



Making primary care greener: the science and art of sustainable practice

As the environmental movement gains momentum in healthcare, *Dr Matt Sawyer* suggests ways that GP practices can be less environmentally harmful

Over the last few years, we have seen a surge in discussions of green issues and environmental damage across the world, from BBC documentaries by Sir David Attenborough to speeches at the UN by the activist Greta Thunberg denouncing the approach of big businesses and those who continue 'business as usual'.

The UK Government passed legislation in 2008 – the Climate Change Act – to require the country to reduce greenhouse gas emissions to net zero by 2050. The Committee for Climate Change reports on progress made and announced that we need to reduce by 78% (from 1990 levels) by 2035.¹

So, what has this got to do with the day-to-day life of a GP practice?

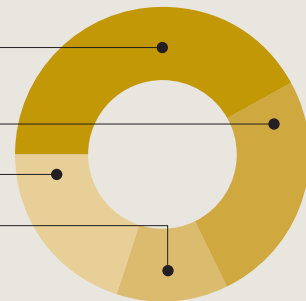
Operational non-clinical carbon footprint of a sample GP practice

Energy use **42%**

Travel **26%**

Professional services **20%**

Other **12%**



Carbon footprints and primary care

The carbon footprint of the health service is notoriously large. Some 4% of the carbon footprint of the whole country is attributed to the NHS. The NHS in the UK has been proactive in implementing sustainability by setting targets and developing guidance papers, culminating in *Delivering a Net Zero NHS*² published in October 2020.

Primary care aims to provide a high-quality service to protect, diagnose, treat and improve the health of patients, but this is at considerable environmental cost. Our practices cause wasted resources (time, energy, physical resources, money), pollution through disposal of items, equipment and products at the end of life, and emissions – especially greenhouse gases.

Sustainable frameworks specific to primary care are lacking, but that shouldn't stop us learning from best practice from other sectors.

More specifically, the carbon footprint of primary care can be split into three areas:

- Operational footprint from the day-to-day running of our practices.
- The footprint from investigations (such as pathology and radiology).
- The prescribing of medication; preventing and treating illnesses in our patients.

The main carbon hotspots of the operational footprint are (see box, page 34):

- Energy use.
- Travel (staff and patients).
- Professional services.
- Other activities and factors, including procurement, office and medical consumables, water and waste.

To tackle these, teamwork and cooperation are vital. Set up a practice 'green team' or embed greener actions into the everyday routine.

Energy use

Energy is used for water heating, electrical equipment and lighting.

Reduction in use can be achieved through behaviour change and the way you implement technological advances. First, implement the simple behaviour changes that cost nothing and are easy wins. These include using energy-saving modes on monitors; turning off equipment when it is not in use; and running the kitchen dishwasher on lower temperature settings.

Technological changes should be implemented only when needed. There is a large expenditure on resources, energy and carbon when goods are manufactured – only replace equipment when it needs replacing.

Changing your energy suppliers to 100% renewable is quick and easy, even during a time-pressured period. Try bigcleanswitch.org or greenenergyswitch.co.uk

How to work out your practice carbon footprint (figures from 2019)¹⁰

Energy bills

The amount of energy used will be recorded on the energy bill and the carbon emissions may be too. If not, use this formula from 2019: 0.26g of CO₂ per kWh of electricity and 0.18kg CO₂e (CO₂ or other equivalent greenhouse gas) per kWh of gas.

Travel

Ask your staff how far they travel by car each week or complete the SEE Sustainability form.⁷ Calculate the total distance, and multiply by the figure below.

Car size	Amount of kg of CO ₂ e emitted per mile	
	Petrol	Diesel
Small	0.24	0.22
Medium	0.30	0.27
Large	0.45	0.33

For patient travel, analyse the IT system for an accurate figure. Provide information on alternatives to driving. Use technology to minimise the need to attend in person.

Professional services

This varies by practice size because of economies of scale – between 1.2kg CO₂e per patient for a large practice, and 4kg CO₂e per patient for a smaller one.

Other activities and factors

Roughly 1-1.5kg CO₂e per patient but depends on the range of services provided by a practice.

Travel

Travel carries a high carbon cost, and also health, social and environmental impacts. Petrol and diesel cars generate various pollutants contributing to asthma and respiratory disease, heart attacks, strokes, and poor brain development. The latter can affect educational achievements in the young and dementia in the old. Another problem with cars is the drop in physical activity, which contributes to diabetes and heart disease.

The environmental researcher Mike Berners-Lee³ calculated that each mile travelled by a diesel vehicle across a town or city had a cost of 12 minutes of life from the community. Each five-mile trip to the GP practice or the school run, or the supermarket shop, costs society one hour of life.

What can practices do about this? One

practice realised that four members of staff all lived close together but travelled in separate cars. This was found to be due to their differing start and finish times. So these were synchronised, and they shared cars, meaning lower fuel costs for them, plus better staff morale and camaraderie.

A staff travel audit can help to identify several opportunities. According to a recent National Travel Survey,⁴ 80% of journeys of less than one mile are made by foot. First, find out if this is true for all your practice staff.

Second, in some practices, the commutes of just one or two staff members of staff can be responsible for the majority of the carbon emissions footprint. Look at zero-carbon options – there are business grants to install an electric car charger at work.

Third, identify opportunities for staff to car-share (see box, left).

