

# Transitioning towards low-carbon healthcare

## What can we change in our clinical practice?

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# DISCLAIMERS

- Content is based on an extensive (but not systematic) literature review and recommendations by trusted sources (i.e., [Center for Sustainable Health Care](#), [My Green Doctor](#))
- The recommendations are oriented to the healthcare practitioner. We acknowledge that while the individual is not wholly responsible for the carbon footprint of the workplace (i.e., energy grid), we believe the individual plays an important role in the promotion of awareness, accountability & climate action
- The community has solutions & ideas relevant to your context- we want to hear from you!

# INTRODUCTION

A successful transition towards low-carbon healthcare aims to:

1. Provide high quality services
2. Optimize the health of the individual and its community
3. Minimize the environmental, social, and financial costs

# AREAS OF CONCERN

1. Building energy
2. Medical waste
3. Office and administrative waste
4. Pharmacy waste
5. Wastewater management
6. Anaesthetic gases and metered dose inhalers
7. Medical equipment
8. Staff commute, patient & visitor travel
9. Food and catering
10. Increasing demand of health care services

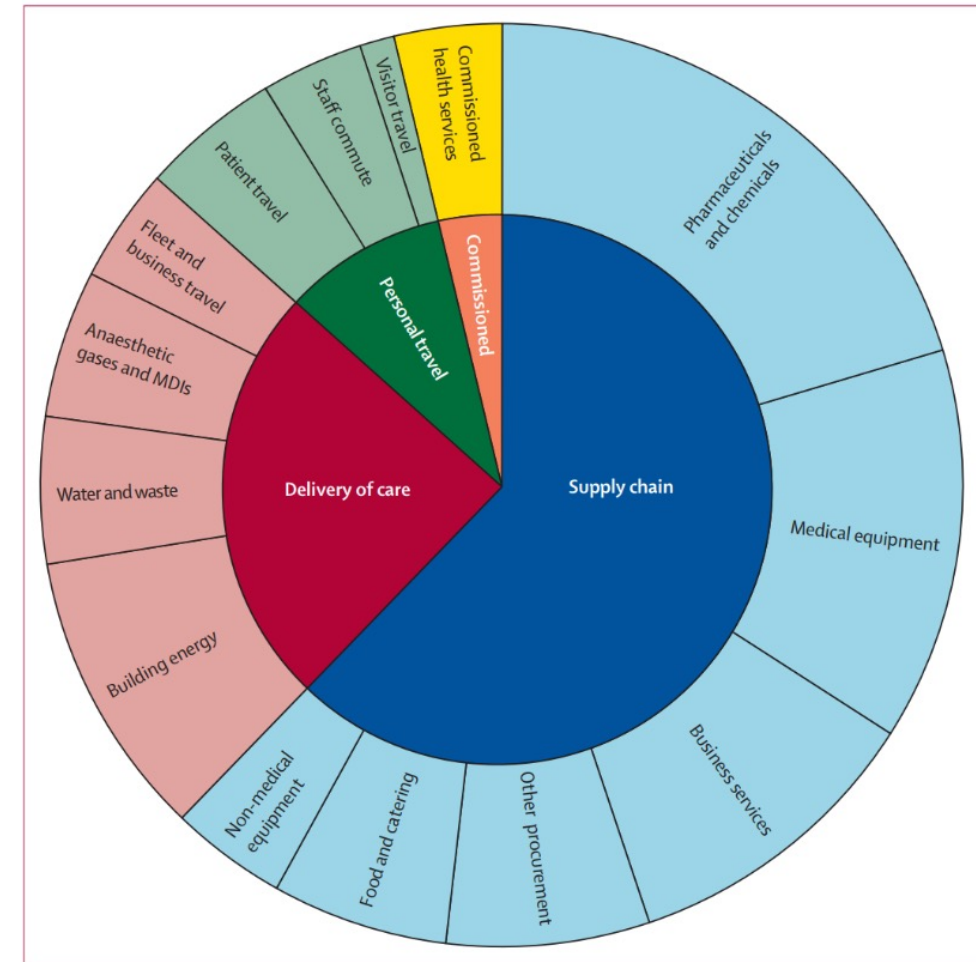
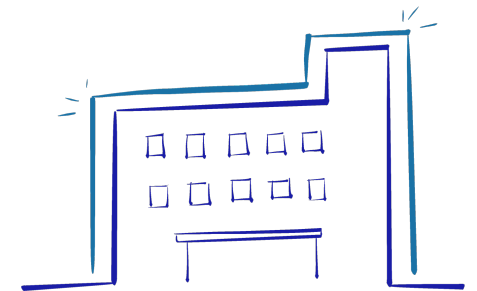
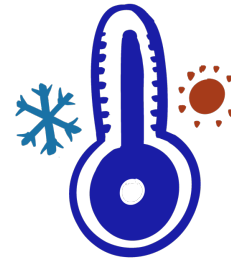
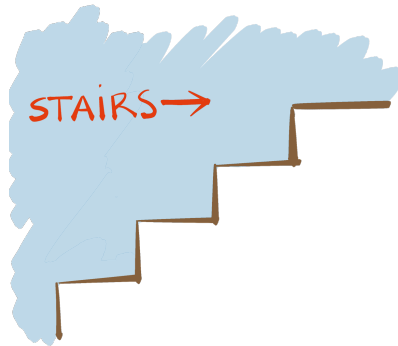


