

# Written evidence submitted by the British Heart Foundation (EB22)

## House of Commons Public Bill Committee: Environment Bill 2019-20

### Key points

- The British Heart Foundation (BHF) is pleased to see the Government's Environment Bill commit to setting new targets for air pollution.
- We have funded over £5.8 million of research exploring the impact of air pollution on heart and circulatory health since the early 2000s. Our research has helped to show how air pollution, particularly fine particulate matter (PM<sub>2.5</sub>) can cause damage to the heart and circulatory system, increasing the risk of a potentially fatal heart attack or stroke.
- The Bill presents a once-in-a-generation opportunity to ensure that England's air quality legislation is appropriate to tackling the scale and severity of this issue, which must be seized. The BHF is committed to ensuring that the framework it provides is the best it possibly can be for the nation's health.
- The UK currently subscribes to EU air quality limits, which are more than double the health-based limit recommended by the World Health Organization (WHO). The Bill must adopt the WHO guideline limits for PM<sub>2.5</sub> into law, to be met by 2030, in order to drive bold action to protect health.
- We also support a number of amendments to clauses 1-8 of the Bill, such that they are strengthened to provide for:
  - a. the setting, reporting on and review of ambitious, health-based air quality targets;
  - b. a robust plan-making process to achieve these targets, and
  - c. appropriate duties on all levels of government and public bodies who have a role to play in improving air quality.

### Air pollution, health and the Environment Bill

1. The British Heart Foundation (BHF) welcomes the opportunity to submit evidence on the Environment Bill. As the largest independent funder of medical research into heart and circulatory diseases in the UK, we have funded over £5.8 million of research exploring the impact of air pollution on heart and circulatory health since the early 2000s. Our research has helped to show the many ways air pollution, particularly fine particulate matter (PM<sub>2.5</sub>) can cause damage to the heart and circulatory system, including:

- damaging the inside walls of your blood vessels, causing them to become narrower and harder;
- restricting the movement of your blood vessels, which can increase blood pressure and add to the strain on your heart;
- making your blood more likely to clot;

all of which can contribute to an increased risk of a heart attack or stroke.

2. This research is part of a vast body of international evidence on the damage to health caused by ambient air pollution. Exposure to PM<sub>2.5</sub> is strongly associated with respiratory and cardiovascular diseases, and there is increasing evidence of links with dementia, diabetes, and adverse birth outcomes including low birth weight<sup>1</sup>.
3. Our health has many determinants, including the physical and natural environment we live in. Air pollution is the largest environmental health risk in the UK, with up to 36,000 attributable deaths per year<sup>2</sup>. Additional estimates from the Global Burden of Disease study have found that there are around 11,000 deaths from heart and circulatory diseases each year in the UK that are attributable to air pollution<sup>3</sup>.
4. The UK currently subscribes to EU air quality limits. The annual average limit for PM<sub>2.5</sub> levels is, at 25 µg/m<sup>3</sup>, more than double that of 10 µg/m<sup>3</sup> recommended by the World Health Organization (WHO).
5. BHF analysis has found that around 15 million people- almost a quarter of the population- live in areas of England where average levels of PM<sub>2.5</sub> exceed WHO guidelines<sup>4</sup>. With no Government action, we estimate that up to 160,000 deaths due to heart and circulatory diseases could be attributable to air pollution in the decade to 2030<sup>5</sup>.
6. It is therefore of paramount importance that the Environment Bill acknowledges health and the environment as mutually reinforcing priorities, setting up a framework to support both of these agendas.
7. Action on this issue has already been set in train by the Government's Clean Air Strategy<sup>6</sup>, which rightly framed air pollution as a health issue. The BHF was pleased to see pledges to improve our understanding of the problem, better communicate the health impacts of air pollution to the public and tackle the major pollution sources. Importantly, the Strategy made a commitment to setting a new, ambitious target on air quality, and halving the number of people living in areas exposed to levels of pollution above the WHO's guideline limit.
8. The Environment Bill is the legislative enactment of these pledges, and a once-in-a-generation opportunity to ensure that England's air quality legislation is appropriate to tackling the scale and severity of this issue, which must be seized. The BHF is committed to ensuring that the framework it provides is the best it possibly can be for the nation's health.
9. It is heartening that the Bill defines air quality as a priority area, most significantly requiring a new target for PM<sub>2.5</sub> alongside additional air quality targets. To show true leadership and commitment to improving public health, the Environment Bill must consider the abundance of evidence demonstrating the risk to health posed by air pollution. The WHO has led the way in defining recommended limits for air pollutants based on this health evidence. As such, we would like to see the Bill adopt the WHO guideline limits for PM<sub>2.5</sub> into law, to be met by 2030, making the UK a world-leader as the first nation to do so.
10. Analysis commissioned by Defra and published in 2019 found that reaching the WHO guideline level of PM<sub>2.5</sub> is "technically feasible" across most of the UK<sup>7</sup>. While the timescale and means to achieve this are yet to be fully defined, this should not be seen as a barrier to adopting this limit into law. Laws are used to encourage as well as enforce; without limits, there is minimal reason to make change. A legally binding target is necessary to drive action, ensuring the development and implementation of bold plans that support the Government's ambition to leave the environment in a better state than that in which it was inherited and to minimise the impact of poor air quality on public health.

