Pragmatic guide to delivering greener respiratory healthcare

Carol Stonham *Executive Chair, Primary Care Respiratory Society, UK*

This pragmatic guide has been developed based on the work of the PCRS Greener Healthcare Working Group. In 2020, the PCRS Greener Healthcare Initiative brought together respiratory healthcare professionals working in primary and secondary care setting, public health specialist, patient advocacy organisations, patient representative, policy influences, service users and decision makers as well as representatives from the pharmaceutical industry. This pragmatic guide brings together practical and immediately implementable strategies to enable healthcare professionals to understand and deliver greener respiratory healthcare in the primary care setting. This guide is relevant to any healthcare professional working in primary care who wishes to understand and reduce the impact of the respiratory healthcare they deliver on the environment

Introduction

All healthcare incurs environmental costs, and it is incumbent on us all to be aware of and minimise these costs for future generations. The environmental burden of respiratory healthcare, perhaps more than any other sector, brings into sharp focus the interface between health and healthcare. While the environment, notably air quality and pollution levels, can both cause and worsen lung disease, respiratory healthcare delivery can add to air pollution, waste and the carbon footprint of healthcare services. Understanding these interactions and working to minimise the impact of respiratory healthcare on the environment without compromising the quality of care delivered to patients is at the heart of greener respiratory healthcare.

What do we mean by greener respiratory healthcare? Greener respiratory healthcare is that which initially works to prevent the development of respiratory disease where possible, ensures patients receive early and accurate diagnosis and appropriate treatment (pharmacological and non-pharmacological) to ensure their respiratory condition is well controlled with minimal waste and a minimal carbon footprint, using streamlined services that avoid duplication, and digital interfaces where appropriate.[1]

Why greener respiratory healthcare is important. Respiratory disease, respiratory healthcare and the environment interact in unique and reciprocal ways. Between 28,000 and 36,000 deaths in the UK are thought to be attributable to human-made air pollution.[2] Environmental pollution can cause and exacerbate respiratory disease and, conversely, delivery of healthcare for patients with respiratory disease can create and add to environmental pollution. Targeting environmental pollutants such as traffic fumes is recognised as an important strategy to improve the lives of people living with respiratory disease.[3] Minimising the environmental impact of the healthcare we deliver for patients with respiratory disease while maintaining the quality of care we deliver has the potential to achieve environmental gains from which we can all benefit. The NHS is responsible for around 6%

of England's total carbon emissions.[4] The NHS Long Term plan (2019) and the "Delivering a 'Net Zero' National Health Service" report issued in 2020 place reduction in healthcare service-related environmental pollution at the heart of decision making.[5]

Who is this guide for? This pragmatic guide has been developed to support colleagues working in primary care to consider and actively seek ways to minimise the associated environmental impact of respiratory healthcare without compromising quality of care.

Where to start

Greener respiratory healthcare spans the complete patient journey, from prevention of disease and diagnosis, through to routine chronic care and including the acute situation.[6] A good place to start is by becoming knowledgeable about the impact of respiratory healthcare on the environment and then seeking to raise awareness among and educate and engage colleagues and patients about their role in achieving greener respiratory healthcare.[1]

In 2020 the NHS was responsible for 6.1% of the total carbon emissions and 3.5% of all road traffic in England.[5] While the carbon footprint of the NHS in England has demonstrated a downward trend since 2008,[5] this trend will need to be sustained and potentially accelerated if we are to meet the ambitious targets set out in the UK Climate Change Act and the NHS Long Term plan for a Net Zero NHS.[5] In the primary care setting, the greatest sources of carbon emissions are medicines and chemicals, business services and medical and non-medical equipment, metered dose inhalers (MDIs) and building energy and patient and staff travel.[5] These are also the greatest sources of opportunity to reduce the carbon footprint of primary healthcare in general and primary respiratory healthcare in particular.

With this knowledge in hand, you can begin to evaluate the environmental impact of your own clinical practice and explore ways in which to reduce it. Some steps to get you started are shown in Box 1.