Patient travel also adds to the carbon footprint, especially if they drive. The appointment system can show which patients attended on a given day. Tools such as Google Maps can work out the distances they travelled for a rough average figure.

You can reduce patient travel by holding consultations remotely and emailing sick notes. You can also encourage them to use the bus – put the timetables and maps on the practice website. Also, give information about walking and cycle routes, and make sure there is enough space for bike parking.

The response to Covid has been transformational in this respect. We have found new ways to assess and treat patients with technology. This includes telephone assessments, video ward rounds in care homes, and remote monitoring of patients in their homes via pulse oximetry. Although face-to-face appointments will probably increase again, many skills we learned will probably stay and will reduce the environmental impact of patient travel.

Professional services

Professional services are all the businesses and services a practice uses, such as phones, computers, general IT support, finance, accountancy, payroll, insurance and many others. Each has a carbon footprint from running its business and as the adage goes: 'Every time you spend money, you're casting a vote for the kind of world you want'. We have financial influence over the environmental behaviour of our suppliers and can lower our footprint by influencing those around us.

Other activities and factors

This category includes medical consumables (from PPE in the pandemic to uniforms); office consumables (printing, paper, postage); medical equipment (everything from BP

Some practices have swapped single-use equipment for kit that can be sterilised and re-used

Carbon footprint calculation (2019 figures)¹⁰

Urban practice of 7,000 patients

Energy = 14,200kg CO₂e

	Annual use (kWh)	Conversion factor (kg CO ₂ e/kWh)	Emissions (kg CO ₂ e)
Gas	50,000	0.18	9,000
Electricity	20,000	0.26	5,200

Travel

Staff

8 staff (cumulatively) cover 620miles in cars each week.

Car size		Kg of CO ₂ e emitted per mile	Number of staff miles travelled	Emissions (kg CO ₂ e)
Small	Petrol	0.24	200	48
	Diesel	0.22	0	0
Medium	Petrol	0.30	200	60
	Diesel	0.27	50	14
Large	Petrol	0.45	100	45
	Diesel	0.33	70	23

Total per week 620 190
Total per year (assume 6 weeks' holiday) = 190x46 = 8,740kg CO₂e

Patients

Approx. 1.25kg per patient on practice list = 7,000x1.25 = 8,750kg CO₂e

Professional services

Approx. 2.5kg CO₂e per patient = 7,000x2.5 = 17,500kg CO₂e

Other factors

At 1.25kg CO₂e per patient = 7,000x1.25 = 8,750kg CO₂e

Total annual emissions footprint = 57,950kg CO₂e per year or 58tonnes (excluding prescribing)

machines to oximeters); office equipment; waste collection and water suppliers.

It is vital for us to become aware of what we buy, how it is used and how it is disposed of. Some practices have contacted the sterile services department in their local acute trust to discuss swapping single-use equipment for reusable equipment that can be sterilised after use.

The carbon emissions from the waste of a GP practice are small so we cannot recycle our way out of the climate crisis,

but we can reduce wasted resources.

Practice size

Generally, the bigger the practice, the bigger its overall carbon footprint, but big practices tend to have smaller carbon footprints per patient.

Practices are also decarbonising their suppliers, setting up 'green teams' to encourage behaviour change, and having conversations with suppliers about the importance of being environmentally responsible in the running of businesses.

Investigating, diagnostics and prescribing

These areas cause the most carbon emissions. There are already several initiatives to reduce excessively frequent investigations and overprescribing, mainly because of the cost, but this also helps with carbon emissions. The same applies to reducing X-rays because of worries about radiation exposure. Although this is sometimes beyond the control of primary care, we can still reduce our collective activity. Are we over-investigating patients – do they need three-monthly cholesterol checks? Are we over-prescribing? For help with this, see the STOPP START Tool.⁵

Future plans

We need to consider the impacts of the climate crisis, to adapt our practices for working at higher temperatures or increased flood risks – and the associated rising costs of insurance premiums. We should check fridges that store essential medication still work effectively in heat, and protect electrical sockets and vital equipment from flooding. A climate emergency plan to identify and prepare for likely events is sensible.

Next steps

Once the carbon footprint for a practice has been calculated (see page 35 for a worked example), the next task is to create a plan to meet the national reduction targets.^{6,7}

There are many options, but involving the whole team is vital. Positive actions include:

- Discussing the findings of the footprint calculation at a practice meeting.
- Identifying what is already being done well.
- Establishing your shared key priorities with staff and patient representatives.
- Sourcing ideas from the whole team, patients and other practices.
- Helping staff and patients to change their behaviour.
- Implementing appropriate technological solutions.
- Recognising the benefits of cumulative action.
- Using your influence wisely to highlight the importance of the issue.

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References

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Top 10 actions your practice can take today

- Become a carbon-literate practice and recognise the environmental impacts of the health service
- Join the Green Impact for Health campaign⁸
- Create a practice 'green team' to measure and monitor energy, equipment and resource use and waste generation – give them responsibility and a budget for

- taking positive and workable actions
- Change your energy supplier to 100% renewables
 - Incentivise behaviour change in staff and patients – encourage them to leave the car and travel more actively
 - Work towards a practice green action plan
 - Declare a 'climate emergency' for your practice. Contact SEE

- Sustainability for a guide⁹
- Go public – inform your patients and neighbouring practices of your philosophy and policies, and use your influence
 - Prescribe prudently and refer responsibly
 - Contact your suppliers and ask what you can all do to help reduce your footprint and theirs