Figure 4: Contribution of different sectors to the greenhouse gas emissions of the NHS England, 2019  
Data available in appendix 1 (p 39). MDI=metered dose inhaler. NHS=National Health Service.

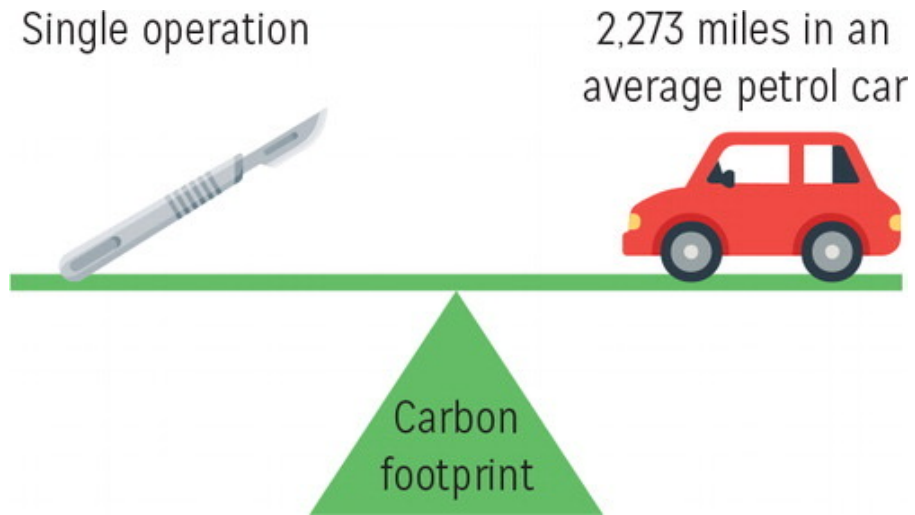
# 1. Area of Concern: BUILDING ENERGY

## Suggestions/Recommendations:

1. **Turn off** all machines when they are not being used
2. Take the **stairs**
3. Reduce **hot water** use
4. Instauration of **air conditioner/heating policy** & encourage the use of weather appropriate clothing
5. Incorporate **energy efficient features**

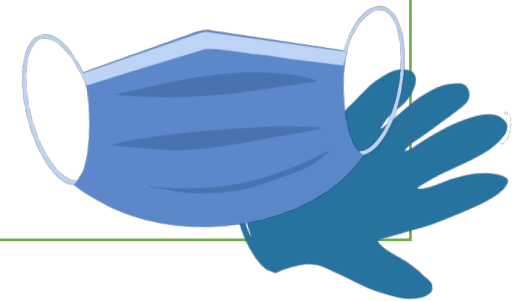


## 2. Area of concern: MEDICAL WASTE



### Suggestions/Recommendations:

1. Support **reusable > resposable > reprocessed items** over single use items
2. **Link with existing hospital-based sterilization** services where feasible (i.e., UV/HPV)
3. **Be judicious about the use of single use items**
2. **Do not throw away unused items**



## 2. Area of concern: MEDICAL WASTE

One US hospital saved  
**\$60 000 and 23 000  
kg of waste** over a 12-  
month period by  
using **reusable  
surgical gowns**

Another hospital saved  
**\$38 000 in  
transportation costs and  
avoided 62 935 kg of  
waste** in 2010 alone by  
switching to **reusable  
surgical linens**

### No risk, no glove!

A UK hospital ordered **3.7  
million fewer non-sterile  
gloves** /year after a  
campaign to review glove  
use **saving \$1.1m** and  
**avoiding the use of 18  
tones of plastic.**

