

# The climate crisis and carbon footprints and in primary care

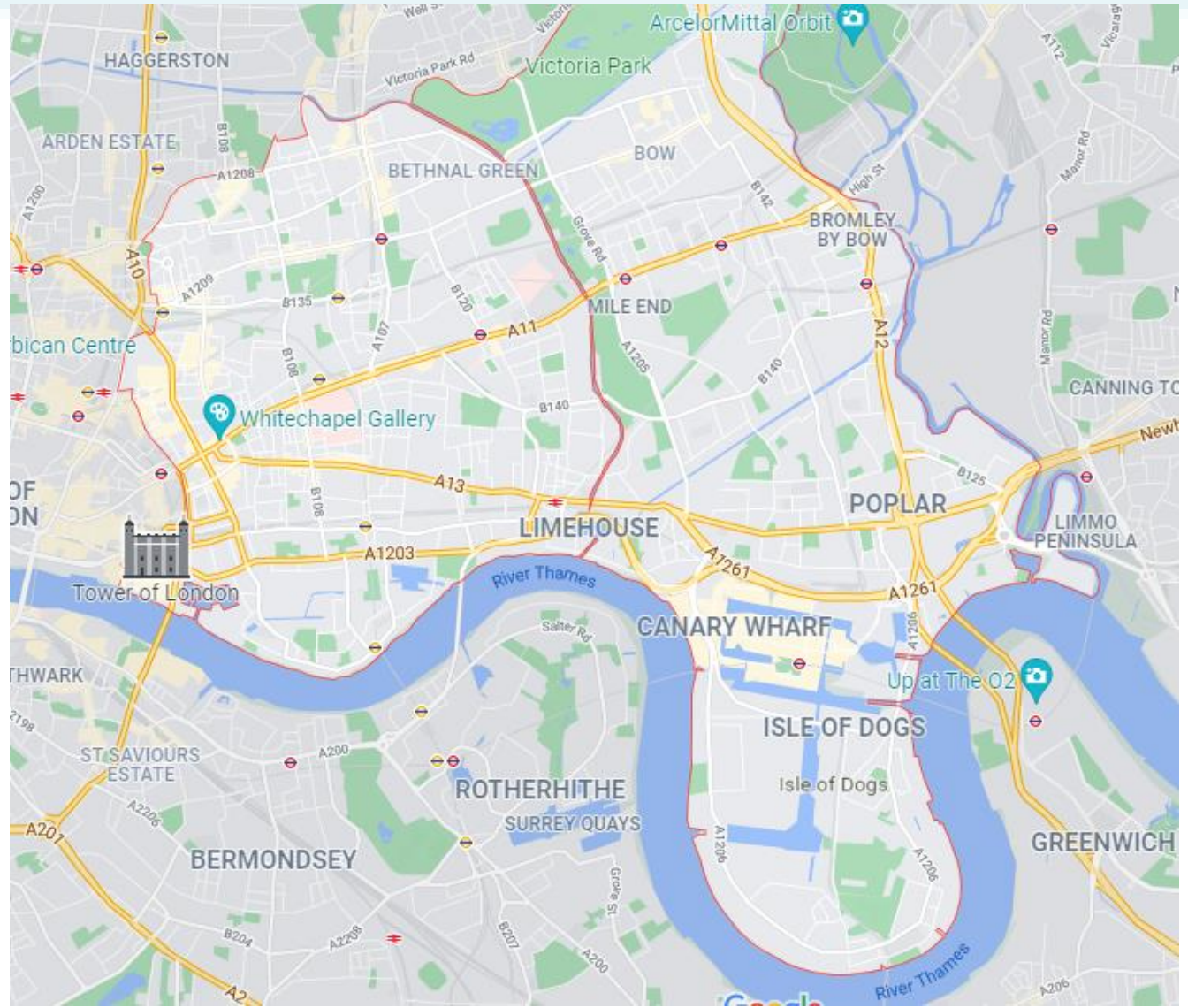
## What we can do

Dr Matt Sawyer

Tower Hamlets

16<sup>th</sup> Sept 2021

2.30pm





Today running order

**Why should we act?**

**What can we do?**



# Dr Matt Sawyer

Medical doctor – GP for >15 years

Environmental MSc

Working on how to help primary care reach Net Zero

Runs own sustainability consultancy [seesustainability.co.uk](https://seesustainability.co.uk)

Carbon Literacy training

Carbon footprinting of practices



# My carbon footprint today

Zoom meeting (or other similar video conferencing app)

- 10g per hour on laptop
- 50g per hour on desk top

=100**g** CO<sub>2</sub>e for today.

Or 234 miles (one way) = ~200g/mile = 46.8kg

=> 100**kg** CO<sub>2</sub>e (return)





# What is a carbon footprint?



“A carbon footprint is the total greenhouse gas emissions caused by an individual, event, organization, service, place or product, expressed as carbon dioxide equivalent.”

## Average UK Footprint (CO<sub>2</sub>e)

- 35kg/day -> 13 tonnes/ year -> Over 1,000 tonnes/lifetime

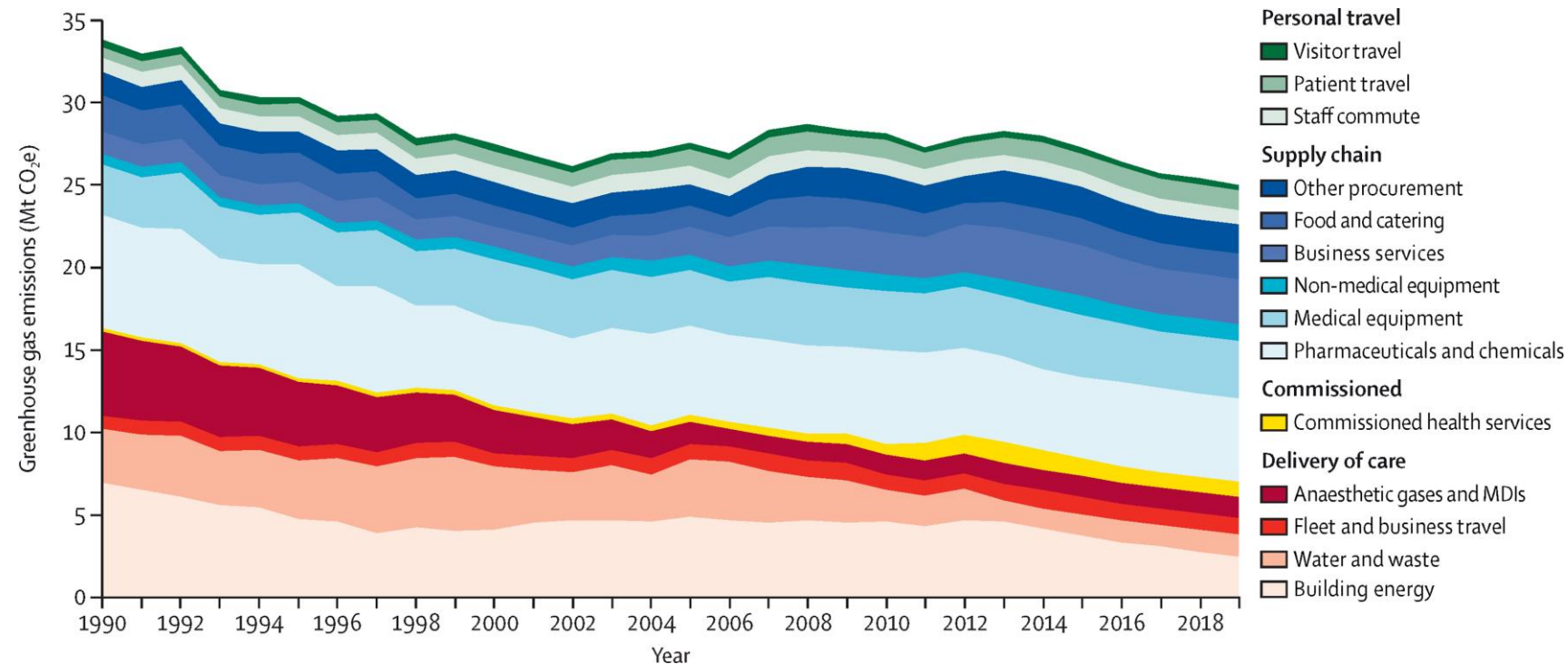
Aim (to limit warming to >1.5°C)

