

**First Minister, Ms Nicola Sturgeon  
The Scottish Parliament  
Edinburgh EH99 1SP**

**21<sup>st</sup> Oct 2021**

**Dear First Minister,**

We are a group of Scotland-wide healthcare workers writing to request that the Scottish Government take the strongest possible action to control vehicular produced air pollution by mandating immediate Local Council action, allowing improved health, and reducing adverse effects on the current climate crisis. We appreciate that the Scottish Government has been active and that we have some of the lowest regulation levels for particulate matter in our air. However, Scottish Councils are not always enforcing these laws. The following summarises the critical nature of the issues and provides immediate and medium-term suggestions for action. We would be happy to discuss these with you at a time convenient to you.

### **Air Pollution and Health**

Globally it is estimated that 16% of all deaths are related to air pollution<sup>1</sup> with around 40,000 deaths/annum in the UK attributable to exposure to outdoor air pollution<sup>2</sup> most of it from vehicular traffic. This extrapolates to 4000 death/year in Scotland ie 330 deaths a month<sup>2</sup>, a dreadful preventable attrition!

In Scotland amongst our own people, it has been linked to worsening bronchiectasis<sup>3</sup>, worsening established heart disease<sup>4,5</sup>, causing new onset heart<sup>6</sup> and lung disease<sup>7</sup>, stroke<sup>8</sup>, leg amputation risk<sup>9</sup>, and globally it has been linked to cancer<sup>10</sup> (second highest cause of lung cancer), asthma, diabetes, and dementia<sup>11,12</sup>. It is estimated that for every 1 mile driven within an urban area it removes 3.5mins of life due to this pollution<sup>13</sup>.

Two Scottish studies of our own people have shown significant increases in hospital admissions on days of illegal pollution with new onset heart disease<sup>6</sup>, lung disease, and blood clots in the arteries of the legs (which can lead to amputation)<sup>9</sup> when compared to days when air pollution is within legal limits.

Babies in the womb suffer, they can be still-born or born prematurely. In Scotland our babies born into high air polluted areas have smaller heads and brains leading to poor cognitive ability<sup>14</sup>. Children subjected to air pollution are more likely to die in the 1<sup>st</sup> 2 years of life, to attend A&E with chest infections, and suffer from asthma. A Scottish study has shown many more children are admitted to hospital on days of illegally high pollution than when levels are legal. Children are at particular risk from the impact of air pollution because they tend to/are encouraged to spend a lot of time outdoors playing, further their cells are dividing/growing thus more susceptible to damage. They inhale proportionally more pollutants because they are exercising and because of their greater lung surface area for body size. In addition, children's lungs are still growing and are more vulnerable to the effects of pollutants<sup>15</sup>.

Air pollution is projected by 2022 to be the leading environmental cause of mortality globally, and an environmental audit in the UK showed that deaths from air pollution equalled those caused by obesity<sup>16</sup>. Compare the public health activity on obesity to that on air pollution and it falls short, and Scottish researchers have shown that keeping air pollution within legal limits would reduce hospital

admissions by 10%, a major reduction in ill-health with large related cost savings to our NHS<sup>6</sup>. It is estimated that air pollution costs the UK £20 Billion/annum in terms of health and social care, and days of work lost, ie approx £2 billion/annum for Scotland, and yet it seems that these costs are not considered sufficient enough for councils to mandate fully within current laws. Air pollution as a major health hazard requiring urgent action is frequently not appreciated. Tell anyone that deaths from air pollution in the UK are 10 times that from car crashes, (1,770 reported road deaths 2018<sup>12</sup>), 7 times the numbers of drug-related deaths (5546 in 2018<sup>18,19</sup>) and 52 times the number of murders (701 England 2018, 59 Scotland 2017<sup>20</sup>) and they find it hard to believe that more concerted action is not taking place.