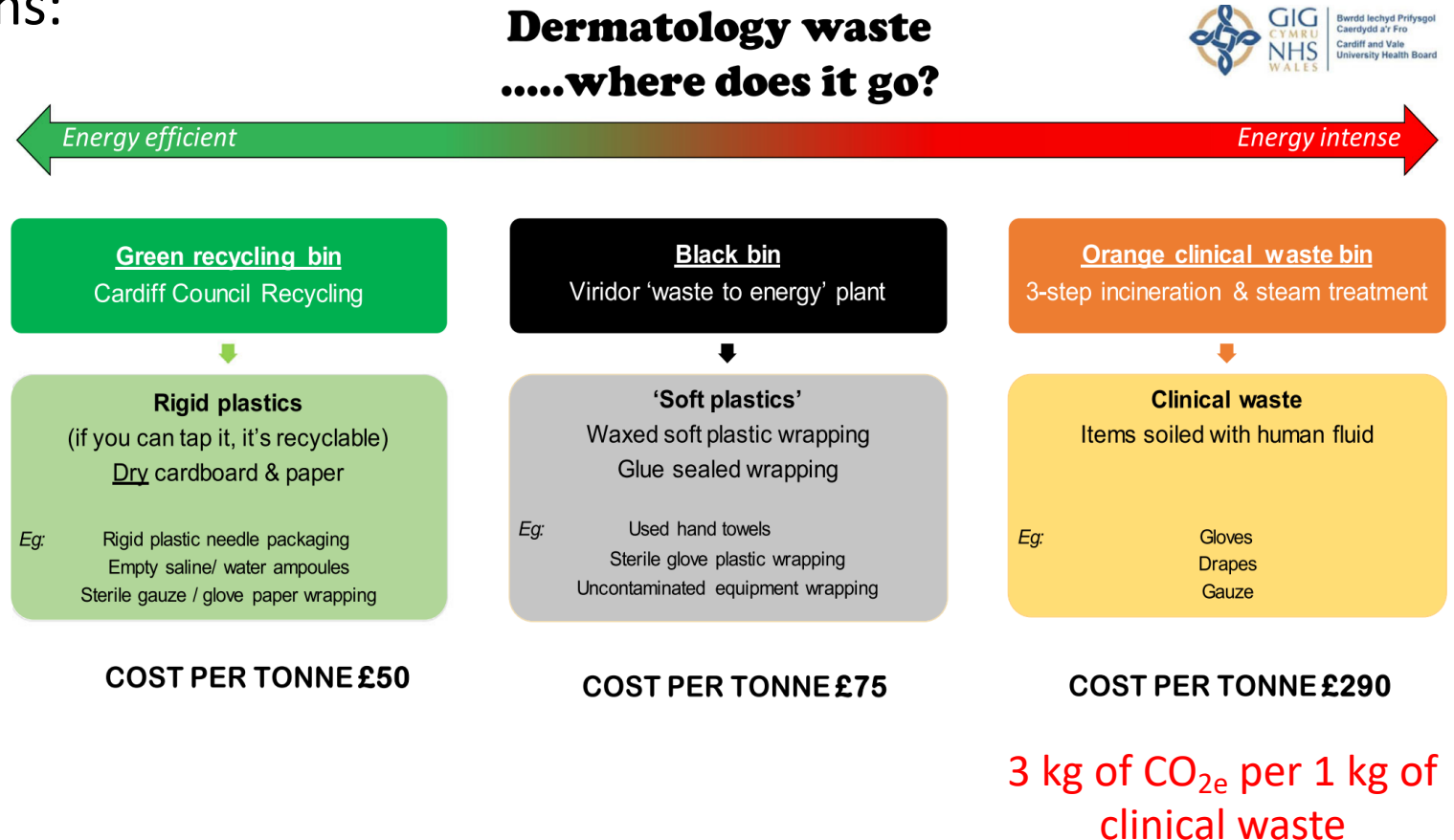
#Theatercap  
challenge



## 2. Area of concern: MEDICAL WASTE

### Suggestions/Recommendations:

5. Have **recycling bins** present, clearly visible, and include a visual cue that explains the content that goes to each bin.
6. Work with **local recycling services** in order to reduce mileage

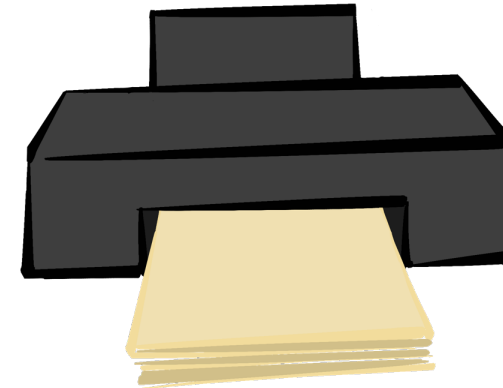




### 3. Area of concern: OFFICE & ADMINISTRATIVE WASTE

#### Suggestions/Recommendations:

1. Reduce **printing**
2. Use recycled paper
3. Print in both sides
4. Get rid of individual **trash cans**
5. Provide recycled and **biodegradable pens**
6. **Reuse/repair** IT equipment and devices



