

PE2123: Update air quality standards in Scotland to align with 2021 World Health Organisation guidelines

Submission from Public Health Scotland, 26 June 2025

Question 1. Do you support amending the Air Quality Standards (Scotland) Regulations 2010 to align with the 2021 WHO air quality guidelines? Please explain your reasoning.

Public Health Scotland (PHS) provides specialist knowledge and advice on the public health risks posed by outdoor air pollution to a range of partners, including Scottish Government and health professionals. We are a key delivery partner for the Scottish Government's Cleaner Air for Scotland 2 Strategy, which sets out the policy framework for air quality in Scotland to 2026. We are working with Scottish Government to support policy development of the next air quality framework, helping to ensure that health and health inequalities are considered across the framework.

From a public health perspective, we support efforts to further reduce concentrations and emissions of air pollutants. We note that the World Health Organisation (WHO) 2021 Air Quality Guidelines (AQGs) are based on the evidence linking concentrations of pollutants in ambient air with adverse effects on health and are set without reference to achievability.

It is important that policies and strategies to tackle outdoor air pollution also consider impacts on vulnerable and marginalised populations and places and address health inequalities.

Question 3. To what extent has scientific and public health evidence about air quality evolved since the current standards were adopted? In your answer you could refer, for instance, to impacts on nitrogen dioxide or fine particulate matter on particular groups of people, the effect of Low Emission Zones (or other interventions of a similar nature) on air quality, or any new information or data about the effect of burning particular types of fuel.

The Air Quality Standards (Scotland) Regulations 2010 came into force on 11th June 2010, and outline legally binding standards for air pollution to protect public health and the environment. Since the current air quality standards were set, there have been significant advancements in the scientific understanding of air pollution's effects on health. The WHO updated its Air Quality Guidelines (AQGs) for outdoor air

pollutants in 2021 and provide clear evidence of the damage air pollution inflicts on human health at even lower concentrations than previously thought. The new WHO guidelines for particulate matter and nitrogen dioxide are lower than the previous (2005) WHO guidelines and lower than the limits currently imposed in Scotland. The systematic reviews that informed the WHO's 2021 AQGs and other related evidence discussed during the process are available in a special issue of *Environmental International* (Waley et al. 2022). It is important to note that the WHO's AQG values should not be regarded as thresholds below which there are no impacts on health – the current evidence has not identified thresholds for health effect at the population level.

This point was stressed by the Committee of the Medical Effects of Pollutants (COMEAP), an independent expert advisory committee of the Department of Health and Social Care, in their formal response to the WHO's revised AQGs for outdoor air pollutants.

Across Scotland, Low Emission Zones (LEZs) have been introduced in Aberdeen, Dundee, Edinburgh and Glasgow. PHS have not undertaken a literature review on the health impacts of LEZ's. However, we are aware of evidence suggesting that zonal charging policies in London and elsewhere can decrease air pollution levels and improve health outcomes, e.g. cardiovascular and respiratory outcomes. However, these findings may not necessarily be generalisable to Scotland due to differences in zonal charging schemes. PHS are not aware of any research on the impact specifically of Scotland's LEZ's on pollutant concentrations and/or health benefits. Further evaluation of LEZ's, including in Scotland, will be needed to help understand health effects and wider impacts (for example, impacts on physical activity and carbon emissions).

In 2023, PHS published an evaluability assessment of LEZ's, noting the challenges such evaluation work presents in this field of science and using the Glasgow LEZ as an example. This illustrated the broad range of possible outcomes that could, in theory, be assessed if resources were available to enable this (Ford et al., 2023).