

Fact sheet

Air pollution on the road

- People are spending increasingly more hours traveling to and from work and school. This is due various factors including more vehicles on the road and longer distances to cover. Travel time accounts for the longest exposure to transport-related air pollutants, such as nitrogen oxides, black carbon and ultrafine particulate matter, which in turn impacts their health. Exposure levels and degrees of risk vary based on factors such as mode of transport, amount of traffic, season of the year and time of day.¹
- Commuting time varies widely depending on factors such as mode of transport, location, type of work. In Beijing, workers can commute between 52 minutes to nine hours a day while in the UK and the US, the average commuting time per day is about one hour.²
- Most in-vehicle air pollution comes from the exhaust fumes of the vehicle directly ahead and airborne microplastics released from vehicle tires. The remainder comes from industry, domestic fuel burning, natural sources, car air fresheners and cleaning agents, and chemicals released into the air from the materials used inside the car.³
- The highest levels of exposure to in-vehicle pollutants occurs when driving with windows closed and the fan on. This allows exhaust from the vehicle directly in front to enter the passenger cabin. The lowest exposures generally occur when driving with the windows closed, the heating or AC on, and ventilation on recirculation mode. It is important to note that CO₂ levels inside the vehicle increase when using the recirculation mode for long periods of time.⁴
- Exposure to air pollution can be up to 40% higher while sitting in traffic jams or at traffic lights compared to free-flowing traffic conditions.⁵
- Various factors influence in-vehicle air pollution levels, including ventilation mode, airflow rate, vehicle age and airtightness, driving speed, traffic congestion, interior materials, number of passengers, size of and temperature in the passenger cabin (the higher it is, the more hazardous the VOC pollutant exposure), vehicles operating directly ahead, weather and the ambient pollution level outside.⁵
- In-vehicle pollution is up to 15 times higher than the air pollution outside the car. Walking or cycling by the side of the road or less trafficked routes decreases exposure.⁶
- Children are at higher risk for health effects from in-car air pollution because they breathe in more air in relation to their body weights than adults and their bodies are still developing.⁷
- A 2014 study in London found that, when traveling along the same route, people who travel by car are exposed to pollution levels that are: five times higher than those who bike; three and a half times more than those who walk; and two and a half times more than those who ride a bus.⁸
- Nine out of 10 people worldwide breathe polluted air, the World Health Organization reports. All airborne pollutants are not visible, and there are even higher pollutant concentrations inside the passenger cabins of vehicles.
- A study conducted in China shows that 72% of those surveyed are worried about the air quality in their cars and are aware of the health effects from polluted air.⁹

References

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⁴Kumar, P. and Goel, A. (2016). *Environmental Science: Processes & Impacts*, Issue 9. doi: 10.1039/C6EM00215C.

⁵Berkeley Wellness newsletter. (2016). Pollution inside your car. bit.ly/2I33FsB

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⁸Healthy Air Campaign, King's College London and Camden council. (2014). London air pollution: which mode of transport has the highest exposure? *The Guardian, Environment*. bit.ly/2q8ZW73

⁹Study conducted in 2017 in China by analytically-driven insights consultancy Bonamy Finch for Blueair.