### **Air Pollution and Inequality/Deprivation**

We know that those who are already disadvantaged often live in city centres or beside main roads (we have examples of developers still putting the 'affordable houses' on these roads and more expensive ones much further away), and are thus preferentially exposed to the health effects of air pollution. We know they have access to less green space, which can absorb some of the noxious pollutants. Also, of all within our society they have the fewest driving licences and are the least able to afford a car, and thus suffer the ill effects without themselves contributing to them.

### **Air Pollution and the Climate**

The worsening climate crisis has been declared a 'climate emergency' by the Scottish Government and will significantly impact on our population's health and our economy. Globally transport accounts for around a quarter of all emissions and with the will, much can be done to attenuate this effect. Despite global lockdowns, emissions fell by only 6% in 2020, and many medical, scientific journals and learned bodies warn, with increasing evidence, that transport emissions must be controlled urgently.

### **Action**

We ask the Scottish Government to urgently implement the actions below:

#### *Short term Actions:*

Where areas exist that have illegal pollution levels remedies should be implemented in months, not years. Council must be held to account, at present annual reports are full of meetings and consultations and woefully short on actions. All the short-term actions are doable now.

#### **1. Low Emission Zones**

We support the country-wide introduction of low-emission zones (LEZs). Studies have shown this does not disadvantage city centre business, but instead they purchase or lease low emission vehicles. Grants for this could be made available. These zones should be introduced within 6 months in all Air Quality Management Areas (AQMA). Remember this silent killer is much worse than accident black spots which receive instant action. LEZs as a necessary measure to reduce the harm caused by air pollution to the public. Where the local bias adjustment takes previously illegal levels into the legal range this must be independently audited.

#### **2. Air Pollution monitors**

These should be obligatory on roads beside every school in Scotland. We do not know how many children we are damaging, and such measures should be implemented now, and LEZs round schools

mandatory where the air is unsafe. HEPA Air Purifiers should be issued to every household living in AQMAs, a simple and effective measure that can be done now.

### 3. Speed bumps

All speed bumps should be removed as braking then accelerating is recognised as a source of excess fumes. These should be replaced by 20mph zones which should be regularly checked for compliance. The 'Places for People scheme' saw the introduction of many 20mph areas and we ask that these are retained, and indeed extended, to improve road safety and reduce air pollution.

### 4. Idling

Leaving an engine idling is an offence under Section 42 of the Road Traffic Act 1988. This should immediately be enforced by Councils allowing Traffic Wardens to issue tickets. One minute idling produces enough noxious gasses to fill 150 balloons.

### 5. New Developments

It is crucial that major roads are not scheduled to go through new developments. An example where this is happening is the proposed Cross Tay Link Road (CTLR) in Perth where taxpayers' money is being used to funnel a road linking 2 trunk roads through a new development, giving the developer a free road, when the road could easily be built above the development. The Council are knowingly exposing our people to this silent killer. We are beginning to see an increase in ultra-low carbon vehicles on the roads. However, in terms of air pollution EV still produce particulate matter from brake pads and tyres, so putting new link roads through housing is appalling. This is a significant issue and increasingly concern in the design of new developments.

'The Social Exclusion Unit (SEU) report 'Transport and Social Exclusion: making the connections' (2003) highlighted that new or existing transport schemes such as roads or railways can have detrimental social impacts on communities. If a large or increasingly busy road cuts through an area it can have the effect of driving a wedge through a community, or communities. This can damage local social networks and community 'cohesion' as well as damage health through air pollution.

### 6. Electric vehicles (EVs)

Although EVs can still produce particulate matter the noxious Nitric Oxide gases are very much reduced. Pop up chargers, as seen in Dundee, should be mandated by Government such that Councils are obliged to provide these. Dundee, with chargers for 4% of cars is the best in the UK but other cities in Scotland run at less than 1%. Privately and Council owned Car Parks should receive grants to provide charging spots overnight especially in Industrial Estates when no one uses the parks overnight. This would allow city dwellers to contemplate an EV whereas at present such a purchase is limited to those with a garden or other space for a charger.

