



# Asthma management and air quality

## How can the current landscape improve?

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# Asthma management and air quality: How can the current landscape improve?

## Introduction

Air pollution is one of the most urgent environmental problems affecting the UK, where people living in areas where outdoor nitrogen dioxide (NO<sub>2</sub>) levels are unsafe for their health ([WHO, 2022](#)). Every day, some of society's most vulnerable are disproportionately affected by air pollution. In 2019, poor air quality contributed to the equivalent deaths of 4,000 Londoners ([ICL, 2021](#)).

To address this health emergency that touches the lives of most, the Environmental Research Group (ERG) hosted a seminar on Asthma Management and Air Quality on March 1st 2023, in partnership with Imperial College London's Policy Forum.

"Ella will  
always be  
the *canary*  
in the coal  
mine"

- Rosamund Adoo  
Kissi-Debrah

The event was led by Professor Frank Kelly, Director of the ERG, and chaired by Professor Andrew Bush, Professor of Paediatrics and Paediatric Respiriology, National Heart and Lung Institute, and Consultant Paediatric Chest Physician, Royal Brompton Harefield NHS Foundation Trust. Speakers discussed the current asthma landscape in the UK and research that highlighted the evidence linking air pollution exposure to asthma development and exacerbation. To tackle the challenge of improving air quality, action needs to be taken at multiple levels – individual, clinician and government.

## The asthma landscape in the UK - why is improving air quality so important?

Air pollution is increasingly being linked to negative health impacts across a lifetime. It has been shown to negatively affect lung growth in babies, children and adolescents, it exacerbates asthma and has been linked with lung cancer. Air pollution is undoubtedly an environmental and human health issue that requires urgent action. So much so, [Asthma + Lung UK](#) have made clean air one of their three strategic priorities. The charity focuses on fighting for clean air wherever someone is born or lives in the UK and as such, are tackling this as one of the underlying causes of health inequality.

Sarah Woolnough, CEO of Asthma + Lung UK, emphasised that air pollution is a *health emergency*. Poor lung health is the third biggest killer in the UK, and more ambition is needed to protect those most vulnerable. This sentiment was echoed by Rosamund Adoo-Kissi-Debrah who is campaigning for clean air to be a human right. The Clean Air Bill, also known as Ella's Law, is named for Rosamund's daughter who tragically died, aged 9 in 2013, of an asthma attack triggered by air pollution. Ella's Law would require the national government to support local authorities to align air quality standards with the World Health Organisation's (WHO) air quality guidelines within five years – it is currently being debated in parliament.

Dr Paul Pfeffer, Consultant Respiratory Physician and Honorary Senior Lecturer with Specialist Interest in Asthma at Barts Health NHS Trust, London, reported that there is clear evidence linking high levels of air pollution with rising asthma cases, as well as numerous other serious conditions, highlighting the urgent need for action. Legislative change is required to address the health inequality currently being faced, particularly by those in disadvantaged areas where air quality is often particularly poor. The broader narrative around air pollution also needs to be updated if the problem is going to be tackled. All *actors* within the system – from healthcare professionals and researchers, to policymakers and the public – need to understand that air pollution represents one of the most serious human health issues in the UK today.

**1 in 5**  
**people** in  
the UK will  
experience  
a *lung*  
*condition*.

Asthma + Lung UK

A deeper understanding of the risks posed would unlock the behaviour change, such as the use of active travel and legislation required to tackle it.

### **How to improve patient & public information about air pollution in order to protect health.**

Improving patient and public information about air pollution is a major challenge. Better connectivity between health problems, research and policy outcomes will be key to reaching a shared understanding. These connections can, and should, crossover to reinforce each other and lead to their own positive 'cascade of impacts' that will set us on a trajectory towards improved health outcomes.

Dr Abigail Whitehouse, a Senior Clinical Lecturer in children's environmental health at QMUL and a paediatric

respiratory consultant at Royal London Hospital, emphasised that central to improving education around air pollution is making conversations about the issue a standard part of health practice. However, during appointments there is not enough time to delve deep into the air pollution discourse. So, it is important to be equipped to support these occasions when patients are searching for answers to the question: “*what can I do to mitigate the risks of poor air quality for me and my family?*”. This can be achieved in multiple ways:

1. through training health care professionals (HCPs);
2. by continuously updating the literature patients take home;
3. by using concerns raised by patients to focus research and address knowledge gaps.

All of these approaches can be used in community outreach to help better inform the public and reinforce public debate about air pollution and health. By increasing the availability of relevant information on the health effects of air pollution, solutions can start to be identified at a local level as well as pushing for legislative change.

## Taking action to improve air quality

Addressing a problem as vast as air pollution undoubtedly comes with challenges, however, there are plenty of actions that can make an immediate difference. Suggested actions from the seminar include:

- Talking about air pollution and the connected human health issues with friends, family and colleagues; and ultimately inspiring people to do local advocacy
- Lobbying local and national government to improve the existing infrastructure to make clean air routes accessible to all
- Supporting the creation of Low-Traffic Neighbourhoods (LTN's)
- Moving bus-stops from outside schools and hospitals
- An improved air pollution alert system to inform people of high air pollution events to minimise A&E visits.

These changes can provide easy wins for improving air quality for those most at risk. To help educate and empower physicians and the public, more research is needed on the health impacts of air pollution. Research needs to originate from and be relevant to real clinical issues to be valuable to health care professionals, the public and eventually policy makers. Increasing connectivity between these three groups will help create policy change that has a true impact.

In 2021, the WHO updated their global air quality guidelines, which the UK government has not currently adopted as their standards. Adoption of the WHO guidelines into UK legislation is needed to accurately reflect the scale of the air pollution problem. This will help change the public's perception of the severity of air pollution on human health while providing direction for national and local policy, as well as updated guidance for the industries most affiliated with air pollution.

