In this article...

- Supporting nurses to make greener product choices
- How carbon life cycles of products can be estimated
- Using an innovative tool to guide sustainability options

Key points

- Nurses have a moral, professional and ethical mandate to protect and promote the health of their patients
- Nurses can use their buying power, clinical knowledge and experience to influence product choices
- Scope 3 emissions are derived from the sourcing of raw materials, production, transport, and use of services
- Analysing which products might create less impact on the planet requires an understanding of the product life cycle

Author Clare Nash is senior nurse in clinical procurement, The Black Country Alliance Procurement Team: Sandwell and West Birmingham NHS Trust, and The Dudley Group NHS Foundation Trust.

Abstract Understanding the impact of the care we deliver on our planet is critical in meeting NHS net-zero ambitions. Almost every patient contact will involve the use of a clinical product, and while many life cycle analysis papers are written on specific products or care pathways, very little is published on comparing one supplier’s product with another to select the greenest option. To address this gap in evidence, a tool was developed to take a deeper dive into a product’s life cycle, without needing to undertake a longer, more complex evaluation, aimed at nurses making everyday decisions in procuring for net-zero aims.

Citation Nash C (2023) It’s not easy being green – a tool for choosing sustainable clinical products. Nursing Times [online]; 119: 8.

Nurses have a moral, professional and ethical mandate to protect and promote the health of their patients and the population, yet the delivery of health and care requires equipment and consumables that deplete natural resources and create harmful waste and by-products. Heating, energy and water use, the manufacture and use of consumables and equipment, and the waste created all contribute to environmental pollution and worsen the impact on population health (Royal College of Nursing (RCN), 2023). Given healthcare is part of the growing pollution problem, all healthcare organisations and their staff have a vital role to play in understanding and reducing its impact (Health Care Without Harm, 2019).

In 2019, the UK Climate Change Act of 2008 was amended, introducing a target of 100% reduction in the net UK carbon account by 2050. This is referred to as the net-zero target (NHS England, 2020) and focuses on reducing greenhouse gas emissions, including carbon, methane, anaesthetic gases, and propellants in inhalers. In July 2022, the NHS became the first health system in the world to embed net zero into legislation, through the Health and Care Act 2022.

As the largest part of the health and care workforce, nurses are at the forefront of providing care to communities and the people most affected by climate change and are, therefore, well-placed to speak out and take action (RCN, 2023). Indeed, it is implicit in the Nursing and Midwifery Council (NMC) Code (2015). The section ‘preserving safety’ mandates that nurses must “make sure that patient and public safety are not affected” [by delivery of care]. The section ‘prioritise people’ states adopting population-based approaches can protect the health of communities, creating the conditions for effective and sustainable environmental recovery.

Many nurses want to play their part in reducing the carbon impact of healthcare, yet often their go-to place is recycling waste. Waste management and recycling should of course be considered. However,
waste disposal itself accounts for less than 3% of the global carbon footprint of healthcare and so nurses’ efforts are better concentrated on reducing energy use, water and waste but the greatest way to reduce carbon emissions is to decarbonise the supply chain (Nash, 2023; NHS England, 2020). Nurses can use their considerable buying power and clinical knowledge and experiences to influence decisions about product choice. They must be encouraged to work with local procurement teams or budget holders to choose environmentally sustainable, safe, and clinically effective products that will deliver overall value for money while reducing the impact of climate change.

Supply chain emissions
Between 62% and 71% of global carbon emissions primarily originate from the healthcare supply chain (NHS England, 2020; Health Care Without Harm, 2019). NHS England estimates are shown in Fig 1. These are referred to as an organisation’s scope 3 emissions, or NHS carbon footprint plus, and are illustrated in Fig 2 (NHS England, 2020). Scope 3 emissions are derived from the sourcing of raw materials, production, transport, and use of services (Carbon Trust, 2023; NHS England, 2020).