### *Medium Term Actions*

### 7. Active Travel

The Scottish Government encourages active travel, and for example is trying to enforce cycle overtaking space via Police Scotland, but until the roads are made safe for cyclists there will be no real change. If you don't cycle as a child, you are less likely to ever cycle as an adult. Parents, rightly, do not want their children on unsafe roads. We need protected cycle routes, not more unprotected routes, where the cyclist is suddenly dumped back into the traffic stream at busy intersections. Many of our cycle routes are 'advisory' which means they don't have to be a proper width, can end

suddenly, and it has been shown that such routes are associated with a 30% increased injury rate. Protected routes lessen exposure to pollution, improve road safety dramatically, and where present have been shown to increase cycle use by as much as 5 times.

### 8. Public Transport

Bus and Train connectivity is key, as this will allow seamless public transport travel between and around cities. Re-opening the closed railway lines, especially to the North, will take freight off the road and improve travel times. Disappointingly the current proposals by ScotRail increase many travel times to eg Edinburgh, and they have admitted one 'might as well drive to Edinburgh' as its quicker than taking the train. Investment in rail service will play a big part in reducing air pollution. The Government should consider issuing a timeline for electrification of all buses on all routes under 10miles as soon as possible, and work towards electrifying the rail system completely.

### 9. Green Space

There are many studies showing the benefits of access to green space - greening our roads will not just produce more pleasant streets but the correct planting will allow significant decreases in air pollution. The Scottish Government should mandate a percent of green space for each housing and road development to ensure a higher quality of life than is being offered now, with closely packed cookie cutter houses. An emphasis on green places will improve the wellbeing and happiness of our people, increase productivity and decrease the strain on overstretched mental health services. People who have greater exposure to greenspace have a range of more favourable outcomes. Greener environments are also associated with reduced levels of depression, anxiety, and fatigue, and enhanced quality of life for both children and adults. Children at 'greener' schools have better exam results too.

### Who is responsible for curtailing this silent killer?

As our government, you can solve this public health problem, some of it quite easily by enforcing current legislation, by prolonging Places for People and by engaging with Communities to ask what THEY want, and with Health Professionals who can highlight the issues<sup>21</sup>. It is of concern that Councils, having been warned of the ill effects of air pollution, but have allowed them to continue, will likely face legal action from those they have knowingly harmed. We applaud the forward thinking of this Government for its low Particulate Matter level regulations, and for its huge impact on health from its smoking ban<sup>22</sup>, but much more must be done, and some of it surprisingly easy, yet ignored by local councils.

### List of signatories

Jill	Belch	Professor of Vascular Medicine, Honorary Consultant Vascular Physician	NHS Tayside University of Dundee
James	Chalmers	British Lung Foundation Professor of Respiratory Research	NHS Tayside University of Dundee
Munro Tom	Stewart Fardon	GP Respiratory Lead for the Scottish Access Collaborative at The Scottish Government	NHS Tayside Sustainability Group NHS Tayside
Mary	Abed Al Ahad	PhD in Geography	University of St Andrews