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<sup>1</sup> Public Health England, *Estimation of costs to the NHS and social care due to the health impacts of air pollution*, May 2018.

<sup>2</sup> Committee on the Medical Effects of Air Pollutants, *Associations of long-term average concentrations of nitrogen dioxide with mortality*, July 2018.

<sup>3</sup> Using 2017 data from Global Health Data Exchange, Global Burden of Disease Results Tool.

<sup>4</sup> British Heart Foundation analysis using Department for Environment, Food and Rural Affairs 2018 population-weighted PM<sub>2.5</sub> air pollution estimates at local authority level and Office for National Statistics population data.

<sup>5</sup> British Heart Foundation analysis using Global Burden of Disease UK estimates for 2017 and Office for National Statistics population projections.

<sup>6</sup> Department for Environment, Food and Rural Affairs, *Clean Air Strategy 2019*, January 2019.

<sup>7</sup> Department for Environment, Food and Rural Affairs (Defra), *Assessing progress towards WHO guideline levels of PM<sub>2.5</sub> in the UK*, July 2019.

11. The following points provide an analysis of specific clauses within the Bill and where they can be strengthened to provide for:
- a. the setting, reporting on and review of ambitious, health-based air quality targets;
  - b. a robust plan-making process to achieve these targets, and
  - c. appropriate duties on all levels of government and public bodies who have a role to play in improving air quality.

**Clauses 1-6, Environmental targets: particulate matter, process and review**

12. While it is clear that the Government recognises the health impacts of exposure to high levels of PM<sub>2.5</sub>, there is currently only limited language within the Bill to reflect this. To this end, the BHF supports **NC6-The environmental purpose**, which specifically sets out an objective to achieve “an environment that supports human health and wellbeing for everyone.”
13. While it is welcome that the Environment Bill sets out a requirement for both a long-term air quality target(s) (Clause 1) and a specific target for particulate matter (PM<sub>2.5</sub>, Clause 2), we believe that the Bill should include more detail on the criteria by which these targets will be set and reviewed.
14. While making it clear that at least one long-term air quality target in addition to the PM<sub>2.5</sub> target must be set via a secondary process, the Bill does not give adequate detail on what these targets should be. There are a number of other air quality targets that must be explicitly mentioned to ensure that the Bill truly sets in place a framework that protects and health and wellbeing. These are:
- a. Ambient 24 hour mean concentrations of PM<sub>10</sub> and PM<sub>2.5</sub>, for which WHO guidelines exist<sup>8</sup> and should be followed. As with long-term exposure to particulate matter, BHF-funded research has shown adverse effects on the heart and circulatory system within 24 hours of exposure to high levels of PM<sub>2.5</sub>, including an increased risk of heart failure hospitalisation and death<sup>9</sup>.
  - b. Human exposure to PM<sub>2.5</sub> and PM<sub>10</sub>. Exposure reduction targets drive a reduction in overall average exposure to air pollutants to ensure that a majority of the population benefits from improved air quality, as opposed to exclusively focusing on hotspots and compliance with legal limits<sup>10</sup>.
  - c. Annual emissions of nitrogen oxides (NO<sub>x</sub>), ammonia, PM<sub>2.5</sub>, PM<sub>10</sub>, sulphur dioxide (SO<sub>2</sub>) and Non-methane volatile organic compounds (NMVOCs), all of which were specified as pollutants of interest in the Government’s Clean Air Strategy. Targeting emissions at source was outlined by Public Health England as the most effective intervention for mitigating the health impacts of air pollution<sup>11</sup>. Therefore, emissions reduction targets must be set in place as complementary to the PM<sub>2.5</sub> target and consistent with the objective to achieve an environment that supports health and wellbeing.

