BTS POSITION STATEMENT

SUSTAINABILITY AND THE ENVIRONMENT: CLIMATE CHANGE AND LUNG HEALTH 2024

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British Thoracic Society

1. Context and background

1.1 The British Thoracic Society (BTS) is committed to highlighting the impact of climate change on those living with respiratory disease. BTS aspires to be a leading voice in sustainable healthcare and inspire our members to take action and contribute to a healthy and just future in which everyone can thrive.

1.2 Climate change is the greatest threat to health the world has ever faced. Global heating, biodiversity loss, air pollution, land-use change, ocean acidification, freshwater withdrawals, chemical pollution, wildfires, droughts and the resulting migration and conflict pose an existential threat to human life [1].

1.3 Solutions must redress current injustices in access to fundamental human rights such as clean air and water, safe housing, and reliable access to healthcare. Healthcare leaders have a responsibility to articulate the urgency of the crisis and create the paths to tackle this public health emergency.

2. Purpose

2.1 The purpose of this Position Statement is to outline the Society's stance on how the impact of climate change on respiratory health can be assessed, reduced and mitigated. This statement informs our strategic work and advocacy to protect our patients against the worst consequences of climate change, including reducing our own contribution to the crisis.

2.2 BTS Position Statements do not involve a specific review of evidence but draw on the knowledge of BTS members, committees, and Board.

2.3 The audience for this statement is all healthcare professionals working in or interested in respiratory medicine, including those who are involved with planning and commissioning respiratory services. It is also for people living with respiratory disease. It is structured to align with the Principles of Sustainable Healthcare set out by the Centre for Sustainable Healthcare: Prevention, Patient empowerment, Lean Pathways and Low Carbon Alternatives [2].

2.4 The impacts on respiratory health of ongoing fossil fuel-driven and greenhouse gas-mediated global warming are significant [3] and will include:

- Worsening air quality from pollutants such as NO_2, ozone, and particulate matter (particularly from wildfires) leading to increased incidence and exacerbations of airways disease, interstitial lung disease and lung cancer.
- Altered weather patterns increasing aeroallergens including pollen, provoking allergic diseases.
- Changing and widening geographical distribution of vector-borne diseases and the emergence of new pathogens, including respiratory pandemic viruses.
- Increasing temperatures and heat waves combined with air pollution causing an increase in cardiovascular and respiratory disease related deaths.
- Emerging resistant fungal and bacterial pathogens.
- Wider health impacts, including direct impacts from extreme weather events and indirect consequences of widening economic and health inequalities.

3. Prevention - what we know

3.1 Preventing ill health is not only fundamental to our role as clinicians but also eliminates substantial carbon emissions generated by disease diagnosis and management.

3.2 Actions which prevent ill health also have more immediate and direct environmental co-benefits (such as reducing air pollution), but this is not universally the case, so environmental impact should always be assessed as part of the evaluation of preventative interventions.

3.3 Prevention is cost-effective, with investment in local authority public health on average four times as cost-effective as spending in the NHS [4].

4. Prevention - why we are concerned

4.1 Respiratory disease affects 1 in 5 people in the UK and is the third largest cause of death [5].

4.2 Many respiratory diseases will worsen as the world warms further, increasing the demand for respiratory healthcare. The resources allocated to prevention do not currently match the need or the potential social and economic value.

5. Prevention - what we need to do

5.1 BTS welcomes the UK government's acknowledgement that preventing ill health is central to delivering a sustainable NHS, and its commitment to increase the focus on prevention [6]. BTS supports calls for action in the form of both policy and financial investment in prevention of proceeding down an accelerated warming pathway.

5.2 As a member of the UK Health Alliance on Climate Change (UKHACC) [7], BTS supports calls for action to limit global warming to 1.5 degrees and halt further degradation of biodiversity and ocean health on which human health depends.

5.3 BTS will work through UKHACC to highlight scientific and health evidence that can influence policy on fossil fuel non-proliferation, prioritisation of plant-based and sustainably sourced food, and mitigation and adaptation to the planetary crisis.

