POLICY BRIEF

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

New research conducted by the Environmental Research Group at King's College London has quantified the likely impacts of air pollution in Manchester 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 Manchester, higher air pollution days (compared to low pollution days) are linked to:

6 MORE OUT OF HOSPITAL CARDIAC ARRESTS

SENDING 109 MORE PEOPLE TO HOSPITAL FOR RESPIRATORY DISEASE

SENDING 32 MORE PEOPLE TO HOSPITAL FOR CARDIOVASCUALAR DISEASE

THE REPORT ESTIMATES THAT IN MANCHESTER:

- Your child is 4.4% more likely to be hospitalised for asthma on days with high nitrogen dioxide pollution compared to days with lower air pollution

IF AIR POLLUTION IN MANCHESTER WAS CUT BY JUST ONE FIFTH, EVERY YEAR WE WOULD SEE:

- 284 fewer children suffering with low lung function
- 5 fewer babies being born underweight
- A decrease in lung cancer cases by around 5.6% leading to 20 fewer cases every year

KEY POINTS

New research has estimated how the air pollution levels recorded in Manchester 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 Manchester

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AIR POLLUTION IN MANCHESTER

Three automatic sites out of the 16 in Greater Manchester exceeded the NO2 annual mean objective of 40µg/m3 in 2018. The highest annual mean PM2.5 concentration in Greater Manchester in 2018 was 12 µg/m3 at the Wigan Centre monitoring site.

MEASURES WHICH CAN REDUCE AIR POLLUTION IN MANCHESTER

There are a range of policies and interventions which can reduce air pollution in areas like Manchester. 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.

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.

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