In-vehicle exposure to traffic and road-generated air pollution

Key information

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Contents

1. Background

There is widespread scientific consensus that both short and long-term exposures to air pollution, at levels still commonly experienced throughout London, are associated with significant health burdens for the population.

This evidence continues to strengthen and evolve as air pollution is associated with a wider range of adverse health outcomes across the life course.

One area of key focus has been emissions from road transport and its impact on the health of vulnerable urban populations.

To date the major focus has been on tailpipe emissions, particularly from diesel vehicles, but as combustion powered vehicles are phased out as the UK transitions toward its environmental and net zero targets, greater emphasis is being placed on understanding potential health impacts associated with non-exhaust emissions from motor vehicles – tyre and brake wear, and the resuspension of road dust.

Collectively these traffic-derived contributions, both pollutant gases and particles, comprise what is referred to as traffic-related air pollution, or TRAP.

2. About the report

This report will provide a summary of the evidence that TRAP impacts on health, but with an emphasis on the groups who are often excluded from discussions of potential exposures, health impacts and mitigation – the wider road users, including drivers themselves.

As TRAP concentrations fall off rapidly from the centre of the road, drivers, bus passengers and cyclists are technically at most risk with regard to exposure and are thus the groups who will most immediately benefit from actions to reduce pollutant emissions from vehicles.

This report provides evidence on the exposures across these groups, and for cyclists and pedestrians contextualises exposure against the health benefits associated with increased physical exercise.

3. Key findings

This is an emerging area, and the evidence base is not always complete, or entirely consistent, but overall, there are several key messages that emerge:

- Drivers' exposure to TRAP in traffic is often underestimated, and that this is particularly an issue for individuals for whom driving is a major component of their work.
- Active transport modes remain beneficial even with high exposure doses, but would clearly further benefit from better segregation from highly polluted road environments.
- All road users benefit from actions that reduce vehicle emissions.
- With an eye to the future, more consideration will have to shift to tyre and brake wear contributions, for which technological mitigation measures already exist, or are in development.

4. Read the report

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Back to table of contents