5.4 Through educational events and materials, BTS will highlight the links between healthy lifestyle practices for individuals and the planet, and the structural barriers which prevent many patients from accessing such practices.

5.5 BTS aims to empower clinicians to prioritise non-pharmacological interventions to support lung health. Planetary health diets, which are predominantly plant-based, as proposed by the EAT-Lancet Commission [8], and regular physical exercise are examples of win-win actions which decrease the risk and impact of both chronic conditions and planetary dysregulation.

5.6 Regarding prevention, BTS will focus on the following specific measures aimed at preventing respiratory disease, and the subsequent healthcare-associated environmental impacts.

6. Prevention – tobacco dependence

6.1 The production of cigarettes has direct environmental impacts, including deforestation, air and water pollution, and an estimated carbon footprint of 80 million tonnes of CO_2 per year [9].

6.2 BTS supports all actions to reduce smoking prevalence year on year, including those outlined in the Khan Review [10], with the ultimate goal of eliminating tobacco-related lung disease in the UK. Further actions are detailed in the BTS Position Statement on Tobacco 2021 [11].

6.3 At least 1.3 million disposable vapes are discarded every week in the UK, wasting precious resources such as lithium, contaminating the land and ocean with microplastics and presenting a fire risk [12].

6.4 BTS supports the UK ban on single use vapes and welcomes new powers to restrict flavours and packaging marketed at children. BTS supports the ongoing availability of reusable vapes for tobacco-dependent adults to support smoking cessation.

7. Prevention - improving air quality

7.1 Poor air quality harms lung health, especially for children, older people, and those with pre-existing lung conditions.

7.2 Air pollution is also a driver of health inequalities and environmental injustice as those in the lowest socioeconomic groups are more likely to live, work and play in areas of highest pollution.

7.3 Action to improve air quality is a key priority for BTS and is explored in the 2022 Position Statement on Air Quality and Lung Health [13].

7.4 In addition to health benefits there are co-benefits for the environment since air pollution gases are greenhouse gases contributing to global heating.

7.5 BTS supports calls for a new Clean Air Act setting legal limits for pollutants such as $PM_{2.5}$, NO_2 and ozone, in line with the World Health Organisation's maximum recommended limits, noting WHO has stated that there is no safe level of $PM_{2.5}$ [14].

7.6 The BTS supports the recommendations in the 2022 Chief Medical Officer's Annual Report on Air Quality and particularly welcomes the focus on indoor air quality [15]. Effective ventilation, which minimises energy use and heat loss, is a priority for reducing air pollution, respiratory infections and achieving net zero.

7.7 BTS will share learning from projects tackling indoor and outdoor air pollution benefiting those with respiratory conditions through the Respiratory Futures platform [16] and place air pollution at the centre of educational activities of the Society.

8. Prevention – optimising vaccine uptake

8.1 As warming temperatures and extreme weather events exacerbate, the Society will continue to highlight the evidence on the efficacy of vaccinations to prevent or reduce the severity of respiratory infection.

8.2 BTS will encourage and empower members to speak to patients about the benefits of vaccination and will highlight programmes which increase equitable access to vaccination mitigating health inequalities.

9. Prevention - holistic care

9.1 BTS will use educational events and publications to highlight the benefits to individuals and the planet of reducing overreliance on pharmaceuticals.

9.2 BTS will highlight successful and clinically appropriate deprescribing interventions, and the use of evidence-based non-pharmacological measures such as breathing control techniques, supported self-management and social prescribing.

10. Prevention - anti-microbial stewardship

10.1 Antimicrobial resistance (AMR) is driven by some of the same factors which drive climate change, particularly industrial agriculture. Not only that, the planet accelerates the biological processes that underpin bacterial evolution and hence increased resistance. Disaster-related population displacement also leads to conditions of overcrowding and poor sanitation, known to increase infection rates and, therefore, antimicrobial resistance. As the climate crisis worsens, so too will AMR.

10.2 BTS will continue to work with partners to guide clinicians in antibiotic stewardship and will create opportunities to include this topic in education and conferences.

10.1 BTS guidance and the Multi-Drug-Resistant Tuberculosis Clinical Advice Service will continue to support and standardise practice and reduce unnecessary antibiotic use.