We therefore support subsection (3A) of **amendment 178 to Clause 1(1)**, which specifies the above.

15. The WHO’s guidelines were set with reference to a vast body of epidemiological and toxicological research and expertise<sup>12</sup>, an approach which must be emulated in the target-setting process outlined by the Bill. Again, the Government has previously committed to align its air quality targets with the WHO<sup>13</sup>, a pledge which would be supported by adoption of **amendment 80 to Clause 1(4)**, which would

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<sup>8</sup> World Health Organization, *Air quality guidelines for particulate matter, ozone, nitrogen dioxide and sulfur dioxide, Global update 2005*, published 2006.

<sup>9</sup> Mills et al. (2013) ‘Global association of air pollution and heart failure: a systematic review and meta-analysis.’ *Lancet* 382: 1039-1048.

<sup>10</sup> Brown, RJC and Woods, PT, *Comparison of averaging techniques for the calculation of the ‘European average exposure indicator’ for particulate matter*, *J Environ Monit*, 2012, 14 165.

<sup>11</sup> Public Health England, *Review of interventions to improve outdoor air quality and public health*, published 11<sup>th</sup> March 2019.

<sup>12</sup> World Health Organization, *Air quality guidelines for particulate matter, ozone, nitrogen dioxide and sulfur dioxide, Global update 2005*, published 2006.

<sup>13</sup> Wildlife and countryside link, Michael Gove asks: If not now, when? Published 16<sup>th</sup> July 2019, available from: <https://www.wcl.org.uk/michael-gove-asks-if-not-now-when.asp>

ensure that the target-setting process utilises the best available scientific evidence and advice and seeks to improve upon international best practices.