Medical devices, clinical equipment, instruments, and personal protective equipment (PPE) all contribute significantly to an organisation’s scope 3 emissions (NHS England, 2020). Roughly one-quarter of all healthcare scope 3 emissions worldwide are generated outside of the country where the healthcare product is ultimately consumed (Health Care Without Harm, 2019).

One driver for change in reducing scope 3 emissions, in addition to the government’s net-zero target, is that all public sector bodies, including the health service procurement teams, now have to consider both social value (NHS England, 2022; UK Government, 2020) and supplier carbon reduction plans (UK Government, 2021) in evaluations and tender documents alongside price and clinical effectiveness. It was identified that a simple decision-making support tool would enable teams to consider both the carbon and social impacts of products.

The UK Government (2020) procurement policy notice (PPN 06/20) set out five social value themes that central government, and then subsequently NHS organisations were mandated to adopt (Fig 3).

Need for a decision-making tool
Analysing which products might create less impact on the planet while improving social value requires an carbon reduction plans (UK Government, 2021) in evaluations and tender documents alongside price and clinical effectiveness. It was identified that a simple decision-making support tool would enable teams to consider both the carbon and social impacts of products.

The UK Government (2020) procurement policy notice (PPN 06/20) set out five social value themes that central government, and then subsequently NHS organisations were mandated to adopt (Fig 3).

They must ensure a minimum weighting of 10% of the total score is applied to social value considerations in tenders. This aim is to drive more equal opportunities, offer increased job opportunities, improve health and economic inequalities, as well as reduce the impact on the planet.

“Life cycle analysis is a complex science with its own international standard and is extremely time-consuming to do thoroughly and accurately. We needed an alternative”
Clinical Practice
Innovation

Fig 3. Social Value Themes

Source: NHS England (2022)

understanding of the product life cycle from cradle to grave. The LCA is a methodology to quantify a wide range of environmental impacts, including global warming, over the full life cycle of products, processes and systems to allow for data-driven environmental decisions (McGinnis et al, 2021).

LCA is a complex science with its own international standard ISO 14067:2018 (Carbonfootprint.com, 2023; McGinnis et al, 2021) and is extremely time consuming to do thoroughly and accurately. Fig 4 gives a diagrammatic representation of the life cycle of a generic product.

Drew and Rizan (2022) have created an online database of all healthcare LCA published papers, of which there are currently 190 across multiple specialties, including the LCA of a blood pressure cuff, a nitrile glove and cataract surgery. While knowing the LCA of a product or process allows us to measure a carbon footprint, it doesn’t allow a comparison when deciding between which products to purchase unless both products have been analysed using the same methodology or in accordance with the ISO standard. In addition, the authors admit that some studies are known to have methodological flaws, and users who are unfamiliar with the nuances of LCA research are less likely to recognise these flaws than those who are more familiar, leading to risk of greenwashing and inaccurate assumptions being drawn.

Lessons from other sectors

As consumers, we have many ways of comparing different products before we buy them. Online retailers and insurance providers, for instance, have perfected comparison sites and algorithms to enable us to make decisions about the things we value in a product, yet nothing like this exists in healthcare for clinical products.

The energy label (Fig 5) has been a mainstay of scoring household appliances and products for their energy efficiency for more than 25 years with a comparative scale, from A (most efficient) to G (least efficient) (European Commission, 2021). It has supported both consumers and professional buyers in searching for and choosing energy-efficient products and has driven.
Clinical Practice

Innovation

“To compare two products, each one must be scored against the themes in turn. Where no information is available, a zero is scored. Some categories may be more relevant than others for some products”

Fig 5. Dishwasher Energy rating label

New label for dishwashers

- **Energy efficiency scale**
  - A to G

- **Energy consumption**
  - of eco-programme per 100 cycles (kWh)

- **Rated capacity**
  - with standard place settings for the eco-programme

- **Duration of the eco programme**
  - (hours and minutes)

- **QR code**

- **Energy efficiency class**
  - of product

- **Water consumption**
  - per cycle in eco-programme (litres)

- **Airborne acoustical noise emissions**
  - (dB(A)) and noise emission class

Source: Energy Label (2020)

manufacturers and retailers to develop more innovative and efficient products.