- 8kg/day -> 3 tonnes/year -> 240 tonnes/lifetime



# NHS carbon footprint...

# and effect



## The mortality cost of carbon

“Adding 4,434 metric tons of carbon dioxide in 2020 causes one excess death globally in expectation between 2020-2100.”

| Total emissions |                                       |
|-----------------|---------------------------------------|
| NHS             | 25 million tonnes CO <sub>2</sub> e   |
| Primary care    | 5.75 million tonnes CO <sub>2</sub> e |

| Annual deaths |       |
|---------------|-------|
| NHS           | 5,640 |
| Primary care  | 1,300 |



It's real

It's us

It's here

It's now

**There is hope**

# Inequality

- Wealth
- Colour
- Gender
- Housing
- Access
- Education
- Health conditions
- Age
- Language
- Excluded
- Vulnerability

## Poor most exposed to air pollution caused by rich, study finds



Despite over ten years of air quality policy, inequality in exposure to traffic-related air pollution has widened, a new study has revealed.

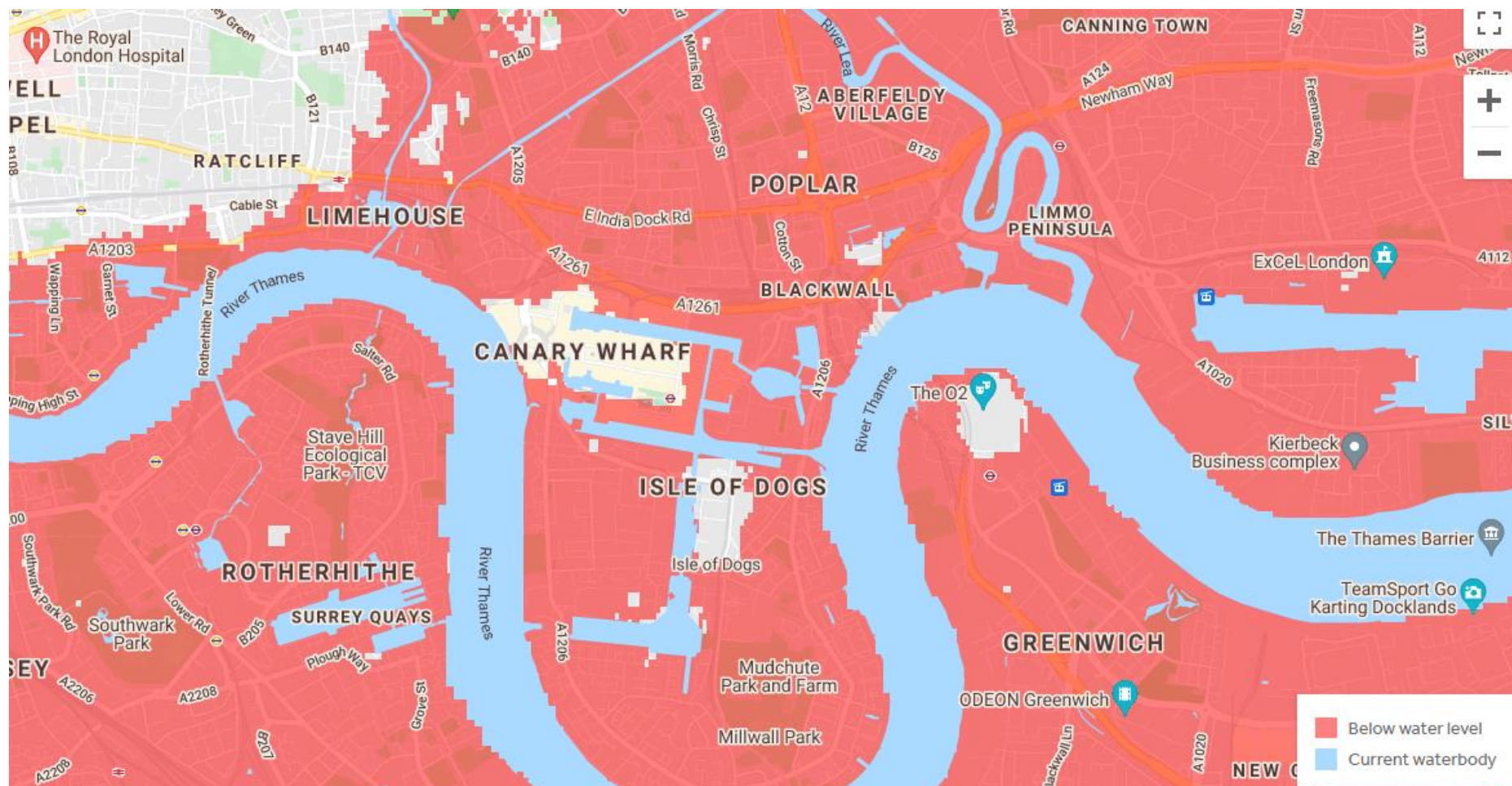
The research, led by academics at the Air Quality Management Resource Centre (AQMRC) at the University of the West of England, Bristol, found that social inequalities in traffic-related pollution exposure are 'clearer and stronger' than ever before.





# Impacts of climate change – here and now

15 per cent of London lies on the floodplain of the Thames and its tributaries, and there are 1.5 million people and 480,000 properties there already.





ENVIRONMENT

26 JULY 2021

## London submerged: What it means when floods reach the capital

Britain has been plagued by floods for decades, with affected areas feeling overlooked. Will flooded hospitals and Tube stations break the cycle of neglect?

### **‘CRITICAL’ CAPITAL** London floods: 100 patients evacuated from hospital in blackout and patients told to stay away as floods hit wards

