



UK HEALTH
ALLIANCE ON
CLIMATE CHANGE

Air pollution and your health

How bad is it and what can you do?

A GUIDE

JUNE 2018

KEY MESSAGES

- Air pollution is a public health crisis, contributing to 40,000 early deaths a year.
- Nearly all major cities in the UK have unsafe levels of air pollution.
- Taking action to reduce air pollution can be good for your health and good for society.
- The government needs to take more action to reduce air pollution and its threat to our health.

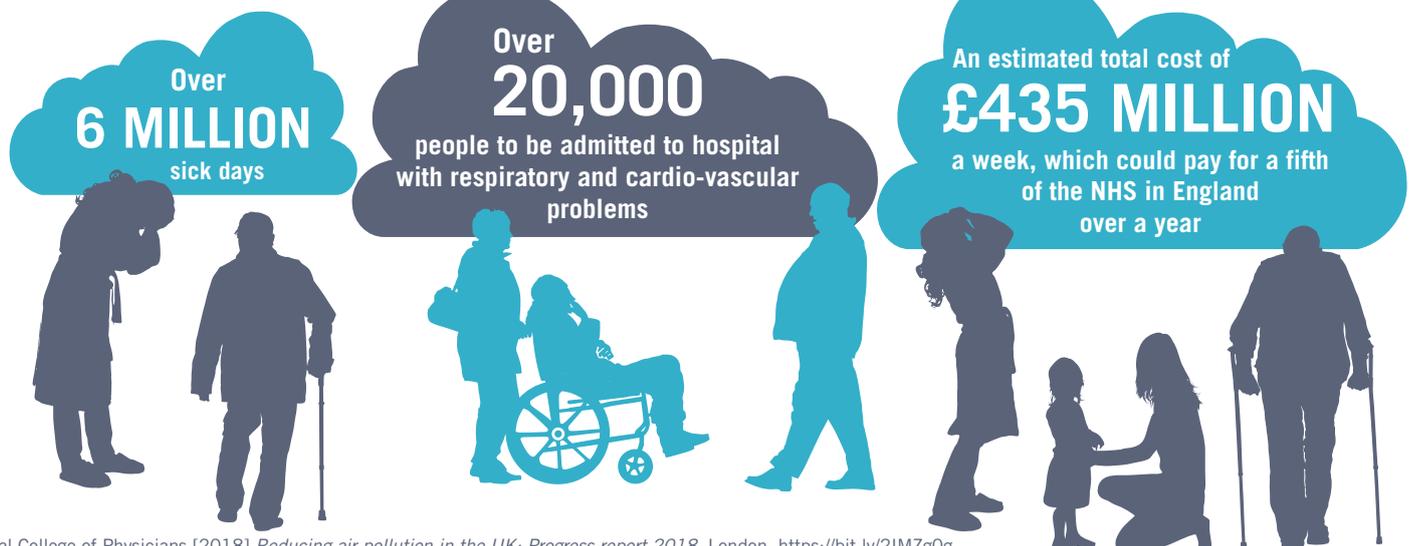
The UK Health Alliance on Climate Change brings together doctors, nurses and other health professionals to advocate for responses to air pollution and climate change that protect and promote public health. Its membership comprises many Medical and Nursing Royal Colleges, Faculties of Health, the British Medical Association, the British Medical Journal, and the Lancet.

Air pollution is a public health crisis

Air pollution is deadly

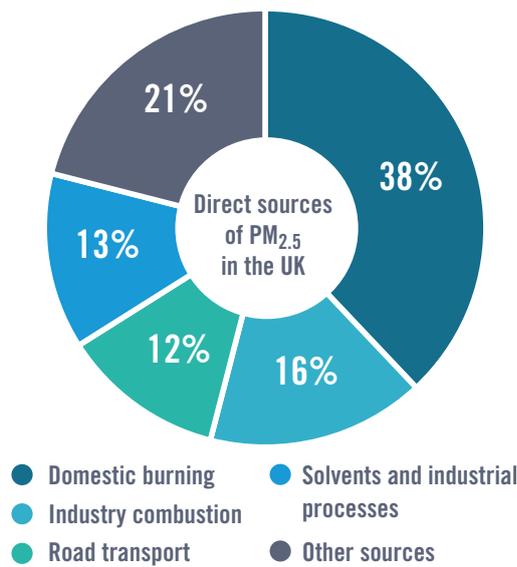
In total, around **40,000 early deaths a year** are attributable to exposure to air pollution outdoors. The effects of breathing in air pollution build over a lifetime, and are linked to asthma, chronic obstructive pulmonary disease (COPD), cancer, dementia, stroke and heart disease, obesity and diabetes.