Annie	Anderson	Professor of Public Health Nutrition & NHS Dietitian	University of Dundee NHS Tayside
Sian	Ashby	GP	NHS Greater Glasgow & Clyde
Colin	Baines	Speciality Doctor, Vascular Medicine	NHS Tayside
Laura	Burfield	Consultant Dermatologist	NHS Greater Glasgow and Clyde
Catherine	Brown	GP	NHS Highland
Jane	Boyden	GP	NHS Tayside
Mary	Church	GP	Lanarkshire Health Board
Alan	Cuthbert	GP	NHS Highland
Andrew	Dallas	GP	NHS Highland
Alexander	Dallas	GP	NHS Highland
Jeltje	Danhof	GP Shetland	NHS Highland
Christian	Delles	Professor, Cardiovascular Prevention, Honorary Consultant Physician	University of Glasgow NHS Greater Glasgow & Clyde
Peter	Donaldson	GP	NHS Tayside
Alexander	Doney	Senior Lecturer, Honorary Consultant Stroke Physician	NHS Tayside University of Dundee
Annie	Driffiths	GP	NHS Highland
Maureen	Fagan	Lead Clinician Respiratory MCN	NHS Tayside
Miles	Fisher	Professor and Consultant Physician	University of Glasgow, & NHS Greater Glasgow & Clyde
Catherine	Fitton	Medical Statistician	University of Dundee
Gerry	Fowkes	Professor of Epidemiology	University of Edinburgh
Sullivan	Frank	Professor of Primary Care	NHS Fife and University of St Andrews
Nico	Grunenberg	GP, Scottish Quality & Safety Fellow	NHS Tayside
Gordon	Hale	Consultant Dermatologist	NHS Greater Glasgow and Clyde
John	Hayes	Professor of Cellular Medicine	University of Dundee
Nick	Heath	GP	NHS Tayside
Kristina	High	Consultant Anaesthetist	NHS Highland
Kristien	Hintjens	GP	NHS Tayside
Bridie	Howe	HIV clinical lead for NHS Highland, BASHH Scotland secretary	NHS Highland
Ewan	Jack	Consultant Anaesthetist, Clinical Lead Theatres	NHS Forth Valley
Abigail	Johnston	Public Health Specialty Trainee	NHS Lothian
Barbara	Kay	GP	NHS Greater Glasgow and Clyde
Moir	Kennedy	GP	NHS Tayside
Chim	Lang	Professor of Cardiology	NHS Tayside University of Dundee

Brian	Lipworth	Professor of Respiratory Medicine, Consultant Physician	NHS Tayside University of Dundee
Miles	Mack	GP	NHS Highland
Mary	Mackintosh	GP	NHS Highland
Alison	MacTavish	GP	NHS Tayside
Julie	Mcllwaine	GP	NHS Highland
Anthony	McMahon	NHS NES GP Health Inequalities Fellow	NHS Greater Glasgow and Clyde
Sophie	Mew	GP	NHS Tayside
Al	Miles	Chair of Highland GP Subcommittee & Local Medical Committee	NHS Highland
Megan	Mowbray	Consultant Dermatologist	NHS Fife
David	Newby	Professor of Cardiology, Consultant Cardiologist	NHS Lothian University of Edinburgh
Norman	Pratt	Chair, Area Clinical Forum	NHS Tayside
Charlotte	Proby	Professor of Dermatology & Honorary NHS Consultant	NHS Tayside University of Dundee
Terence	Quinn	Reader & Honorary Consultant Physician	University of Glasgow & NHS Greater, Glasgow & Clyde
Alice	Scriven	GP	NHS Highland
David	Shackles	GP	NHS Tayside
Robert	Steele	Professor of Surgery & Consultant Surgeon	NHS Tayside University of Dundee
Andrew	Thomson	GP and Medical Director	NHS Tayside
Elaine	Thomson	GP	NHS Tayside
Janette	van der Ham	GP	NHS Tayside
Katie	Walter	GP	NHS Highland
Emily	Ward	Respiratory and General Medicine	NHS Tayside
Julia	Ward	GP and Clinical Teacher	NHS Tayside
Chris	Weatherburn	GP	NHS Tayside
Finlay	Wild	GP	NHS Highland
Roland	Wolf	Professor of Molecular Pharmacology	University of Dundee

## References

1. Landrigan PJ, Fuller R, Acosta NJR et al, The Lancet Commission on pollution and health. *Lancet*. 2018 Feb 3;391(10119):462-512. doi: 10.1016/S0140-6736(17)32345-0. Epub 2017.
2. Every breath we take: the lifelong impact of air pollution. This report from the RCP and the RCPCH examines the impact of exposure to air pollution across the course of a lifetime. <https://www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution>.
3. Goeminne CP, Cox B, Finch S, et al. The impact of acute air pollution fluctuations on bronchiectasis pulmonary exacerbation. A case-crossover analysis. *Eur Respir J* 2018 (<https://doi.org/10.1183/13993003.02557-2017>).
4. Shah AS, Langrish JP, Nair H, McAllister DA, Hunter AL, Donaldson K, Newby DE, Mills NL. Global association of air pollution and heart failure: a systematic review and meta-analysis. *Lancet* 2013;382:1039-1048.

