



# London's toxic air



## A deadly problem

Toxic air contributes to thousands of early deaths each year in our capital city<sup>1</sup>. Particulate air pollution (PM<sub>2.5</sub>) was estimated to be responsible for 6.5% of all adult deaths in the London region in 2017<sup>2</sup>. Road transport (particularly diesel vehicles) produces particulate matter and toxic gases and is responsible for a large proportion of London's air pollution.



## Air pollution damages our health

Air pollution is linked to asthma<sup>3</sup>, heart disease<sup>4</sup>, strokes<sup>5</sup> and lung cancer<sup>6</sup>. There are suggested links to brain<sup>7</sup> and breast cancers<sup>8</sup>, diabetes<sup>9</sup>, dementia<sup>10</sup>, impaired memory<sup>11</sup>, reduced ability to learn<sup>12</sup>, poorer exam performance<sup>13</sup>, mental health problems including bipolar disorder and schizophrenia<sup>14</sup>, depression<sup>15</sup> and teenage psychotic episodes<sup>16</sup>.



## The young and old are particularly vulnerable

Maternal exposure can result in premature<sup>17</sup> and low birth-weight babies<sup>18</sup>. Inhaled tiny carbon particles have even been found in mothers' placentas<sup>19</sup>. Children living in highly-polluted areas of London are more likely to have reduced lung growth<sup>20</sup>. In old age, a lifetime of exposure can result in reduced life expectancy<sup>21</sup>, an increased risk of stroke<sup>22</sup> and heart attacks<sup>23</sup>.

### References:

1. Walton H *et al*, 'Understanding the Health Impacts of Air Pollution in London', *King's College London report for TfL and GLA*, July 2015. london.gov.uk website, Health and exposure to pollution.
2. 'Public Health Outcomes Framework', Public Health England, www.phe.org.uk
3. Anderson HR *et al*, 'Long-term exposure to air pollution and the incidence of asthma: meta-analysis of cohort studies', *Air Quality, Atmosphere and Health*, 2013.
4. Achakwisut P *et al*, 'Global, national and urban burdens of paediatric asthma incidence attributable to ambient NO<sub>x</sub> pollution: estimates from global datasets', *The Lancet Planetary Health*, 2019.
5. Adar SD *et al*, 'Fine particulate air pollution and the progression of carotid intima-medial thickness: a prospective cohort study from the multi-ethnic study of atherosclerosis and air pollution', *PLoS Medicine*, 2013.
6. Feigin VL *et al*, 'Global Burden of Stroke and Risk Factors in 188 countries during 1990-2013', *Lancet Neurology*, 2016.
7. Raaschou-Nielsen O *et al*, 'Air pollution and lung cancer incidence in 17 European cohorts: prospective analyses from the European Study of Cohorts for Air Pollution Effects (ESCAPE)', *The Lancet Oncology*, 2013.
8. Weichenenthal S *et al*, 'Within-City Spatial Variations in Ambient Ultrafine Particle Concentrations and Incident Brain Tumors in Adults', *Epidemiology*, 2019.
9. Villeneuve P, 'Residential exposure to fine Particulate Matter air pollution and incident of breast cancer in a cohort of Canadian women', *Environmental Epidemiology*, 2018.
10. Eze IC *et al*, 'Association between ambient air pollution and diabetes mellitus in Europe and North America: systematic review and meta-analysis', *Environmental Health Perspectives*, 2015.
11. Carey L *et al*, 'Are noise and air pollution related to the incidence of dementia? A cohort study in London, England', *BMJ Open*, 2018.
12. Peters R *et al*, 'Air Pollution and Dementia: A Systematic Review', *Journal of Alzheimer's Disease*, 2019.
13. Powdthavee N and Oswald A, 'Is there a link between air pollution and impaired memory? Evidence on 34,000 English citizens' (to be published in *Ecological Economics* in March 2020).
14. Zhang X *et al*, 'The impact of exposure to air pollution on cognitive performance', *PNAS*, 2018.
15. Roth S, 'The Effect of Indoor Air Pollution on Cognitive Performance: Evidence from the UK', *LSE Working Paper*, 2019.
16. Khan A *et al*, 'Environmental pollution is associated with increased risk of psychiatric disorders in the US and Denmark', *PLOS Biology*, 2019.
17. Roberts S *et al*, 'Exploration of NO<sub>x</sub> and PM<sub>2.5</sub> air pollution and mental health problems using high-resolution data in London-based children from a UK longitudinal cohort study', *Psychiatry Research*, 2019.
18. Newbury J *et al*, 'Association of Air Pollution Exposure with Psychotic Experiences During Adolescence', *JAMA Psychiatry*, 2019.
19. Ha S *et al*, 'The effects of air pollution on adverse birth outcomes', *Environmental Research*, 2014.
20. Glinianaia SV *et al*, 'Particulate air pollution and fetal health: a systematic review of the epidemiologic evidence', *Epidemiology*, 2004.
21. Liu H *et al*, 'Do inhaled carbonaceous particles translocate from the lung to the placenta?', abstract presented at the European Respiratory Society International Congress, 2019.
22. Bové H *et al*, 'Ambient black carbon particles reach the fetal side of human placenta', *Nature Communications*, 2019.
23. Griffiths CI *et al*, 'Impact of the London Low Emission Zone on children's respiratory health: a sequential yearly cross-sectional study 2008-2014', *Thorax*, 2016.
24. Apte JS *et al*, 'Ambient PM<sub>2.5</sub> reduces global and regional life expectancy', *Environmental Science & Technology Letters*, 2018.
25. Stafoggia M *et al*, 'Long-term exposure to ambient air pollution and incidence of cerebrovascular events: results from 11 European cohorts within the ESCAPE project', *Environmental Health Perspectives*, 2014.
26. Cesaroni G *et al*, 'Long-term exposure to ambient air pollution and incidence of acute coronary events: meta-analysis in 11 European cohorts within the ESCAPE project', *BMJ*, 2014.



# What you can do to improve local air quality & your family's health

## Walk, cycle, scoot – don't pollute

Ditch the car for short trips to school and the shops. Use public transport or your bike for longer trips.

## If you have to use a car, consider buying a cleaner one

Use an app or TfL's ULEZ Vehicle Checker to find the least-polluting electric or hybrid option. Or try car-sharing.

## Don't idle

Turn off your engine at railway crossings, traffic lights and in heavy traffic. Keeping it switched off until you're ready to drive will use less fuel, save you money & reduce pollution.

## Keep away from the kerb

...when walking along busy roads or waiting at bus stops. Take quieter roads wherever possible.

## Stop using wood-burning stoves and open fires

...because they produce significant amounts of harmful particulate matter.

## Rethink home deliveries

Group your deliveries or collect them from a locker. Choose delivery companies that use cleaner vehicles. Better still, shop locally on foot and by bike.

## Join Mums for Lungs & help us campaign for cleaner air!

Email: [mumsforlungs@gmail.com](mailto:mumsforlungs@gmail.com)

Facebook: [MumsforLungs](https://www.facebook.com/MumsforLungs)

Website: [mumsforlungs.org](https://www.mumsforlungs.org)

Twitter: [@MumsForLungs](https://twitter.com/MumsForLungs)



**We are Mums for Lungs,  
a network of parents  
campaigning for cleaner air  
for all Londoners.**