Each year, air pollution causes:¹

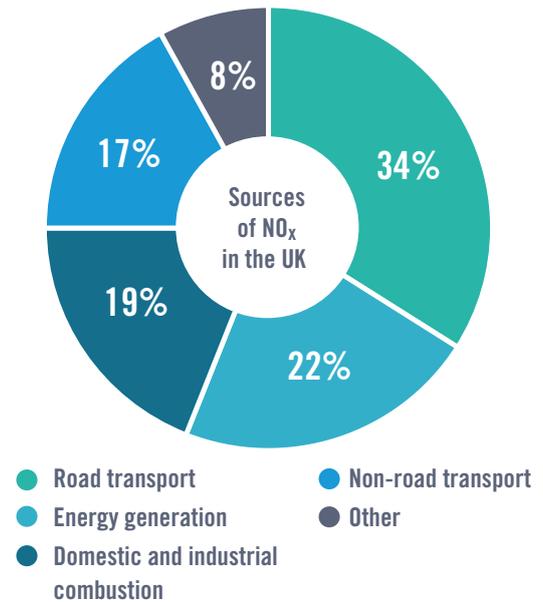


¹ Royal College of Physicians [2018] *Reducing air pollution in the UK: Progress report 2018*, London. <https://bit.ly/21MZg0g>

Major air pollutants in the UK and where they come from²



Particle matter (PM_{2.5}) – tiny particles suspended in the air. They come from natural sources, like pollen, or human sources, such as dust from a car's breaks. These particles are so small they can enter your lungs and even your blood, and can be transported around your body, entering other organs. Those with existing lung and heart conditions are more likely to have their health negatively impacted, as are older people, the very young, and pregnant women and their unborn children.



Nitrogen dioxide (NO_x) – gases that are mostly formed when fossil fuels, like petrol, are burned, including nitrogen dioxide (NO₂). In the moment, NO₂ exposure can cause sore eyes and inflame airways. Over time, it can make existing lung and heart conditions worse and increase the chance of respiratory problems. NO_x is a major problem in cities, with 80% of NO_x emissions near roads coming from road transport.

Other dangerous air pollutants in the UK include sulphur dioxide and ozone, though levels are much lower and, therefore in some cases, of less of a threat to health.

Our cities are blighted by poor air

- 44 out of 51 major UK cities exceeded the recommended limit for PM_{2.5} in the World Health Organization's 2016 ambient air pollution database³.
- 37 of the 43 major urban areas in the UK were above legal limits for NO₂ in 2016⁴.
- Anyone who spends significant time next to busy roads is more likely to suffer from air pollution, and schools and hospitals are often exposed to air pollution levels above legal limits.
- People from socially and economically disadvantaged backgrounds are more likely to be exposed to higher levels of air pollution and are more at risk of negative health effects⁵.



² Defra [2018] *Clean Air Strategy 2018*, Crown Copyright. <https://bit.ly/2LncgHQ>

³ Lancet Countdown and the Royal College of Physicians [2017] *Lancet Countdown 2017 Report: Briefing for UK Policymakers*. <https://bit.ly/2hd4sub>

⁴ DEFRA and DfT [2017] *UK Plan for tackling roadside nitrogen dioxide concentrations*, Crown Copyright. <https://bit.ly/2vILIZQ>

⁵ Davies S C et al. [2018] *Annual Report of the Chief Medical Officer 2017, Health Impacts of All Pollution – what do we know?* HM Government. <https://bit.ly/2INoRF>

Reducing air pollution is a profound health opportunity – but more needs to be done to realise this potential

Action to reduce air pollution can be a win-win for health – making us healthier in the process

- Replacing dirty vehicles with cleaner and zero emission alternatives, such as electric vehicles, will improve health through reducing air pollution.
- Reducing the number of vehicle journeys is also important as even electric and other clean vehicles produce particulate matter from breaking and tyre wear-and-tear – so more shared transport use, including on buses and trains, are needed to reduce air pollution.

One of the best ways to stop air pollution is becoming more physically active – which can improve your health anyway.

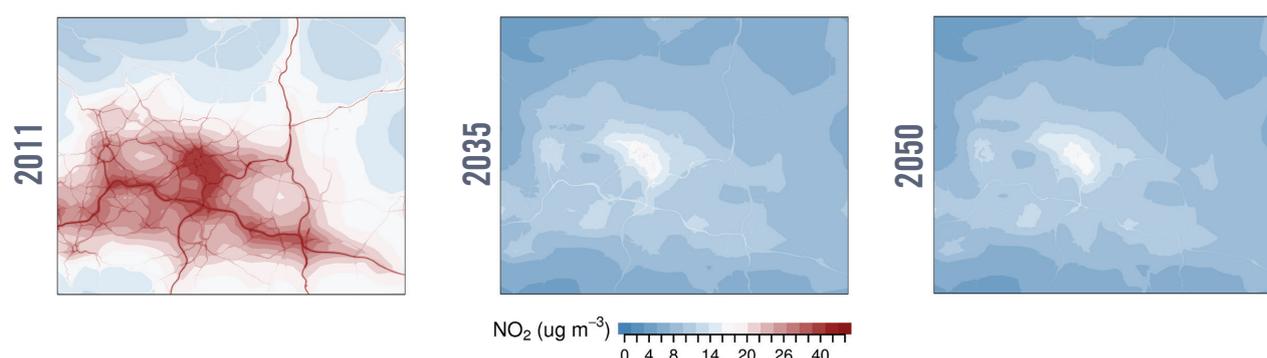
- People who are physically active reduce their risk of developing major chronic diseases such as coronary heart disease, stroke, type 2 diabetes, osteoporosis, depression, dementia and cancer by up to a half⁶.