Similar to energy labelling, the European Union has made it mandatory for the majority of pre-packed foods to have nutritional labelling which has to include energy value (in both kilojoules (kJ) and kilocalories (kcal)) and the amounts in grams (g) of fat, saturates, carbohydrate, sugars, protein and salt (Department of Health and Social Care, 2017).

Given the success, clarity and simplicity of the energy and food labelling systems, the need for a similar decision support tool in healthcare was identified, and a gap in evidence was noted from a literature search undertaken by the author’s trust library service.

**Decision support tool design**

The decision support tool has been created using a traffic light approach in a similar design to the tools discussed above, as a way of understanding the carbon footprints that have gone into creating the product. This allows a pragmatic approach (rather than full and time-consuming LCAs) to comparing products to support nurses, procurement professionals and other healthcare practitioners at the point of purchase or use.

The themes considered in the tool are derived from those identified by Newcastle upon Tyne Hospitals NHS Foundation Trust (2019) in its Sustainable Healthcare in Newcastle (SHINE) Report 2019-2020 and subsequent Sustainability Impact Assessment (SIA), shared with its permission. As the first NHS trust in the UK to declare a climate emergency in June 2019, its report and emerging themes recognised the threat that climate breakdown posed to public health, and it committed to becoming carbon neutral by 2040.

Newcastle’s approach was already in use at the author’s trusts as part of green plans and, therefore, fitted with existing commitments to achieve net zero from trust boards.

To compare two products, each one must be scored against the themes in turn. Where no information is available, a zero is scored. Some categories may be more relevant than others for some products.

For example, a medical device will have an energy rating and an expected product lifespan compared to another competitor brand. However, a syringe is easier to compare to another, focusing on its plastic weight, packaging, and transport emissions (such as country of origin). The purpose of the tool is to educate and prompt thinking about the product’s life cycle, rather than reproducible and replicable scores. Until such a time that every product is stamped with its LCA, it is well-reasoned estimate of the life cycle potential compared to another product.

During an evaluation of two brands of syringes (Table 1), the decision support tool was used. It was clear, particularly from the product weight and country of manufacture, that product A scored higher than product B and the trusts chose to stay with product A, despite a potential saving of around £17,000 should it have moved to product B. This clearly demonstrates the trusts’ commitment to their net-zero plan and using a tool to evidence environmental impacts of each supported the decision by its transparent scoring.

The decision support tool was created, designed and developed with input and feedback from clinical procurement colleagues across the UK, NHS England Greener NHS team, clinical products industry experts, procurement contracts managers, trust colleagues from medical, upon Tyne Hospitals NHS Foundation Trust (2019) in its Sustainable Healthcare in Newcastle (SHINE) Report 2019-2020 and subsequent Sustainability Impact Assessment (SIA), shared with its permission. As the first NHS trust in the UK to declare a climate emergency in June 2019, its report and emerging themes recognised the threat that climate breakdown posed to public health, and it committed to becoming carbon neutral by 2040.

Newcastle’s approach was already in use at the author’s trusts as part of green plans and, therefore, fitted with existing commitments to achieve net zero from trust boards.

To compare two products, each one must be scored against the themes in turn. Where no information is available, a zero is scored. Some categories may be more relevant than others for some products.

For example, a medical device will have an energy rating and an expected product lifespan compared to another competitor brand. However, a syringe is easier to compare to another, focusing on its plastic weight, packaging, and transport emissions (such as country of origin). The purpose of the tool is to educate and prompt thinking about the product’s life cycle, rather than reproducible and replicable scores. Until such a time that every product is stamped with its LCA, it is a well-reasoned estimate of the life cycle potential compared to another product.