10.2 As part of UKHACC, BTS supports wider work to reduce anti-microbial resistance by reducing unnecessary antibiotic use across primary care, secondary care, and animal agriculture.

11. Prevention - physical activity

11.1 Given the wide-reaching health benefits of physical activity, BTS encourages members to highlight benefits and practical steps to increase exercise in conversations with patients. BTS will signpost to materials that will support members to adopt a motivational interviewing approach to physical activity.

11.2 BTS recognises that access to green space is essential to supporting physical activity and encourages members to advocate for the protection of green space as a pillar of health promotion. BTS also welcomes the co-benefits for the individual and the community of supporting active travel.

11.3 BTS welcomes the government's commitment to expand pulmonary rehabilitation services, and improve access, and will continue to support members to deliver high quality equitable services.

12. Patient Empowerment - what we know

12.1 Patients want to be involved in treatment decisions about their care [17], and the shared goal of patients and clinicians is to find the right treatment regime which best controls disease. The most environmentally friendly inhaler is one that a patient can and will use correctly, minimising waste and supporting good disease control. When this can be achieved, and when provided with information within a shared decision making framework, patients prefer more environmentally friendly treatments [18].

13. Patient Empowerment - why we are concerned

13.1 Patients often tolerate poor control as part of living with their disease. Poorly controlled disease with over-reliance on reliever or rescue therapy leaves patients at greater risk of exacerbations and has a much higher carbon footprint [19].

13.2 Too few patients feel equipped with the knowledge and empowered with the tools to take control of aspects of environmentally determined respiratory ill health [20].

13.3 Many patients with respiratory disease are in the most deprived groups [21], with many structural barriers to self-advocacy.

14. Patient empowerment – what we need to do

14.1 BTS advocates for resource allocation to activities which increase patient empowerment. Such actions may include:

- co-creation of self-management plans
- culturally specific co-created resources on conditions and interventions
- quality improvement projects to actively target those with high short acting beta agonist (SABA) use.
- alerts for adverse weather warnings and high pollen days with personalised advice on actions
- air quality alerts and personalised high pollution action plans.

14.2 BTS supports calls for further research on interventions to support patient self management, such as digital tools and apps to explore which are most effective. Research should also examine how digital solutions affect the environmental footprint of care pathways, how tools can best be integrated into routine care and how digital exclusion can be mitigated.

14.3 BTS will work with partner organisations to highlight opportunities for patients to take action to influence policy, for example as part of letter writing campaigns and advocacy groups.

14.4 Relevant issues include implementation of inhaler recycling schemes, clean air zones, active travel infrastructure, or green space protection.

14.5 BTS will also work with partner organisations including the Taskforce for Lung Health [22], to highlight opportunities for members to effectively use their voices as trusted health professionals on issues related to climate change which affect the respiratory community.

15. Lean Pathways – what we know

15.1 Lean pathways are the third pillar of sustainable healthcare. Such pathways are efficient and streamlined to minimise low-value activity.

15.2 They are low carbon, reducing the environmental impact of healthcare [23], improve the patient experience, improve safety, eliminate delays, and reduce length of stay. Typically, they are using the same or less resource.

15.3 The term 'lean pathway' may be unfamiliar to members, but such approaches already exist in the NHS [24]. These are in the form of programmes which refocus on values such as reducing pathway length, reducing overdiagnosis, and deprescribing.

16. Lean pathways - why we are concerned

16.1 Healthcare currently accounts for 4% of England's total carbon emissions, (a similar figures applies UK wide), and demand for services is rising [25].

16.2 Healthcare systems are often structured around what existed historically rather than what is of greatest value to patients today, leading to physical and resource waste.

16.3 There is a risk that deep-rooted inequalities in how care is accessed will be magnified by the effects of climate change, compounding health inequalities [26].

16.4 Financial incentives are often misaligned, rewarding ever more healthcare activity rather than prevention.

16.5 The latest NHS Health and Care Adaptation Report found that building a climate-resilient health and care sector is limited by the fragmentation between tertiary, primary and social care services [27].