Greener prescribing

Many of the most effective medicines for the management of lung disease are delivered straight to the lungs via inhalation. MDIs have come under scrutiny in recent years for the global warming potential (GWP) of the propellants used to drive the medicine out of the device and into the patient's lungs. In emergency situations, this assisted delivery, especially in combination with a spacer device, can be life-saving. Moreover, these devices are essential for patients without the inspiratory capacity to generate sufficient power to ensure effective delivery from other types of inhaler such as dry powder inhalers (DPIs) or soft mist inhalers (SMIs). However, there is a need to reduce the GWP of inhalers in general, and it is incumbent on prescribers to be aware of the carbon footprint of the inhalers on their local formulary list and make this part of the decision-making process when deciding on a new prescription. In addition, the plastic in all inhaler types will degrade and leach into the land, waterways and sea, contributing to environmental pollution if not disposed of safely.

Prescribing decisions should always be made on an individual basis and in consultation with the patient, and should include environmental considerations to ensure patients receive their medication via a device that is effective and appropriate for them.[7,8]

Patients should always be involved in and at the heart of decision-making about their care and the medications they receive so that they are more likely to adhere to appointments, medications and self-care advice. Changing a patient from an MDI to another inhaler type should only be undertaken after careful consideration and when the alternative device can offer the same.

Box 1: Getting started with greener respiratory healthcare

Is my place of work as green as it could be?

- Use the 'Green Impact Audit for Health Toolkit' to help you understand and identify areas to target to improve the environmental impact of your practice (https://www.greenimpact.org.uk/giforhealth)

Become a green advocate within your practice and ensure the environmental impact is always at the heart of practice-level decision making. Areas you might like to advocate for within your own practice might be:

Simple steps to improve air quality in and around my place of work

- Ban smoking on site, outdoors as well as indoors
- Operate (and enforce) a 'no engine-idling' policy

Simple steps to improve recycling at my place of work

- Ensure recycling bins (paper, plastic, etc) are available and used
- Be knowledgeable about recycling schemes through local pharmacies so you can advise patients
- Educate patients about recycling inhalers (and other medicine packaging) as part of the new patient consultation and every routine review consultation

Simple steps to minimise travel to and from my place of work

- Encourage colleagues to car-share or use public transport use
- Consider the use of digital technology and remote consultation to deliver routine healthcare for respiratory patients

efficacy and safety profile, and that the patient can confidently use it. See our guidance on making safe and clinically appropriate changes to inhalers for more information on this (https://www.pcrs-uk.org/resource/pcrs-guidance-making-safe-and-clinically-appropriate-changes-inhalers).[9] Ensure patients understand their prescribed medicines, and the importance of using them as prescribed and to the last dose is important to minimise waste. Inhalers with dose counters can be useful in this respect to ensure every dose is used. Patients should also be advised against 'test sprays' except on first use.

More general approaches to greener prescribing include using electronic prescriptions wherever possible direct to pharmacies and being aware of potential interactions including the interaction between smoking and some medications used to treat respiratory disease such as theophylline and inhaled corticosteroids, which may mean that higher doses are required.[10]

Influencing Integrated Care Systems decision-makers

From April 2021, Integrated Care Systems (ICSs) will coordinate regional health and care needs in England, bringing together the NHS and local councils along with voluntary and community organisations and social enterprises. This reorganisation, bringing together insights and expertise at a local level, is an ideal opportunity for those working in primary care to engage with the wider local community and drive the greener respiratory healthcare initiative. In Scotland, regional NHS boards are responsible for the delivery of front line healthcare services and for the protection and improvement of population health (https://www.scot.nhs.uk/organisations/). In Wales, these responsibilities lie with regional Health Boards (https://gov.wales/sites/default/files/publications/2019-09/nhs-wales-planning-framework2020-to-2023.pdf) and in Northern Ireland with Local Commissioning Groups (LCGs) (http://www.hscboard.hscni.net/local-commissioning-group/.