During an evaluation of two brands of syringes (Table 1), the decision support tool was used. It was clear, particularly from the product weight and country of manufacture, that product A scored higher than product B and the trusts chose to stay with product A, despite a potential saving of around £17,000 should it have moved to product B. This clearly demonstrates the trusts’ commitment to their net-zero plan and using a tool to evidence environmental impacts of each supported the decision by its transparent scoring.

The decision support tool was created, designed and developed with input and feedback from clinical procurement colleagues across the UK, NHS England Greener NHS team, clinical products industry experts, procurement contracts managers, trust colleagues from medical, upon Tyne Hospitals NHS Foundation Trust (2019) in its Sustainable Healthcare in Newcastle (SHINE) Report 2019-2020 and subsequent Sustainability Impact Assessment (SIA), shared with its permission. As the first NHS trust in the UK to declare a climate emergency in June 2019, its report and emerging themes recognised the threat that climate breakdown posed to public health, and it committed to becoming carbon neutral by 2040.

Newcastle’s approach was already in use at the author’s trusts as part of green plans and, therefore, fitted with existing commitments to achieve net zero from trust boards.

To compare two products, each one must be scored against the themes in turn. Where no information is available, a zero is scored. Some categories may be more relevant than others for some products.

For example, a medical device will have an energy rating and an expected product lifespan compared to another competitor brand. However, a syringe is easier to compare to another, focusing on its plastic weight, packaging, and transport emissions (such as country of origin). The purpose of the tool is to educate and prompt thinking about the product’s life cycle, rather than reproducible and replicable scores. Until such a time that every product is stamped with its LCA, it is a well-reasoned estimate of the life cycle potential compared to another product.

During an evaluation of two brands of syringes (Table 1), the decision support tool was used. It was clear, particularly from the product weight and country of manufacture, that product A scored higher than product B and the trusts chose to stay with product A, despite a potential saving of around £17,000 should it have moved to product B. This clearly demonstrates the trusts’ commitment to their net-zero plan and using a tool to evidence environmental impacts of each supported the decision by its transparent scoring.

The decision support tool was created, designed and developed with input and feedback from clinical procurement colleagues across the UK, NHS England Greener NHS team, clinical products industry experts, procurement contracts managers, trust colleagues from medical, upon Tyne Hospitals NHS Foundation Trust (2019) in its Sustainable Healthcare in Newcastle (SHINE) Report 2019-2020 and subsequent Sustainability Impact Assessment (SIA), shared with its permission. As the first NHS trust in the UK to declare a climate emergency in June 2019, its report and emerging themes recognised the threat that climate breakdown posed to public health, and it committed to becoming carbon neutral by 2040.

Newcastle’s approach was already in use at the author’s trusts as part of green plans and, therefore, fitted with existing commitments to achieve net zero from trust boards.

To compare two products, each one must be scored against the themes in turn. Where no information is available, a zero is scored. Some categories may be more relevant than others for some products.

For example, a medical device will have an energy rating and an expected product lifespan compared to another competitor brand. However, a syringe is easier to compare to another, focusing on its plastic weight, packaging, and transport emissions (such as country of origin). The purpose of the tool is to educate and prompt thinking about the product’s life cycle, rather than reproducible and replicable scores. Until such a time that every product is stamped with its LCA, it is a well-reasoned estimate of the life cycle potential compared to another product.

During an evaluation of two brands of syringes (Table 1), the decision support tool was used. It was clear, particularly from the product weight and country of manufacture, that product A scored higher than product B and the trusts chose to stay with product A, despite a potential saving of around £17,000 should it have moved to product B. This clearly demonstrates the trusts’ commitment to their net-zero plan and using a tool to evidence environmental impacts of each supported the decision by its transparent scoring.