17. Lean Pathways - what we need to do

17.1 BTS supports the use of standardisation and checklists which support lean pathways, such as care bundles.

17.2 BTS will showcase lean models of care that are responsive to patient needs, which include admission avoidance and at home services, integrated breathlessness services, remote monitoring, virtual clinics and digitally enabled pathways.

17.3 BTS supports programmes such as Getting It Right First Time (GIRFT) [28] and other dashboards that benchmark and compare services using data and will work with members of GIRFT, the NHS across the four nations, Royal Colleges, and other partners to accelerate change.

17.4 BTS supports the principle that local solutions work best and will highlight examples of working with local populations to co-design solutions across the four nations.

17.5 BTS will highlight sustainable quality improvement projects which deliver value at the BTS Summer and Winter Meetings.

18. Low Carbon Alternatives - what we know

18.1 The NHS has set a target to achieve a net zero carbon footprint by 2040, with an 80% reduction by 2028-2032 [29].

18.2 Poorly controlled disease has a much higher environmental impact than well-controlled disease and is therefore the priority, to achieve the best clinical, and most sustainable, respiratory care. Guideline-based escalation of care for patients with poorly controlled disease improves clinical outcomes at the same time as reducing greenhouse gas emissions [30]. An annual review is an opportunity to review all aspects of management and to integrate the environmental impact of care into routine decision making.

18.3 MDIs contribute 3% of the NHS carbon footprint [31]. MDIs have a much larger carbon footprint than dry powder inhalers (DPIs) or Soft Mist Inhalers (SMIs) due to their hydrofluorocarbon (HFC) propellants, which are

very powerful greenhouse gases. Lower carbon MDI inhalers are now in late-stage development and, once available, will reduce the carbon footprint of these inhalers.

18.4 The greatest contributor to the carbon footprint of respiratory care are Metered Dose Inhalers (MDI), most of which are short-acting beta-agonists (SABA). This underlines the importance of focusing on long term disease control and reducing SABA use.

19. Low Carbon Alternatives - why we are concerned

19.1 The UK is an outlier compared to international comparators for SABA overuse and MDI:DPI ratio, and progress towards low carbon inhaler prescribing has been slow until very recently.

19.2 The significant reduction of 15-20 thousand tonnes of CO_2e per month compared to the 2018 baseline data is cause for celebration but mostly represents Ventolin to Salamol switches, rather than a change in prescribing culture.

19.3 Most patients would prefer a low-carbon inhaler if clinically appropriate. Sufficient information must be provided to allow patients to make an informed decision in collaboration with their healthcare team [32]. This requires an educated and empowered respiratory workforce.

19.4 Environmental impact is not yet a part of routine decision-making in inhaler device or regime choice although this is supported by NICE guidance and has been successfully implemented in Wales showing it is deliverable [33].

19.5 Initiation of a new inhaler is an opportunity to find the right device for the patient. This should preferentially be a DPI or SMI where the patient is able to use these device types effectively. Whatever device is chosen, the patient should be trained on optimal use. Spacers should be provided for all MDIs.

19.6 There is a lack of data on the environmental impact of other aspects of respiratory care, such as lung function testing, pleural procedures, bronchoscopy, outpatient diagnostic and treatment pathways and the availability and efficacy of lower carbon alternatives.

20. Low Carbon Alternatives - what we need to do

20.1 Everyone involved in the care of respiratory patients must take every opportunity to assess and optimise both adherence and inhaler technique. This requires knowledge and skills in inhaler device types and use, which is not universal at present.

20.2 Patients over-reliant on SABA have poor disease control, are at risk of exacerbations, and have a large carbon footprint of care [34]. Systematic identification and optimisation of these patients is the priority.

20.3 BTS supports the use of decision aids to facilitate conversations about inhaler choice, taking into account clinical recommendations, patient ability and preference, inhaler technique and the environmental impact of different inhalers.

20.4 For asthma, disease control should be prioritised with inhaled steroids [35]. SABA free regimes (Maintenance and Reliever Therapy (MART) or Anti-Inflammatory Reliever (AIR) regimes which use an Inhaled corticosteroid (ICS) /formoterol inhaler only) are encouraged where clinically appropriate.