See our top tips guide on making the case for greener respiratory healthcare and influencing upwards to start ensuring green issues are at the heart of decision making in your local area (https://www.pcrs-uk.org/sites/pcrs-uk.org/files/resources/Greener-Respiratory-Pathway/2021-04-12-Top-Tips-Making-the-case-for-greener-respiratory-healthcare.pdf).[11]

Issues with which to open the conversation might include formulary lists and information availability on the carbon footprint of inhalers and other respiratory medications or the availability of low carbon alternative inhalers.

Diagnosis: Getting patients on the right path

Ensuring patients receive a **timely and correct diagnosis** already delivers greener respiratory healthcare by reducing wasted medication that a patient does not require or does not use effectively and repeated healthcare visits for ongoing symptoms and tests.[1] Accurate diagnosis ensures that patients can embark on the appropriate management plan to gain and maintain control of their respiratory symptoms as well as making sure they receive the right medication from the start at a dose that is sufficient and via a device that is appropriate for them.

Diagnostic hubs can be a useful way to streamline diagnostic services and reduce duplication, travel and waste. Be aware of and utilise diagnostic hubs in your area. If there are none, consider advocating them with your ICS, NHS board, Health Board or LCG.

Maintenance and co-morbidities: keeping patients on the right path

Once a patient has received a correct diagnosis and been prescribed a medication regimen, the focus can then shift to achieving and maintaining disease control. This requires a holistic approach to enable patients to understand their condition and prescribed medication and adhere to their prescribed regimen, and supporting them in the correct use of any devices they are using.[1] Prescription and signposting of non-pharmacological treatments such as PR and smoking cessation also offer evidence-based benefits and must be included in the treatment pathway.

Greener healthcare principles in this area should focus on actively seeking to identify patients most at risk of symptomatic worsening for proactive review. It may be that these patients have received an incomplete or incorrect diagnosis and treatment, or that they are not taking their medicine as directed and/or with the correct inhaler technique (if applicable). We can intervene here both to improve outcomes and control for patients as well as reducing the environmental impact of their care by making sure patients understand their medicines and are taking them effectively and, perhaps most importantly, with the correct inhaler technique. All respiratory patients should have an up-to-date personalised management plan in place detailing their regular medication regimen, how to recognise when their symptoms are getting worse and what they should do in that situation. For some patients, digital action plans may be appropriate.

There is a wealth of online resources that can be used to educate and support patients in the correct use of any inhaler they have been prescribed. For example, Asthma UK have a website through which short videos demonstrating the correct technique for a range of inhalers can be accessed (https://www.asthma.org.uk/advice/inhaler-videos/).

For motivated patients whose symptoms are well controlled, routine consultations could be considered via remote platforms avoiding the need for patients to travel to their appointment.[12] Group consultations, including group virtual consultations, can

streamline routine care delivery by bringing patients together who require the same supportive service and education.

What would the ultimate 'Green' primary care practice look like?

- **The site:** 'No idling' policy in the car park
- **The building:** Safe disposal/recycling bins, environmentally friendly cleaning products, active maintenance of all services to ensure optimal efficiency (heating, lighting and any air conditioning)
- **The personnel:** Environmentally aware and engaged, seek to minimise travel-related carbon footprint (car shares, public transport) (see also 'Take action' from Greener NHS: https://www.england.nhs.uk/greenernhs/get-involved/)
- **Greener healthcare advocacy:** At least one person designated as the greener healthcare advocate, greener healthcare prioritised in all practice-level decision making
- **Environmentally aware:**
  - Diagnostic pathways utilising local diagnostic hubs
  - Prescribing
  - Patient education
  - Patient review and proactive identification of 'at risk' patients
  - Consultations that embrace digital technologies where appropriate
  - Contributes to the NHS Forest (https://nhsforest.org) and sets up and encourages patients to use local Green Health Routes

See: Sustainable and environmentally friendly general practice. GPC England Policy Document: https://www.bma.org.uk/media/2570/bma-sustainable-and-environmentally-friendly-general-practice-report-june-2020.pdf

Summary and looking to the future

Delivering the right clinical care for individual patients must remain the primary focus for clinicians. Greener respiratory healthcare has the potential to focus attention on delivering the right clinical care while reducing the environmental impact of that care. In the areas where we can affect direct change such as in the inhalers we prescribe, we can do so by having some knowledge of the subject by considering the full clinical picture including any collateral effect and including patients in sharing decision making.

