A breath of fresh air – what Professor Sir Stephen Holgate has to say about air pollution

A breath of fresh air: responding to the health challenges of modern air pollution **was published in 2025 and showed that air pollution was costing over £27 billion annually and was linked to 30,000 UK deaths in 2025.**

Commentary speaks to lead author, **Professor Sir Stephen Holgate**, the RCP special adviser on air quality and UKRI clean air champion, about why air quality is so vital to health – and what can be done to improve air pollution in the UK.

What is the background of this report?

This report was published as a direct consequence of the rising concerns about how air quality, both indoors and outdoors, is affecting human health. The RCP originally published a report – *Every breath we take: the lifelong impact of air pollution* – in 2016, that I had the privilege of chairing. That brought to the attention the issues around how poor air quality is creating adverse health.

But between 2016 and now, we've had an amazing increase in scientific and medical knowledge that's really emphasised the importance of exploring the ways that we can improve human health by cleaning up the air.

The main message of the report – which has 19 recommendations, contributed by 30 people, over 2 years – is that air quality should now be seen more as a health issue than an environmental issue.

That may sound rather trivial, but until now the air quality agenda has been run as an environmental issue – which it is, of course. But the fact that it's impacting human health really hasn't penetrated into how we diagnose, prevent or treat human diseases.

The new report, published on 19 June 2025 – Clean Air Day – is to draw everyone's attention to that fact. This is a serious issue, but one that's remedial and needs action now; not only by government, but by all of us, including health professionals. This is why we felt an imperative to publish this new report.

What are the key findings? How have they changed since 2016?

There are a few items that I'd like to draw attention to. The first is – as said in our first report – air pollution affects every single tissue in the human body. This is not just a lung and a heart issue; this is an every-organ issue.

You can name a disease, such as rheumatoid arthritis, diabetes or dementia. Air pollution has a definite effect on it. Indeed, nearly 700 diseases have now been identified that are associated with poor air quality. This amazing increase in our understanding of how air pollution gets into the bloodstream and alters the trajectory of all these different diseases sets the alarm bells ringing.

The second important item is that there's an inequalities issue. The people who are producing the least pollution are often those who are most sensitive to it; these are people living in the disadvantaged communities of our society, but also the extremes of life – those very young (from conception) to the very old, who can develop diseases like dementia later in life.

The third area that's important, and becoming increasingly so, is that the health professionals across different disciplines have a responsibility to push for cleaner air. The diseases that they're managing in the hospitals, primary care and public health are the very diseases that air pollution is making worse.

The difficulty with all of this is that it is 'out of sight, out of mind'; we can't taste or see modern air pollution. Yet day by day, year by year, we're seeing the impacts of air pollution on premature ageing of tissues and the effects on the underlying disease processes of non-communicable diseases.

People often say that it's very difficult to do, because introducing measures to clean up air interferes with people's lives. Yes, of course, clean air zones or low traffic neighbourhoods can be very inconvenient for people, but now we're beginning to see the health benefits of those interventions. They're really quite remarkable.

For example, we are witnessing London's Ultra Low Emission Zone, introduced in 2019, having major effects on improving lung growth of children born within the London area. We're seeing hospital admissions for acute respiratory illness reduce and consultations for cardiovascular diseases improve.

Thus, if we take some steps to clean up the air, albeit sometimes inconvenient, then we begin to see the health benefits. We're only just starting on that road.

How can physicians communicate to their patients effectively about air quality?

Our report contains a nice table of about 10 points that doctors and health professionals can use to help them. But we need to get more into medical curriculums at all levels to get pollution better understood.

Many readers will know about the little girl, Ella Roberta Kissi-Deborah, who died of asthma in 2013 – where air pollution was a major contributing factor. The 2020 Prevention of future deaths report stated that health professionals at the time didn't have the knowledge that air pollution could have contributed to her asthma. That was the start of the realisation that our health community hasn't been educated in air pollution and its impact on disease.

