The NHS produces 590,000t of waste, costing £700m annually. Single-use medical devices contribute the most waste.

Hospitals are the world’s 5th worst polluter.

What is the goal? To reduce single-use devices and their climate impact.

What are the benefits? Reinvesting saved waste processing funds.

Why is it difficult? There is no one-size-fits-all solution for sustainable medical devices.

How to reduce single-use devices?

Remanufacturing

- It “resets” tools as if they were new for safe reuse.
- It is everywhere! Take a kitchen knife:
  - Sharpen
  - Use
  - Wash
- Carefully regulated, this works for single-use medical devices too.

Remanufacturing may use a lot of resources too!

Is remanufacturing always more sustainable?

Custom emissions framework

Measuring custom carbon emissions is critical, so that on-paper results reflect real impacts.

Therefore, we customise device carbon footprints by:
- Modelling every life cycle in/output to calculate realistic emissions (Life Cycle Analysis).
- Identifying impactful life cycle parameters (Sensitivity Analysis).
- Future-proofing results by integrating long-term use statistics (Value Chain Analysis).

Sustainable procurement case study

UK electrophysiology devices cost (per year)

<table>
<thead>
<tr>
<th></th>
<th>New</th>
<th>Remanufactured</th>
</tr>
</thead>
<tbody>
<tr>
<td>£</td>
<td>£5.3 million</td>
<td>£2.9 million</td>
</tr>
<tr>
<td>-45%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Electrophysiology devices surgically restore healthy heart rhythms.
Most are discarded after one use – even though they are safe to remanufacture.

We explored 3 alternatives to reduce NHS emissions (varying location, transport, resources).

Electrophysiology device sustainability (per year)

<table>
<thead>
<tr>
<th></th>
<th>Best</th>
<th>Avg.</th>
<th>Worst</th>
<th>New</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon emissions (kg CO₂)</td>
<td>140k</td>
<td>100k</td>
<td>60k</td>
<td>20k</td>
</tr>
</tbody>
</table>

Up to 66,000kg CO₂ saved annually with the most sustainable remanufactured electrophysiology devices.

Personalised emissions empower hospitals to find their most sustainable device alternatives.

“Remove if you must, remanufacture if you may.”