

POLICY BRIEF:

HOW LIVERPOOL'S AIR POLLUTION IMPACTS OUR HEALTH AND PUTS A STRAIN ON THE NHS

New research conducted by the Environmental Research Group at Kings College London has quantified the likely impacts air pollution in Liverpool on a range of important health conditions including heart attacks, hospitalisations for stroke and emergency asthma admissions amongst adults and children.

The research suggests that each year in Liverpool, higher air pollution days (compared to low pollution days):

increase your risk of out of hospital **cardiac arrests** by 2%

send up to 98 more people to hospital for **respiratory disease**

send up to 19 more people to hospital for **stroke**

In addition, the report estimates that:

- **Roadside air pollution in Liverpool stunts lung growth in children by 4.6%**
- **Living near a busy road in Liverpool increases your risk of hospitalisation for stroke by 2.4%**

If air pollution in Liverpool was cut by just one fifth, every year, we would see:

- ↓ **174 fewer children with low lung function**
- ↓ **104 fewer children suffering with a chest infection and 85 fewer asthmatic children with bronchitic symptoms (cough and phlegm)**
- ↓ **a decrease the risk of coronary heart disease by around 3.0% which would result in 62 fewer cases**
- ↓ **a decrease lung cancer cases by around 5.3% - 17 fewer cases every year**

KEY POINTS

- New research has estimated how the air pollution levels recorded in Liverpool impact on health in the city
- The study estimates how current levels of pollution increase hospital admission rates, the risks of developing cancer, and worsen child health in the city
- This study adds to the already compelling case for urgent and ambitious action to address air pollution in Liverpool

METHODS

These statements 'personalise' the health effects of air pollution. They have been developed from calculations based on three components:

1. **A measure of exposure:** using air quality monitoring data from regulatory based monitoring networks.
2. **A numerical relationship between the air pollutant concentration ('exposure') and the change in the health outcome in question.** This numerical relationship is termed the 'concentration response function' or CRF, and has been drawn from a comprehensive review of air pollution research. It usually takes the form of a percentage increase in adverse health impacts over the baseline rate.
3. This percentage change in the health outcome due to pollutant exposure is applied to the **baseline rate of the outcome or disease.**

The result of this is used to develop quantitative statements giving the effect of a given exposure to an air pollutant on a particular health outcome or disease.

For a detailed description of methods, please consult the full King's College Report.

AIR POLLUTION IN LIVERPOOL

Liverpool has levels of both Nitrous Oxides and Particulates (PM2.5) which are above WHO guidelines. In addition, levels of NO₂ are above legal EU limits. More information is available [here](#).

MEASURES WHICH CAN REDUCE AIR POLLUTION IN LIVERPOOL

There are a range of policies and interventions which can reduce air pollution in areas like Liverpool. These include measures such as:

- Promotion of active travel (walking and cycling), including through infrastructure improvements
- Electrification of vehicles, including both private vehicles and public ones such as bus fleets
- A move away from the use of private vehicles to public transport, alongside better traffic planning and management
- Shifts towards cleaner burning fuels and more modern engines
- Reductions in household solid fuel (including wood) burning.
- Addressing construction and industrial emissions through setting (and enforcing) higher standards

For further information on air quality improvement interventions you can read the Public Health England Review of interventions [here](#). The government Clean Air Strategy 2019 is [here](#).

BACKGROUND

While there are a wealth of studies which demonstrate the links between poor air quality and adverse health outcomes, few studies have synthesised these for a number of health outcomes and 'at risk' groups like children. Fewer still have applied the emerging insight to cities across the UK drawing on the available monitoring data which is collected by DEFRA. This study is the first to attempt to do this and aims to localize the research so that policy makers and the public can be better informed about the nature of the local air pollution problem, to support local policies which can address this often invisible public health crisis.

This research was conducted by the Environmental Research Group at King's College London and was funded by [the Clean Air Fund](#).

LINKS TO THE CORE REPORT:

Please click [here](#) for the core academic report on which this brief is based.

Data from the UK Automatic Urban and Rural Network (AURN) are published by Defra [here](#).

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