Therefore, now we need to try and introduce this in a constructive way. One of the report's final sections gives physicians advice about having conversations with their patients, taken directly from the World Health Organization; what patients can do to limit their own exposure – and having a broader discussion about the importance of air pollution within their community, and influencing local and central policy. So, patients, as well as health professionals, can help to drive change.

The UK is trailing behind on this issue and it's time we realised that, as practitioners, we have a responsibility. These conversations come naturally – as they do with tobacco smoking, which has been a spectacular success as a public health intervention.

What considerations are there about the indoor environment and air pollution in this report?

It is one of the things that we feel quite strongly about. Up until our last report in 2016, we didn't do so much on the indoor environment. Indeed, government had very little influence on what people did 'behind their front door'.

That's changed now. We know that tragic cases have occurred; little children being exposed to high levels of fungi and damp in poor housing, and the chemicals accumulating in indoor spaces as we seal houses to conserve heat.

We're creating a situation where the indoor environment may be equally or even more as dangerous as that of the outdoor environment. We've got to find out more about the indoor pollutants and their adverse effects on health and start encouraging responsible behaviours in how we build and ventilate our homes – and also what chemicals we bring into our homes, which are often inadequately for their possible health consequences.

We shouldn't be living with any mould. In countries like Germany, environmental health officers are very strict on this. But we've allowed things to slip in this country; we've got accommodation such as old warehouses and offices which are absolutely unfit for human habitation. Yet, for some reason, it is seen as reasonable to develop for families to live in. In the twenty-first century, this is just unacceptable.

This links into health inequalities and the relationship with air pollution; how is that explored in the report?

People are often disadvantaged in multiple ways – economically, through diets, educationally and in their access to decent and safe accommodation.

Air pollution feeds into all of this. Unfortunately, those living in more economically disadvantaged environments are often exposed to the highest levels of air pollution such as industrial sites and areas closest to our highways and roads. These are also sites where people live very close together, so locally produced pollution has a very important impact on them.

In this country, the people living in these environments are often at the greatest risk from the social determinants of health that must include air pollution; it includes immigrants, ethnic minority groups, the vulnerable groups at both extremes of age.

What response have we seen about the report so far and what would you like to see going forwards?

I was pleasantly surprised to have a very good response from a wide variety of people.

Good publicity, television, radio and the news, which is excellent. But, more importantly, people agreeing with what we have said.

Part of this journey is to get a clean air campaign going in this country – like we did for tobacco smoking. If we get people to recognise the issues we can build awareness, so that we can all work towards cleaner air.

We have upcoming meetings with healthcare professionals who are responsible for education, and with those in government who are responsible for delivering the clean air agenda – so we'll see how that goes. But so far, they've been quite positive. That's a good sign and I hope that, through the RCP and other professional groups, we can generate the impetus that's going to be needed for change.

What policies and changes should we be seeing in the next few years that will help improve air quality?

Cleaning up the air is on the same route as Net Zero carbon dioxide emissions by 2050. 46% of agents that are cause climate change are the common air pollutants

that we're trying to reduce to protect health. If we are able to impact black carbon, ozone and volatile organic chemicals in a serious way to reduce global warming, then we'll also benefit health. Replacing energy dependence from burning fossil fuels, to renewable and nuclear energy, has to be seen as a good thing.

An important step is to make people understand why cleaning up the air is important – for them not only as individuals, but also as families, communities, schools, industrial organisations and transport. No single organisation is going to be able to do this on their own. Getting that recognition is an important step. This is a multidisciplinary problem; no single action is going to make the difference; it's multiple small actions by everyone that will make the biggest difference. If we all do our bit, we will make substantial progress.

At a governmental level, we need to generate a National Health Service true to its name; as opposed to a national illness service. We need to take steps out in the community, in houses, schools and workplaces to prevent the diseases causing pressure on the NHS. By taking air quality to a better place, we will impact on the health of the nation. In the mission towards prevention, clean air sits firmly in that agenda space.

There is so much added value to be gained in parallel with the cleaning up of the air not least of which is a more pleasant environment to live in. We depend on the air we breathe for our very existence, so cleaner air means a better and healthier life.

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