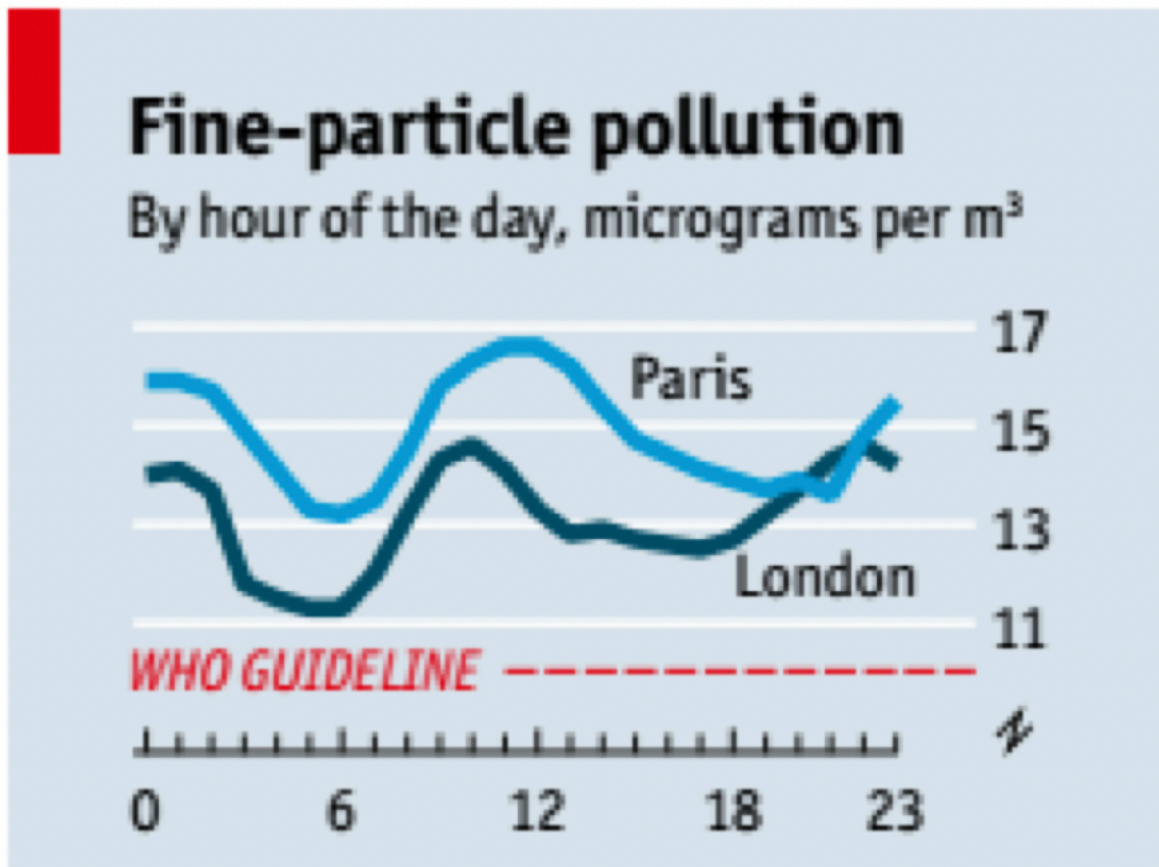


Cleaning up the data

The dangers of dirty air need to be made much transparent to city-dwellers.



What if all Londoners, no matter how young or frail, smoked for at least six years? In effect, they already do. The city's air pollution exacts an equivalent toll on each resident, cutting short the lives of nearly 10,000 people each year and damaging the lungs, hearts and brains of children.

Yet few Londoners realise that things are this bad. Citizens of other big cities in the high world are equally complacent (those in the developing world are unlikely to be in any doubt about the scale of their pollution problem). Official air-quality indices do exist. They alert people when to stay at home, particularly those with asthma and other medical troubles. But these indices focus on the immediate risks to health, which for most people are serious only when the air is almost unbreathable. No equivalent source of information exists to warn residents about the dangers that accumulate from much lower amounts of pollution. It is all too easy for people to take the short-term index, which says "low pollution" most of the time, as a proxy for their lifelong risks.

Easy, and wrong. Analysis of one year's worth of pollution data from 15 big cities in the rich world by *The Economist* shows how far from the truth such assumptions can be (see page 61). Daytime levels of nitrogen dioxide in London exceeded the World Health Organisation (WHO) limit for hazardous one-year exposure for 79% of the time, and were on average 41% above the

guideline. About half the time both nitrogen dioxide and fine particulates were above the limit. In daytime Paris, at least one of these pollutants exceeded the WHO's limit for 82% of the time. Pollution is less of a problem in American cities, partly because most cars run on petrol and emit less nitrogen dioxide than diesel vehicles, which are preferred in Europe.

A dependable long-term air-quality index, similar in design to existing short-term gauges, is needed in the world's big cities. That would educate policymakers and voters about the nature of the problem. It would help doctors dispense routine advice to pregnant women, children and other more vulnerable people on how to reduce exposure to pollution. And it would enable the development of apps and products that can deliver practical advice to everyone.

Our analysis gives a flavour of what such advice might contain. In Paris, for example, 8 am is a much better time than 9 am for the morning commute, with levels of nitrogen dioxide lower by 26% on average, and fine particulates by 10%. In Amsterdam, Brussels, London and Paris, there is 10-22% less nitrogen dioxide floating around on Sundays than Saturday, suggesting that might be a better day to schedule children's weekend outdoor activities.

Organising daily and weekly routines in this way can materially affect the amount of pollution inhaled. A study in Barcelona found that, although travel accounts for just 6% of people's time, that is when they breathe in 24% of their intake of nitrogen dioxide.

Breezy does it

Reducing air pollution may take lots of money, time and compromises. But telling people just how bad pollution is for them and how to avoid it is easy, uncontroversial and cheap. Not everyone will heed the advice (for proof, look no further than the sunburnt arms and faces on an English summer day). But even if a minority do, thousands of people in every big city will live longer, healthier lives.