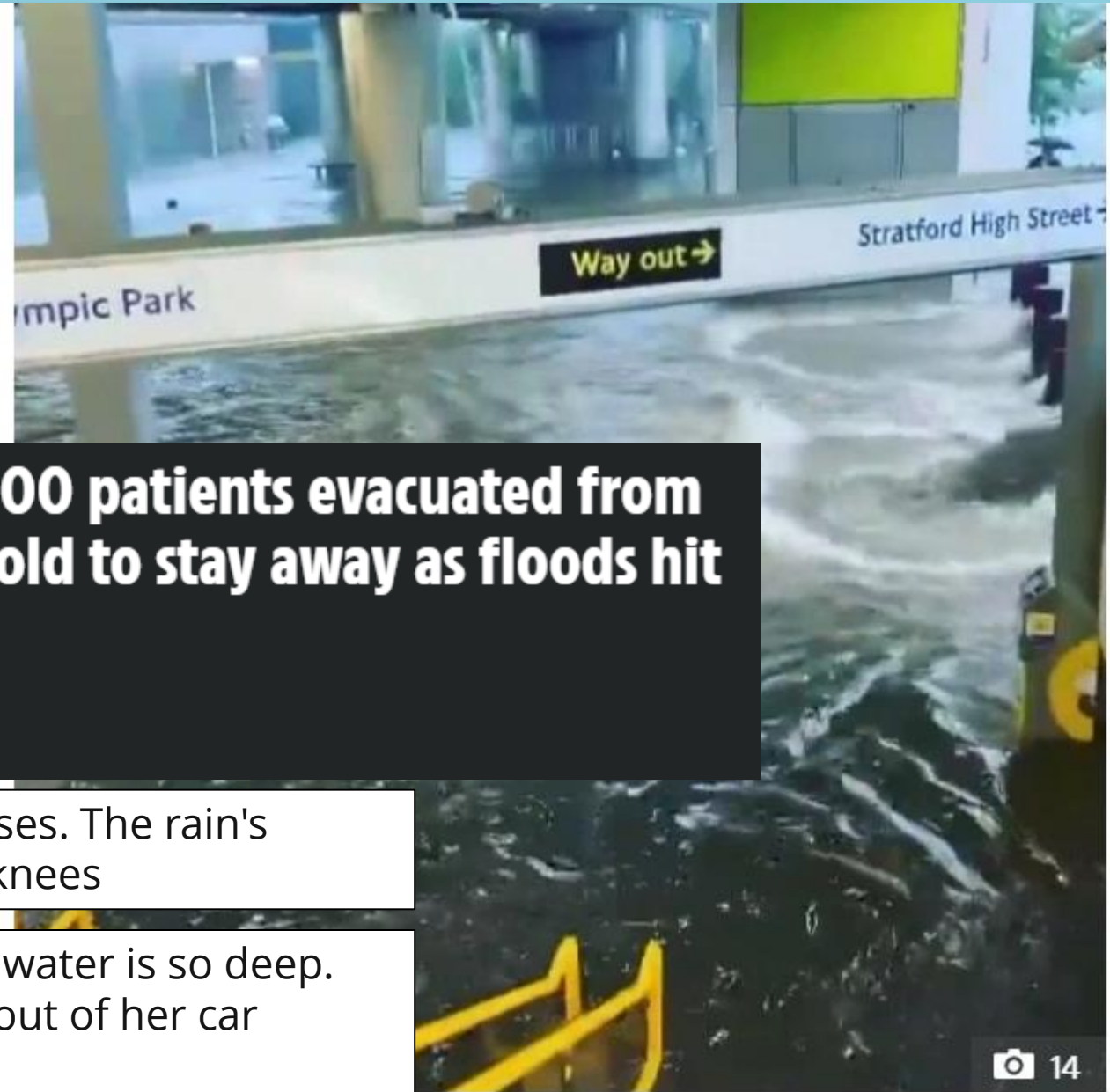
**Chiara Fiorillo | Dan Keane**

10:08, 26 Jul 2021 | Updated: 15:38, 26 Jul 2021

We're all pulling together to try and protect the houses. The rain's stopped for the moment but the water is up to my knees

"I spotted a woman who was stuck in her car as the water is so deep. She was crying so I went up to her and helped her out of her car through the window.

"The water was up to my knees and I carried her to safety.

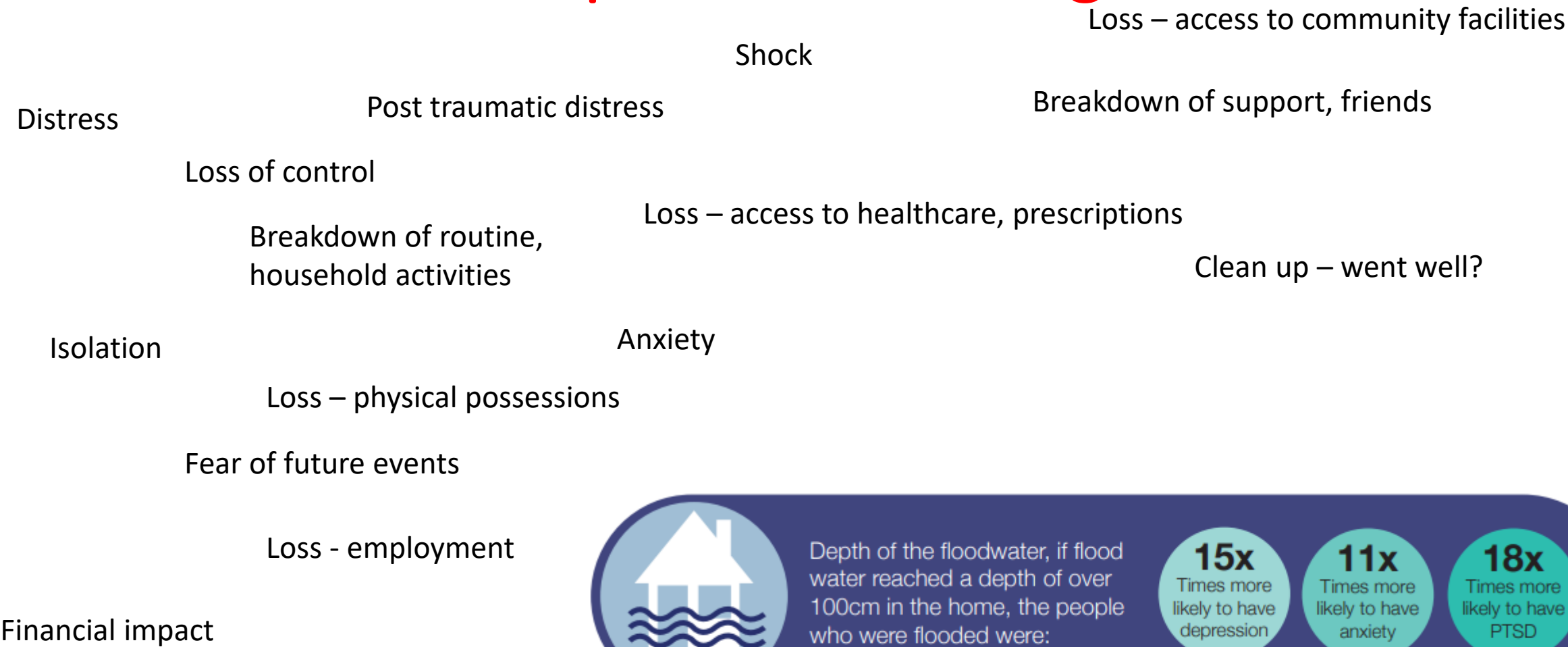


was left underwater Credit: UKNIP

Credit: Archant



# Mental health impacts of flooding



Depth of the floodwater, if flood water reached a depth of over 100cm in the home, the people who were flooded were:







# Heat and rising temperatures

Analysis of impact of global warming on cities says London could have a climate like Barcelona

Average summer temperatures in the South East are expected to rise up to 4°C under a 2°C global warming scenario.

August 2020 heatwave alone accounted for 1,734 deaths ([www.kcl.ac.uk/news/invisible-heatwaves-pose-a-much-greater-risk-than-most-britons-recognise](http://www.kcl.ac.uk/news/invisible-heatwaves-pose-a-much-greater-risk-than-most-britons-recognise))

There is a positive association between increasing temperatures and A&E department attendance  
[researchonline.lshtm.ac.uk/id/eprint/4657417/](http://researchonline.lshtm.ac.uk/id/eprint/4657417/))

Odds of dying from strokes and respiratory causes increased by over 10 per cent for every 1C rise in temperature  
([www.nature.com/articles/nclimate2123](http://www.nature.com/articles/nclimate2123))

# Air pollution affects people throughout their lifetime



## Pregnancy

low birth weight



## Children

asthma  
slower development of lung function  
development problems  
more wheezing and coughs  
start of atherosclerosis



## Adults

asthma  
coronary heart disease  
stroke  
lung cancer  
chronic obstructive pulmonary disease (as chronic bronchitis)  
diabetes



## Elderly

asthma  
accelerated decline lung function  
lung cancer  
diabetes  
dementia  
heart attack, heart failure and strokes







## Air quality map of London

LIVE

Street-by-street air quality

London air quality and forecast

Explore another city:

