

Request for rapid evidence:

Estimation of changes in air pollution emissions, concentrations and exposure during the COVID-19 outbreak in the UK.

Issued by the Defra Air Quality Expert Group (AQEG)

Supported by the [Department for Environment Food and Rural Affairs](#)



Department
for Environment
Food & Rural Affairs

Background

Air pollution has a significant adverse effect on public health affecting a broad spectrum of the population. It is a particularly significant environmental risk factor for vulnerable groups including those with underlying respiratory and cardiovascular diseases. The unprecedented changes in living and working patterns during the COVID-19 pandemic are likely to have had a significant, but as yet unquantified, effect on air pollution in the UK. For example, the current restrictions on travel will have changed road transport emissions, and altered the locations where people are currently exposed to pollution. The relative mixtures of different pollutants being emitted in the UK may also have changed. To provide more accurate assessment of the potential impacts of air pollution in the coming months, better estimates of UK emissions, concentrations and exposure during COVID-19 are required. These are needed to underpin both short-term and seasonal predictions of UK air quality, and to inform any potential changes that might be needed to current air pollution reduction interventions.

The Air Quality Expert group, acting on a request from Defra, is calling for evidence from the research and air quality management user communities to address a set of urgent short-term questions related to recent and ongoing changes in UK air quality. These questions do not attempt to convey the full diversity of potential impacts that changing air quality during COVID-19 might have, or aim to explore, except superficially, the possible interactions between air pollution and the virus. These are critical research issues in their own right. This request for evidence is to provide focused and rapid scientific evidence that can support decision-making on air quality management in the coming weeks and months.

Key questions

- What sectors or areas of socioeconomic activity do you anticipate will show a decrease in air pollution emissions, and by how much? Are there any emissions sources or sectors which might be anticipated to lead to an increase in emissions in the next three months?

- Can you provide estimates for how emissions and ambient concentrations of NO_x, NO₂, PM, O₃, VOC, NH₃ etc may have changed since the COVID outbreak? Where possible please provide data sets to support your response.
- What changes do you anticipate in indoor air quality as a result of the Covid-19 pandemic?
- How might public exposure to air pollution have changed as a consequence of recent restrictions on movement?
- How might altered emissions of air pollutants over the next three months affect UK summertime air quality?
- Based on what is already known about air pollutants as respiratory irritants or inflammatory agents, can any insights be gained into the impact of air quality on viral infection?
- Are there any insights that can be gained from aerosol science on possible viral transmission mechanisms?

Process

Requests for evidence and analysis are sought from any relevant experts working the field of air pollution science, technology or management. These might be based on existing measurements (such as AURN, local authority and research data, earth observation, activity information, or emissions reporting), atmospheric modelling or theoretical analysis, as well as scenario modelling and sensitivity analysis.

We request short summary inputs to be sent to AQEG (aq.secretariat@defra.gov.uk) by 30th April 2020. In response to this call for evidence, we encourage multidisciplinary thinking as far as is practicably possible within the short nature of the responses requested.

AQEG will undertake a rapid review of all evidence received and produce a summary synthesis report to Defra and Devolved Administrations shortly afterwards. That report, and all contributions used will be published on the UK-AIR website, and all materials fully credited to their originators.

There is no requirement to respond to every question, any input you or your organisation can provide is appreciated. To support AQEG in providing rapid feedback on the information received please keep responses to around 4 pages maximum, although it is appreciated that contributors may have considerably larger volumes of data available. We ask that if this is the case you consider making this available via web link for example. Submissions to AQEG that are coordinated at the institutional / organisation level would be very helpful, but this does not preclude submissions of evidence from individuals.

If you would like to discuss a potential contribution in advance then please contact the Chair of the AQEG, Prof. Alastair Lewis. (ally.lewis@ncas.ac.uk).

Statement from Defra:

“Defra would ask the research community to support the UK government in its efforts to manage air pollution risk and impacts during the COVID-19 pandemic. Evidence and insight into possible

changes to the factors that control air pollution will help us to refine and improve how we deliver the best possible air quality for the UK. “

John Newington, *Head of Evidence, Air Quality and Industrial Emissions, Defra*

Statement from NERC:

The Natural Environment Research Council encourages its large community of researchers with expertise in air pollution research to consider contributing to this evidence review through normal channels. Should the evidence review identify urgent research questions, we draw your attention to the recently published UK Research and Innovation (UKRI) open call for research and innovation ideas to address COVID-19 and process to request to switch existing UKRI award funding to address COVID-19 research priorities.



Department
for Environment
Food & Rural Affairs

Rebecca Pow MP
From the Parliamentary Under Secretary of State

Seacole Building
2 Marsham Street
London SW1P 4DF

T 03459 335577
defra.helpline@defra.gsi.gov.uk
www.gov.uk/defra

2 April 2020

Dear all,

I am writing to endorse this informal call for evidence and ask for your help by responding positively to it.

The call focuses on two aspects, firstly, the impacts that air pollution has on the COVID 19 situation and secondly, the impact of COVID 19 measures on air quality. Today my officials, working closely with our independent Air Quality Expert Group and the Natural Environment Research Council, are requesting the help of researchers to explore those impacts. The government is truly grateful for the response to date and I would personally like to pass on my thanks, and those of my officials, to all who have been in contact.

However, to ensure we fully understand the interplay between COVID 19 and air quality and can confidently respond to that information, we need to initiate co-ordinated evidence gathering at a scale and pace never before undertaken. This evidence is critical in helping us deal with the immediate challenges that COVID 19 poses but will be equally essential as we come out of the other side and return to a new normal.

So, I am pleased to support this light touch evidence call, which will be a first step to rapidly gathering and collating valuable COVID related air quality evidence.

The government is also pleased to see the UKRI announcement highlighting a mechanism for re-purposing grant funded activity for COVID 19 purposes. Through these parallel routes we aim to bring together the best evidence to help us make some challenging decisions over the coming months.

Yours sincerely,

REBECCA POW