

Green Emergency Departments

Dr Tim Spruell. ST5 in Emergency Medicine. St Thomas' Hospital London.

If the health care sector were a country, it would be the fifth largest greenhouse gas emitter on the planet. ⁽¹⁾ The healthcare sector has the opportunity to demonstrate leadership by taking steps to reduce its own carbon footprint, in an effort to tackle what the Lancet has described as the biggest global health threat of the 21st century. ⁽²⁾ The emergency medicine workforce in the UK are first in line to deal with the health consequences of climate change, which include the effects of heat illness, drought, severe weather events as well as the effects of air pollution, which is responsible for between 28,000 to 36,000 excess deaths a year in the UK. ⁽³⁾

Emergency medical staff have an opportunity to demonstrate leadership within and beyond the healthcare sector in tackling the problem of rising global emissions. This has been recognised by institutions such as the Royal College of Emergency Medicine, which has recently taken the decision to publicly divest its investments from all fossil fuels, and has formed an Environmental Special Interest Group. ⁽⁴⁾ With emergency department attendances now totalling more than 2 millions visits per month in England, ⁽⁵⁾ if measures were taken to provide environmentally sustainable emergency care, substantial reductions in the overall carbon footprint of emergency medicine could be achieved, thus supporting overall efforts to reduce NHS carbon emissions. Below are a set of proposals which could be implemented in a stepwise fashion in emergency departments, walk in centres, and urgent care centres across the UK and would help to reduce the overall carbon footprint of emergency care.

✓ Reduce nitrous oxide use.

Nitrous oxide is a very potent greenhouse gas (298 times as potent as Carbon dioxide).⁽⁶⁾ Using a 3.4kg cylinder of nitrous oxide is equivalent to 1013 kg of Co2e being released into the atmosphere (equivalent to a return flight to from London to Cairo). There may be alternative options for analgesia once the patient is in the emergency department.

✓ Reduce unnecessary prescribing

21% of NHS greenhouse gas emissions are due to pharmaceuticals. ⁽⁷⁾ Some medicines are commonly prescribed in the ED but have little evidence. For example, there is no evidence for routine administration of anti-emetics with morphine. ^(8, 9) Emergency physicians could also flag up un-necessary poly pharmacy to GP or admitting teams.

✓ Turn off electrical equipment

24% of the NHS carbon footprint is due to building energy use. ⁽¹⁰⁾ Encouraging staff to turn off lights and electrical equipment when not in use will reduce costs and energy use.

✓ Encourage inhaler recycling

Less than 1% of inhalers in the UK are recycled. ⁽¹¹⁾ If every inhaler in the UK was recycled, this could save the equivalent of 512,330 tonnes of Co2e a year. ⁽¹²⁾ Many pharmacies, hospitals and surgeries now participate in the inhaler recycling scheme, and emergency staff can advise patients to use this scheme. ⁽¹³⁾

✓ Prescribe DPI instead of MDI inhalers

The Ventolin Evohaler™ contains potent greenhouse gasses and is equivalent to 28kg of carbon being released into the atmosphere (equivalent to driving from London to Sheffield). ⁽¹⁴⁾ Although not all patients will be suitable for a dry powder inhaler (DPI) prescription, for some patients, switching from a metered dose inhaler (MDI) may save as much carbon as becoming vegetarian. ⁽¹⁴⁾

✓ Reduce single use plastic

Great Ormond Street Hospital has saved 21 tonnes of non recyclable plastic waste by reducing single use plastic as part of the 'Gloves Off Campaign'. ⁽¹⁵⁾ Each kilogram of plastic waste incinerated leads to 3kg of Co2e released into the atmosphere. ⁽¹⁶⁾

✓ Switch to recycled Paper.

If the NHS used recycled paper, it could save 5222 tonnes of Co2 a year, and would also avoid cost increases of £1.41 million a year. ⁽¹⁷⁾

✓ Appoint an environmental sustainability lead.

This person could keep records of departmental actions and encourage discussion of environmental sustainability and the effects of climate change and health at departmental level. They could also advise trainees on how to incorporate an environmental sustainability analysis into quality improvement projects undertaken in the department, and liaise with the RCEM Environmental Special Interest Group.

References

1. How the health sector contributes to the global climate crisis and opportunities for action, a report by Health care Without Harm, in collaboration with Arup. Health Care Without Harm 2019.

2. Costello A, Abbas M, Allen A *et al.* Managing the health effects of climate change. *Lancet* 2009 373 1693, 1733

3. Associations of long term average concentrations of nitrogen dioxide with mortality (2018) Committee on the Medical Effects of Air Pollutants (COMEAP)

4. Press Release. Royal College of Emergency Medicine. 5th July 2019.

5. NHS England - A&E Attendances and Emergency Admissions.

6. Defra Greenhouse Gas Conversion Factors, 2019. Available at <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2013>

7. NHS Sustainable Development Unit. Available from <https://www.sduhealth.org.uk/areas-of-focus/carbon-hotspots/pharmaceuticals.aspx>.

8. Bradshaw M, Sen A. Use of a prophylactic antiemetic with morphine in acute pain: randomised controlled trial. *Emerg Med J.* 2006;23(3):210-3

9. Talbot-stern J, Paoloni R. Prophylactic metoclopramide is unnecessary with intravenous analgesia in the ED. *Am J Emerg Med.* 2000;18(6):653-7.

10. NHS Sustainable Development Unit: <https://www.sduhealth.org.uk/areas-of-focus/carbon-hotspots/energy.aspx>

11. www.thegreeninhaler.org

12. <https://www.recyclenow.com/what-to-do-with/inhalers-0>

13. <https://uk.ask.com/en-gb/responsibility/our-planet/complete-the-cycle/>

14. NHS Sustainable Development Unit. <https://www.sduhealth.org.uk/news/669/green-inhaler--making-your-inhaler-more-environmentally-friendly/>