Choose a city

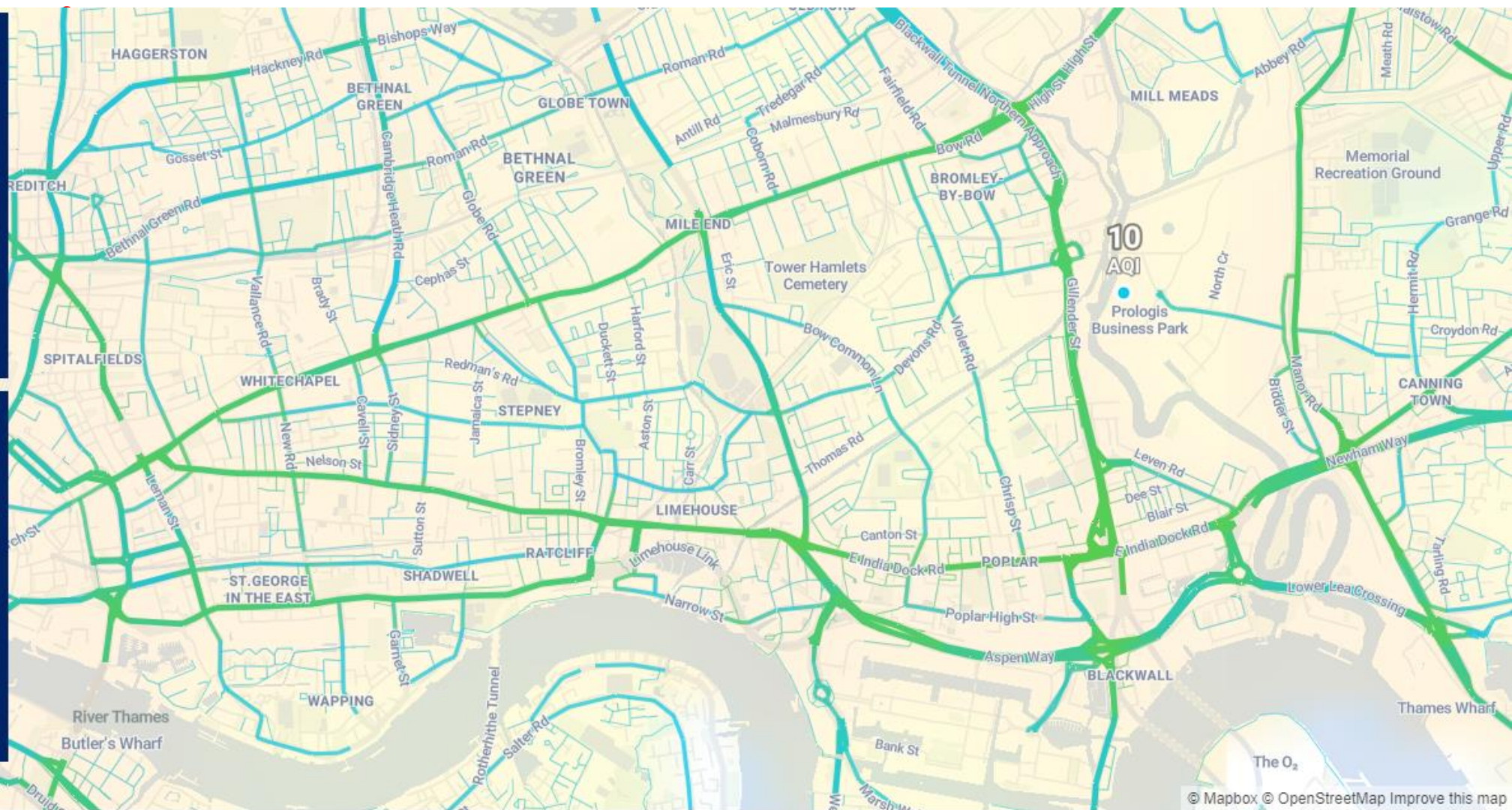


Minimize map control panel

### Pollutant selection

- ☐ Plume AQI ☒ NO2 ☐ O3  
☐ PM2.5 ☐ PM10

### Air quality index colour scale



© Mapbox © OpenStreetMap Improve this map

<https://www.epa.gov/no2-pollution/basic-information-about-no2> <https://naei.beis.gov.uk/emissionsapp/>

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/411756/COMEAP\\_The\\_evidence\\_for\\_the\\_effects\\_of\\_nitrogen\\_dioxide.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/411756/COMEAP_The_evidence_for_the_effects_of_nitrogen_dioxide.pdf)

# All doom and gloom?





# Relationship between climate change and health

The prize...if the UK met its current climate commitments...