20.5 For COPD, non-pharmacological interventions such as treatment of tobacco dependence, vaccination, and pulmonary rehabilitation should be prioritised [36].

20.6 For those patients who need to remain on MDIs, there are other ways to reduce the environmental impact of care. This includes selecting the MDI regime with the lowest carbon impact.

20.7 The priority is to optimise disease control and reduce SABA overuse, but some dose regimes can be simplified to reduce the number of inhalers and/or puffs and therefore the amount of HFC used.

20.8 BTS will provide educational resources, along with a quality improvement toolkit to educate the respiratory workforce in low carbon prescribing and make sustainable quality improvement projects accessible to teams with constrained time and resources.

20.9 BTS supports calls for national inhaler recycling programmes, with national and local organisations working with industry partners in order to reclaim HFCs in MDI canisters at the point of disposal.

20.10 In the meantime, BTS supports all efforts to ensure that patients return inhalers to pharmacies rather than disposal in domestic waste so that the HFC in MDIs can be incinerated, reducing the global warming impact. Other types of inhalers, such as DPI, should also be returned for disposal.

21. Education and Training – what we know

21.1 There is an urgent need for the entire respiratory workforce to learn how to deliver sustainable healthcare, independent of role or location.

21.2 Undergraduate curricula increasingly cover general principles of the impact of the climate crisis on health and the principles of sustainable healthcare, but there is a gap in translating this into specialty specific actions.

21.3 Sustainable healthcare is relevant to several areas of the internal medicine and respiratory curricula for doctors [37], and professional standards for nurses [38] and allied health professionals [39].

22. Education and Training - why we are concerned

22.1 Future respiratory medicine professionals who will be working in a world changed by global heating will not receive adequate education on climate change and health if changes are not made.

22.2 There is no established route for respiratory professionals to access education on sustainable respiratory care.

22.3 There is a lack of knowledge and confidence in those delivering respiratory education, resulting in sustainable respiratory care only being taught by enthusiasts to pockets of the workforce.

23. Education & Training - what we need to do

23.1 BTS calls for equitable access to education on climate and lung health and integration of this vital area of work into all curricula. This not only includes education on the health impacts of climate change, but also education on effective ways to communicate about these health impacts to patients and decision making bodies.

23.2 BTS encourages all respiratory professionals to ensure their CPD meets their educational needs in relation to sustainability and health. BTS will provide opportunities for CPD at the annual Summer Meeting.

23.3 BTS commits to include a statement on climate change and lung health in all new statements and guidelines produced by the Society.

23.4 BTS commits to continuing to provide a mixture of face to face and virtual educational opportunities, and to explore ways to minimise the environmental impact of travel to educational events including BTS conferences.

23.5 BTS commits to creating an evolving sustainable respiratory care toolkit as a dedicated resource to support sustainable respiratory healthcare.

23.6 BTS continues to call for long-term NHS workforce planning for the specific skills that will be required for the increasing burden of climate-related disease. A competency-based approach, with flexibility and adaptability as key attributes will be required.

24. Advocacy - what we know

24.1 The respiratory community is uniquely positioned to highlight the health impacts of climate change since patients with respiratory disease are disproportionately affected.

24.2 Healthcare professionals are trusted messengers and therefore powerful voices in advocating for the structural changes needed to reduce the impact and mitigate against the worst consequences of climate change [40].

25. Advocacy - why we are concerned

25.1 Too few respiratory professionals feel equipped and able to advocate for change locally and nationally that would benefit the patients in our care.

25.2 The respiratory community has been under intense pressure for years, but particularly through and since the COVID19 pandemic. There is a risk that there is insufficient capacity to lead the changes in practice at the rapid pace needed to adapt to and mitigate against the impacts of climate change.

25.3 There is a lack of dedicated resource to lead the research, quality improvement, policy development and partnerships that are required to achieve sustainable respiratory care.

26. Advocacy - what we need to do

26.1 BTS has created a board-level position to develop the Society's approach to sustainability and will continue to support actions set out in this Position Statement.