16. In accordance with the BHF's call for the adoption of WHO guideline limits on air quality, we support **amendments 23 and 185 to Clause 2(2)**, which seek to ensure that the PM<sub>2.5</sub> target will be at least as strict as the WHO's 2005 guideline of 10µg/m<sup>3</sup>, with an attainment deadline of 1<sup>st</sup> January 2030 at the latest.
17. **Clause 3(9)** specifies that the targets must be set in secondary legislation before 31 October 2022, leaving up to two and half years before action to meet them begins. As it stands, this does not ensure that action to tackle air pollution will be taken with sufficient urgency. Therefore, we support **amendment 24 to Clause 3(9)**, changing the date by which the PM<sub>2.5</sub> target must be set to 31<sup>st</sup> December 2020.
18. We also endorse **amendment 81, to Clause 3(1)**, which stipulates that independent and relevant expertise should play a transparent role in the setting and reviewing of targets. This must include health expertise.
19. **Clause 3(1)** should be strengthened further, as per **amendment 181**, to ensure that relevant health expertise is sufficiently embedded in the target-setting process. The Bill must guarantee that advice on how targets could be set to minimise or, where possible, eliminate, the harmful impacts of air pollution on human health will be sought.
20. The target-setting process as it stands allows for the Secretary of State to lower the PM<sub>2.5</sub> target, a circumstance that would violate the principle of non-regression and could undermine the Government's aims to both improve the natural environment and reduce the number of people exposed to harmful levels of air pollution. **Clause 3(4)** only requires that the Secretary of State publish a statement explaining why a target has been lowered. To ensure transparency, there should be a requirement that advice on the impact that relaxing a target will have on public and environmental health is sought and published. Furthermore, any such changes should be subject to public consultation.
21. Air quality targets must drive action to reduce air pollution levels, improve the environment and improve health, aims which must be underpinned by appropriately robust reporting. As set out in **Clause 5** of the Bill, the Secretary of State is required only to report on whether targets have been met or not. Where targets have not been met, they must explain why the target hasn't been met and set out steps to meet the target "as soon as reasonably practicable." This is less stringent than our current air quality laws, which require local authorities to set out steps to meet targets in the shortest possible time. To reflect the urgency of the issue of air pollution, the same requirement should apply here.
22. There is also a need for clear and robust timetable for adoption and implementation of the measures, clarity over the authorities responsible for delivery and an analysis of how the options considered would deliver progress in meeting the targets. To this end, we recommend the adoption of **amendment 84 to Clause 5(1)**.
23. The reviewing of targets outlined by **Clause 6** requires that meeting the targets would significantly improve the natural environment. However, environmental targets must also drive improvements to health. We therefore support **amendment 25 to Clause 6(3)**, which seeks to remedy this.
24. To ensure that the targets continue to align with the best possible scientific evidence, especially in relation to health, there must be explicit reference to the WHO guidelines as best international practice and leading scientific expertise. Therefore, we support **amendments 26 and 27 to Clause 6, subsections 5 and 6**, which ensure that the first and subsequent reviews of the targets will be triggered within 6 months of the publication of updated WHO air quality guidelines.

#### **Clauses 7-14, Environmental Improvement Plans**

25. We are pleased to see mandated environmental improvement plans, setting out action to improve the environment. These plans must also support the aim to minimise harmful impacts of poor air quality on human health.

26. Moreover, there is currently no explicit requirement for these plans to ensure action to achieve environmental targets. Amendments to **Clauses 7 and 8** would remedy this, bringing the targets and plans into closer alignment.
27. Specifically, **amendments 88 and 112 to Clause 7(4)** each outline important requirements for the plans, namely:
- a. detailing measures that would ensure the achievement of targets and interim targets;
  - b. outlining specific activity for relevant central government departments;
  - c. ensuring that vulnerable groups, including children, the elderly and those with existing health conditions are protected from the health impacts of air pollution;
  - d. setting out a timetable for adoption, implementation and review of measures and the authorities responsible for their delivery,
  - e. analysing the estimated impact of measures on delivering progress against targets
  - f. including measures to minimise, or where possible eliminate, the harmful effects of pollution on human health and the environment.
  - g. (from amendment 112) setting out steps to make a significant contribution to meeting environmental objectives irrespective of whether targets are in place to cover all matters.
28. Reporting on annual plans must also consider progress towards targets and whether they are likely to be met, so that plans can be accelerated to correct for any lack of progress. To this end, the BHF supports **amendment 90 to Clause 8(3)**.
29. Finally, the legislation as it stands does not mandate delivery of environmental improvement plans. To ensure that the plans are put into action and achieve the environmental objectives, we would suggest the inclusion of a new **Clause 7(1A)**: "Her Majesty's Government must implement the measures included in the environmental improvement plan."

### **A Clean Air Duty**

30. Alongside health-focused environmental targets and a robust plan to meet them, clearly outlining who has responsibility for delivery is a vital aspect of ensuring that the environmental objectives are achieved. We were pleased to see that the Bill provides some new powers for local authorities, strengthening their ability to tackle air pollution. However, it is essential that the burden of activity is not placed solely on local government, and that they are supported with the resources and funding necessary to allow them to discharge their duties.
31. Moreover, many of the levers for improving poor air quality lie within central government departments and other public authorities. Therefore, we need a proper responsibility framework, with a duty on all levels of government and public bodies to act to improve air pollution.
32. This should take the form of a new 'environmental duty,' as specified by **NC18**, which requires public authorities to act compatibly with and, where appropriate, contribute to the achievement of environmental targets and implementation of environmental improvement plans.

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