**Lives saved**

98,000 diet

21,500 exercise

3,500 air pollution

**AND 5,640**  
annual  
global  
deaths

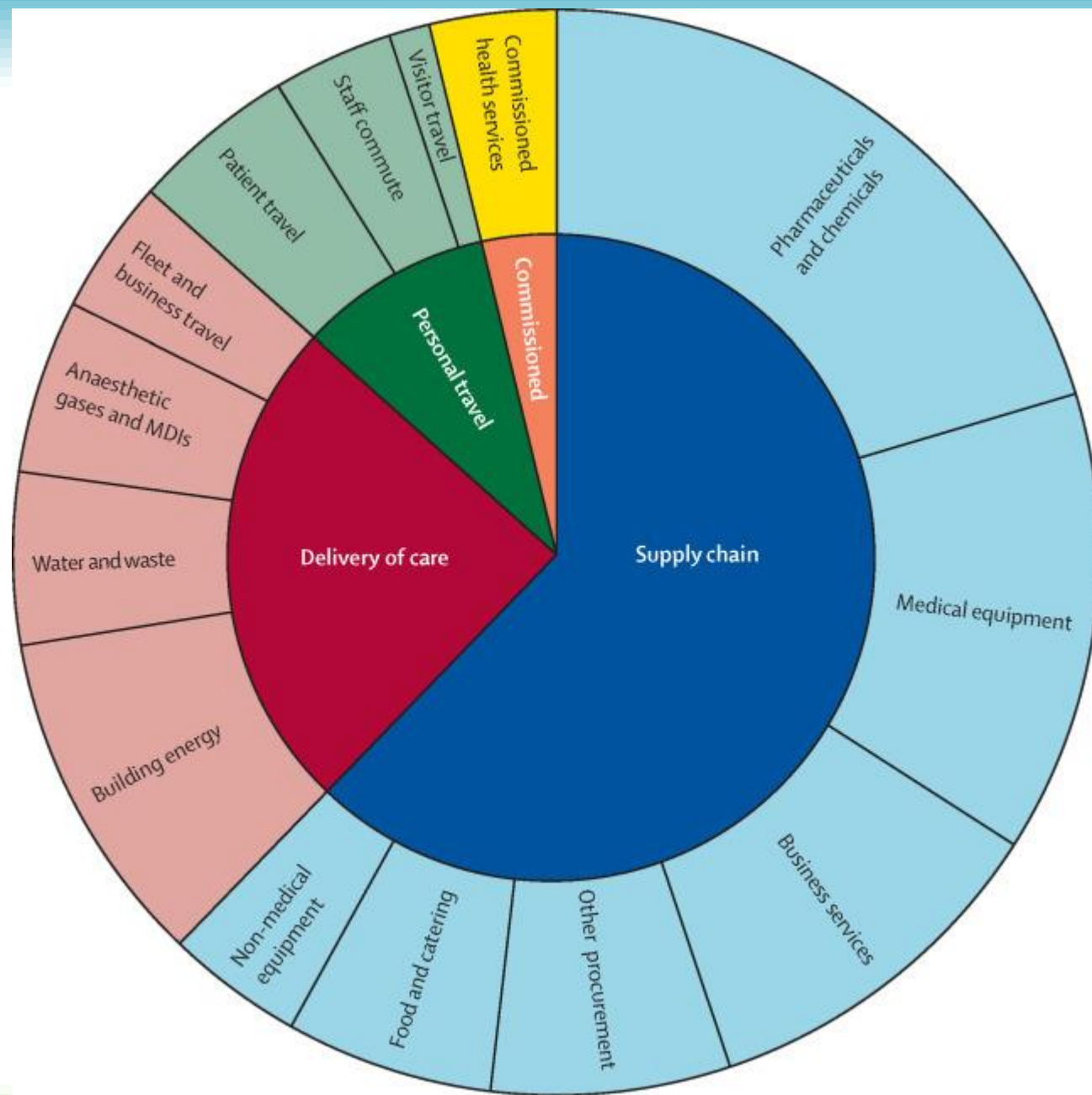




# What is the footprint of the NHS?

NHS total  
25 million tonnes

Primary care  
5.75 million tonnes

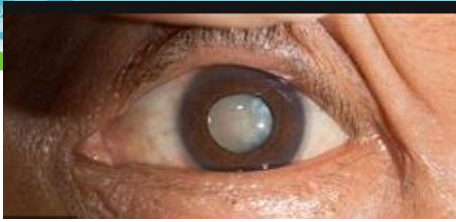




Our emissions, our responsibility

To reach overall net zero,  
all parts need to reach zero





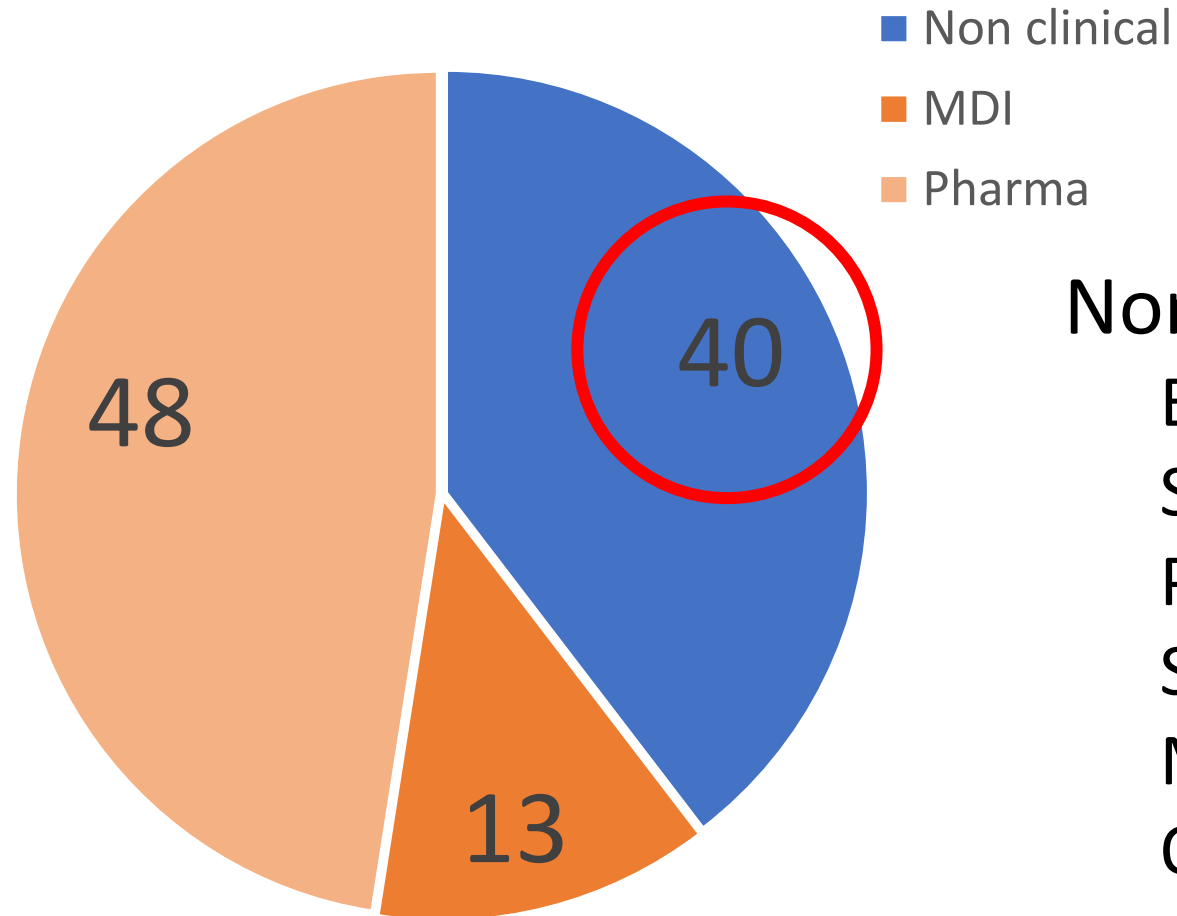
| Activity             | CO2e per activity | Number per year                           | Total emissions (kg CO2e) |
|----------------------|-------------------|---|---------------------------|
| Cataract operation   | 182kg             | 330,000                                   | 60 million                |
| GP appointment       | 66kg              | 300 million                               | 19,800 million            |
| Ventolin inhaler     | 25kg              | 21.7 million prescriptions for salbutamol | 542 million               |
| Flu vaccine          | 1.7kg             | 7.26 million                              | 12 million                |
| Omeprazole (1 month) | 0.45kg            | 31.5 million prescription                 | 14 million                |



# Sources of carbon in primary care

## Clinical

|                         | kilotonne<br>s CO2e | %  |
|-------------------------|---------------------|----|
| MDI                     | 767                 | 13 |
| Pharma and<br>chemicals | 2,750               | 48 |

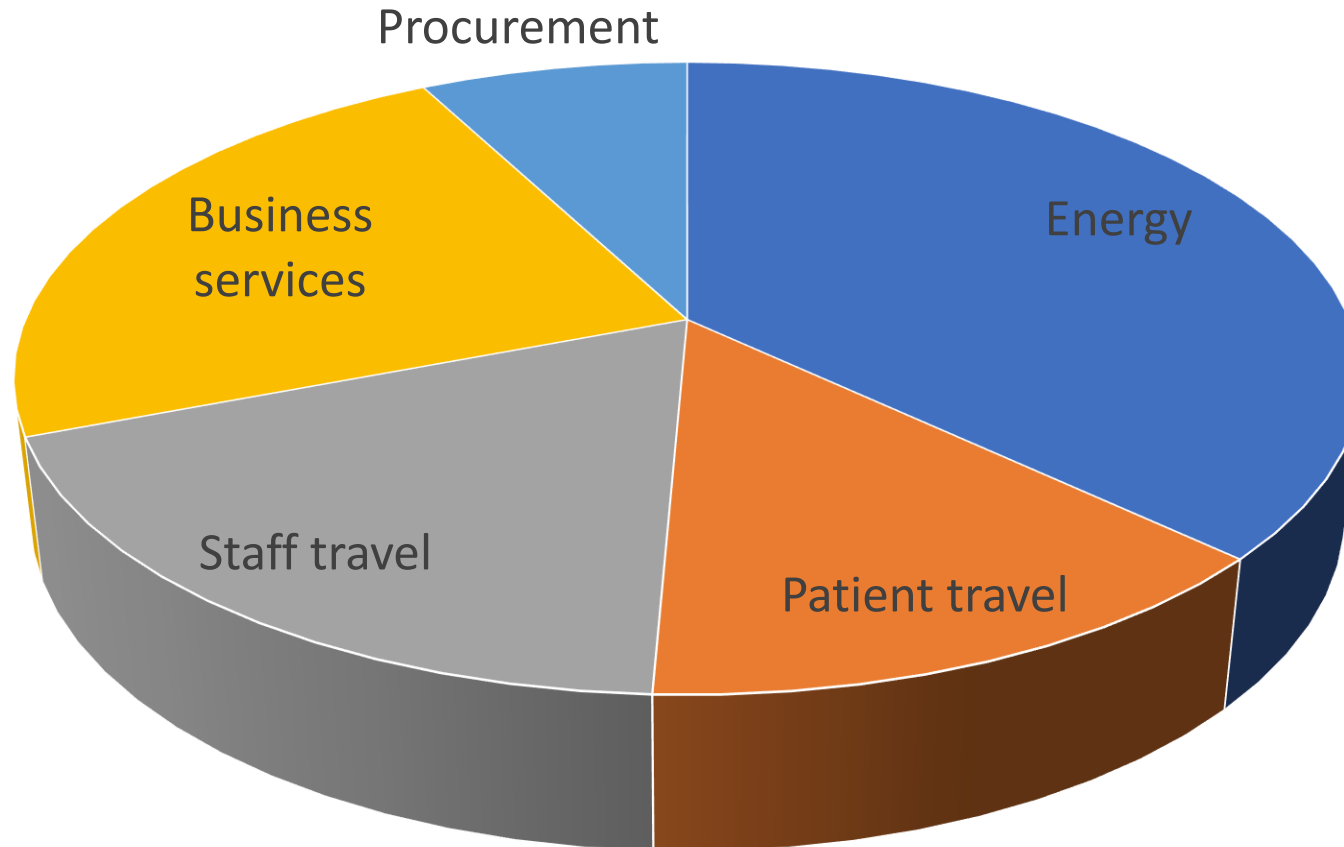


Non clinical

- Energy
- Staff travel
- Patient travel
- Services
- Medical supplies
- Office supplies