## 4. Area of concern: PHARMACY WASTE

### Suggestions/Recommendations:

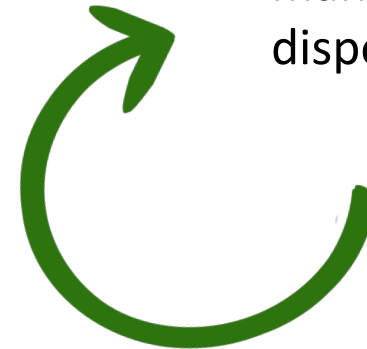
Nearly **£300 million of NHS** prescribed **medicines** are **wasted** annually

1. Take measures to **avoid medication wastage**



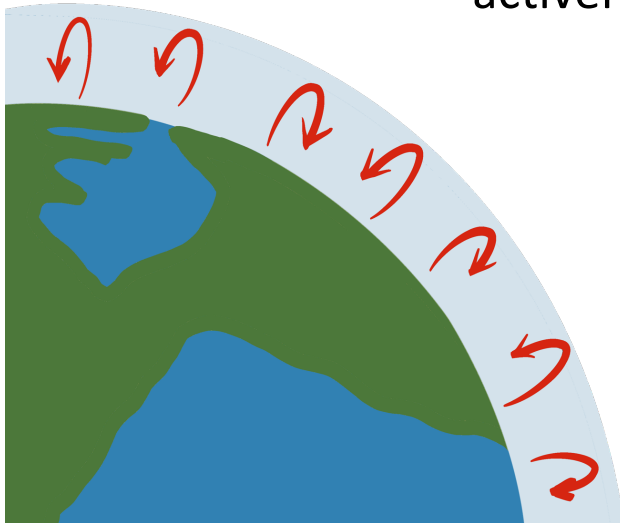
2. **Avoid packaging** and labeling **excess** & plastic bags

3. Establish a way to **return old medication** to the pharmacy for management and disposal



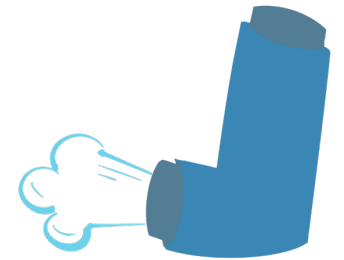
## 6. Area of concern: INHALED ANESTHETICS AND METERED DOSE INHALERS

These medications are responsible for direct emissions to the atmosphere that are **powerful greenhouse gases**. Some inhaled anesthetics also actively **deplete the ozone**.



### Suggestions/Recommendations:

1. Choose **less environmentally harmful anesthesia techniques**, including low-flow anesthesia, TIVA, and scavenging systems for waste anesthetic gas.
2. Whenever possible, **use dry powder inhalers or soft mist inhalers** instead of pressurized MDI.



## 7. Area of concern: MEDICAL EQUIPMENT

### Suggestions/Recommendations:

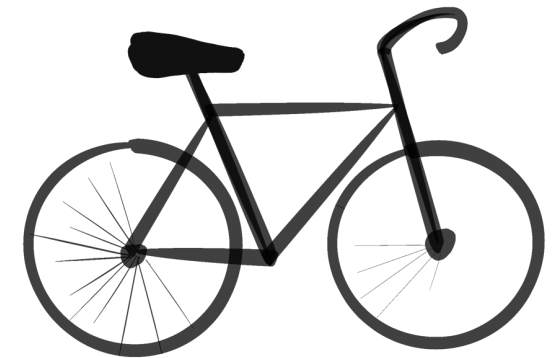
1. **Adapt supply to demand**
2. Include **carbon footprint as criteria** in decision on procurement
3. **Create a culture of sharing** equipment and maintenance contracts
4. Know the best ways to **keep your equipment functional**, optimal maintenance will extend the life of the equipment



## 8. Area of concern: STAFF COMMUTE, PATIENT & VISITOR TRAVEL

### Suggestions/Recommendations:

1. Recruit **local staff** whenever possible
2. Encouraging **car sharing schemes and/or staff shuttle service**
3. Facilitate **bicycle** parking spaces as well as changing rooms/showers
4. Continue to use some **partial work-from-home** model for HCW for certain scenarios e.g. radiologists
5. Enhance **community health workers/networks & streamline pathways**
6. **Promote walking/public transportation/ hospital transportation** between different clinical areas