- Physically active people reduce their risk of premature death by up to 30%⁷.
- Obesity costs society £27 billion and cost the NHS in England £6.1 billion in 2014/2015 – overall, we spend more money each year on the treatment of obesity and diabetes than we do on the police, fire service and judicial system combined⁸.

Taking action to reduce air pollution can also help to limit climate change, including through reducing the number of dirty vehicles and encouraging more people to cycle and walk. Climate change is one of the greatest threats to our health – but acting on it is also one of the greatest opportunities to improve health across the UK and the world.

Recent research estimates that meeting our greenhouse reduction commitments will reduce NO₂ by up to 60% across the UK, with greater reductions in many cities, leading to significant health improvements⁹.

Predicted NO₂ reductions in Leeds if the UK meets its climate change targets by 2050¹⁰



The pace of change is too slow

Air pollution is a national problem and is deeply entrenched into how our society and economies work, with people, businesses and the NHS relying on road transport and other sources of air pollution every day. However, there is **much that can be done to quickly reduce high levels of air pollution – and realise the health benefits of doing so** – including making it harder to drive dirty vehicles, investing in cleaner alternatives, and making it easier for people to cycle and walk.

Unfortunately, the **government response to this public health emergency has been inadequate**:¹¹

- The government has lost a series of legal cases taken by UK citizens and campaign organisations, which have ruled that a lack of action from the government.
- The UK has now been taken to the European Court of Justice for not reducing emissions quick enough.
- The UN has warned that ‘air pollution continues to inflict grave harms on the rights of children, women, older persons and people with disabilities, with limited accountability for perpetrators’.
- While targets are being introduced, including to ban sales of diesel and petrol cars by 2040, more immediate steps are needed to reduce exposure now and begin to realise the health benefits of acting on air pollution.
- Investment in cycling, walking and other active transport is too low: in 2017, the government spent less than 5% on active transport.

⁶ Ellinas T [2012] *Healthy Transport = Healthy Lives*, British Medical Association. <https://bit.ly/21KCxCi>

⁷ *ibid*

⁸ Public Health England [2017] ‘Health matters: obesity and the food environment’, webpage, 31 March 2017. <https://bit.ly/2o1UXTs>

⁹ Williams M. L. et al. [2018] ‘The Lancet Countdown on health benefits from the UK Climate Change Act: a modelling study for Great Britain’, *Lancet Planetary Health*, 2(5), pp.e202-e213. <https://bit.ly/2r5ocFK>

¹⁰ *ibid*

¹¹ Royal College of Physicians [2018] *Reducing air pollution in the UK: Progress report 2018*, London. <https://bit.ly/21MZg0g>

We can all play a part in reducing air pollution – and become healthier in the process

What should government do?

More action needs to be taken by government to limit the danger to health posed by air pollution, including:

- **Expand clean air and low emission zones:** extending their use to those urban areas in the UK affected by high levels of air pollution and ensuring local authorities have the appropriate resources and powers for effective implementation.
- **Improve air quality standards:** going beyond the current EU regulations.
- **Increase cross-departmental collaboration:** recognising that air pollution is a health, economic, social and environmental problem and therefore ensuring all relevant departments work together to solve it.
- **Better inform and support health professionals:** helping them to take local action and provide advice to patients.
- **Improve air pollution monitoring:** particularly in areas where vulnerable populations are concentrated.

Actions to reduce greenhouse gas emissions also reduce air pollution, and so measures to fully decarbonise the UK may help realise large health benefits, while protecting populations against health threats from climate change.



What can you do?

There is an enormous amount we can all do to reduce our contribution to air pollution, limit our exposure and improve our health in the process:

- **Get out of the car:** car drivers can be exposed to twice as much air pollution as pedestrians and nine times more than a cyclist, and contribute more to the problem.
- **Get active:** walking and cycling improves your health as well as reducing your personal air pollution contribution.
- **Switch your engine off when stationary:** if you're driving, only have the engine on when necessary.
- **Use pick up points for deliveries** – and walk to them!
- **Limit your use of wood burning stove:** only buying a government approved stove and using low emissions fuel.
- **Use quieter streets:** when cycling or walking, taking a side road can lower your exposure to air pollution.
- **Ventilate your home:** to avoid air pollution from cleaning products, cooking and other indoor sources.
- **Join a campaign or support group:** to build local coalitions for change.

Learn more and download free resources at www.cleanairday.org.uk.

What can health professionals do?

Health professionals have regular contact with those affected by air pollution and are often considered role models. They can provide guidance on how patients can personally avoid air pollution, reduce their contribution, and become healthier in the process – like the advice above. To learn more about what you can do as a health professional and to download free resources, including letters for reaching out to your peers and patients, please visit: www.cleanairday.org.uk/healthcaretoolkit.



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