# What is the footprint of running my practice?



Carbon hotspots in primary care

Summary of a  
carbon footprint  
pilot scheme of  
urban medical  
practices in  
Salford

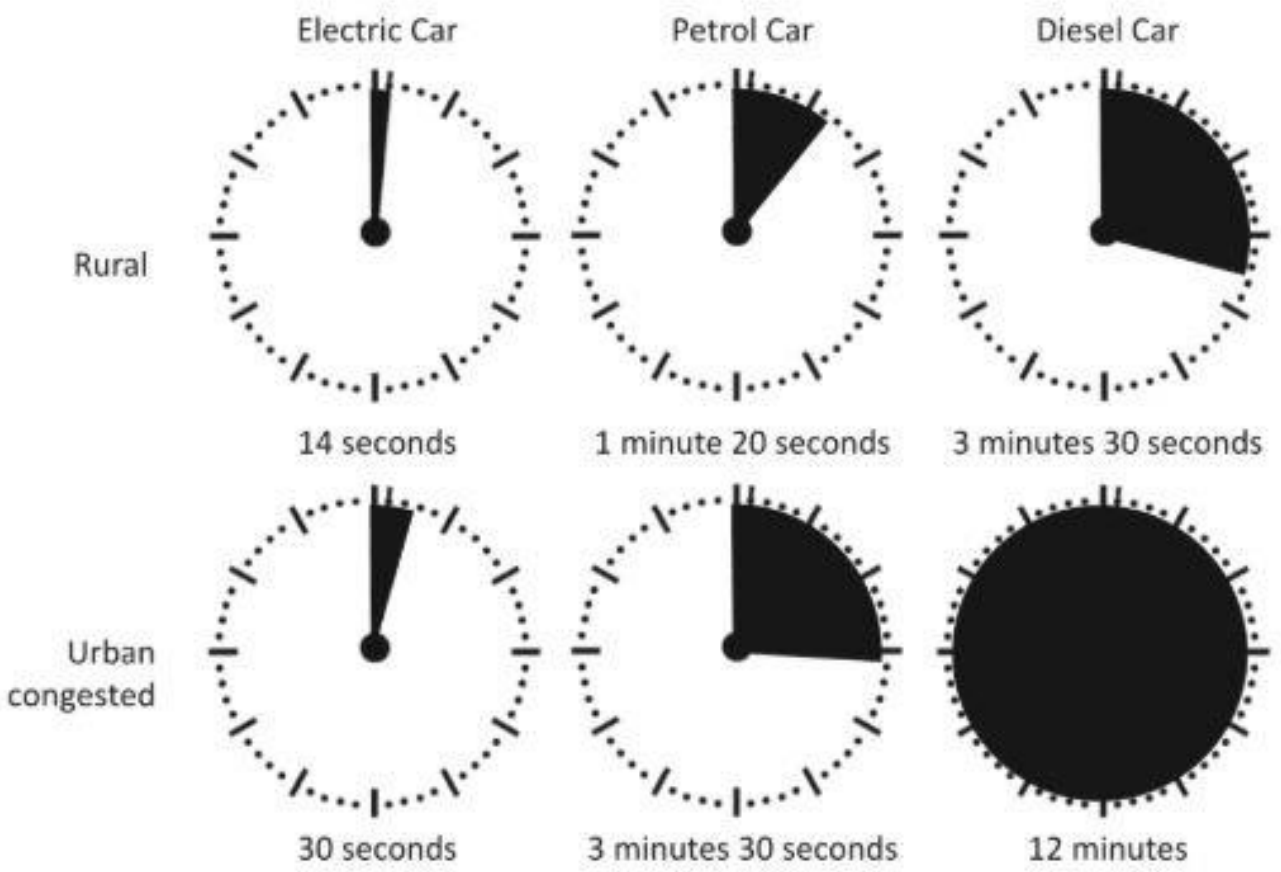
V1.1

**NHS**  
Salford  
Clinical Commissioning Group





# Travel



## Staff travel

Cumulative 365,000 km/227,000 miles pa

= 46,000 kg CO<sub>2</sub>e

= 1,891 days of life lost

= 5 years 66 days

## Patient travel

Cumulative 250,000 km/155,000 miles pa

= 23,500 kg CO<sub>2</sub>e

= 1,291 days of life lost

= 3 years 196 days



# Lives saved

98,000 diet

21,500 exercise

3,500 air pollution





# What?

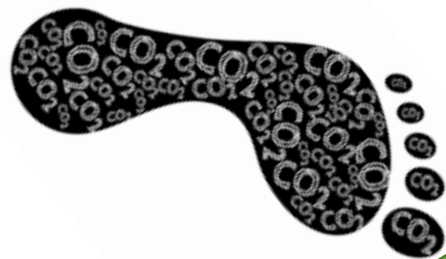
## What can I do?

## What can my practice do?



# A roadmap for primary care

1. Become aware  
Carbon literacy training
2. “Know your number”  
Carbon footprint of practices



**HEALTH  
DECLARES**



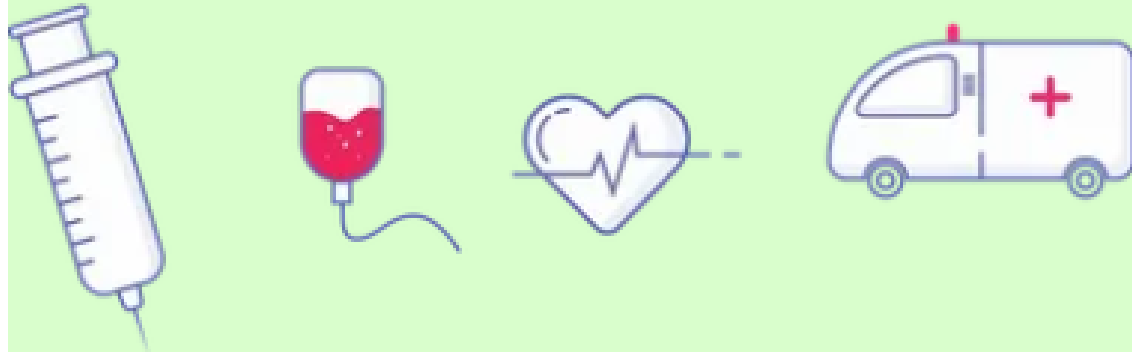
3. Turn intention into action –  
have a plan
4. Declare a climate emergency