26.2 BTS will support the sustainability board member to develop skills and knowledge which facilitate their role in bringing a respiratory voice to existing networks.

26.3 BTS will support all members of the respiratory workforce to integrate sustainability into service improvement, quality improvement, research projects, strategies and appraisals through a dedicated area on Respiratory Futures.

26.4 BTS will continue to expand its advocacy role by contributing to the Taskforce for Lung Health and UKHACC.

26.5 BTS will seek opportunities to work more closely with patient and partnership organisations to support policy and project work which supports the priorities of the respiratory community in relation to climate change and lung health.

27. Roles and Responsibilities - what we know

27.1 Members of the respiratory community have a responsibility to act with urgency in the face of the greatest health crisis of our time, particularly as our patients are disproportionately vulnerable to the impacts of climate change, and our work contributes to the problem.

28. Roles and Responsibilities - why we are concerned

28.1 The pace of change across individuals, professionals and organisations is inadequate given the scale of the crisis. There are many competing priorities for individuals and organisations.

29. Roles and Responsibilities - what we can do as individuals

29.1 BTS encourages all members to use their voices locally and nationally as advocates for patients living with respiratory disease worsened by climate change.

29.2 BTS encourages members to influence professional bodies, and regulators to prioritise climate action and sustainable care.

29.3 BTS members can implement individual actions to reduce their personal environmental impact. This may include divestment from certain banks and energy companies, dietary change, and adoption of tailpipe emission-free and active travel.

29.4 BTS members are encouraged to participate in education events on sustainable healthcare and to scrutinise and reflect on their own practice to identify areas for change.

29.5 BTS encourages all prescribers to consider the impact of their prescribing practice on the environment, to actively avoid overprescribing, to prioritise inhaler device optimisation and to highlight appropriate disposal of waste.

30. Roles and Responsibilities - what organisations can do

30.1 BTS calls for the allocation of sufficient resource for formal roles within local and national organisations to drive the change needed to meet NHS net zero aspirations.

30.2 BTS will continue to work with partner organisations including UKHACC, Greener NHS and Greener Practice to share best practice and educational resources and encourages these organisations to continue to prioritise respiratory care in their work.

30.3 BTS supports organisations incentivising change, such as social value weighting for procurement.

30.4 BTS will undertake a review of the activities of the organisation, including suppliers, energy use, and catering to identify areas where BTS can lead by example.

30.5 The BTS investment policy commits to no investment in the tobacco industry, arms trade or fossil fuel industries. The BTS Board will continue to review the impact of investments and explore opportunities to actively support projects which deliver benefits to respiratory patients.

31. Roles and Responsibilities - what industry can do

31.1 BTS supports a move to circular economy principles and will seek ways to encourage the pharmaceutical industry to act at speed to fund and embed reduce, reuse, recycle principles in all inhaler production pathways, for example through briefings, roundtables or contributions to consultations.

31.2 BTS commits to highlight innovations from industry in sustainable respiratory care, including low carbon alternatives in diagnostics, inhalers, and interventional procedures and facilitate their integration into routine care.

32. Conclusion

32.1 People living with respiratory disease are vulnerable to many direct and indirect effects of climate change. Action on the causes of climate change will not only reduce the health harms from planetary dysregulation but also bring immediate health co-benefits and start to reverse entrenched inequalities that have been normalised.

32.2 BTS is committed to taking action as a Society and to supporting members to lead the research, innovation and action, and also lead by example.

32.3 BTS urges all respiratory professionals and patients to unite in the current global endeavour to advocate for the protection of our planet.

32.4 BTS will support the respiratory community in preparing for complex and challenging times and encourages members to act, knowing that the more positive action undertaken now, the better the future will be for everyone.

British Thoracic Society

Related resources

Find more information on Sustainability and the Environment at www.respiratoryfutures.org.uk

Authors

Dr Laura-Jane Smith (chair), Dr Henry Marshall, Dr Thomas Medveczky, Dr Jennifer Nixon, Dr Gerrard Phillips, Ms Ravijyot Saggu, Dr Lewis Standing, Dr Ruth Wiggans, Dr Alexander Wilkinson, on behalf of BTS.

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