5. Mills NL, Törnqvist H, Gonzales M et al. Ischemic and thrombotic effects of dilute diesel exhaust inhalation in men with coronary heart disease. *N Engl J Med* 2007;357:1075-1082
6. Belch, J.J., Fitton, C., Cox, B, Chalmers JD. Associations between ambient air pollutants and hospital admissions: more needs to be done. *Environ Sci Pollut Res* 2021. <https://doi.org/10.1007/s11356-021-16544-0>
7. Prescott GJ, Cohen G, Elton RA, Fowkes FGR, Agius RM. Urban air pollution and cardiopulmonary ill-health: a 14.5 year time series study. *Occupational and Environmental Medicine* 1998;55:697-704.
8. Shah ASV, Lee KK, McAllister DA et al. Short-term exposure to air pollution and stroke: a systematic review and meta-analysis. *Br Med J* 2015;350:h1295
9. Fitton CA, Cox B, Chalmers JD, Belch JF. An 18 year retrospective data-linkage study on air pollution and acute limb ischaemia treatment in Tayside, Scotland. *VASA* in press due Nov 2021
10. Dockery DW, Pope CA, Xu X et al. An association between air pollution and mortality in six U.S. cities. *N Engl J Med*. 1993; 329: 1753-1759
11. Linou N, Beagley J, Huikuri S, Renshaw N. Air pollution moves up the global health agenda; UN recognises air pollution as a key risk factor for NCDs. *BMJ* 2018;363:k4933 doi: 10.1136/bmj.k4933
12. Oudin A, Forsberg B, Nordin Adolfsson A et al. Traffic-Related Air Pollution and Dementia Incidence in Northern Sweden: A Longitudinal Study *Environ Health Perspect*. 2016 Mar; 124(3): 306–312. doi: 10.1289/ehp.1408322
13. Berners-Lee M. How Bad Are Bananas? The carbon footprint of everything. Profile Books Ltd, 2009. ISBN: 9781788163811
14. Clemens T, Turner S, Dibben C. Maternal exposure to ambient air pollution and fetal growth in North-East Scotland: A population-based study using routine ultrasound scans. *Environ Int* 2017; 107: 216-226
15. <https://www.who.int/air-pollution/news-and-events/how-air-pollution-is-destroying-our-health/children-and-air-pollution>
16. House of Commons Environmental Audit Committee Report, Air quality: A follow up report, Ninth Report of Session 2010-12, HC1024.  
<https://publications.parliament.uk/pa/cm201012/cmselect/cmenvaud/1024/1024.pdf>
17. <https://www.gov.uk/government/statistics/reported-road-casualties-in-great-britain-provisional-estimates-year-ending-june-2018>
18. <https://www.nrscotland.gov.uk/files//statistics/drug-related-deaths/2018/drug-related-deaths-18-pub.pdf>
19. <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/bulletins/deathsrelatedtodrugpoisoninginenglandandwales/2018registrations>
20. <https://www.gov.scot/publications/homicide-scotland-2017-18/pages/4/>
21. Prescott GJ, Lee RJ, Cohen GR et al. Investigation of factors which might indicate susceptibility to particulate air pollution. *Occupat Environ Med* 2000; 57: 53-57.
22. Pell JP, Haw S, Cobbe S et al. National smoke-free legislation and hospitalizations for acute coronary syndrome. *N Engl J Med* 2008; 359: 482-491.