# 1. Carbon literacy

How to educate, engage and empower staff

Online carbon literacy  
training for healthcare

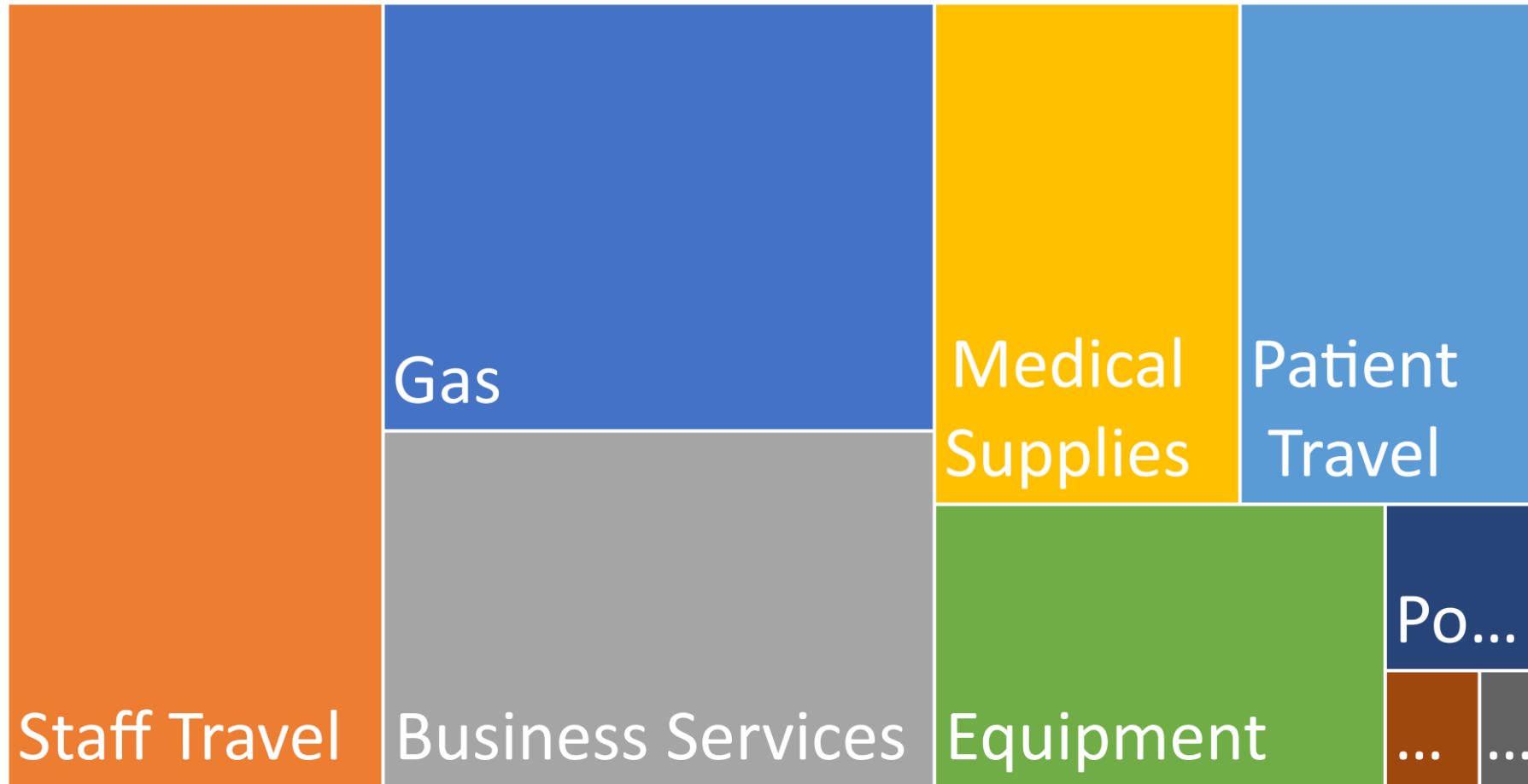


“An awareness of the carbon costs and impacts of everyday activities and the ability and motivation to reduce emissions, on an individual, community and organisational basis.”

Turning intention into action




## 2. Carbon footprint



Carbon hotspots in primary care



## 2. Carbon footprint

[GP Carbon Calculator](#) [See Sustainability](#)

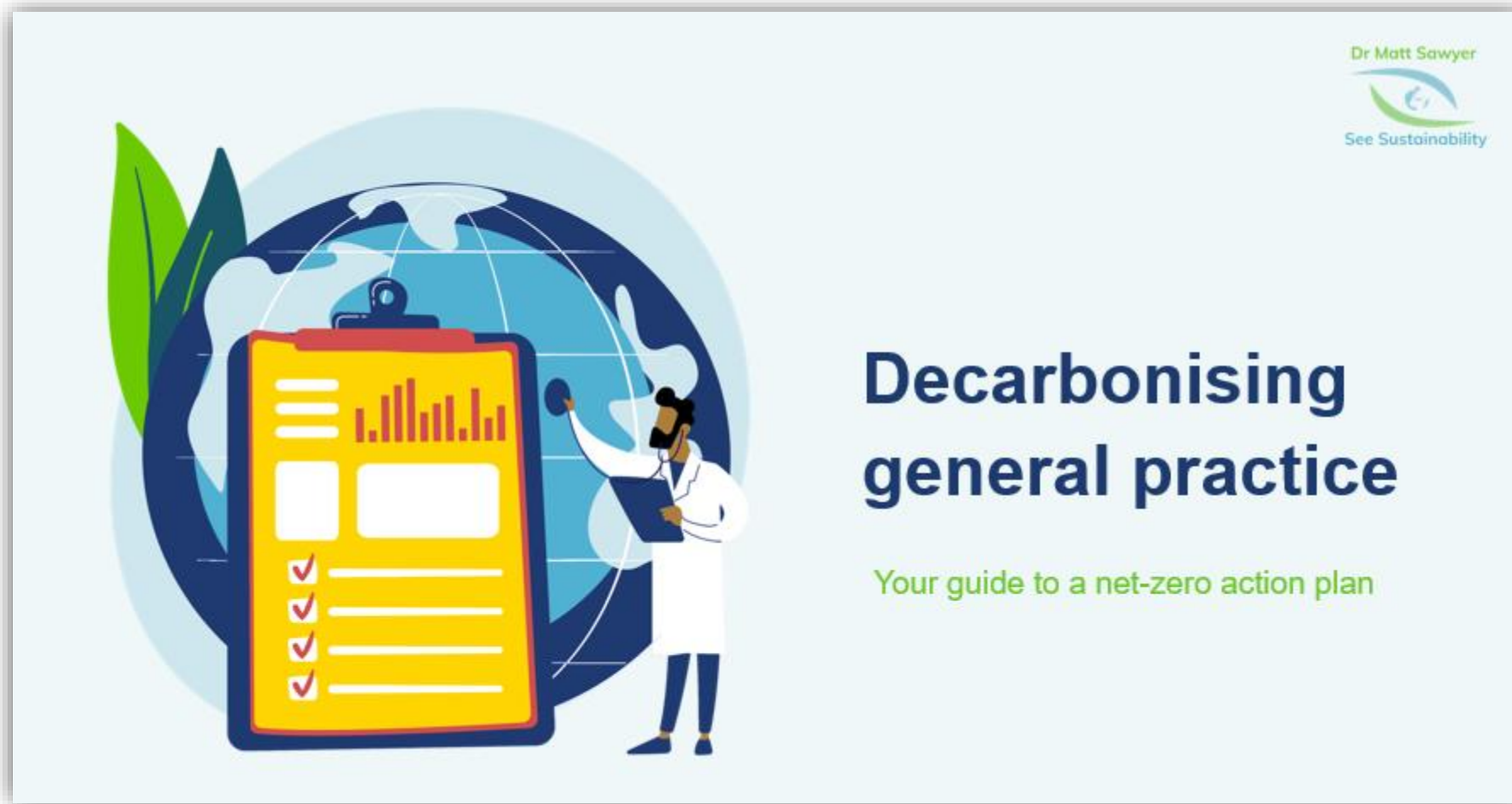
### General practice carbon calculator

A practical calculator for general practices

[Start Calculation >](#)



# 3. Practice Decarbonisation Plan





# 3. Practice Decarbonisation Plan

Including how to educate, engage and empower staff with green communities

| Area                  | Current footprint (2021) | Aim/target   |     |              |     |              |     |
|-----------------------|--------------------------|--------------|-----|--------------|-----|--------------|-----|
|                       |                          | 3 years time |     | 6 years time |     | 9 years time |     |
|                       |                          | % reduction  | How | % reduction  | How | % reduction  | How |
| Energy – electricity  |                          |              |     |              |     |              |     |
| Gas                   |                          |              |     |              |     |              |     |
| Travel – staff        |                          |              |     |              |     |              |     |
| Travel – patient      |                          |              |     |              |     |              |     |
| Business services     |                          |              |     |              |     |              |     |
| Procurement – Medical |                          |              |     |              |     |              |     |
| Procurement – Office  |                          |              |     |              |     |              |     |
|                       |                          |              |     |              |     |              |     |
| Total                 |                          |              |     |              |     |              |     |