Achieving greener respiratory healthcare requires system-level change, but all change begins with individuals. Starting with our own clinical practice, advocating for and educating about greener healthcare with colleagues and patients and influencing upwards is something we, as healthcare professionals, can all do. To see some examples of local level projects that have delivered real results, see the case studies from the NHS 'Greener NHS' program (https://www.england.nhs.uk/greenernhs/whats-already-happening/), particularly 'Boosting healthy and sustainable travel in Manchester' and 'For a greener NHS: GOSH reducing single use plastics'. We can all make a difference, lots of small differences will add up to sustainable change.

References
1. Primary Care Respiratory Society. Greener Respiratory Healthcare that is kinder the environment. White paper and call to action. Available at: https://www.pcrs-uk.org/resource/greener-healthcare
2. Public Health England. Air pollution: applying All our Health. 19 March 2020. Available at: https://www.gov.uk/government/publications/air-pollution-applying-all-our-health/air-pollution-applying-all-our-health#why-we-focus-on-the-health-effects-of-air-pollution-in-your-professional-practice (accessed May 2021).
3. Department for Environment, Food & Rural Affairs (DEFRA). Air quality: A briefing for directors of public health. March 2017. Available at: laqm.defra.gov.uk/assets/63091defraairqualityguide9web.pdf.
4. Sustainable Development Unit. Natural Resource Footprint. Reducing the use of natural resources in health and social care. Available at: https://www.sduhealth.org.uk/policy-strategy/reporting/natural-resource-footprint-2018.aspx.
5. NHS England. Delivering a 'Net Zero' National Health Service. Available at: https://www.england.nhs.uk/greenernhs/wp-content/uploads/sites/51/2020/10/delivering-a-net-zero-national-health-service.pdf.
6. Primary Care Respiratory Society. Greener Respiratory Pathway. Available at: https://www.pcrs-uk.org/greener-respiratory-pathway (accessed May 2021).
7. Panigone S, Sandri F, Ferri R, *et al.* Environmental impact of inhalers for respiratory diseases: Decreasing the carbon footprint while preserving patient-tailored treatment. *BMJ Open Respir Res* 2020;**7**:e000571. https://doi.org/10.1136/bmjresp-2020-000571
8. Usmani OS. Choosing the right inhaler for your asthma or COPD patient. *Ther Clin Risk Manag* 2019;**15**:461–72. https://doi.org/10.2147/TCRM.S160365
9. Keeley D, Attar Zadeh S. Shared decision making for greener healthcare: Guidance on making safe and clinically appropriate changes to inhalers. Available at: https://www.pcrs-uk.org/resource/pcrs-guidance-making-safe-and-clinically-appropriate-changes-inhalers (accessed May 2021).
10. MHRA. Smoking and smoking cessation: clinically significant interactions with commonly used medicines, 2009. Available from: https://www.gov.uk/drug-safety-update/smoking-and-smoking-cessation-clinically-significant-interactions-with-commonly-used-medicines
11. Freeman D, Baxter N. Top tips: Making the case for greener respiratory healthcare and influencing upwards. Available at: https://www.pcrs-uk.org/sites/pcrs-uk.org/files/resources/Greener-Respiratory-Pathway/2021-04-12-Top-Tips-Making-the-case-for-greener-respiratory-healthcare.pdf (accessed May 2021).
12. International Primary Care Respiratory Group. Desktop Helper No. 11 – Remote Respiratory Consultations. Available at: https://www.ipcrg.org/dth11 (accessed May 2021).

Date of Preparation: May 2021

PCRS

THE GREENER RESPIRATORY PATHWAY
A PCRS Initiative

The PCRS interactive respiratory pathway tool aims to help clinicians work with patients to identify a greener approach to delivering high quality, patient centred respiratory care.

https://www.pcrs-uk.org/greener-respiratory-pathway