## Summary

Meeting the WHO's guidelines, will require bolder clean air laws to tackle air pollution at a national level, as stated by Asthma + Lung UK. New initiatives to improve air quality across the UK are required, especially focusing on disadvantaged areas without placing the burden on local residents themselves. This can be achieved through a health first approach, creating policy measures and advocating for clean air zones across the UK. Adopting Ella's Law, the Clean Air (Human Rights) Bill is a necessary first step for the UK government to commit to short- and long-term changes that would make a huge difference in the air we breathe.

Air pollution is an invisible threat, but the health effects can be life-threatening. Not enough has been done to educate the public and protect the vulnerable populations who are most at risk. There are solutions at every level, and one of the most important messages reiterated by all speakers throughout the seminar was that conversation around air pollution needs to become a standard part of practice.

Legislation works, and the campaign for clean air as a human right will continue, spearheaded by many of the passionate activists, clinicians, local government, and researchers, who attended the seminar.

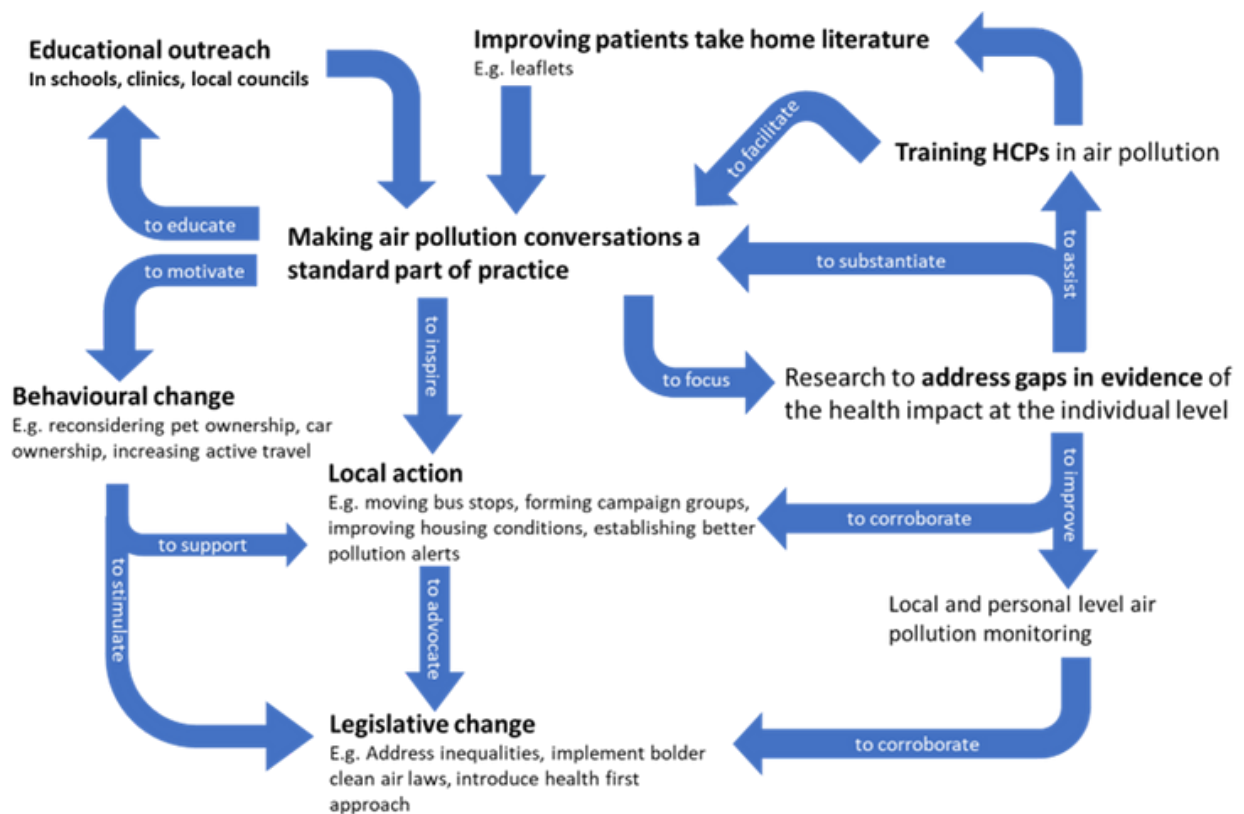


Figure 1: The fight for clean air requires action from all sectors: researchers, health care professionals, policy makers and the public.

## About the ERG & the 30th Anniversary Seminar Series

The Environmental Research Group was founded in 1993, and soon after consisted of measurement, modelling and toxicology teams. This year is the ERG's 30th anniversary. The group is now located at Imperial College London, and is nine teams strong with over 100 staff members studying air pollution, water pollution, and microplastics in order to better understand the impact of these pollutants on our environment and health.

This seminar was the first of six as part of the ERG's 30th Anniversary Seminar Series. More information on the ERG and the 30th Anniversary celebrations can be found here: [Celebrating 30 years 1993 - 2023 | Faculty of Medicine | Imperial College London](#).

The ERG 30th Anniversary Seminar Series is hosted in partnership with Imperial Policy Forum, the College's policy engagement unit. For more information from Asthma + Lung UK, check out their website here: [Asthma + Lung UK](#). More information on Ella's Law can be found on its website here: <https://ellaslaw.uk>.



**From left:** Prof Frank Kelly, Rosamund Adoo Kissi-Debrah, Dr Sarah Woolnough, Dr Paul Pfeffer and Dr Abigail Whitehouse discuss the future of air quality communications and initiatives for health care professionals, policy makers and the public.