To reach  
overall net  
zero,  
all parts  
need to  
reach zero

## Action Plan for the next year

Example table of actions

|                              | Action   | When          | Who            | Completed? |
|------------------------------|--|---------------|----------------|------------|
| <b>Prescribing</b>           | Review SABA inhalers and acute exacerbations                               | Autumn        | Resp lead      |            |
| <b>Patient travel</b>        | Explore cycle racks for patients, promote walking scheme                   | End of June   | Green lead     |            |
| <b>Staff Travel</b>          | Map staff homes and see if can start shifts at same time                   | Feb           | Office Manager |            |
| <b>Professional services</b> | Letter to accountants asking what they are doing regarding their footprint | Done          | PM             | Yes        |
| <b>Gas</b>                   | Review loft insulation and install thicker layer                           | Summer        | Green lead     |            |
| <b>Electricity</b>           | Change energy supplier to 100% renewable                                   | Next week     | PM             | Yes        |
| <b>Medical supplies</b>      | Review disposable kits used and eliminate waste by recycling all           | End of August | Lead nurse     |            |

# Green Impact for Health

This toolkit can help any general practice improve their sustainability and environmental impact; reduce their harmful impact on planetary health, the risks of climate change and reduce their practice expenses.

The screenshot shows the homepage of the 'Green Impact for Health' toolkit. At the top, there are logos for 'nhs greenimpact' and the 'RCGP Royal College of General Practitioners'. Navigation links for 'About', 'Help', and 'Contact' are in the top right. A left-hand menu contains ten categories: 'Intro', 'Water', 'Prescribing', 'Travel and Exercise', 'Quality Improvement', 'Zero Carbon', 'News & Communication', 'Food & Drinks', and 'Vulnerable Groups'. The main content area is titled 'Welcome to Green Impact for Health' and includes a welcome message, a paragraph about climate change, a quote from the UK's Climate Change Committee, a paragraph about the NHS carbon footprint, and a statement about the toolkit's purpose. On the right, there are buttons for 'Login', 'Register', and 'Lost Password', a 'Tweet #GreenImpact' button, and a 'Tweets' section featuring a tweet from @rcgp about a new eLearning podcast.

**nhs greenimpact**

**RCGP** Royal College of General Practitioners

About Help Contact

**Intro**

**Water**

**Prescribing**

**Travel and Exercise**

**Quality Improvement**

**Zero Carbon**

**News & Communication**

**Food & Drinks**

**Vulnerable Groups**

## Welcome to Green Impact for Health

Welcome to RCGP's Green Impact for Health Toolkit and Awards

Climate Change is already happening, but how bad will we let it get?

The UK's Climate Change Committee's 2021 sixth carbon budget covers the years 2033-2037. Living within this carbon budget will mean that "almost all new purchases and investments are zero-carbon by around 2030". This needs widespread behaviour changes and rapid deployment of emissions removal technologies.

The NHS is responsible for 5% of the UK's carbon footprint. We need to change how we work to avoid the unmanageable and to manage the avoidable. What can we do?

This toolkit can help any general practice improve their sustainability and environmental impact; reduce their

**Login**

**Register**

**Lost Password**

**Tweet #GreenImpact**

**Tweets** by @rcgp

**RCGP** @rcgp

Our new eLearning podcast episode on skin of colour is now available. We look at different skin conditions including eczema, psoriasis, alopecia, and skin cancer, how they appear within more pigmented skin and how they should be treated. Listen now > [bit.ly/3k6e0sp](https://bit.ly/3k6e0sp)



## 4. Declare a climate emergency

How to educate and engage staff and patients



# The climate crisis is a health crisis



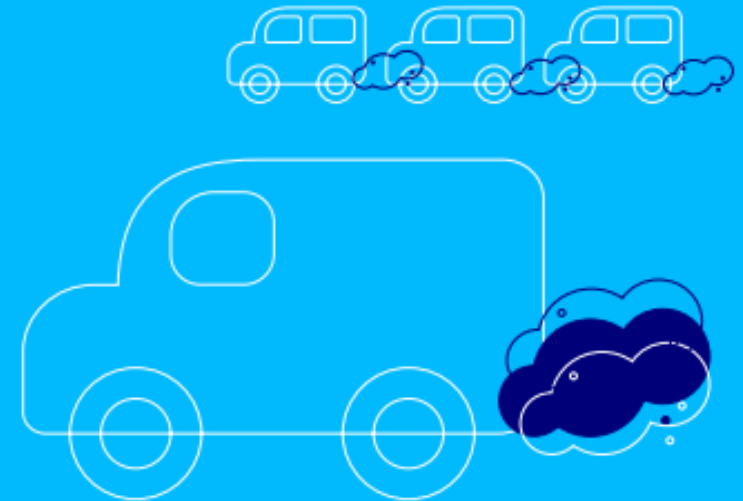
# What can I do?

Air pollution is well recognised as an urgent public health emergency: it causes up to 36,000 deaths, over 20,000 respiratory and cardiovascular hospital admissions and 6 million sick days every year in the UK

Resources for healthcare professionals are available

[www.actionforcleanair.org.uk/knowledge-hub-health](http://www.actionforcleanair.org.uk/knowledge-hub-health)

**If you have to drive,  
don't leave your engine  
on when stationary**



**Air pollution affects you from your first breath to your last.**  
Find out what you can do to protect yourself and your family visit [www.cleanairhub.org.uk](http://www.cleanairhub.org.uk)

**Clean Air Hub** 



# Who else is talking about carbon, and the climate and ecological emergency?

For a greener NHS

A Net Zero NHS

National ambition

What's already happening

Get involved

News and updates

How to produce a Green Plan

[Home](#) > [For a greener NHS](#) > [A Net Zero NHS](#)

## A Net Zero NHS

The UK government has committed to reaching net zero carbon by 2050. This means significantly reducing emissions as well as off-setting using carbon capture, such as planting trees.

The health and care system in England is responsible for an estimated 4-5% of the country's carbon footprint so has a major role to play in supporting this. The NHS has therefore committed to reaching net zero as soon as possible.

# Support

If you think your friends, family, patients, work colleagues are doing a good job.

**Tell them**

**You are not alone**

**Use your respected voice to tackle inequality**

**Turn intention into action**

## Local GPs call for action: 'The climate crisis is a health crisis'

by Daisy Lester / December 2, 2019





# Sustainability: Climate Emergency

## Local GPs call for action: 'The climate crisis is a health crisis'

by Daisy Lester / December 2, 2019



Tower Hamlets GPs Pic: Aberfeldy Practice

and local  
Health  
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ws@nhs.net

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# Resources



SEE Sustainability [seesustainability.co.uk](https://seesustainability.co.uk)



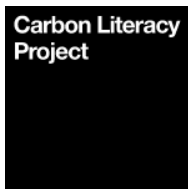
UKHACC [www.ukhealthalliance.org/carbon-literacy-guide](https://www.ukhealthalliance.org/carbon-literacy-guide)



Centre for Sustainable Healthcare  
[sustainablehealthcare.org.uk/courses/introduction-sustainable-healthcare](https://sustainablehealthcare.org.uk/courses/introduction-sustainable-healthcare)



Green Impact for Health – Toolkit [www.greenimpact.org.uk/giforhealth](https://www.greenimpact.org.uk/giforhealth)



The Carbon Literacy Project [carbonliteracy.com](https://carbonliteracy.com)



Thank you

Any Questions?



[seesustainability.co.uk](http://seesustainability.co.uk)

Email : [matt@seesustainability.co.uk](mailto:matt@seesustainability.co.uk)