## 8. Area of concern: STAFF COMMUTE, PATIENT & VISITOR TRAVEL

### Suggestions/Recommendations:

7. Increase the use of **telemedicine**, especially relevant for healthcare settings covering large geographic areas



A teledermatology programme in Spain reduced face-to-face consultations 69%  
→ economic savings & reduction in carbon emissions by **21 tones over 18 months.**

Considering the energy consumption of eHealth technology, and assuming an appointment of 60 min, **video consultations would achieve carbon reductions for any patient travelling over 3.6 km**

## 9. Area of concern: FOOD & CATERING

### Suggestions/Recommendations:

1. **Avoid plastics** and ban single use plastics!
2. Organize a **shared space with a sink** to facilitate reusable cups, forks, containers...
3. When possible, choose **sustainable catering** options
4. Initiating strategies that **reuse or recycle food waste** such as composting, animal feeding, or food digestion.

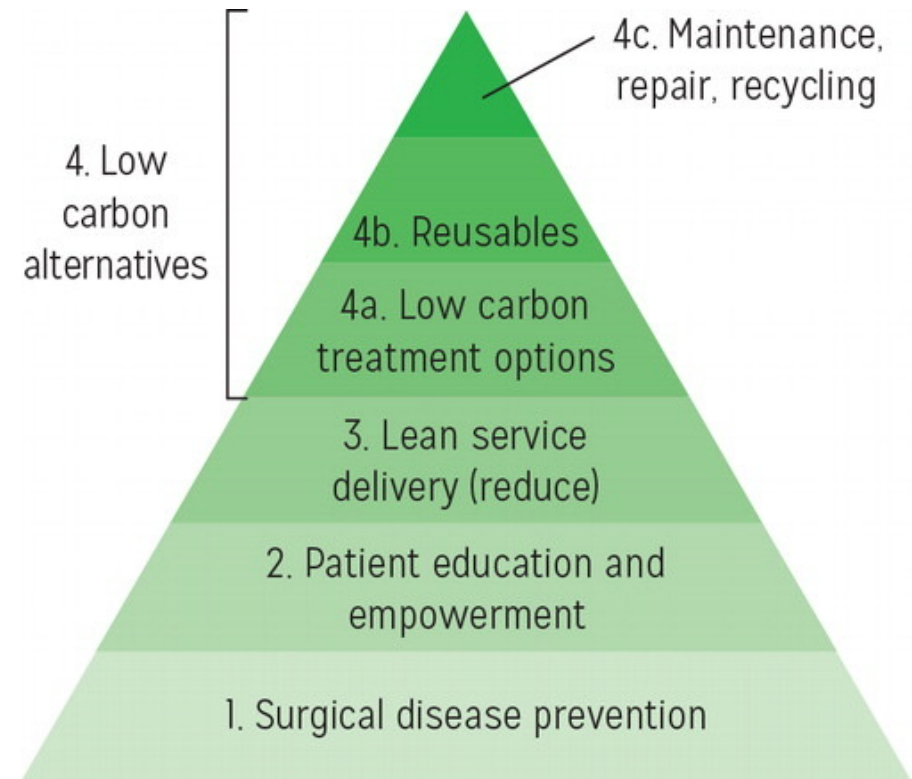


5. **Avoid takeaways**, sit down and enjoy!

## 10. Area of Concern: INCREASING DEMAND FOR HEALTH CARE DELIVERY SERVICES

### Suggestion/Recommendation:

1. Participate in the development, implementation and/or **promotion of primary prevention** and public health activities related to your area of expertise, co-benefit of preventing disease and enhancing population health



**Principles of surgical sustainability**



# IN THE FUTURE...

- **Engage healthcare institution leadership** for a carbon-zero commitment & plan
- Include **sustainability roles/responsibilities** in job descriptions institution-wide
- **Establish time during your clinical/office meetings** to assess opportunities to initiate or improve sustainable practices at your place of work, delegate tasks and report back on the next meeting
- **Contribute towards the understanding** of the true carbon footprint of your specialty & improve **carbon literacy** of your workplace

# DISCUSSION

During this presentation we have covered common areas of concern and made some generic suggestions. We are interested in knowing your opinion and hearing specific examples.

- 1. Share with us areas of concern that are specific to your clinical practice**
- 2. If you have acted on them, can you share the specific barriers or facilitators that you encountered?**

Thank you