Transitioning towards low-carbon healthcare

What can we change in our clinical practice?

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• 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!
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

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**

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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


Mahase E. Sixty seconds on . . . gloves off. BMJ. 2019 Jul 2;4498.

NHS England » ‘The gloves are off’ campaign.

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.

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.

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**Dermatology waste: where does it go?**

<table>
<thead>
<tr>
<th>Green recycling bin</th>
<th>Black bin</th>
<th>Orange clinical waste bin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiff Council Recycling</td>
<td>Viridor 'waste to energy' plant</td>
<td>3-step incineration &amp; steam treatment</td>
</tr>
</tbody>
</table>

- **Green recycling bin**
  - Rigid plastics (if you can tap it, it’s recyclable)
  - Dry cardboard & paper
  - E.g.: Rigid plastic needle packaging, Empty saline/water ampoules, Sterile gauze / glove paper wrapping
  - COST PER TONNE £50

- **Black bin**
  - ‘Soft plastics’
  - Waxed soft plastic wrapping
  - Glue sealed wrapping
  - E.g.: Used hand towels, Sterile glove plastic wrapping, Uncontaminated equipment wrapping
  - COST PER TONNE £75

- **Orange clinical waste bin**
  - Items soiled with human fluid
  - E.g.: Gloves, Drapes, Gauze
  - COST PER TONNE £290

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3 kg of CO$_2$ per 1 kg of clinical waste
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

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25 Go Green Ideas For the Office That Every Company Should Use (sustainablebusinesstoolkit.com)
4. Area of concern: PHARMACY WASTE

Suggestions/Recommendations:

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

Nearly £300 million of NHS prescribed medicines are wasted annually

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

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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

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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.

Suggestions/Recommendations:

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

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.

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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
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