The decision support tool was created, designed and developed with input and feedback from clinical procurement colleagues across the UK, NHS England Greener NHS team, clinical products industry experts, procurement contracts managers, trust colleagues from medical,
nursing and allied health professions backgrounds, and sustainability experts from both within and outside of healthcare.

It won funding from the RCN as part of a pitch made in October 2022 to a Dragon’s Den-style panel, voted on by sustainability conference attendees, and was praised for its simplicity, widespread use and ease of translating into practice.

The next steps are to launch it on a free-to-access web-based browser, potentially hosted by NHS England and the Greener NHS team, with wider sharing of the tool via the Healthier Futures platform (NHS England networking platform).

It is acknowledged that this is the first version and that amendments will be required, as with any tool, to maximise its use and accuracy and, as knowledge and transparency in LCA science develop, it will potentially be superseded.

However, in the meantime, it is the first tool to support a comparison between two products at the point of purchase, and prior to use, encouraging the evaluation of all products for sustainability as well as safety, outcomes and cost.

“Nursing staff have a key role to play in influencing, educating and leading conversations with their procurement teams on decisions about which products to purchase.”

Conclusion
The climate emergency is a significant health emergency that needs everyone working together collaboratively to reduce the environmental impacts of delivering care. Nursing staff have a key role to play in influencing, educating and leading conversations with their procurement teams on decisions about which products to purchase. It is hoped that using this tool will not only enable comparisons to be made but that it is an educational tool in itself for considering the life cycle of the products we use.

Table 1. Syringe comparison calculation

<table>
<thead>
<tr>
<th></th>
<th>Product A (current supplier)</th>
<th>Score</th>
<th>Product B (alternative supplier and cheaper)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Energy</strong></td>
<td>Unknown</td>
<td>0</td>
<td>Unknown</td>
<td>0</td>
</tr>
<tr>
<td><strong>Water</strong></td>
<td>Unknown</td>
<td>0</td>
<td>Unknown</td>
<td>0</td>
</tr>
<tr>
<td><strong>Waste</strong></td>
<td>5ml syringe 4g 10ml syringe 7g</td>
<td>2</td>
<td>5ml syringe 6g 10 ml syringe 10g</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Less waste, and therefore less plastic. Assumption likely to have less carbon footprint.</td>
<td></td>
<td>Additional waste is 2.2 tons* due to increased weight of the product (*Number of 5 and 10 ml syringes used per annum x additional weight of each syringe)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Packaging recyclable 1</td>
<td></td>
<td>Packaging recyclable 1</td>
<td></td>
</tr>
<tr>
<td><strong>Transport emissions</strong></td>
<td>Manufactured in Europe (Spain)</td>
<td>1</td>
<td>Manufactured outside Europe (China)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Shipped</td>
<td>1</td>
<td>Shipped</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Less transport miles</td>
<td>1</td>
<td>An increase in transport miles (9,508 miles)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Sales team regional</td>
<td>1</td>
<td>Sales team regional</td>
<td>1</td>
</tr>
<tr>
<td><strong>Whole life costs</strong></td>
<td>Single use</td>
<td>0</td>
<td>Single use</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Online resources</td>
<td>2</td>
<td>Online resources</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Supplier shared carbon reduction plan</td>
<td>2</td>
<td>Supplier shared carbon reduction plan</td>
<td>2</td>
</tr>
<tr>
<td><strong>Models of care/social value</strong></td>
<td>None shared</td>
<td>0</td>
<td>None shared</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>Product A</td>
<td>11</td>
<td>Product B</td>
<td>7</td>
</tr>
</tbody>
</table>

References

December (accessed 30 May 2023).
Energy Label (2020) All you need to know about the energy label. energylabel.org.uk (accessed 30 May 2023).
Nash C (2021) Time to act: what nurses can do to reduce the environmental burden of PPE. Nursing Times; 17: 8, 8-18.